JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Emerging Infectious Diseases
- Clinical Infectious Diseases
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- Science

AMERICAN JOURNAL OF PUBLIC HEALTH
- Nothing new since May 21, 2009

BRITISH MEDICAL JOURNAL
- Nothing on H1N1 in the last 7 days.

EMERGING INFECTIOUS DISEASES
- 4 recent articles none on H1N1

CLINICAL INFECTIOUS DISEASES
- 5 recent articles none on H1N1

JOURNAL OF INFECTIOUS DISEASES
- Most recent issue dated July 1 – no articles on H1N1

LANCET, Vo.272, No. 9679, P. 1939 June 6, 2009
- Pandemic. (Mark Honigsbaum)

For the full text of this article please see e-mail attachment ‘Pandemic–The Lancet’.
**Lancet Infectious Diseases**
- Nothing new in the last week

**Morbidity and Mortality Report** June 5, 2009 / Vol. 58(21);585-589
- Update: Novel Influenza A (H1N1) Virus Infection – Mexico – March-May 2009
  [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5821a2.htm?s_cid=mm5821a2_x](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5821a2.htm?s_cid=mm5821a2_x)

This report updates a previous report on the outbreak in Mexico and summarizes public health actions taken to date by Mexico to monitor and control the outbreak.

**Nature June 4, 2009**
- U.S. ramps up swine flu protection: New technologies may help boost vaccine production. (Declan Butler)

*Nature News* analyses the likely impact of these efforts on domestic and world ability to mobilize sufficient swine flu vaccine - and the importance of deploying new technologies to boost production capacity.

**New England Journal of Medicine** May 27, 2009
- Managing and Reducing Uncertainty in an Emerging Influenza Pandemic (Marc Lipsitch, D.Phil., Steven Riley, D.Phil., Simon Cauchemez, Ph.D., Azra C. Ghani, Ph.D., and Neil M. Ferguson, D.Phil.)
  [http://content.nejm.org/cgi/content/full/NEJMp0904380v2](http://content.nejm.org/cgi/content/full/NEJMp0904380v2)

**PLOS One**
- Nothing on H1N1 this week

**Science**

*ScienceInsider* May 28, 2009
- CDC Too Optimistic About Flu Peak?

**Scientific American** – June 2, 2009
- Researchers Look for Ways to Deliver a One-Two Punch to Flu Viruses (Larry Greenemeier)

Development of antivirals to disrupt both neuraminidase and hemagglutinin.
**H1N1 “THE LITERATURE” – THIS WEEK AT A GLANCE**  
**JUNE 12, 2009**

**JOURNALS SCANNED:**

- American Journal of Public Health  
- British Medical Journal  
- Emerging Infectious Diseases  
- Clinical Infectious Diseases  
- Journal of Infectious Diseases  
- Lancet  
- MMWR  
- Nature  
- New England Journal of Medicine  
- PLoS One  
- Science

**AMERICAN JOURNAL OF PUBLIC HEALTH**

- Nothing new since May 21

**BRITISH MEDICAL JOURNAL**

- Monitoring public anxiety about the flu. (*Petrie and Faasse. June 11, 2009*)
  

  Greater monitoring of the web could provide a guide to public anxiety about flu outbreaks and social media could be used more intensively to provide relevant public health information to younger groups.

- WHO declares a world pandemic (*John Zarocostas. June 12, 2009*)
  
  [http://www.bmj.com/cgi/content/short/338/jun12_1/b2425?q=g_bmj_all](http://www.bmj.com/cgi/content/short/338/jun12_1/b2425?q=g_bmj_all)

  The head of the World Health Organization has declared the first influenza pandemic in 41 years after intense consultations with top officials from countries that are experiencing rapid transmission of the novel A (H1N1) flu virus at the community level, and with international experts monitoring the global outbreak.

**EMERGING INFECTIOUS DISEASES**

- Use of revised international health regulations during Influenza A (H1N1) epidemic, 2009 (*Rebecca Katz. August 2009*)
Strong international health agreements and good planning created a structure and common procedure for nations involved in detection and evaluation of the emergence of influenza A (H1N1). This report describes a timeline of events that led to the determination of the epidemic as a public health emergency of international concern, following the agreed upon procedures of the International Health Regulations. These events illustrate the need for sound international health agreements and should be a call to action for all nations to implement these agreements to the best of their abilities.

- Reproducibility of serologic assays for Influenza A (H5N1). Stephenson et al. August 2009 (Epub ahead of print)
  http://www.cdc.gov/eid/content/15/8/pdfs/08-1754.pdf

Hemagglutination-inhibition (HI) and neutralization are used to evaluate vaccines against influenza virus A (H5N1); however, poor standardization leads to interlaboratory variation of results.

**Clinical Infectious Diseases**

- Nothing new on H1N1 since last week

**Journal of Infectious Diseases**

- Randomized, Double-Blind Controlled Phase 3 Trial Comparing the Immunogenicity of High-Dose and Standard-Dose Influenza Vaccine in Adults 65 Years of Age and Older / (Falsey et al. June 9, 2009)
  http://www.journals.uchicago.edu/doi/full/10.1086/599790

A multicenter, randomized, double-blind controlled study was conducted to compare HD vaccine (which contains 60 μg of hemagglutinin per strain) with the licensed standard-dose (SD) vaccine (which contains 15 μg of hemagglutinin per strain) in adults ≥ 65 years of age.

- The Imperative of Influenza Vaccines for Elderly Individuals—An Evolving Story (Gregory A. Poland and Mark J. Mulligan. June 9, 2009)
  http://www.journals.uchicago.edu/doi/full/10.1086/599791

If past history is predictive, during the 2009–2010 influenza season ~1 out of every 8333 Americans will die as a result of influenza and its complications. Although influenza kills ~36,000 Americans every year, ≥90% of those deaths occur among individuals aged ≥ 65 years [1]. A long-standing recommendation in the United States has been to administer influenza vaccine to those aged ≥ 65 years on an annual basis.

**Lancet and Lancet Infectious Diseases**

- Nothing new on H1n1 since last issue

**Morbidity and Mortality Report MMWR**

- Nothing new on H1N1 in the past week
The H1N1 flu epidemic is not the world’s only disease threat. If you are a health official facing two highly contagious diseases — one that is already killing dozens of people, and another that threatens to kill people by the thousands or millions, but hasn’t yet done so — how do you allocate your resources? The answer can be a difficult balancing act, as the situation in China is showing.

On April 15 and April 17, 2009, novel swine-origin influenza A (H1N1) virus (S-OIV) was identified in specimens obtained from two epidemiologically unlinked patients in the United States. The same strain of the virus was identified in Mexico, Canada, and elsewhere. We describe 642 confirmed cases of human S-OIV infection identified from the rapidly evolving U.S. outbreak.

Human infection with the H5N1 or H9N2 avian influenza virus has been reported in the city of Guangzhou in southern China.1,2 To assess the risk of avian influenza virus infection among humans, we conducted a serologic surveillance study in Guangzhou.

Using simulation studies based on a classic influenza outbreak, we demonstrate the advantages of adaptive interventions over non-adaptive ones, in terms of cost and resource efficiency, and robustness to model misspecification.
**CASE COUNTS:**

As of June 23, 2009, approximately 95 countries have officially reported 52,160 cases of influenza A (H1N1) infection, including 231 deaths. Please see hyperlinks in table for most up to date case counts.

<table>
<thead>
<tr>
<th>Countries/Provinces</th>
<th>Case counts</th>
<th>Deaths</th>
<th>CFR*</th>
<th>Cumulative Hospitalized Cases**</th>
<th>Case Hospitalization Rate**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CANADA (PHAC)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- BC</td>
<td>221</td>
<td>0</td>
<td>-</td>
<td>6</td>
<td>2.7%</td>
</tr>
<tr>
<td>- AB</td>
<td>605</td>
<td>1</td>
<td>0.16%</td>
<td>10</td>
<td>1.6%</td>
</tr>
<tr>
<td>- SK</td>
<td>577</td>
<td>0</td>
<td>-</td>
<td>6</td>
<td>1.0%</td>
</tr>
<tr>
<td>- MB</td>
<td>371</td>
<td>2</td>
<td>0.54%</td>
<td>43</td>
<td>11.6%</td>
</tr>
<tr>
<td>- ON‡</td>
<td>2,665</td>
<td>5</td>
<td>0.19%</td>
<td>81</td>
<td>3.0%</td>
</tr>
<tr>
<td>- QC</td>
<td>1,660</td>
<td>9</td>
<td>0.54%</td>
<td>160</td>
<td>9.6%</td>
</tr>
<tr>
<td>- NB</td>
<td>4</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>- NS</td>
<td>104</td>
<td>0</td>
<td>-</td>
<td>1</td>
<td>1.0%</td>
</tr>
<tr>
<td>- PEI</td>
<td>3</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>- NL</td>
<td>7</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>- Yukon</td>
<td>1</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>- NWT</td>
<td>5</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>- Nunavut</td>
<td>234</td>
<td>0</td>
<td>-</td>
<td>18</td>
<td>7.7%</td>
</tr>
<tr>
<td><strong>U.S. (CDC)</strong></td>
<td>21,449</td>
<td>87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E.U. and EFTA (ECDC)</strong></td>
<td>4245</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>7624</td>
<td>113</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>4315</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>2733†</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>303</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL (WHO)</strong></td>
<td>52,160</td>
<td>231</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 3:00pm (EST) on June 22; CDC numbers updated last at 11:00 am on June 22; ECDC numbers updated last at 5:00pm (CEST) on June 22; WHO numbers updated last 7:00am (GMT) on June 22.
NOTE: Testing parameters are influenced by the most current knowledge of the H1N1 virus and risk groups. Therefore, the frequency of laboratory tests conducted and the risk groups that are being tested may change over time.

*CFR: Case Fatality Ratio was calculated by the number of confirmed deaths divided by the number of positive laboratory confirmed H1N1 cases.

**Source: PHAC FluWatch as of June 17 2009

‡ As of 8:30 am, June 22, 2009 a total of 2665 laboratory confirmed cases of novel H1N1 influenza A virus was reported. Source: MOHLTC Daily Summary, iPHIS data

† As of 1700 AEST on June 23 2009, a total of 2857 cases of Influenza A H1N1 cases have been reported with two suspected H1N1 related deaths. Source: Australian Government, Dep. of Health and Ageing. Majority of the cases are being reported in Victoria. Both death were of men and had underlying chronic diseases. Cumulative hospitalizations to date are 104.

CURRENT HOSPITALIZATIONS AND DEATHS IN ONTARIO

As of June 21, 2009, 8:30 am in Ontario:

- Eighty-one of confirmed cases have been hospitalized to date (3.0% case hospitalization rate).
- Of these, 52 cases have been discharged.
- The average length of stay was 4.6 days, ranging from under 24 hours to 20 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease diabetes, etc).
- Five deaths have been reported among confirmed cases (0.19% case fatality). For three of the cases, it is difficult to assess the role of H1N1 virus as the cause of those deaths. H1N1 virus was reported as the underlying cause of death for the other two cases.

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>ICU</th>
<th>Ventilator</th>
<th>Not in ICU or Ventilator</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>4</td>
<td>8</td>
<td>17</td>
<td>29</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>0</td>
<td>1</td>
<td>51</td>
<td>52</td>
</tr>
</tbody>
</table>

Source: MOHLTC Daily Summary, iPHIS data as of 8:30 am, June 22, 2009.
Center for Disease Control (CDC)

Weekly Flu View Map and Surveillance Report for Week Ending June 13, 2009
Map includes both seasonal flu and H1N1 flu activity. During week of 23, (June 7- June 13 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 98% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus.

Emerging Infectious Diseases. Stockpiling Supplies for the Next Influenza Pandemic.
Lewis J. Radonovich, Paul D. Magalian, Mary Kay Hollingsworth, and Gio Baracco
There is little publication or no specific guidance about the types of items and quantities of supplies needed has been available. This report provides an approach of 1 healthcare system in building a collection of supplies to be used for patient care during the next influenza pandemic. These concepts may help guide the actions of other healthcare systems.

Public Health Agency of Canada (PHAC)

FluWatch Week 23 (June 7 to June 13 2009)
There is an increase in transmission, however, the illness from the H1N1 flu virus has been mild thus far. Of those hospitalized cases, more than 50% were reported this week. Children less than 10 years were particularly affected, accounting for almost a third of the hospitalized cases. Cases with known information provided have at least one or more underlying medical condition.

World Health Organization (WHO)

WHO Influenza A(H1N1) - update 52 -- As of 07:00 GMT, 22 June 2009
The breakdown of the number of laboratory-confirmed cases by country is given in the following table and map.

WHO welcomes sanofi-aventis’s donation of vaccine. June 17, 2009
Sanofi-aventis to donate 100 million doses of pandemic H1N1 vaccine to WHO


Weekly Epidemiological Records- June 12 2009
Human infection with novel influenza A H1N1 virus: clinical observations from a school-associated outbreak in Kobe, Japan, May 2009. School-associated outbreaks of the novel virus occurred relatively early in its epidemiological timeline in Japan. Aggressive public health response to these outbreaks included hospital isolation of suspected/confirmed cases, treatment of almost all confirmed cases, chemoprophylaxis of close contacts, and cancellations of mass gatherings and school closures.

European Centre for Disease Prevention & Control (ECDC)

The Influenza A (H1N1) ECDC situation report from June 22, 2009. In the past 24 hours, 326 new cases were confirmed in fifteen EU and EFTA countries. The majority of all cases have been found in Spain and the UK.

Individual data, allowing for epidemiological analysis, were reported on 879 confirmed cases of influenza A(H1N1)v infection by 22 EU, EEA and EFTA countries from 5 May to 17 June 2009.
**European Influenza Surveillance Scheme, June 19 2009.** In week 24/2009, all countries reporting in the European region indicated low levels of influenza activity and 171 detections of influenza A(H1N1)v. This shows that despite a large number of influenza detections, not normally seen at this time of the year and due mainly to A(H1N1)v, influenza activity remains at or below baseline levels in Europe.

**ECDC launches document with summaries of key publications**

This document is a compilation of summaries from nine selected ECDC key reports on communicable diseases in Europe published in 2008.

ECDC released *Risk Assessment Guidelines for Infectious Diseases Transmitted on Aircrafts* on June 16, 2009

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**HEALTH/SURVEILLANCE BULLETINS:**

**SOUTHERN HEMISPHERE**

**Australia**

**June 23 2009:** Total confirmed cases as of 1700 AEST are 2857; National breakdown includes: Australian Capital Territory 115, New South Wales 513, Northern Territory 62, Queensland 379, South Australia 161, Tasmania 64, Victoria 1406 and Western Australia 157.

**June 17 2009:** Australia has developed a new response phase to manage the outbreak of H1N1 Influenza 09 called **PROTECT** (see link).

PROTECT is a measured, reasonable and proportionate health response to the risk that the infection poses to the Australian community. It is consistent with the message from the WHO when changed its pandemic alert from 5 to 6 that countries will need to adjust their responses to accommodate the knowledge about the disease.

**South America & the Americas**

**As of 22 June 2009, 43,393 confirmed cases** of Influenza A H1N1 2009 infection, including **235 deaths**, have been notified in **27 countries of the Americas.** [See PAHO link.](link)

**June 18 2008:** Interactive Map of confirmed H1N1 cases can be seen [here.](link) The map is distinguished by county and regions with most number of cases. Chili represents the country with the highest number of confirmed cases in South America.

**PROMED**

1) **Brazil - new strain discounted**

Date: Wed 17 Jun 2009
The Centers for Disease Control and Prevention (CDC) and other experts have rejected a report that a new strain of the novel [2009 swine-origin] H1N1 influenza virus has been identified in a Brazilian patient.
EUROSURVEILLANCE

Influenza A (H1N1) V in the southern hemisphere – a lesson for Europe?
E. Depoortere et al. , June 17, 2009
Outside the tropics, influenza infections show seasonal patterns which depend on the latitude but appear not to be influenced by longitude. The factors influencing this seasonality are not yet fully understood, but indoor crowding, lower temperatures, decreased humidity, and reduced levels of sunlight are believed to influence both transmission and host susceptibility. The article focuses on current situation of Chile and Australia and describe non-pharmacological measures taken in some of these regions.
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19246

Virological surveillance of human cases of influenza A(H1N1)v virus in Italy: preliminary results / Surveillance Group for New Influenza A(H1N1) Virus Investigation in Italy.
June 15, 2009
Hereby we report the characteristics of the first 54 cases of influenza A(H1N1)v virus infection identified in Italy and describe the virological surveillance activities carried out by the National Influenza Centre and the Italian Surveillance Influenza Network (INFLUNET). About 30% of patients were isolated in hospital and 70% were advised to stay at home for the period of seven days. All 54 patients received antiviral treatment. The very limited in-country transmission suggests that early diagnosis, antiviral prophylaxis and social distancing, including precautionary school closure, may have contributed to contain the spread of infection in the first phase of the epidemic.
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19247

Epidemiology of influenza A(H1N1)v virus infection in Japan, May - June 2009
The Ministry of Health, Labour and Welfare (MHLW) of Japan launched a case-based surveillance for influenza A(H1N1)v virus infection in addition to the existing sentinel surveillance system for seasonal influenza and imposed entry screening on travelers from affected areas (Canada, Mexico and the United States) starting from 28 April 2009. The two areas most affected were Osaka prefecture and Kobe city where outbreaks in high schools occurred leading to school closures. To date all cases have had symptoms consistent with seasonal influenza and no severe or fatal cases have been reported.
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19244

School closure is currently the main strategy to mitigate influenza A(H1N1)v: a modeling study
Sypsa V, Hatzakis A. June 09, 2009
Study uses key epidemiological parameters in the Mexico H1N1 epidemic to simulate the potential spread of influenza A(H1N1)v in a model community situated in Greece and explored the effectiveness of various intervention strategies that could inform policies and decisions in the setting of the European region.
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19240

A variety of respiratory viruses found in symptomatic travellers returning from countries with ongoing spread of the new influenza A(H1N1)v virus strain
Clinical specimens from 79 symptomatic individuals with a recent history of travel to countries with verified transmission of influenza A(H1N1)v (North America) were tested with a multiple real-time PCR targeting a broad range of agents that may cause acute respiratory infection. This analysis revealed that besides four cases of influenza A(H1N1)v, other respiratory viruses were diagnosed in almost 60% of the samples. These observations are a reminder that many different viral transmissions occur simultaneously in countries with ongoing spread of influenza A(H1N1)v. The findings from this study demonstrate that the definition of suspected cases by clinical and epidemiological criteria has a limited capacity to discriminate for influenza A(H1N1)v from other viral infections.

http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19242

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal (new this week)
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- Science

AMERICAN JOURNAL OF PUBLIC HEALTH

1) Pandemic Influenza and Pregnant Women: Summary of a Meeting of Experts
Sonja A. Rasmussen, Denise J. Jamieson, Kitty MacFarlane, Janet D. Cragan, Jennifer Williams, and Zsakeba Henderson
Covers the clinical management of pregnant women and related public health actions to be taken during a pandemic. The meeting focused on 4 main topics: prophylaxis and treatment with influenza antiviral and other medications, vaccine use, nonpharmaceutical interventions and health care planning, and communications. Major recommendation to reduce gaps in data are to improved information on the effects of influenza on the fetus and on the effectiveness, and safety of anti-influenza medications during pregnancy is urgently needed.
http://www.ajph.org/cgi/content/abstract/AJPH.2008.152900v2

2) Pandemic Influenza and Pregnancy: An Opportunity to Reassess Maternal Bioethics
Ruth M. Farrell and Richard H. Beigi
Authors reviewed the important ethical challenges presented by pregnant women and highlighted the considerations for all vulnerable groups when planning for a pandemic at both the local and the national level.
http://www.ajph.org/cgi/content/abstract/AJPH.2008.140780v2
3) Real-Time Public Health Surveillance for Emergency Preparedness
Jean-Paul Chretien, Nancy E. Tomich, Joel C Gaydos, and Patrick W. Kelley
Epidemics have motivated supplementary approaches to traditional surveillance methods based on physician and laboratory reporting. If redesigned to reliably perform beyond outbreak detection, syndromic systems could demonstrate unprecedented capabilities in responding to public health emergencies.
http://www.ajph.org/cgi/content/abstract/AJPH.2008.133926v1

CANADIAN MEDICAL ASSOCIATION JOURNAL (CMAJ)

1) Safety of neuraminidase inhibitors against novel influenza A (H1N1) in pregnant and breastfeeding women.
This report summarizes information about the safety of neuraminidase inhibitors against novel influenza A H1N1 virus in pregnant and breastfeeding women. Currently, oseltamivir or zanamivir are recommended antiviral treatment and chemoprophylaxis against the novel H1N1 influenza for people at high risk, such as pregnant women and infants. Key points that were addressed in this report suggest that limited data suggest that oseltamivir is not a major human teratogen. Data suggests that oseltamivir is preferred over zanamivir during pregnancy. Also, both drugs are considered compatible with breastfeeding. Authors recommend further studies to assess the use of oseltamivir and zanamivir.
http://www.cmaj.ca/cgi/rapidpdf/cmaj.090866v1

CLINICAL INFECTIOUS DISEASES

1) Serum Sickness–Like Reaction Associated with Inactivated Influenza Vaccination among Thai Health Care Personnel: Risk Factors and Outcomes
Anucha Apisarnthanarak, Timothy M. Uyeki, Elaine R. Miller, and Linda M. Mundy.
3% or 14 of 405 Thai health care workers were identified as having serum sickness-like reaction in 2008 after receipt of inactivated influenza vaccine manufactured in Thailand.
http://www.journals.uchicago.edu/doi/pdf/10.1086/599615

EMERGING INFECTIOUS DISEASES

1) Case-based Surveillance of Influenza Hospitalizations during 2004–2008, Colorado, USA
R. Proff et al.
Colorado was the first state to make laboratory-confirmed influenza-associated hospitalizations reportable in 2004. The study summarizes surveillance for influenza hospitalizations in Colorado during the first 4 recorded influenza seasons (2004–2008). We highlight the similarities and differences among influenza seasons; no 2 seasons were entirely the same. The 2005–06 influenza season had 2 distinct waves of activity (types A and B), the 2006–07 season was substantially later and milder, and 2007–08 had substantially greater influenza B activity. The study also suggests that more states should consider implementing case-based surveillance for influenza hospitalizations.
2) Oseltamivir- and Amantadine-Resistant Influenza Viruses A (H1N1)
P.K.C. Cheng et al.
Surveillance of amantadine and oseltamivir resistance among influenza viruses was begun in Hong Kong in 2006. In 2008, while both A/Brisbane/59/2007-like and A/Hong Kong/2652/2006-like viruses (H1N1) were co-circulating, the study detected amantadine and oseltamivir resistance among A/Hong Kong/2652/2006-like viruses (H1N1), caused by genetic reassortment or spontaneous mutation. Systematic monitoring would make it possible to track the spread of influenza viruses globally and to clarify the underlying mechanism for the spread of such resistance.

3) Novel and Re-emerging Respiratory Viral Diseases: Novartis Foundation Symposium 290
D.M. Morens
This book primarily highlights scientific issues concerning influenza and severe acute respiratory syndrome (SARS).

JOURNAL OF INFECTIOUS DISEASES

Nothing new on H1N1 since last week.

LANCET

1) Avoiding panic in a pandemic / Editorial. 20 June 2009
Many countries have pandemic preparedness plans which were created with the virulent H5N1 avian influenza in mind. While the current pandemic has been labeled as “moderate severity” by WHO, complacency is unwise given the existence of severe and fatal infections among previously young and middle-age adults and the possibility of a more severe second wave in the fall. It is recommended that countries tailor their pandemic plans to reflect the severity of novel influenza A H1N1 in their populations and be prepared should the situation worsen.
http://www.thelancet.com/journals/lancet/article/PIIS0140673609611302/fulltext?rss=yes

2) Patient-oriented pandemic influenza research
Hien, Tran et al. 20 June 2009 NO ACCESS YET
Authors feel there has been a dearth of any systematic, patient-oriented clinical research accompanying the current public health response to the pandemic. Nearly none of the patients confirmed to have contracted were recruited into clinical studies and, the authors believe that none were enrolled into randomised controlled trials.
http://www.thelancet.com/journals/lancet/article/PIIS0140673609611314/fulltext?rss=yes

3) Letter: Diagnosis of swine-lineage influenza A (H1N1) virus infection
Justin McCracken. 20 June 2009
This letter is in response to criticism of the Health Protection Agency's (HPA's) communications with health professionals during the initial stages of the swine-origin influenza outbreaks in the UK. The author notes that relevant algorithms to assist health professionals to deal with suspected cases have been developed in conjunction with the Royal College of General Practitioners and have been posted on the HPA website throughout the outbreak.
http://www.thelancet.com/journals/lancet/article/PIIS0140673609611417/fulltext?rss=yes
4) Letter: Diagnosis of swine-lineage influenza A (H1N1) virus infection  
Zuckerman, M. & Carman, B.. 20 June 2009  
In response to the Editorial “Pre-empting a pandemic—fact or fiction?”, the authors discuss how collaboration between the Health Protection Agency (HPA) and the UK Clinical Virology Network (UKCVN) ensured the provision of a timely service to type specimens to aid in the rapid detection of swine-lineage influenza A (H1N1) virus.  
http://www.thelancet.com/journals/lancet/article/PIIS0140673609611429/fulltext?rss=yes

5) Letter: Defining priorities: swine-origin H1N1 and the MDR-TB epidemic  
Giovanni Battista Migliori et al. 20 June 2009  
While vigilance in monitoring and responding to the novel H1N1 influenza virus is important, existing global health priorities should not be neglected. Tuberculosis is used to illustrate how other respiratory pathogens result in comparatively larger burdens of illness when compared to novel H1N1 influenza virus. The authors call for a wiser use of available surveillance data and note that public health interventions should be guided by scientific evidence and take cost-effectiveness into account.  
http://www.thelancet.com/journals/lancet/article/PIIS0140673609611442/fulltext?rss=yes

MMWR

www.cdc.gov/mmwr/preview/mmwrhtml/mm5823a2.htm - Vol 58, No 23;641, June 19, 2009  
To understand the risk for acquiring novel influenza A (H1N1) among health-care personnel (HCP) and the impact of infection-control recommendations, CDC solicited reports of infected HCP from state health departments. Of the 26 cases, 13 (50%) were deemed to acquire the infection in a health-care setting. 11 HCP with patient-to-HCP acquisition reported information on their use of PPE when caring for the presumed source patient - three reported always using either a surgical mask (two) or an N95 respirator (one).

NATURE

1) Editorial : Animal farm: pig in the middle  
http://www.nature.com/nature/journal/v459/n7249/full/459889a.html, 17 June 2009  
The author argues that competing agendas (i.e. commerce, trade) can prohibit research and surveillance of human diseases that originate in animals. The 2009 flu pandemic highlights the urgent need for an independent international body for research into human diseases that originate in animals.

2) Emergence and pandemic potential of swine-origin H1N1 influenza virus / Gabriele Neumann, Takeshi Noda & Yoshihiro Kawaoka, 17 June 2009  
http://www.nature.com/doifinder/10.1038/nature08157  
Influenza viruses cause annual epidemics and occasional pandemics that have claimed the lives of millions. The emergence of new strains will continue to pose challenges to public health and the scientific communities. A prime example is the recent emergence of swine-origin H1N1
viruses that have transmitted to and spread among humans, resulting in outbreaks internationally. Efforts to control these outbreaks and real-time monitoring of the evolution of this virus should provide us with invaluable information to direct infectious disease control programmes and to improve understanding of the factors that determine viral pathogenicity and/or transmissibility.

NEW ENGLAND JOURNAL OF MEDICINE

1) The Signature Features of Influenza Pandemics — Implications for Policy
M.A. Miller and Others
Free Full Text
Past pandemics are typically characterized by 5 features: a shift in the virus subtype, shifts of the highest death rates to younger populations, successive pandemic waves, higher transmissibility than that of seasonal influenza, and differences in impact in different geographic regions. Examining these features in past pandemics provide useful insights for current and future planning and preparedness.

2) Emergence of a Novel Swine-Origin Influenza A (H1N1) Virus in Humans
Novel Swine-Origin Influenza A (H1N1) Virus Investigation Team
Free Full Text
Surveillance data collected from April 15 to May 5 was used to describe the epidemiology of 642 confirmed cases of human S-OIV infection in the U.S. outbreak. 60% of patients were 18 years of age or younger. Of patients with available data, 18% had recently traveled to Mexico, and 16% were identified from school outbreaks of S-OIV infection. The most common symptoms were fever, cough and sore throat; approximately 38% of cases also reported vomiting or diarrhea, neither of which is typical of seasonal influenza. Of those with known hospitalization status, 36 (9%) required hospitalization. 12 of 22 hospitalized patients had characteristics that conferred an increased risk of severe seasonal influenza, 11 had pneumonia, 8 required admission to ICU, 4 had respiratory failure, and 2 died.

3) Triple-Reassortant Swine Influenza A (H1) in Humans in the United States, 2005–2009
V. Shinde and Others
Free Full Text
Routine national surveillance data and case investigations is used to report on the clinical features of the first 11 sporadic cases of infection of humans with triple-reassortant swine influenza A (H1) viruses occurring from December 2005 through February 2009 A (H1N1) among humans. The median age was 10 years; 4 cases had underlying health conditions. Nine of the patients had had exposure to pigs, while human-to-human transmission was suspected in one case. The range of the incubation period was 3 to 9 days. Common symptoms included fever, cough, headache and diarrhea. Four patients were hospitalized, two of whom underwent invasive mechanical ventilation. All 11 recovered from their illness.
1) Contact Profiles in Eight European Countries and Implications for Modelling the Spread of Airborne Infectious Diseases
Mirjam Kretzschmar, Rafael T. Mikolajczyk
Surveys were performed in eight European countries to assess the number of social contacts (talking to another person at close distance either with or without physical contact), using a diary approach. Seven distinct contact profiles were identified: respondents having (1) mixed: contacts predominantly at school, during transportation and leisure time, (2) contacts during leisure time, (3) contacts mainly in the household (large family), (4) contacts at work, (5) contacts solely at school, (6) contacts in other places and finally (7) respondents having a low number of contacts in any setting. Profiles were dominated by work, school and household contacts, but contacts during leisure activities also played an important role.

SCIENCE

1) SWINE FLU: After Delays, WHO Agrees: The 2009 Pandemic Has Begun / Jon Cohen and Martin Enserink
World Health Organization (WHO) chief Margaret Chan declared last week that the world is facing an influenza pandemic. Many leading influenza scientists and public health experts say that the scientific criteria for phase 6 been satisfied for several weeks and that WHO postponed its decision unnecessarily. But WHO says that science wasn't the only factor and that the timing was carefully calibrated to ensure that countries were well-prepared to prevent overreaction.
HTTP://WWW.SCIENCEMAG.ORG/CGI/CONTENT/SHORT/324/5934/1496

2) Beware of Stories About "New" Swine Flu Strain
A flurry of news reports today claim that Brazilian researchers have found a "new" strain of the novel H1N1 virus, but the U.S. Centers for Disease Control and Prevention says this is inaccurate.
JUNE 17, 2009
HTTP://BLOGS.SCIENCEMAG.ORG/SCIENCEINSIDER/2009/06/BEWARE-OF-STORI.HTML

3) Second Vaccine Maker Promises Free Swine Flu Shots for Developing World
Vaccine maker sanofi-aventis plans to donate 100 million doses of its A(H1N1) pandemic vaccine, currently in development, to the World Health Organization for use in developing nations that cannot afford to buy it themselves. The donation, which came on the heels of a similar move by GlaxoSmithKline, was announced yesterday during the opening session of the Pacific Health Summit in Seattle, Washington.
JUNE 18, 2009
HTTP://BLOGS.SCIENCEMAG.ORG/SCIENCEINSIDER/2009/06/SECOND-VACCINE.HTML

4) Ain't No Cure for the Summertime Flu
The novel H1N1 swine flu virus looks like it's going to hang out in the United States all summer. CDC testing shows that 89% of the novel H1N1 influenza virus is still circulating in the United States. Northeastern states continue to see increased numbers of swine flu cases, which may be related to the cooler climate in that region and influenza's penchant for lower temperatures.
JUNE 18, 2009
HTTP://BLOGS.SCIENCEMAG.ORG/SCIENCEINSIDER/2009/06/AINT-NO-CURE-FO.HTML
NEWS CLIPS

JUNE 23 2009

The Toronto Star
Swine flu toll hits 16 as a Brampton girl dies; 6-year-old among latest victims linked to H1N1 virus

The Sault Star
First Nations leaders want action on H1N1 virus

The Ottawa Citizen
Swine fly forces CHEO to call up staff; Number of patients with H1N1 symptoms has put considerable strain on resources

The Hamilton Spectator
City Schools battle suspected H1N1; Respiratory outbreak confirmed at four schools, under investigation at fifth

The Thunder Bay Chronicle-Journal
Bringing pandemic vaccine to flu clinics first requires animal, human testing
CASE COUNTS:

As of June 29, 2009, over 95 countries have officially reported 70,893 cases of influenza A (H1N1) infection, including 311 deaths. Please see hyperlinks in table for most up to date case counts.

<table>
<thead>
<tr>
<th>Countries/Provinces</th>
<th>Case counts</th>
<th>Deaths</th>
<th>Hospitalizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA (PHAC)</td>
<td>7,983</td>
<td>25</td>
<td>547</td>
</tr>
<tr>
<td>- BC</td>
<td>270</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>- AB</td>
<td>880</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>- SK</td>
<td>739</td>
<td>2</td>
<td>9</td>
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<td>- MB</td>
<td>599</td>
<td>2</td>
<td>83</td>
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<td>- ON</td>
<td>3154</td>
<td>9*</td>
<td>147*</td>
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<td>- QC</td>
<td>1834</td>
<td>11</td>
<td>247</td>
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<td>- NB</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- NS</td>
<td>138</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- PEI</td>
<td>3</td>
<td>0</td>
<td>0</td>
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<tr>
<td>- NL</td>
<td>32</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Yukon</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- NWT</td>
<td>7</td>
<td>0</td>
<td>0</td>
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<tr>
<td>- Nunavut</td>
<td>310</td>
<td>0</td>
<td>20</td>
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<tr>
<td>U.S. (CDC)</td>
<td>27,717</td>
<td>127</td>
<td></td>
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<tr>
<td>E.U and EFTA (ECDC)</td>
<td>6173</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>8279</td>
<td>116</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>5186</td>
<td>7</td>
<td></td>
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<tr>
<td>Australia</td>
<td>4038</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>587</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TOTAL (WHO)</td>
<td>70,893</td>
<td>311</td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 3:00pm (EST) on June 29; CDC numbers updated last at 11:00 am on June 26; ECDC numbers updated last at 5:00pm (CEST) on June 29; WHO numbers updated last 7:00am (GMT) on June 29.
NOTE: Testing parameters are influenced by the most current knowledge of the H1N1 virus and risk groups. Therefore, the frequency of laboratory tests conducted and the risk groups that are being tested may change over time.

*Source: MOHLTC as of June 29 2009

CURRENT HOSPITALIZATIONS AMONG NOVEL H1N1 INFLEUNZA A VIRUS CASES IN ONTARIO, AS OF JUNE 29, 2009

As of June 29, 2009 in Ontario:

- 147 confirmed cases have been hospitalized to date
- Of these, 99 cases have been discharged.
- The average length of stay was 4.5 days, ranging from under 24 hours to 20 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease, diabetes, etc).
- Of the 48 cases that are currently hospitalized

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>48</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>99</td>
</tr>
</tbody>
</table>

Source: MOHLTC Daily Summary, iPHIS data as of 8:30 am, June 25, 2009.

Government Updates

Centre for Disease Control (CDC)

Weekly Flu View Map and Surveillance Report for Week Ending June 20th, 2009
Map includes both seasonal flu and H1N1 flu activity. During week 24, (June 14- June 20 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 99% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. Five influenza-associated pediatric deaths were reported and four of the five deaths were associated with pandemic influenza A (H1N1) virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was below the national baseline. Two of the 10 surveillance regions reported ILI above their region-specific baseline.

General Business and Workplace Guidance for the Prevention of Novel Influenza A (H1N1) Flu in Workers. This guidance as been updated as of Jun 25, 2009 to state that a worker who has been exposed to a person with pandemic influenza A (H1N1) may continue to go to work unless he/she becomes ill.

CDC: Strategy to enhance influenza surveillance worldwide. Ortiz, JR, Sotomayor, V., Uez, OC, et al. Full text available online. August 2009. The article describes a sentinel surveillance system that could enhance the quality of influenza epidemiologic and laboratory data and strengthen a country’s
capacity for seasonal, novel, and pandemic influenza detection and prevention. Hospital-based sentinel surveillance is explained as the most efficient way to collect clinical data and laboratory specimens from persons with a prevalent and severe infectious disease.

**B.C. Centre for Disease Control (BC CDC)**

*June 30 2009 News Alert*: H1N1 continues to be transmitted throughout the province, and in recent weeks BC has seen an increase in the number of lab confirmed cases of H1N1, as well as an increase in doctor visits by patients experiencing influenza-like illness. BC is working closely with health professionals and camp organizers across the province to draft guidelines on reducing the spread of influenza in summer camps.

**Public Health Agency of Canada (PHAC)**

*FluWatch Week 24 (June 14 to June 20 2009)*
There is an increase in transmission, however, the illness from the H1N1 flu virus has been mild thus far. Of those hospitalized cases, more than 35% were reported this week. Children less than 10 years were particularly affected, accounting for almost a third of the hospitalized cases. Cases with known information provided have at least one or more underlying medical condition.

**World Health Organization (WHO)**

*WHO Influenza A(H1N1) - update 54 -- As of 07:00 GMT, 29 June 2009*
The breakdown of the number of laboratory-confirmed cases by country is given in the following table and map.

**European Centre for Disease Prevention & Control (ECDC)**

*The Influenza A (H1N1) ECDC situation report from June 29, 2009.* Cumulative number of cases in EU and EFTA countries are now 6118, including two deaths. The majority of all cases have been found in Spain and the UK.

**ECDC Director speech "Strengthening Europe's defences against influenza and other infectious diseases"** from June 24 2009. Speech to International Conference on Strengthening Cooperation in the European Union against Infectious Diseases, Warsaw, 24 June

**HEALTH/SURVEILLANCE BULLETINS:**

**SOUTHERN HEMISPHERE**

**Australia**

*June 29 2009*: Seven Australian deaths have been recorded to date. Five have been in Victoria, one in South Australia and one in West Australia. All deaths had underlying medical conditions as well as testing positive to H1N1 Influenza.

*June 29 2009*: Total confirmed cases as of 1700 AEST are 4038; National breakdown includes: Australian Capital Territory 161, New South Wales 908, Northern Territory 160, Queensland 588, South Australia 311, Tasmania 82, Victoria 1599 and Western Australia 229.
Currently 50 people in hospital around Australia with H1N1 Influenza and 18 of these are in intensive care units. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 200.

**June 25 2009:** Indigenous Australians recognized in H1N1 Influenza Health Response

Australia’s Chief Medical Officer has today reiterated that Indigenous Australians living in remote communities are being targeted in this new health management phase, PROTECT, with responses that are flexible to meet the individual circumstances in communities The Commonwealth has made Tamiflu available to various regions in Australia from the National Medical Stockpile for pre-deployment in communities. The use of Tamiflu will be judged clinically on a case by case basis, depending on the risk of influenza to vulnerable individuals.

**June 17 2009:** Australia has developed a new response phase to manage the outbreak of H1N1 Influenza 09 called **PROTECT** (see link).

PROTECT is a measured, reasonable and proportionate health response to the risk that the infection poses to the Australian community. It is consistent with the message from the WHO when changed its pandemic alert from 5 to 6 that countries will need to adjust their responses to accommodate the knowledge about the disease.

**South America & the Americas**

**As of June 26 2009:** In Chile, children between 5-19yrs have been most affected, constituting 61% of cases. Chile has 5,186 confirmed cases and 7 deaths. Age range of cases: 1-93yrs, Median: 13yrs. In Brazil, of 271 confirmed cases, 50% have been under 27yrs. Age range: 1-65yrs. (Based on national and regional data reported June 23-26, 2009.) Argentina has 1,488 confirmed cases and 23 deaths.

**Argentina: Health Minister Resigns Over Handling of Flu Cases**

June 29 2009: Argentina’s health minister, Graciela Ocana, resigned yesterday, citing differences with the government on the handling of pandemic flu and a previous dengue fever outbreak. Meanwhile, a crisis committee will meet today to discuss raising the response level, according to a local media report, which could close schools and other public places and curb mass gatherings.

As of 26 June 2009, 53,685 confirmed cases of Influenza A H1N1 2009 infection, including 302 deaths, have been notified in 28 countries of the Americas. See PAHO link.

**June 25 2008:** Interactive Map of confirmed H1N1 cases can be seen here. The map illustrates the number of H1N1 confirmed cases by county and regions with most number of cases. Chile represents the country with the highest number of confirmed cases in South America.

**OTHER:**

**Saudi Arabia asks high-risk groups to skip hajj**

June 30 2009: Saudi Arabian health officials who just concluded a 4-day meeting with international health experts to discuss pandemic flu risks related to the hajj today advised that children, pregnant women, elderly people, and those with chronic health conditions avoid the annual pilgrimage. The 4-day hajj starts in late November this year and is expected to attract about 3 million pilgrims.
Indonesia to ask foreign visitors to wear masks
June 30 2009: Indonesia's health minister that visitors arriving at the country's airports from nations hit by novel flu will be asked to wear a mask for 3 days. The masks are a precautionary measure to reduce human-to-human transmission. The masks will be handed out to international visitors as soon as funding for them comes through; however, those who don't wear them will not be penalized.

Center for Infectious Disease Research and Policy (CIDRAP)

June 29 2009: Novel H1N1 flu can cause severe respiratory illness
Novel H1N1 influenza can cause severe respiratory illness, profound lung damage, and death even in patients with no underlying conditions to make them vulnerable, a team of physicians from Mexico report in a rush article published online today by the New England Journal of Medicine (NEJM).

June 26, 2009: CDC: Flu activity picks up pace, hits summer camps
An official from the US Centers for Disease Control and Prevention (CDC) said today that the nation just saw its largest weekly increase in cases since the beginning of the novel flu outbreak and that the virus has so far been detected at 34 summer camps in 16 states.

June 26, 2009: Texas program aims for Web-based school flu surveillance
A web-based system that permits school nurses to submit daily reports on absenteeism and ILI directly to the health department. The same system allows public health to analyze the data in a more automated fashion and to provide abundant information to school nurses via the web.

June 25 2009: Pandemic reveals strengths of new flu database
The Global Initiative on Sharing All Influenza Data (GISAID), a nonprofit foundation based in Washington, DC, that was formed to share genetic data from H5N1 and other influenza viruses. The database, which contains both human and animal influenza sequences as well as epidemiologic and clinical data, plays a vital role in sharing and archiving influenza viruses. GISAID's EpiFlu database provides a more complete picture of the flu data. It includes some flu sequences that have not been made available to the public and permits scientists to submit extra information, such as clinical features, when they upload sequences.

June 25, 2009: CDC updates advice on antiviral treatment for flu
According to the CDC update, only patients who test positive for influenza A/H3N2, pandemic H1N1, or B should receive oseltamivir. Zanamivir (Relenza) is preferred for patients who test positive for seasonal H1N1 influenza.

PROMED

1) INFLUENZA A (H1N1) - TAMIFLU RESISTANCE, DENMARK
Date: June 29 2009
Source: BBC News [edited]
http://news.bbc.co.uk/1/hi/health/8124987.stm
2) **Canada - Ontario: institutional respiratory outbreaks**  
**Date:** Wed 24 Jun 2009  
**From:** Jonathan Gubbay  
Respiratory infection outbreaks in institutions during the novel influenza A H1N1 virus pandemic in Ontario

3) **US Department of Health and Human Services (HHS)**  
HHS Announces Advanced Development Contract for New Way to Make Flu Vaccine

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**Journals scanned:**

- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Clinical Virology
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- Science

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**American Journal of Public Health**

Nothing new since June 18

**British Medical Journal (BMJ)**

1) **Podcast:** [Swine flu: update interview with the HPA](#)  
June 23 09  Birte Twisselmann

This podcast is an update on “Swine flu” and discusses the move from containment to mitigation. This podcast is also available as a BMJ Learning module. As the status of the pandemic, and the official guidance for health professionals, is subject to change, UK GPs should refer directly to the Health Protection Agency (HPA) website (HPA.org.uk) for the most up to date information.
Clinical Infectious Diseases

1) A Quantitative Assessment of the Efficacy of Surgical and N95 Masks to Filter Influenza Virus in Patients with Acute Influenza Infection
D. F. Johnson, J. D. Druce, C. Birch, and M. L. Grayson, 2009; 49:275–277

The study assessed the in vivo efficacy of surgical and N95 (respirator) masks to filter reverse transcription-polymerase chain reaction (RT-PCR) detectable virus when worn correctly by patients with laboratory-confirmed acute influenza. Of 26 patients with a clinical diagnosis of influenza, 19 had the diagnosis confirmed by RT-PCR, and 9 went on to complete the study. Surgical and N95 masks were equally effective in short periods in preventing the spread of PCR-detectable influenza.

2) Emerging Infections: Human Infection with Highly Pathogenic Avian Influenza A (H5N1) Virus: Review of Clinical Issues
Timothy M. Uyeki, 2009;49:279–290

This article provides an updated review of the clinical issues related to human infection with highly pathogenic avian influenza A (H5N1) virus. The clinical data available to date are presented, as well as recent findings on the pathogenesis of and antiviral treatment and immunotherapy for H5N1 virus infection in humans and animal models.

Emerging Infectious Diseases

1) Use of Revised International Health Regulations during Influenza A (H1N1) Epidemic, 2009
R. Katz et al.  August 2009, Full text available online free

This report describes a timeline of events that led to the determination of the epidemic as a public health emergency of international concern, following the agreed upon procedures of the International Health Regulations. These events illustrate the need for sound international health agreements and should be a call to action for all nations to implement these agreements to the best of their abilities.

2) Reproducibility of Serologic Assays for Influenza Virus A (H5N1)
I. Stephenson et al.  August 2009, Full text available online free

Hemagglutination-inhibition (HI) and neutralization are used to evaluate vaccines against influenza virus A (H5N1). Having effective vaccines against influenza virus A (H5N1) is a public health priority. However, interlaboratory assay variation limits comparison of vaccine strategies without direct comparative studies. This study compared the reproducibility of hHI and neutralization against a candidate standard.

Eurosurveillance
Nothing new since June 17

Journal of Infectious Diseases
Nothing new since June 18
Journal of Clinical Virology

1) **Evaluation of multiple test methods for the detection of the novel 2009 influenza A (H1N1) during the New York City outbreak.** June 16 2009

Little was known about the performance of the assays for the detection of novel H1N1 in the background of seasonal H1N1, H3N2 and other circulating respiratory viruses. This study analyzed the performances of the BinaxNOW Influenza A&B test, the 3M Rapid Detection Flu A + B test (3MA + B), direct immunofluorescence, R-Mix culture and the Luminex xTAG Respiratory Virus Panel (RVP). nRapid antigen tests, DFA, R-Mix culture and the xTAG RVP test all detected the novel H1N1 strain, but with highly varied sensitivity. The RVP test provided the best diagnostic option as RVP demonstrated superior sensitivity for the detection of all influenza strains, including the novel H1N1, provided accurate influenza A subtyping and identified a significant number of additional respiratory pathogens.

Lancet

1) **Prepared for a pandemic? I don’t think so**
Baker, S., Early Online Publication, 19 June 2009,

This is a commentary on the experience of a British physician when her child’s school confirms its first H1N1 case.

2) **Avoiding Panic in a Pandemic**, Editorial

This editorial explains that countries should tailor their pandemic plans to the severity of an influenza A (H1N1) outbreak in their populations. But the authors explain that countries must also remain vigilant and be prepared for the situation to worsen.

Lancet Infectious Diseases

1) **Reacting to the emergence swine-origin influenza A H1N1**
Ong, Catherine et al., Volume 9, Issue 7, Pages 397 - 398, July 2009

The initial perception of high mortality among young Mexicans coupled with its rapid spread worldwide raised the spectre of the devastating severe acute respiratory syndrome (SARS) epidemic of 2003. Influenza A H1N1 is virologically and epidemiologically a different virus from SARS. It remains to be seen if the measures taken by previously SARS-affected countries will be cost-effective in the control of pandemic influenza. The authors suggest a crucial need for well designed prospective quasiexperimental studies to evaluate these responses.

Morbidity and Mortality Report (MMWR)

Nothing new since last week.
1) **Origins and evolutionary genomics of the 2009 swine-origin H1N1 influenza A epidemic**  

Results highlight the need for systematic surveillance of influenza in swine, and provide evidence that the mixing of new genetic elements in swine can result in the emergence of viruses with pandemic potential in humans. The results suggest that transmission to humans may have occurred several months before recognition of the current outbreak.

2) **Infectious diseases: Swine flu origin unwrapped**  
Felix Cheung (24 June 2009) Research Highlights

The authors describe using evolutionary analyses to estimate the timescale of the origins and the early development of the epidemic. The results of their analyses showed a well-established swine influenza lineage in H1N1. However, this lineage is possible only if the virus had been circulating in swine for 10 years or more before the outbreak.

3) **Science journalism: The Arab boom**  
Nadia El-Awady 1057-1057 (24 June 2009)

Before a single H1N1 case had hit the country, to help limit infection Egypt’s Minister of Health called for prayers and university exams to be held in open spaces rather than in mosques or enclosed rooms. Egyptian newspapers reported that the Ministry of Agriculture had banned all imports of pig gut and hair used in the manufacture of surgical threads and shaving brushes. Uncritical reporting of these policies by Egypt’s media led to unnecessary panic among the general population. A lack of scientific sources in Arabic, limits available information and participation in international events.

4) **miRNAs target the flu**  
Tim Fulmer, (18 June 2009)

Mount Sinai researchers have used microRNA to generate influenza strains that are attenuated in humans but not in chicken eggs. The strategy could potentially lead to safe and effective live attenuated influenza vaccines with high manufacturing yields.

5) **Severe Respiratory Disease Concurrent with the Circulation of H1N1 Influenza**  

In the spring of 2009, an outbreak of severe pneumonia was reported in conjunction with the concurrent isolation of a novel swine-origin influenza A (H1N1) virus (S-OIV) in Mexico. During the study period, 87% of deaths and 71% of cases of severe pneumonia involved patients between the ages of 5 and 59 years, as compared with average rates of 17% and 32%, respectively, in that age group during the referent periods. Features of this epidemic were
similar to those of past influenza pandemics in that circulation of the new influenza virus was associated with an off-season wave of disease affecting a younger population. During the early phase of the pandemic, there was a sudden increase in the rate of severe pneumonia and a shift in the age distribution of patients with such illness, which was similar to past pandemics. This also suggests relative protection for persons who were exposed to H1N1 strains during childhood before the 1957 pandemic. These findings suggest a rationale for focusing prevention efforts on younger populations.

2) Pneumonia and Respiratory Failure from Swine-Origin Influenza A (H1N1) in Mexico

In late March 2009, an outbreak of a respiratory illness later proved to be caused by novel swine-origin influenza A (H1N1) virus (S-OIV) was identified in Mexico. This study describes the clinical and epidemiologic characteristics of persons hospitalized for pneumonia at the national tertiary hospital for respiratory illnesses in Mexico City who had laboratory-confirmed S-OIV infection. A total of 18 cases of pneumonia and confirmed S-OIV infection were identified among 98 patients hospitalized for acute respiratory illness. Over 50% of the 18 case patients were between 13 and 47 years of age, and only 8 had preexisting medical conditions. Twelve patients required mechanical ventilation, and seven died. S-OIV infection can cause severe illness, the acute respiratory distress syndrome, and death in previously healthy persons who are young to middle-aged.

3) Historical Perspective — Emergence of Influenza A (H1N1) Viruses
Shanta M. Zimmer,, and Donald S. Burke

The study reviews the series of evolutionary and epidemiologic events, starting in 1918, that led to the emergence of the current swine-origin influenza A (H1N1) strain (S-OIV). This article is one of two historical articles on influenza A (H1N1) viruses in this issue of the NEMJ. This article focuses on the key steps that characterize this viral evolution.

4) The Persistent Legacy of the 1918 Influenza Virus
Morens, DM, Taubenberger,JK, and Fauci, AS

This article reviews the complex epidemiological history of the novel influenza A H1N1 virus. The current international pandemic caused by a novel influenza A (H1N1) virus derived from two unrelated swine viruses, one of them a derivative of the 1918 human virus, adds to the complexity surrounding this persistent progenitor virus, its descendants, and its several lineages. The authors describe the viruses’ historical features of genetic mixing both within human viruses and between avian and swine adapted influenza viruses, and evolution in response to the selection pressures of herd immunity in various populations at various points in time.
5) **Spread of a Novel Influenza A (H1N1) Virus via Global Airline Transportation**  
*Khan, K. et al.*  

International air travelers departing from Mexico were unknowingly transporting a novel influenza A (H1N1) virus to cities around the world throughout March and April 2009. Flight itineraries for all passengers departing from commercial airports in Mexico between March and April 2008 were analyzed using data from the International Air Transport Association (IATA). The researchers compared the international destinations of travelers departing from Mexico with confirmed H1N1 importations associated with travel to Mexico, and found a strong degree of correlation. Of the 20 countries worldwide with the highest volumes of international passengers arriving from Mexico, 16 had confirmed importations associated with travel to Mexico. International air travel and H1N1 importation revealed that countries receiving more than 1400 passengers from Mexico were at a significantly elevated risk for importation of H1N1.

6) **Rapid-Test Sensitivity for Novel Swine-Origin Influenza A (H1N1) Virus in Humans**  
*Faix, D. et al.*  

The Naval Health Research Center serves as the Navy hub for the Department of Defense's Global Emerging Infections Surveillance and Response System (GEIS), in which it monitors influenza-like illness among recruit trainees of all military service members. The first two human cases of novel swine-origin influenza A (H1N1) virus in the United States were detected through these programs. The centre processed 3066 specimens with the use of a real-time reverse-transcriptase–PCR (RT-PCR) assay. The study findings suggest that rapid-test sensitivity may vary according to the influenza A subtype. Further investigation is needed to confirm this finding and evaluate possible explanations.

**PLoS One**

1) **Severe Human Influenza Infections in Thailand: Oseltamivir Treatment and Risk Factors for Fatal Outcome** / Wanna Hanshaoworakul et al. June 25, 2009  

Thailand’s National Avian Influenza Surveillance (NAIS) system was used to describe the epidemiology of laboratory-confirmed severe and fatal human influenza infections. A retrospective medical record review conducted on all fatal cases with laboratory confirmed influenza and a sample of hospitalized cases revealed the following risk factors for fatal outcome from human influenza infection: current or former smoking, advanced age, hypertension and underlying cardiovascular, pulmonary or endocrine disease. Treatment with Oseltamivir was statistically associated with survival after controlling for age.

2) **A Trivalent Virus-Like Particle Vaccine Elicits Protective Immune Responses against Seasonal Influenza Strains in Mice and Ferrets** / Ted M. Ross et al., June 24, 2009  

U.S. researchers have engineered an influenza virus-like particle (VLP) as a new generation vaccine candidate. A seasonal trivalent VLP vaccine (TVV) formulation, composed of influenza A H1N1 and H3N2 and influenza B VLPs, was evaluated in mice and ferrets. The trivalent VLP vaccine was found to elicit a broad array of immune response that protected against influenza virus challenge.
Science

Only 1 blog entry JUNE 26, 2009

1) Swine Flu Strikes Hog Farm in Argentina

An outbreak of swine influenza A (H1N1) on a pig farm in Buenos Aires was reported on Wednesday by SENASA, Argentina’s food safety agency. Five animals have tested positive. It is believed that the pigs were infected by a human, as no pigs were introduced to the farm for at least 60 days. This marks the second known instance of the pandemic virus infecting pigs after a reported infection on an Alberta farm.

NEWS CLIPS

The Ottawa Sun, June 30 2009
Patients left in dark by lack of flu testing “We’ve been taking these swabs and they haven’t been testing.”
The Toronto Star
When viruses book a flight; Toronto doctor’s system of analyzing air traffic to map potential hotbeds first tested with swine flu
The Ottawa Citizen
Pregnant women warned of flu risk; Those with underlying conditions also particularly vulnerable
The Hamilton Spectator
H1N1’s severity in healthy people under 20 concerns officials
The Canadian Press, June 29 2009
Danish patient has first reported case of Tamiflu-resistant swine flu, health officials say
The Ottawa Citizen
Pandemic planning not priority for business; Private sector more concerned about economy than H1N1 virus
The Ottawa Citizen, June 27 2009
At least one million in US infected by H1N1 virus: official
Daily Miner News, June 27 2009
NAN chief calls for cohesive action on H1N1 outbreak
The Toronto Sun, June 29 2009
Swine flu not so mild, experts warn

Reuters, June 25 2009
WHO chief states that H1N1 is stable
- WHO says that the H1N1 virus is stable and there are no sign of it mixing with avian flu or other influenza viruses

Reuters, June 24 2009
Argentina reinforces hospital capacity as flu strikes hard
- 21 confirmed deaths from the new strain of the virus is putting Argentina third after Mexico and the US in the number of fatal cases.
As of July 6, 2009, over 120 countries have officially reported 94,512 cases of influenza A (H1N1) infection, including 429 deaths. Please see hyperlinks in table for most up to date case counts.

<table>
<thead>
<tr>
<th>Countries/Provinces</th>
<th>Case counts</th>
<th>Deaths</th>
<th>Hospitalizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA (PHAC)</td>
<td>8,883</td>
<td>29</td>
<td>663</td>
</tr>
<tr>
<td>- BC</td>
<td>298</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>- AB</td>
<td>1071</td>
<td>1</td>
<td>45</td>
</tr>
<tr>
<td>- SK</td>
<td>774</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>- MB</td>
<td>685</td>
<td>4</td>
<td>83</td>
</tr>
<tr>
<td>- ON</td>
<td>3464</td>
<td>10</td>
<td>162</td>
</tr>
<tr>
<td>- QC</td>
<td>2020</td>
<td>12</td>
<td>314</td>
</tr>
<tr>
<td>- NB</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- NS</td>
<td>171</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>- PEI</td>
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<td>- NL</td>
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<td>- Yukon</td>
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<tr>
<td>- NWT</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Nunavut</td>
<td>340</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>U.S. (CDC)</td>
<td>33,902</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>E.U. and EFTA (ECDC)</td>
<td>10,581</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>10,262</td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>8,160</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>2,485</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>6,353</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>1,059</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>TOTAL (WHO)</td>
<td>94,512</td>
<td>429</td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 3:00pm (EST) on July 3; CDC numbers updated last at 11:00 am on July 2; ECDC numbers updated last at 5:00pm (CEST) on July 07; WHO numbers updated last 7:00am (GMT) on July 06 2009.
NOTE: Testing parameters are influenced by the most current knowledge of the H1N1 virus and risk groups. Therefore, the frequency of laboratory tests conducted and the risk groups that are being tested may change over time.

HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES

As of July 02, 2009 in Ontario:

- 162 confirmed cases have been hospitalized to date
- Of these, 110 cases have been discharged.
- The average length of stay was 4.7 days, ranging from under 24 hours to 38 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease, diabetes, etc).
- 81% of cases that were discharged had a length of stay of at least 2 days
- 52 cases that are currently hospitalized

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>Ventilator and/or ICU</th>
<th>Not in ICU and not on ventilator</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>15</td>
<td>37</td>
<td>52</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>4</td>
<td>106</td>
<td>110</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, July 02/09.

GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

Weekly Flu View Map and Surveillance Report for Week Ending June 27th, 2009
Map includes both seasonal flu and H1N1 flu activity. During week 25, (June 21- June 27 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 98% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. Eight influenza-associated pediatric deaths were reported and seven of the eight deaths were associated with pandemic influenza A (H1N1) virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was below the national baseline. Two of the 10 surveillance regions reported ILI above their region-specific baseline. [http://www.cdc.gov/flu/weekly/](http://www.cdc.gov/flu/weekly/)

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

New Release, July 2 2009: International meeting advances global response to H1N1
Canada continues to play a leadership role.
Canada continues to make a significant contribution to the international response to the H1N1 flu virus. Minister Aglukkaq states’s “Canada’s planning efforts, operational implementation, communications with the public, and cutting edge science are being recognized and studied by numerous counties”. The international meeting focused on Canada-U.S. collaboration on H1N1, opportunities for further collaboration with Mexico, planning for the fall flu season. [http://www.phac-aspc.gc.ca/media/nr-rp/2009/2009_0702-eng.php](http://www.phac-aspc.gc.ca/media/nr-rp/2009/2009_0702-eng.php)

OAHPP Weekly H1N1 Digest
June 30 2009, Guidance Document: Prevention and Management of Cases of Influenza-Like-Illness (ILI) Suspected to be due to H1N1 Flu Virus in Day and Residential Camps.
This document has been developed to provide interim guidance to Public Health authorities regarding day camps and residential summer camps for the prevention and management of influenza-like illness (ILI) suspected to be due to H1N1 Flu Virus.

FluWatch Week 25 (June 21 to June 27 2009)
There is an increase in transmission, however, the illness from the H1N1 flu virus has been mild thus far. Of those hospitalized cases, more than 36% were reported this week. Children less than 10 years were particularly affected, accounting for almost a third of the hospitalized cases. Cases with known information provided have at least one or more underlying medical condition. For a proportion of hospitalized cases, 73% of the cases had one or more underlying medical conditions.

WORLD HEALTH ORGANIZATION (WHO)

WHO Influenza A(H1N1) - update 58 -- As of 07:00 GMT, July 06 2009
The breakdown of the number of laboratory-confirmed cases by country is given in the following table and map.

July 02 2009: Influenza A(H1N1): lessons learned and preparedness

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

The Influenza A (H1N1) ECDC situation report from July 07, 2009.
Cumulative number of cases in EU and EFTA countries are now 10,581 including four deaths. The majority of all cases have been found in Spain and the UK.

Denmark announced that it will change its response strategy from “containment” to “mitigation”.
The change in policy means that laboratory testing and the use of anti-viral treatment and prophylaxis will be limited to persons considered at higher risk.

July 03 2009: Exchange of experience necessary in the EU’s fight against the influenza pandemic.
The EU Member States, the WHO, the European Commission and others were gathered to exchange experience and discuss future areas of cooperation regarding preparedness for the coming influenza season. The meeting also discussed lessons learned from affected countries: the U.K., France and Spain.

ECDC’s Director participates in EU Presidency conference on influenza preparedness and response from July 1 2009.
On the 2-3 July, ECDC’s Director, Zsuzsanna Jakab, will participate in an EU Presidency conference on Influenza Preparedness and Response – lessons learned and next steps
HEALTH/SURVEILLANCE BULLETINS:

Southern Hemisphere

Australia

July 07 2009: Total confirmed cases as of 1200 AEST are 6,353; National breakdown includes: Australian Capital Territory 266, New South Wales 1532, Northern Territory 381, Queensland 1165, South Australia 666, Tasmania 118, Victoria 1865 and Western Australia 360. Total deaths associated with pandemic H1N1 influenza is 13. Currently, there are 116 hospitalized cases of pandemic H1N1 and 232 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 641.

South America & the Americas

As of July 6 2009: In Chile, children between 5-19yrs have been most affected, constituting 61% of cases. Chile has 8,160 confirmed cases and 16 deaths. Argentina has 2,485 confirmed cases and 60 deaths.

July 01, 2009: Argentina capital declares flu health emergency
Health officials in Argentina's Buenos Aires city and province, due to the quickly rising pandemic flu cases, extending school vacations and giving the mayor the power to suspend sports and other entertainment gatherings. Buenos Aires is the fifth province to declare a health emergency. Argentina has South America's highest number of pandemic flu cases, with 1,587, including 26 deaths.

As of July 6 2009, 69, 328 confirmed cases of Influenza A H1N1 2009 infection, including 414 deaths, have been notified in 30 countries of the Americas. See PAHO link.

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

July 6: ACEP unveils plan to manage fall pandemic wave
The American College of Emergency Physicians (ACEP) recently released a plan to help emergency departments, first responders, and public health departments manage a surge in pandemic flu cases that many experts predict will happen this fall.
Also see ACEP national novel H1N1 influenza strategy:
http://www.acep.org/WorkArea/DownloadAsset.aspx?id=45781

July 3 2009: Hong Kong finds antiviral-resistant novel flu strain
Public health officials in Hong Kong said they have detected their first oseltamivir (Tamiflu)-resistant novel H1N1 strain, which was isolated from a 16-year-old girl after she arrived from San Francisco. The sample was sensitive to zanamivir (Relenza).
http://www.info.gov.hk/gia/general/200907/03/P200907030213.htm

July 3 2009: UN director: $1 billion needed to help poor nations fight flu

OAHPP Weekly H1N1 Digest
United Nations Secretary-General Ban Ki Moon today estimated that $1 billion is needed by the end of the year to help developing countries respond to pandemic influenza.  
http://www.thestate.com/world/story/853690.html

**July 2, 2009:** Japan reports its first antiviral resistant novel flu case  
Japan's health ministry today confirmed the country's first instance of oseltamivir (Tamiflu) resistance in a novel flu virus. The patient, from Osaka, was sick with the new H1N1 virus in mid May and has since recovered. A health ministry spokesman said the patient's sensitivity to the drug has not been tested yet. Danish officials reported the world's first oseltamivir-resistant novel flu case Jun 29 2009.  
http://www.reuters.com/article/rbssHealthcareNews/idUSSP52739320090702

**July 2, 2009:** Studies: Novel H1N1 affects deep lung tissue, transmits fairly well  
The novel H1N1 (swine) influenza now circling the globe causes more serious lung disease than seasonal flu strains and sheds from the lung and throat tissue where it reproduces at higher rates, according to two animal studies published today—findings that could explain autopsies and case reports of severe pneumonia as well as the virus's rapid spread.  
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/jul0209h1n1.html

**July 2, 2009:** US to supply Tamiflu to Latin America, Caribbean  
HHS Secretary Kathleen Sebelius announced today that the country will supply 420,000 treatment courses of oseltamivir (Tamiflu) to the Pan-American Health Organization to fight novel H1N1 flu in Latin America and Caribbean countries.  

**July 1 2009:** UK moves away from flu containment measures  
The United Kingdom is moving from a novel flu containment strategy to focus more of its resources on more vulnerable patients, Prime Minister Gordon Brown announced the change yesterday, noting that case numbers spiked by 2,000 over the past week and that a "more flexible and local approach" will be used in hard-hit areas. Reports say "hot spots" include London, the West Midlands, and Glasgow.  
http://www.terradaily.com/reports/Swine_flu_surge_forces_Britain_to_shift_strategy_999.html

**July 1 2009:** Argentina authorities criticize government's flu response  
Health officials in Argentina are criticizing the government for rejecting calls to postpone the nation's recent election, a move they say could have avoided the virus's spread at crowded polling places and focused the public's attention on pandemic issues. The officials said the health minister who just resigned was among those who recommended postponing the election. Increased flu cases prompted an emergency declaration in Buenos Aires.  
http://www.nytimes.com/2009/07/02/world/americas/02argentina.html?_r=1&partner=rss&emc=rss

**July 1 2009:** Obama convenes flu summit for next week  
President Obama has called a "flu summit" on Jul 9 to discuss the nation's pandemic flu preparedness plans for the fall. The meeting will be held at the National Institutes of Health and be led by Department of Homeland Security Secretary Janet Napolitano and Department of Health and Human Services (HHS) Secretary Kathleen Sebelius. Earlier last week, Obama met with federal officials who helped manage the 1976 influenza outbreak to discuss lessons learned from their experience.  
1) INFLUENZA A (H1N1): ANTIVIRAL RESISTANCE  
Date: Sat 4 Jul 2009  
From: From: Adam Meijer  

2) INFLUENZA A (H1N1): TRANSMISSION  
Date: Thu 2 Jul 2009  
Source: CHealth, The Canadian Press  
http://chealth.canoe.ca/channel_health_news_details.asp?news_id=28420&news_channel_id=1020&channel_id=1020

3) INFLUENZA A (H1N1): TAMIFLU RESISTANCE, CHINA (HONG KONG S.A.R.)  
Date: Sat 4 Jul 2009  

JOURNALS SCANNED:
- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- Science

AMERICAN JOURNAL OF PUBLIC HEALTH  
- Nothing new on H1N1 since June 28

BRITISH MEDICAL JOURNAL  
1) Two more people in UK die from swine flu, as swabbing policy ends in "hot spot" areas (June 30, 2009)  
http://www.bmj.com/cgi/content/full/338/jun30_3/b2670

Some general practitioners (GPs) in so called “hot spot” areas are now handling the virus in a different way from how they did at the start of the epidemic. At the end of last week the agency revised its guidance to GPs in “hot spot” areas where the virus is widespread by ending the policy of swabbing people with a potential case for laboratory testing. Policy now encourages GPs to rely instead on their own clinical diagnosis and judgment as the virus is deemed to have widespread transmission.

OAHPP Weekly H1N1 Digest
2) Was H1N1 leaked from a laboratory? (Tom Nolan, July 2, 2009)
http://blogs.bmj.com/bmj/2009/07/02/tom-nolan-was-h1n1-leaked-from-a-laboratory/

This blog reviews conspiracy theories in the medical literature that the swine flu pandemic may have been caused by an accidental leak from a laboratory three decades ago. The author refers to the recent NEJM article “Historical Perspective — Emergence of Influenza A (H1N1) Viruses”, and explain the finding suggested that the 1977 outbreak strain has been preserved since 1950. The re-emergence was probably an accidental release from a laboratory source.

CLINICAL INFECTIOUS DISEASES
- Nothing new on H1N1 since last week.

EMERGING INFECTIOUS DISEASES
- Nothing new since last week.

EUROSURVEILLANCE
1) STATFLU – A statistical modelling tool for pandemic influenza hospital load for decision makers (M. Camitz. July 2, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19256

The novel H1N1 virus strain has shown to put considerable strain on the current hospital capacity. This article describes a new static modeling tool, StatFlu, which uses historic influenza data with an interface designed to highlight propagation of parameter settings and uncertainties in the output. This tool provides graphs of the load on hospital wars, primary care units as a function of time, which aids the user in decision making for public health planning and preparedness.

http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19255

In order to determine appropriate influenza pandemic containment and mitigation measures, it is important for health authorities to produce estimates of the likely impact of the pandemic in their particular countries. The estimated mortality burden is particularly useful for calibrating appropriate containment and mitigation measures that balance the likely health gains from interventions against their social and economic costs. This article presents four different methods for estimating the plausible range of the case fatality ratio (CFR) for symptomatic infection for this pandemic strain in developed countries. These methods focused on correcting for under-ascertainment of the denominator, yet there is also a potential bias from under-ascertainment of the numerator of the CFR. All of the methods produce substantially lower values (range 0.06% to 0.0004%) than a previously published estimate for Mexico (0.4%). Although these results have many limitations, improved surveillance and serological surveys are needed in countries to produce more accurate CFR estimates.

3) Modelling of the influenza A(H1N1)v outbreak in Mexico City, April-May 2009, with control sanitary measures (G Cruz-Pacheco. July 2, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19254

OAHPP Weekly H1N1 Digest
This study examined the evolution of the influenza A(H1N1)v epidemic reported in the Mexico City area under the control measures used during April and May 2009. The model illustrates how the sanitary measures postponed the peak of the epidemic and decreased its intensity. It provides quantitative predictions on the effect of relaxing the sanitary measures after a period of control. The study shows how the sanitary measures as an intervention reduced the maximal prevalence of the infected population from 10% to less than 6% of the total population.

**JOURNAL OF INFECTIOUS DISEASES**

“Prepandemic” Immunization for Novel Influenza Viruses, “Swine Flu” Vaccine, Guillain-Barré Syndrome, and the Detection of Rare Severe Adverse Events (David Evans, Simon Cauchemez, and Frederick G Hayden)

http://www.journals.uchicago.edu/doi/abs/10.1086/603560

Safety of vaccines has been a critical issue in policy development for wide-scale use of vaccine in the pre-pandemic period. The article discusses the debate surrounding the H5N1 vaccination and the anticipated development of vaccines against the “swine” influenza A (H1N1) for the possible use of the vaccine for protection of people exposed to the potential pandemic virus. This articles reviews aspects of the 1976 National Influenza Immunization program and examines data of the association with Guillain-Barre syndrome as a case study to shows severe adverse events in mass immunization settings. The article also examines safety data from clinical trials of the H5N1 vaccines and suggests monitoring vaccine safety in a post-marketing surveillance setting.

**LANCET**

1) [Editorial] – Where are we now with indigenous health? (July 4, 2009)
http://www.thelancet.com/journals/lancet/article/PIIS0140673609612150/fulltext?rss=yes

Indigenous people experience not only the ill health associated with poverty but also the chronic diseases that come with the lifestyle in industrialized countries a situation that is directly attributable to loss of land and traditions and the resultant move to poor urban environments.

2) [Review] – Indigenous health part 1: determinants and disease patterns (Gracey, Michael & Malcolm King, July 4, 2009)
http://www.thelancet.com/journals/lancet/article/PIIS0140673609609144/abstract?rss=yes

Nearly 400 million Indigenous people worldwide have low standards of health. Their poor health is associated with poverty, malnutrition, overcrowding, poor hygiene, environmental contamination, and prevalent infections. Inadequate clinical care and health promotion, and poor disease prevention services aggravate this situation. The article recommends that these inequities should be improved through increased awareness, political commitment, and recognition rather than governmental neglect of these serious and complex problems. Indigenous people should be encouraged, trained, and enabled to become increasingly involved in overcoming these challenges.

http://www.thelancet.com/journals/lancet/article/PIIS0140673609608278/abstract?rss=yes
This article reviews the underlying causes of health disparities between Indigenous and non-Indigenous people and provide lens to understanding these inequalities through the Indigenous perspective. The authors present a brief summary of the many research publications about Indigenous health. The articles aim is to provide clinicians with a framework to provide a Indigenous perspective to understand these inequalities and matters. The articles suggests applying the framework for each patient will promote a more culturally appropriate way to interact with, assess, and treat Indigenous peoples. The article discusses various topics such as Indigenous traditions of health and identity; mental health and addictions; urbanization and environment; healing; and reconciliation.

**Lancet Infectious Diseases**
- Nothing new on H1N1 since last week.

**Morbidity and Mortality Weekly Report**
- Nothing new on H1N1 since last week.

**Nature**
- Nothing new on H1N1 since last week.

**New England Journal of Medicine**
- NEJM summaries are in last week’s synthesis

**PLoS One**

1) Severe Human Influenza Infections in Thailand: Oseltamivir Treatment and Risk Factors for Fatal Outcome (*Wanna Hanshaoworakul, et al*)

Thailand’s National Avian Influenza Surveillance (NAIS) system was used to describe the epidemiology of laboratory-confirmed severe and fatal human influenza infections. A retrospective medical record review conducted on all fatal cases with laboratory confirmed influenza and a sample of hospitalized cases revealed the following risk factors for fatal outcome from human influenza infection: current or former smoking, advanced age, hypertension and underlying cardiovascular, pulmonary or endocrine disease. Treatment with Oseltamivir was statistically associated with survival after controlling for age.

**PLoS Medicine**

1) Can We “Hedge” against the Development of Antiviral Resistance among Pandemic Influenza Viruses? (*David K. Shay, Benjamin J. Ridenhour*)

A modeling study predicting that stockpiling a secondary antiviral for use early in a flu pandemic can forestall resistance to the primary stockpiled drug was evaluated. The epidemiology of antiviral resistance has important implications on the use of models in evaluating antiviral strategies. The authors suggest that the inclusion of a term to account for the potential reduction in transmissibility of resistant viruses in the model would provide a more accurate
estimate of attack rates of antiviral resistant influenza. Other suggestions, such as using an age-stratified compartment model to account for patient age impacting the likelihood of developing antiviral resistance, were made.

**SCIENCE**

1) Tamiflu resistance in swine flu no cause for concern – yet. ScienceInsider, June 30, 2009  

A Danish swine flu patient has developed resistance against oseltamivir, the most widely used influenza drug. The resistance developed during treatment and the patient did not appear to infect others, suggesting that a resistant virus is not yet circulating in the population.

2) With more than a million cases, U.S. prepares for swine flu vaccination campaign. Science Insider, June 29, 2009  

Based on epidemiologic modeling, the U.S. Centers for Disease Control and Prevention estimates that at least one million people in the United States are infected with the novel H1N1 flu virus, far more than the official case count of 27,127. States and cities were advised to start planning for a massive vaccination campaign this fall. New data on the age distribution of the patients was presented; the median age of hospitalized A (H1N1) patients in the United States is 19, and the median age of those who have died from an infection is 37.

3) Pandemic influenza: Ferrets shed light on new virus’s severity and spread / Eserink, Martin  
Science July 3, 2009  
[http://www.sciencemag.org/cgi/content/summary/325/5936/17?rss=1](http://www.sciencemag.org/cgi/content/summary/325/5936/17?rss=1)

Two research teams have infected ferrets with the new pandemic A (H1N1) influenza strain, and their papers published online by Science this week, confirm that new virus is slightly more pathogenic than seasonal influenza but not nearly as dangerous as the 1918 pandemic virus or H5N1 avian influenza. The studies disagree on how easily the virus spreads: one team concludes that it is easily transmissible while the other believes it is only moderately adept.
WEEKLY SYNTHESIS OF SURVEILLANCE INFORMATION, LITERATURE & GOVERNMENT UPDATES
(WEEK 26- ENDING IN JULY 10, 2009)

CASE COUNTS:
As of July 13, 2009, over 120 countries have officially reported 116,948 cases of influenza A (H1N1) infection, including 580 deaths. Please see hyperlinks in table for most up to date case counts.

<table>
<thead>
<tr>
<th>Countries/Provinces</th>
<th>Case counts</th>
<th>Deaths</th>
<th>Hospitalizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA (PHAC)</td>
<td>9,855</td>
<td>39</td>
<td>902</td>
</tr>
<tr>
<td>- BC</td>
<td>360</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>- AB</td>
<td>1256</td>
<td>3</td>
<td>71</td>
</tr>
<tr>
<td>- SK</td>
<td>855</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>- MB</td>
<td>787</td>
<td>5</td>
<td>94</td>
</tr>
<tr>
<td>- ON</td>
<td>3636</td>
<td>14</td>
<td>240</td>
</tr>
<tr>
<td>- QC</td>
<td>2192</td>
<td>14</td>
<td>426</td>
</tr>
<tr>
<td>- NB</td>
<td>33</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NS</td>
<td>282</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>- PEI</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NL</td>
<td>42</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Yukon</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- NWT</td>
<td>13</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Nunavut</td>
<td>393</td>
<td>0</td>
<td>38</td>
</tr>
<tr>
<td>U.S. (CDC)</td>
<td>37,246</td>
<td>211</td>
<td></td>
</tr>
<tr>
<td>E.U. and EFTA (ECDC)</td>
<td>13,796</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>11,699</td>
<td>121</td>
<td></td>
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<tr>
<td>Chile</td>
<td>9,024</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>2,677</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>9,050</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>1,779</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>TOTAL (ECDC)</td>
<td>116,948</td>
<td>580</td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 3:00pm (EST) on July 13; CDC numbers updated last at 11:00 am on July 10; ECDC numbers updated last at 5:00 pm (CEST) on July 13 2009.
NOTE: Testing parameters are influenced by the most current knowledge of the H1N1 virus and risk groups. Therefore, the frequency of laboratory tests conducted and the risk groups that are being tested may change over time.

**HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES**

As of July 09, 2009 in Ontario:
- 240 confirmed cases have been hospitalized to date
- Of these, 201 cases have been discharged.
- The average length of stay was 5.4 days, ranging from under 24 hours to 42 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease diabetes, etc).
- 86% of cases that were discharged had a length of stay of at least 2 days
- 39 cases that are currently hospitalized

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>Ventilator and/or ICU</th>
<th>Not in ICU and not on ventilator</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>18</td>
<td>21</td>
<td>39</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>12</td>
<td>189</td>
<td>201</td>
</tr>
<tr>
<td>Total hospitalized to date</td>
<td>30</td>
<td>210</td>
<td>240</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, July 09/09.

**GOVERNMENT UPDATES**

**CENTRE FOR DISEASE CONTROL (CDC)**

Weekly Flu View Map and Surveillance Report for Week Ending July 4, 2009
Map includes both seasonal flu and H1N1 flu activity. During week 26, (June 28—July 4 2009), influenza activity decreased in the US; however there are still higher levels of ILI than is normal for this time of year. Approximately 97% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. Five influenza-associated pediatric deaths were reported and all five deaths were associated with pandemic influenza A (H1N1) virus infection.

http://www.cdc.gov/flu/weekly/

July 09 2009: CDC Health Alert Network (HAN) Info Service Message: Three Reports of Oseltamivir Resistant Novel Influenza A (H1N1) Viruses

http://www.cdc.gov/h1n1flu/HAN/070909.htm

CDC Recommendations for State and Local Planning for a 2009 Novel H1N1 Influenza Vaccination Program.

July 08 2009: The purpose of this document is to describe planning scenarios for state and local governments to target high-priority populations for vaccination in order to reduce the health and societal impact of the novel H1N1 influenza virus.

http://www.cdc.gov/h1n1flu/vaccination/statelocal/planning.htm
**July 08 2009 (UPDATE) Home care guidance document**

This new guidance should be considered the most up-to-date and supersede previously issued guidance. Content related to masks and respirators on this web page will be updated to reflect the new guidance in the near future.

http://www.cdc.gov/h1n1flu/guidance_homecare.htm/?breaknews

**July 06 2009: Considerations Regarding Novel H1N1 Flu Virus in Obstetric Settings**

This document has been developed to provide guidance for prevention and management of novel H1N1 flu infection in inpatient and out-patient obstetric settings. Severe illnesses among pregnant woman and infants have been reported in this outbreak, although the epidemiology and spectrum of illness among pregnant woman and infants are not fully understood at this time and are under investigation.

http://www.cdc.gov/h1n1flu/guidance/obstetric.htm

**PUBLIC HEALTH AGENCY OF CANADA (PHAC)**

Pregnancy and H1N1 (July 2009): Information guide on basic infection control and education for pregnant mothers


New Release, July 2 2009: International meeting advances global response to H1N1 Canada continues to play a leadership role.

Canada continues to make a significant contribution to the international response to the H1N1 flu virus. Minister Aglukkaq state’s “Canada's planning efforts, operational implementation, communications with the public, and cutting edge science are being recognized and studied by numerous counties”. The international meeting focused on Canada-U.S. collaboration on H1N1, opportunities for further collaboration with Mexico, planning for the fall flu season.


FluWatch Week 26 (June 28 to July 04 2009)

The overall influenza activity level remains high for this time of the year, but has been decreasing in week 26, for the third consecutive week. There was almost a 25% increase in the reported number of hospitalized Pandemic (H1N1) 2009 cases this week. Based on a proportion of hospitalized cases, 80% of the cases had one or more underlying medical conditions.

http://www.phac-aspc.gc.ca/fluwatch/08-09/w26_09/index-eng.php

**WORLD HEALTH ORGANIZATION (WHO)**

July 13 2009: WHO recommendations on pandemic (H1N1) 2009 vaccines

http://www.who.int/csr/disease/swineflu/notes/h1n1_vaccine_20090713/en/index.html

July 02 2009: Influenza A(H1N1): lessons learned and preparedness


**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)**

The Influenza A (H1N1) ECDC situation report from July 13, 2009.
Cumulative number of cases in EU and EFTA countries are now 14,041 including 16 deaths. The majority of all cases have been found in Spain and the UK.
HEALTH/SURVEILLANCE BULLETINS:

Southern Hemisphere

Australia

July 13 2009: Total confirmed cases as of 1200 AEST are 9050; Total deaths associated with pandemic H1N1 influenza is 18. Currently, there are 95 hospitalized cases of pandemic H1N1 and 26 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 984.

July 08 2009: Pandemic H1N1 research projects fast-tracked
The federal Minister for Health and Ageing announced that funding would be provided to 41 Australian medical research projects that will help ensure the Australian Government’s response to the evolving threat of H1N1 Influenza is based on the most up-to-date information available.

July 03 2009: GPs are major players in pandemic influenza A H1N1 response
The statement discusses that doctors, especially GPs, are bearing the brunt of this disease with a huge influx of patients who are worried about having H1N1, and as the pandemic phases have changed, doctors have had to keep up with the new testing and antivirals policies that have changed from CONTAIN phase to PROTECT phase

South America & the Americas

As of July 10 2009: Chile has 9,717 confirmed cases and 39 deaths. Argentina has 2,677 confirmed cases and 82 deaths.

July 09 2009: Thailand, Argentina launch community mitigation measures
Thailand’s government has ordered more than 1,000 schools to close for 15 days starting Jul 13 and has asked Internet cafes, popular with youth, to close during the time to curb the spread of pandemic flu. On the other side of the globe, Argentina will close financial markets and banks tomorrow to slow the spread of the virus, Reuters reported yesterday. It encouraged private businesses to do the same.

As of July 10 2009, 76,761 confirmed cases of Influenza A H1N1 2009 infection, including 505 deaths, have been notified in 31 countries of the Americas. See PAHO for more information.
http://new.paho.org/hq/index.php?option=com_content&task=view&id=1574&Itemid=1167

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

July 12: US to spend another $1 billion on H1N1 vaccines
The United States will order another $1 billion worth of pandemic H1N1 influenza vaccine, stated Health and Human Services (HHS) Secretary Kathleen Sebelius. http://www.reuters.com/article/scienceNews/idUSTRE56669020090712?rpc=401&

July 10: Obesity may be risk factor for severe H1N1 illness
In a series of 10 cases of severe illness with the pandemic H1N1 virus in Michigan, nine patients were obese, suggesting that very overweight people may be particularly vulnerable to life-threatening H1N1 infections, the Centers for Disease Control and Prevention (CDC) reported (MMWR) today.
Article: http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/jul1009obesity.html
CDC Report: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58d0710a1.htm

July 10: US warns that China may quarantine children traveling alone
The US State Department yesterday said parents planning to send unaccompanied children to China should consider postponing such trips until China changes its quarantine policies or the H1N1 flu pandemic subsides. Some unaccompanied minors, including some under 10 years old, have been quarantined on arrival in China. It is nearly impossible to predict which travelers might be quarantined, and the US continues to receive reports of poor quarantine conditions.
http://travel.state.gov/travel/cis_pa_tw/pa/pa_4238.html

July 6: ACEP unveils plan to manage fall pandemic wave
The American College of Emergency Physicians (ACEP) recently released a plan to help emergency departments, first responders, and public health departments manage a surge in pandemic flu cases that many experts predict will happen this fall.
Also see ACEP national novel H1N1 influenza strategy:
http://www.acep.org/WorkArea/DownloadAsset.aspx?id=45781

JOURNALS SCANNED:
• American Journal of Public Health
• British Medical Journal
• Canadian Medical Association Journal (new this week)
• Clinical Infectious Diseases
• Emerging Infectious Diseases
• Eurosurveillance
• Infection Control and Hospital Epidemiology (new this week)
• Journal of Infectious Diseases
• Lancet
• MMWR
• New England Journal of Medicine
• PLoS One
• Science

**AMERICAN JOURNAL OF PUBLIC HEALTH**

1) Real-Time Public Health Surveillance for Emergency Preparedness (*Jean-Paul Chretien, Nancy E. Tomich, Joel C. Gaydos, and Patrick W. Kelley*)
http://www.ajph.org/cgi/content/abstract/99/8/1360

The current pandemic influenza A H1N1 has motivated supplementary approaches to traditional surveillance methods based on physician and laboratory reporting, also called “syndromic” surveillance systems because they focus on syndromes recorded before diagnosis, which capture real-time health data and scan for abnormalities suggesting an outbreak. The authors explain that syndromic surveillance hold promise for public health, although these systems have previously been shown unreliable for detecting natural epidemics. If redesigned to reliably perform beyond outbreak detection, syndromic systems could demonstrate unprecedented capabilities in responding to public health emergencies.

**BRITISH MEDICAL JOURNAL**

1) Canada has world’s highest rate of confirmed cases of A / H1N1, with Aboriginal people hardest hit (*Kermode-Scott, Barbara. July 6, 2009*)
http://www.bmj.com/cgi/content/extract/339/jul06_2/b2746

Canadian researcher, Alan Davidson, has called on Canada’s federal and provincial governments to be more active about the evidence that suggests that Aboriginal people are disproportionately affected by the pandemic than the general population. For example, the differences within Canada is five cases per 100 000 in British Columbia versus more than 60 in Saskatchewan. Davidson suggests that Aboriginal people are most affected by the pandemic H1N1 due to underlying social and economic factors, as well as differences in public health preparedness.

2) Public perceptions, anxiety, and behaviour change in relation to the swine flu outbreak: cross sectional telephone survey (*G. James Rubin, et al*)
http://www.bmj.com/cgi/content/abstract/339/jul02_3/b2651

The study assess whether perceptions of the pandemic H1N1 outbreak predicted in behavior among the public in the United Kingdom. Authors conducted a telephone survey using random digit dialing. The main behavior outcome measure was hand hygiene (i.e. hand-washing, surface cleaning) and avoidance behavior (i.e. public transport, large crowds). Anxiety about the outbreak was low and behavior changes were also limited in relation to the H1N1 pandemic hype. The results support efforts to inform the public about specific actions that can reduce the risks from swine flu and to communicate about the government’s plans and resources. The results suggest public perception that the outbreak has been over-reacted. Additional research is required into examining different reactions to the outbreak among ethnic groups.

3) WHO to call on nations with high rates of swine flu to move away from testing all suspected cases (*John Zarocostas*)
The WHO stated on July 7 2009, that new guidelines for nations with large infection rates are advised to move away from laboratory testing all suspected cases and to focus instead on monitoring big trends in spread of disease. The issue of anti-viral resistance was addressed in the interview; Dr. Fukuda, WHO’s interim assistant director general oseltamivir resistance remain sporadic cases, thus there is no evidence of widespread movement of resistant viruses. The shift in the guidelines will put the focus on tracking larger, national indicators of the disease (including flu), such as illnesses or pneumonia cases, and mutations.

4) Patients and doctors are asked to report antivirals’ side effects as swine flu spreads (Zosia Kmietowicz)  
http://www.bmj.com/cgi/content/extract/339/jul07_3/b2780

The UK Medicines and Healthcare Products Regulatory Agency (MHRA) has set up a dedicated web page for the public and health professionals to report suspected side effects to antiviral drugs used to treat swine flu.

5) UK government predicts 100,000 new A / H1N1 flu cases a day by September (Daniel Henderson)  
http://www.bmj.com/cgi/content/full/339/jul03_2/b2721

The UK government is planning for a rapid rise in the number of cases of A/H1N1 flu and is limiting provision of antiviral drugs to people with symptoms, while excluding asymptomatic contacts of infected people. This public health measure was brought on by the revelation that up to 100 000 new cases of the infection could emerge each day by the end of August. Andy Burnham, the health secretary, warned that conventional risk groups (people aged over 65 or under 5 years, immunocompromised people, and pregnant women) should be dealt with more urgently. Members of the general public have been advised to call their GP or the national flu helpline if they experience flu-like symptoms.

6) Who should receive Tamiflu for swine flu? (Christopher Ellis, Ruth McEwen) 
http://www.bmj.com/cgi/content/full/339/jul06_1/b2698

In summary, can we readily identify the minority of patients who will develop severe disease and treat them in time to stop progression? If so, we can safely abandon chemoprophylaxis when cases in a given community are arising unpredictably, with most having no known exposure to a contact—the point when containment is no longer feasible.

7) Letter to the Editor: Call for flu research under way (Wom Walley)  
http://www.bmj.com/cgi/content/extract/339/jul08_3/b2731

The National Institute for Health Research (NIHR) is currently commissioning research studies as part of the national response to the emerging flu pandemic. See the NIHR web site (www.nihr.ac.uk) for more details. The NIHR also has an urgent open call for proposals on pandemic flu which is not restricted to particular study designs, provided that they produce evidence that will be useful to patients and the NHS during the current pandemic.
8) Letter to the Editor: Policy on antiviral drugs needs to be revised … (Peter M. English et al.)
http://www.bmj.com/cgi/content/extract/339/jul08_3/b2728

The author described the limited evidence to base the UK swine flu policy which recommends antiviral agents for febrile patients with two or more flu-like symptoms for up to 7 days from onset. The author discusses the risk of generating antiviral drug resistance if we treat what is currently a mild form of flu, so that when more virulent for of flu presents the drugs may no longer be effective.

9) Letter to the Editor: “…as does policy on antibiotics” (Barlow and Ross)
http://www.bmj.com/cgi/content/full/339/jul08_3/b2738

The UK Department of Health recently published guidelines for hospital management of pandemic H1N1 for adults. The guidelines set out a pathway which recommends that all patients attending hospitals with “flu-like illness” receive an antibiotic regardless of the severity of illness or whether secondary bacterial infection is likely. It is indicated that broad spectrum cephalosporin or quinolone should be considered for inpatients with pneumonia. These recommendations are in stark contrast to the usual management of seasonal flu. The authors explain the potential overuse of antibiotics, which may consequently lead to other infections (C. diff, MRSA etc.). The authors address their reservations about the antibiotic recommendations.

**Canadian Medical Association Journal (CMAJ)**

1) Review: Safety of neuraminidase inhibitors against novel influenza A(H1N1) in pregnant and breastfeeding women (T. Tanaka, et al.)
http://www.cmaj.ca/cgi/content/full/181/1-2/55

This report summarizes information about the safety of neuraminidase inhibitors against novel influenza A H1N1 virus in pregnant and breastfeeding women. Currently, oseltamivir or zanamivir are recommended antiviral treatment and chemoprophylaxis against the novel H1N1 influenza for people at high risk, such as pregnant women and infants. Key points that were addressed in this review s that limited data suggest that oseltamivir is not a major human teratogen. Data suggests that oseltamaivir is preferred over zanamavir during pregnancy. Also, both drugs are considered compatible with breastfeeding. Authors recommend further studies to assess the use of oseltmivir and zanamivir.

**Clinical Infectious Diseases**

- Nothing new on H1N1 this week

**Emerging Infectious Diseases**

- Nothing new on H1N1 this week

**Eurosurveillance**

1) Epidemiology and control of Influenza A (H1N1) V in the Netherlands: the first 115 cases (Hahné et al.)
The Netherlands have developed enhanced surveillance and infection control since the introduction of the pandemic H1N1 virus. Approximately 44% of the reported cases are acquired by their indigenous people. The study found a point estimate of the effective reproductive number (Re) was below one for the initial phase of the influenza A(H1N1)v epidemic in the Netherlands. Given that the Re estimate is based on a small number of indigenous cases and a limited time period, it needs to be interpreted cautiously.

2) Enhanced epidemiological surveillance of Influenza A (H1N1)V in Italy (C. Rizzo et al.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19266

As of 7 July 2009, a total of 158 laboratory-confirmed cases of pandemic influenza A (H1N1) virus were reported in Italy. To date all cases have had symptoms consistent with seasonal influenza and no severe or fatal cases have been reported. An active surveillance of cases has been set up in Italy in order to undertake appropriate measures to slow down the spread of the new virus. This report describes the routine and enhanced surveillance currently ongoing in Italy.

3) An outbreak of Influenza A (H1N1) V in a boarding school in southeast England, May-June 2009 (A. Smith et al.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19263

An outbreak of influenza A H1N1 virus was confirmed in May and June 2009 in a boarding school in South East England involving 102 symptomatic cases with influenza-like illness. 62 pupils were laboratory-confirmed by PCR and one staff. Control measures were implemented as soon as a case was confirmed and included school closure, active case finding and treatment as well as post-exposure prophylaxis offered to the entire school population. The results suggest had the outbreak been detected earlier, the school closed earlier and prophylaxis commenced after the initial cases were detected, lower levels of transmission may have been seen.

4) Preliminary descriptive epidemiology of a large school outbreak of Influenza A (H1N1) V in the West Midlands, United Kingdom, May 2009 (Health Protection Agency West Midlands H1N1v Investigation Team)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19264

This report describes the preliminary results from the investigation of a large school outbreak of influenza A H1N1 virus in Birmingham, United Kingdom in May 2009. 64 confirmed cases were symptomatic pupils and members of staff. Initial findings in this study suggest that the symptoms were mild and similar to those of seasonal influenza, with a clinical illness attack rate of nearly one third, which is higher than the average attack rate of 24% reported for the outbreaks of seasonal influenza in UK schools during 2005-2009 influenza season.

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY

1) Feasibility Exercise to Evaluate the Use of Particulate Respirators by Emergency Department Staff during the 2007 Influenza Season (Holly Seale et al.)
http://www.journals.uchicago.edu/doi/full/10.1086/599254

OAHPP Weekly H1N1 Digest
The feasibility and acceptability of using P2 (N95-equivalent) respirators in the emergency department was evaluated during the winter of 2007. Baseline rates of influenza-like illness among emergency department staff were also determined.

**JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION**

1) Use of Northern Hemisphere Influenza Vaccines by Travelers to the Southern Hemisphere (July 8, 2009)
http://jama.ama-assn.org/cgi/content/full/302/2/140

The Advisory Committee on Immunization Practices (ACIP) recommends that persons from the northern hemisphere who have not yet received the 2008-09 influenza vaccine should consider being vaccinated (1) before travel to the southern hemisphere during influenza season, (2) before travel to the tropics at any time of year, or (3) when traveling as part of a tour group that includes persons from areas where influenza circulates during April-September. No information is available on the benefits of revaccinating persons before summer travel who already were vaccinated during the preceding fall.

**JOURNAL OF INFECTIOUS DISEASES**

1) Pneumococcal surface protein A contributes to secondary Streptococcus pneumoniae infection after Influenza virus infection (Quinton O. King, Benfang Lei and Allen G. Harmsen)
http://www.journals.uchicago.edu/doi/full/10.1086/600871

Growth of *Streptococcus pneumoniae* mutants (disruption in the gene for either pneumococcal surface protein A (PspA\(^{-}\)), neuraminidase A (NanA\(^{-}\)), or hyaluronidase (Hyl\(^{-}\))) was compared to the parental strain in mice with and without prior influenza virus infection. The numbers of total bacteria recovered from mice with prior influenza virus infection were significantly greater than those recovered from mice without prior influenza virus infection. The PspA\(^{-}\) mutant exhibited attenuation both in mice with and without prior influenza virus infection when compared to the parental strain. PspA immunization (serotypes 2, 3 and 4 pneumococci) significantly reduced secondary bacterial lung infections and concentrations of markers of lung damage in mice, suggesting that PspA immunization mitigates early secondary pneumococcal lung infections.

**LANCET**

- Nothing new on H1N1 this week.

**LANCET INFECTIOUS DISEASES**

- Nothing new on H1N1 this week.

**MORBIDITY AND MORTALITY WEEKLY REPORT**

- Nothing new on H1N1 this week.

**NEW ENGLAND JOURNAL OF MEDICINE**

OAHPP Weekly H1N1 Digest
1) Managing and Reducing Uncertainty in an Emerging Influenza Pandemic (M. Lipsitch and Others)
http://content.nejm.org/cgi/content/full/361/2/112?query=TOC

Plans for addressing influenza pandemics offer responses based on the pandemic's severity (measured by the case fatality ratio). In practice, decisions have had to be made before definitive information was available on the severity, transmissibility, or natural history of the new H1N1 virus. Two sources of uncertainty, however, critically affect severity estimates (1) the proportion of severe cases is overestimated in settings where many mild cases are not reported or tested, and (2) severity estimates are biased downward when they are calculated as simple ratios of numbers of deaths to numbers of cases because there is a delay between the onset of illness and death. Uncertainty is likely to increase as low specificity of clinical signs and symptoms, combined with changes in reporting practices, will make it difficult to interpret incidence trends and track the growth of the epidemic. Serologic studies will help estimate the extent of spread of mild infection; other surveillance recommendations are provided.

2) Geographic Dependence, Surveillance, and Origins of the 2009 Influenza A (H1N1) Virus (V. Trifonov and Others)
http://content.nejm.org/cgi/content/full/361/2/115?query=TOC

Genomic analysis of the 2009 influenza A (H1N1) virus in humans indicates that it is closely related to common reassortant swine influenza A viruses isolated in North America, Europe, and Asia. In the past few years, there has been a worldwide effort to isolate and sequence the genomes of influenza A viruses, which has led to the depositing of more than 46,000 sequences in the Influenza Virus Resource of the National Center for Biotechnology Information (NCBI). Examination of the database reveals that swine influenza A viruses have not been sampled as efficiently as human influenza A viruses and additionally, there were many swine influenza A viruses from North America, Asia, and Europe, but none from Africa, Oceania, or South America.

3) Letter: Spread of a Novel Influenza A (H1N1) Virus via Global Airline Transportation (Khan, Kamran et al)
http://content.nejm.org/cgi/content/full/361/2/212?query=TOC

The purpose of this analysis was to show how travelers - and consequently to predict how H1N1 - would disseminate worldwide during the initial wavefront of this epidemic.

PUBLIC LIBRARY OF SCIENCE (PLOS) ONE

1) Self Reported Incidence and Morbidity of Acute Respiratory Illness among Deployed U.S. Military in Iraq and Afghanistan (Bryony W. Soltis et al.)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006177

Deployed U.S. military troops are at high risk of respiratory infections due to close living conditions, stressful work environments and increased exposure to pathogens. Self-reported data collected from troops deployed to Iraq, Afghanistan and the surrounding region, were analyzed for incidence and risk factors for ARI. Overall, 39.5% reported having at least one ARI. Of these, 18.5% sought medical care. Regression analysis found female sex, Navy branch of service and lack of flush toilets to be independently
associated with increased rates of ARI. Deployment to Operation Iraqi Freedom (OIF), increasing age and higher rank were also positively associated with ARI risk.

**SCIENCE**

1) Transmission and Pathogenesis of Swine-Origin 2009 A(H1N1) Influenza Viruses in Ferrets and Mice *(Taronna R. Maines et al.)*
[http://www.sciencemag.org/cgi/content/abstract/1177238](http://www.sciencemag.org/cgi/content/abstract/1177238)

2009 A(H1N1) isolates were assessed for their ability to cause disease in mice and ferrets, and compared with a contemporary seasonal H1N1 virus for their ability to transmit by respiratory droplets to naïve ferrets. In contrast to seasonal influenza H1N1 virus, 2009 A(H1N1) viruses caused increased morbidity, replicated to higher titers in lung tissue, and were recovered from the intestinal tract of intranasally inoculated ferrets. Transmission of the 2009 A(H1N1) viruses was further corroborated by characterizing the binding specificity of the viral hemagglutinin to the sialylated glycan receptors (in the human host) using dose-dependent direct receptor binding and human lung tissue binding assays.

2) Pathogenesis and Transmission of Swine-Origin 2009 A(H1N1) Influenza Virus in Ferrets *(Vincent J. Munster et al.)*
[http://www.sciencemag.org/cgi/content/abstract/1177127](http://www.sciencemag.org/cgi/content/abstract/1177127)

In a ferret pathogenesis and transmission model, the 2009 A(H1N1) virus was found to be more pathogenic than a seasonal A(H1N1) virus, with more extensive virus replication occurring in the respiratory tract. These data suggest that the 2009 A(H1N1) virus has the ability to persist in the human population, potentially with more severe clinical consequences.

3) Pandemic Influenza: Straight From the Pig's Mouth: Swine Research With Swine Influenzas *(Jon Cohen)*
[http://www.sciencemag.org/cgi/content/summary/325/5937/140?rss=1](http://www.sciencemag.org/cgi/content/summary/325/5937/140?rss=1)

Pig studies have taken on a new cachet because of the swine origins of the 2009 A(H1N1) strain that's causing the current pandemic—and the pig flu research community's eerily prescient predictions that something like it was bound to make headway in humans.

4) Antigenic and Genetic Characteristics of Swine-Origin 2009 A(H1N1) Influenza Viruses Circulating in Humans *(Rebecca J. Garten, et al.)*
[http://www.sciencemag.org/cgi/content/full/325/5937/197?rss=1](http://www.sciencemag.org/cgi/content/full/325/5937/197?rss=1)

Circulation of an influenza A(H1N1) swine-origin virus in humans with an antigenically and genetically divergent HA and a previously unrecognized genetic composition is of concern to public health officials around the world. That this virus appears readily transmissible between humans is further cause for alarm. The evolutionary distances between the gene segments of this virus and its closest relatives indicate a lack of surveillance in swine populations that may harbor influenza viruses with pandemic potential.
**WEEKLY SYNTHESIS OF SURVEILLANCE INFORMATION, LITERATURE & GOVERNMENT UPDATES**

**(WEEK 27- ENDING IN JULY 17, 2009)**

**CASE COUNTS:**
As of July 20, 2009, over 120 countries have officially reported 139,566 cases of influenza A (H1N1) infection, including 781 deaths. Please see hyperlinks in table for most up to date case counts.

<table>
<thead>
<tr>
<th>COUNTRIES/PROVINCES</th>
<th>CASE COUNTS</th>
<th>DEATHS</th>
<th>HOSPITALIZATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CANADA (PHAC)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- BC</td>
<td>382</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>- AB</td>
<td>1,348</td>
<td>3</td>
<td>87</td>
</tr>
<tr>
<td>- SK</td>
<td>859</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>- MB</td>
<td>831</td>
<td>6</td>
<td>201</td>
</tr>
<tr>
<td>- ON</td>
<td>3,636</td>
<td>15</td>
<td>266</td>
</tr>
<tr>
<td>- QC</td>
<td>2,259</td>
<td>17</td>
<td>488</td>
</tr>
<tr>
<td>- NB</td>
<td>42</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NS</td>
<td>330</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>- PEI</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NL</td>
<td>44</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Yukon</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- NWT</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Nunavut</td>
<td>405</td>
<td>0</td>
<td>38</td>
</tr>
<tr>
<td><strong>U.S. (CDC)</strong></td>
<td>40,617</td>
<td>263</td>
<td></td>
</tr>
<tr>
<td><strong>E.U. and EFTA (ECDC)</strong></td>
<td>16,969</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>13,646</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>10,926</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td><strong>Argentina</strong></td>
<td>3,056</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>13,178</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>2,368</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>139,566</td>
<td>781</td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 3:00pm (EST) on July 15; CDC numbers updated last at 11:00 am on July 17; ECDC numbers updated last at 5:00 pm (CEST) on July 20 2009.

**NOTE:** Testing parameters are influenced by the most current knowledge of the H1N1 virus and risk groups. Therefore, the frequency of laboratory tests conducted and the risk groups that are being tested may change over time.
DEATHS AMONG NOVEL H1N1 INFLUENZA A VIRUS, APRIL 13-JULY 13, 2009

- 16 deaths have been reported, representing a population-based mortality rate of 0.1 deaths per 100,000 population.
- Almost all of these fatalities were hospitalized prior to death (81%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 58 years and average is 54 years.
- Among confirmed cases that have died, 13 or 81% had underlying chronic medical conditions compared to 53% of hospitalized cases.

HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES

As of July 16, 2009 in Ontario:
- 277 confirmed cases have been hospitalized to date, also representing a population-based hospitalization rate of 2.1 hospital admissions per 100,000 population in Ontario.
- Of these, 233 cases have been discharged.
- The average length of stay was less than 24 hours to 41 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease diabetes, etc).
- 89% of cases that were discharged had a length of stay of at least 2 days
- 44 cases are currently hospitalized

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>Ventilator and/or ICU</th>
<th>Not in ICU and not on ventilator</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>24</td>
<td>20</td>
<td>44</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>17</td>
<td>215</td>
<td>232</td>
</tr>
<tr>
<td>Total hospitalized to date</td>
<td>41</td>
<td>235</td>
<td>276*</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, July 16, 2009.
* Excludes case with a length of stay of less than 24 hours

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>Hospitalized Cases*</th>
<th>Non-hospitalized Cases</th>
<th>Total Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20 years</td>
<td>140</td>
<td>2112</td>
<td>2252</td>
</tr>
<tr>
<td>Greater than or equal to 20 years</td>
<td>136</td>
<td>1405</td>
<td>1541</td>
</tr>
<tr>
<td>Total</td>
<td>276</td>
<td>3517</td>
<td>3793</td>
</tr>
</tbody>
</table>

Source: MOHLTC, iPHIS data as of 8:30 am, July 16, 2009. Age was unknown for 11 cases

### GOVERNMENT UPDATES

**CENTRE FOR DISEASE CONTROL (CDC)**

**July 17, 2009: CDC H1N1 flu surveillance update.** 40,617 confirmed cases and 263 deaths. The site can be found at:
http://www.cdc.gov/h1n1flu/update.htm

**Weekly Flu View Map and Surveillance Report for Week Ending July 11, 2009**
Map includes both seasonal flu and H1N1 flu activity. During week 27, (July 05—July 11 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 99% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. One influenza-associated pediatric death was reported and was associated with novel influenza A (H1N1) virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels.
http://www.cdc.gov/flu/weekly/

**July 16, 2009: CDC Home Care Guidance: Physician Directions to Patient or Parent**
http://www.cdc.gov/h1n1flu/guidance_homecare_directions.htm

**July 14, 2009: 10 Steps You Can Take: Actions for Novel H1N1 Influenza Planning and Response for Medical Offices and Outpatient Facilities.**
It is critical to assure that medical offices and other outpatient facilities (e.g., outpatient/ambulatory clinics, outpatient surgery centers, urgent care centers, physical therapy/rehabilitation offices or clinics) that provide routine, episodic, and/or chronic healthcare services can manage an increased demand for services in the midst of a novel H1N1 influenza outbreak. The CDC has provided steps in planning and responding to the novel H1N1 influenza.
http://www.cdc.gov/h1n1flu/10steps.htm

**July 09, 2009: CDC Health Alert Network (HAN) Info Service Message: Three Reports of Oseltamivir Resistant Novel Influenza A (H1N1) Viruses**
http://www.cdc.gov/h1n1flu/HAN/070909.htm

**PUBLIC HEALTH AGENCY OF CANADA (PHAC)**

**July 17, 2009: Canada releases new H1N1 outbreak guidelines for closed facilities.**
Minister of Health Leona Aglukkaq, and Canada’s Chief Public Health Officer, Dr. David Butler-Jones, announced that new guidelines on outbreaks of H1N1 in closed facilities have been posted and distributed to stakeholders. Closed facilities include long term care facilities and correctional facilities for young adults. The Public Health Agency of Canada has also released updated guidelines on clinical care in primary care facilities such as hospitals and clinics.
OAHPP Weekly H1N1 Digest

**FluWatch Week 27 (July 05-11, 2009)**
The overall influenza activity level remains high for this time of the year, but has been decreasing compared to the previous weeks (for the fourth consecutive week). There was almost a 21% increase in the reported number of hospitalized Pandemic (H1N1) 2009 cases this week.


**WORLD HEALTH ORGANIZATION (WHO)**

**July 16, 2009: Changes in reporting requirements for pandemic (H1N1) 2009 virus infection.**
The WHO will no longer issue the global tables showing the numbers of confirmed cases for all countries. However, as part of continued efforts to document the global spread of the H1N1 pandemic, regular updates will be provided describing the situation in the newly affected countries. WHO will continue to request that these countries report the first confirmed cases and, as far as feasible, provide weekly aggregated case numbers and descriptive epidemiology of the early cases.


**July 10, 2009: Interim WHO guidance for the surveillance of human infection with A(H1N1) virus**

**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)**

**July 20, 2009: Managing schools during the current A(H1N1) 2009-10 pandemic – Reactive and proactive school closures in Europe**
Proactive school closures, that is, closing schools ahead of a pandemic arriving in an area, is a public health measure that has been commonly suggested for mitigating the impact of pandemics.


**July 20, 2009: ECDC Interim Risk Assessment**
The interim ECDC risk assessment for Europe is that the 2009 pandemic influenza A (H1N1) virus will continue to spread, but many uncertainties remain. Though it seems that most of those infected in the US and in Europe experience a mild and self-limiting infection, this picture is still unclear as there has not been enough transmission to judge the effects, especially in those more at risk.


**July 17, 2009: Protocols for cohort database studies to measure influenza vaccine effectiveness in the EU and EEA Member States**
The generic study protocols presented in this document summarize all relevant methodological issues related to conducting cohort database studies aimed at measuring vaccine effectiveness for seasonal and A(H1N1)v influenza. All protocols were developed as part of an ECDC project entitled I-MOVE (Influenza Monitoring of Vaccine Effectiveness). Based on these protocols, a number of specific studies will be
conducted during the current influenza A (H1N1)v virus pandemic.  


July 17, 2009: Protocols for case-control studies to measure influenza vaccine effectiveness in the EU and EEA Member States
This publication presents the core European protocol for a series of proposed influenza vaccine effectiveness studies. The protocol includes a proposed plan for pooled analysis and has recently been adapted to measure vaccine effectiveness for the pandemic vaccine in 2009-10.  


HEALTH/SURVEILLANCE BULLETINS:

Countries reporting first case(s) of pandemic H1N1

July 17, 2009: Sudan - Sudan's health ministry yesterday reported the country's first pandemic H1N1 influenza cases, Reuters reported. The patients are two Sudanese men who arrived on a flight from Britain on Jul 13. They are reportedly recovering from their illnesses.  

http://www.reuters.com/article/africaCrisis/idUSHEA670400

July 16, 2009: Haiti - Haiti has confirmed its first three novel H1N1 flu cases. Two cases are in Chilean soldiers serving in the United Nations Stabilization Mission for Haiti, and the third involves a 23-year-old Haitian who has not been outside the country. The two soldiers entered Haiti early this month. All three patients were in stable condition. Samples from 61 people are being tested in foreign laboratories, stated by Health Minister Alex Larsen.  


July 15, 2009: Tonga - The South Pacific archipelago of Tonga has reported its first two cases of novel H1N1 flu. Blood tests conducted in Australia confirmed the illness in two women, one a resident and the other a visitor from Brisbane, Australia.  


Southern Hemisphere

Australia

July 20, 2009: Total confirmed cases as of 1200 AEST are 13,178; Total deaths associated with pandemic H1N1 influenza is 32. Currently, there are 224 hospitalized cases of pandemic H1N1 and 95 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 1454.

Australia, New South Wales: Weekly Summary (as of July 15, 2009)
The latest 7-day count of 1200 presentations with ILI is nearly four times higher than the highest seasonal peak of the last 6 years. There was a 4-fold increase in the
presentations in ILI in the age groups 5-16 and 17-34 years compared with peak seasonal influenza activity in recent years. Australia has moved their pandemic planning phase to “Protect”, in which testing parameters have changed to testing those with more severe illness who require hospitalization. As of July 15 2009, highest number of confirmed cases of pandemic H1N1 is in children aged 10-14 years. As of July 15, 2009, there were 412 confirmed H1N1 hospitalized cases, 61 of those cases required ICU admission, and 36 of those have required mechanical ventilation.  

New Zealand: Weekly Summary (July 06-12, 2009)  
The report describes the continuing sharp increase in ILI through the sentinel surveillance. The highest ILI consultation rates have been reported among children and teenagers between the ages of 0-19 years. The current ILI rate of influenza is higher than at the same time last year. A total of 26 Influenza A H1N1 viruses have been tested for oseltamivir-resistant by ether phenotypic assay or a molecular assay and all 26 have come back positive.  

South America & the Americas

Highlights of the high-level Cancun H1N1 meeting, from PAHO
High-level officials including health ministers from Mexico, the United States, Canada, and 40 other countries discussed pandemic preparedness and lessons learned from the 2009 Influenza pandemic at a summit hosted by Mexican President Felipe Calderon in Cancun July 2-3.  
http://new.paho.org/hq/index.php?option=com_content&task=view&id=1577&Itemid=1

PAHO Pandemic H1N1 epidemiology summary last updated July 10, 2009.  
As of July 10, 2009; 76,761 confirmed cases of Influenza A H1N1 2009 infection, including 505 deaths, have been notified in 31 countries of the Americas.  
See PAHO link for more information.  

July 15, 2009: Panamerican health ministers meet to coordinate pandemic response.  
Health ministers from six South American countries met yesterday in Buenos Aires, Argentina, to coordinate responses to the H1N1 pandemic. Besides Argentina, the meeting included Bolivia, Brazil, Chile, Paraguay, and Uruguay. Ministers said the countries need to share medicine and supplies, and they voiced concern about access to vaccines. Argentina has had 137 deaths, second highest toll after the United States.  
http://www.terradaily.com/reports/South_American_nations_meet_on_stemming_swine_ flu_999.html

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http://www.terradaily.com/reports/South_American_nations_meet_on_stemming_swine_ flu_999.html

July 15, 2009: Pandemic forces postponement of surgeries in Chile  
Five thousand surgeries were postponed in Chile last week to free up hospital beds for patients with H1N1 flu. The number of delayed procedures could rise to 20,000 over the next few weeks as the country continues to battle the pandemic.  

OAHPP Weekly H1N1 Digest
July 2009: White paper on H1N1, from Massachusetts Institute of Technology (MIT) (John M. Barry)

This paper provides a relatively in-depth understanding of the problem and the issues of the pandemic H1N1 virus and the current developments.


CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

July 20, 2009: Security guards to protect Tamiflu depots in Britain

Security guards will be used to protect oseltamivir (Tamiflu) supplies when more than 100 distribution centers are set up in the United Kingdom this week. The location of the centers will be kept secret until they are set to open. Richard Hampton of the National Health Service said there is concern about theft and the safety of workers at the centers.


July 20, 2009: Air carriers list restrictions on suspected H1N1 patients

Two British air carriers, British Airways and Virgin Atlantic, announced they would increase restrictions on passengers with suspected H1N1 infections. If a customer looks sick, the airport staff can call in a medical team for advice, the story said. If the medical team is concerned, the customer will be asked to produce a “fit-to-fly” certificate from a doctor or hospital.


July 17, 2009: Australian ob-gyn group urges pregnant women to wear mask.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists urged pregnant women to wear masks in public and "wash themselves scrupulously" after coming into contact with others. Ted Weaver, president of the group, said pregnant women should work at home if possible. "If it's not essential to go out, stay home," he said. The story said six pregnant women were fighting for their lives in intensive care units in Sydney.


July 16, 2009: Canada says it can meet its own vaccine needs.

When vaccination against the novel H1N1 virus begins, Canada will be able to fill all of its vaccine needs within its borders, the Canadian Press reported yesterday. In 2001, Canada signed a contract with a vaccine maker that is now owned by GlaxoSmithKline that requires the company to be able to make pandemic vaccine for Canadians whenever needed. The contract was prompted by an incident during the 1976 swine flu outbreak, when Canada never got the vaccine it ordered from the United States.

http://www.google.com/hostednews/canadianpress/article/ALeqM5gHmjskDrW9P8WGsOQ2XHa64Zs56CA

July 14, 2009: The California Nurses Association yesterday detailed the complaints of nurses at a Vallejo hospital about inadequate respiratory protection to care for patients with novel flu. They said the hospital had too few N95 masks, and the masks were not
properly fitted. Also, they said they were asked to reuse masks repeatedly and to wear surgical masks over the N95s. A hospital official told the Associated Press that only one employee had confirmed H1N1 flu and that the masks could be safely reused. [link]

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- JAMA (new this week)
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- Proceedings of the National Academy of Sciences (new this week)
- Science

AMERICAN JOURNAL OF PUBLIC HEALTH

1) Pandemic Influenza and Pregnant Women: Summary of a Meeting of Experts (Sonja A. Rasmussen et al. June 18, 2009) [link]

Pandemic Influenza: Special Considerations for Pregnant Women was a meeting convened by the Centers for Disease Control and Prevention in 2008 to obtain input from experts and key partners regarding clinical management of pregnant women and related public health actions to be taken during a pandemic. The meeting focused on four main topics: prophylaxis and treatment with influenza antiviral and other medications, vaccine use, nonpharmaceutical interventions and health care planning, and communications. A review of available evidence to guide actions in each of these four areas was conducted, with recommendations for future research.


Authors reviewed the important ethical challenges presented by pregnant women and highlighted the considerations for all vulnerable groups when planning for a pandemic at both the local and the national level.
BRITISH MEDICAL JOURNAL

1) Healthcare workers should get top priority for vaccination against A/H1N1 flu, WHO says (John Zarocostas July 15, 2009)
http://www.bmj.com/cgi/content/full/339/jul15_1/b2877

On the July 13th 2009, the WHO said that it is necessary that health workers be vaccinated against the H1N1 virus as “first priority” followed by high risk or vulnerable groups, as initially there will not be enough A/H1N1 vaccine for everyone.

2) Data on flu deaths are potentially misleading, say researchers (Zosia Kmietowicz. July 15, 2009)
http://www.bmj.com/cgi/content/full/339/jul15_1/b2881

Early data indicate that the A/H1N1 virus causes mild disease and has a case fatality ratio of around 0.5%. Researchers suggest three reasons why this ratio may not be accurate. Possible reasons include underestimation of the total number of deaths, the total number of cases may be underestimated as only the more severe cases are reported and the calculation of the case fatality ratio does not take account the time between infection and death.


NHS Direct, the health hotline designed to take some of the strain away from GPs, received over 9,000 calls about swine flu on Tuesday – a swine flu record. One of the problems is that hundreds of well people are still calling the service with their questions about swine flu, despite there being another telephone number for this purpose.

CLINICAL INFECTIOUS DISEASES
- Nothing new on H1N1 since last week

EMERGING INFECTIOUS DISEASES
- Nothing new on H1N1 since last week

EUROSURVEILLANCE

1) Influenza A (H1N1) virus infections in Belgium, May-June 2009 (Belgian Working Group on influenza A (H1N1). July 14, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19270

This document outlines the H1N1 situation in Belgium to date. As of July 14, there were 633 people tested and 130 confirmed cases of H1N1 influenza A. For the first 43 cases, 35 had acquired the virus abroad. Cases of H1N1 influenza A that were acquired in Belgium were close contacts of those who acquired the virus abroad. The most affected group were those aged 20-29, with 16 cases. The most common symptoms were general discomfort and fever. No complications have been reported so far. On July 13, 2009, the Interministerial Influenza Coordination Committee in Belgium announced the switch to a mitigation strategy.
1) Serum cross-reactive antibody response to a novel Influenza A (H1N1) Virus after vaccination with a seasonal influenza vaccine.
http://jama.ama-assn.org/cgi/content/full/302/3/249

CDC assessed the level of cross-reactive antibody to the novel influenza A (H1N1) virus in cohorts of children and adults before and after they had been vaccinated with the 2005-06, 2006-07, 2007-08, or 2008-09 influenza season vaccines. Among children and adults aged >60, vaccination for seasonal influenza did not elicit a cross-reactive antibody response. Among adults aged 18-64, vaccination for seasonal influenza resulted in a twofold increase in cross-reactive antibody response to novel influenza A (H1N1). It is unknown if this slight increase would provide protection against novel influenza A (H1N1) infection. These data suggest that receipt of recent (2005-2009) seasonal influenza vaccines is unlikely to elicit a protective antibody response to the novel influenza A (H1N1) virus.

JOURNAL OF INFECTIOUS DISEASES

1) Influenza in Hospitalized Adults: Gaining Insight into a Significant Problem (Michael G. Ison)
http://www.journals.uchicago.edu/doi/full/10.1086/600384

The author summarizes the Lee et al. study in this issue of Journal of Infectious Diseases and compares it to other similar retrospective studies regarding influenza among hospitalized adults. Taken together all of these studies help to understand differences between clinical presentation and course of influenza in ambulatory and hospitalized adults.

2) Viral Loads and Duration of Viral Shedding in Adult Patients Hospitalized with Influenza (Nelson Lee et al.)
http://www.journals.uchicago.edu/doi/full/10.1086/600383

Study investigators measured viral RNA concentrations prospectively in 147 hospitalized patients with influenza A (H3N2), to determine factors associated with viral loads and viral shedding. Major co-morbidities, advanced age and systemic corticosteroid use were associated with persistent viral RNA detection. Treatment with antiviral medication within the first 4 days of symptoms shortened the duration of viral RNA detection. Viral RNA clearance was associated with a shorter hospital stay.

LANCET

- Nothing new on H1N1 since last week

LANCET INFECTIOUS DISEASES

- Nothing new on H1N1 since last week

MORBIDITY AND MORTALITY WEEKLY REPORT (MMWR)

1) Dispatch - Intensive-Care Patients With Severe Novel Influenza A (H1N1) Virus Infection - Michigan, June 2009.
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58d0710a1.htm
This report describes the clinical findings of a limited series of patients with novel influenza A (H1N1) virus infection and refractory ARDS admitted to a tertiary-care ICU for advanced mechanical ventilation. This patient group represents the most severely ill subset of persons with novel influenza A (H1N1) virus infection and is notable for the predominance of males, the high prevalence of obesity (especially extreme obesity), and the frequency of clinically significant pulmonary emboli and MODS. All required advanced mechanical ventilator support, reflecting severe pulmonary damage. The pulmonary compromise described in this report suggests that severe pulmonary damage occurred as a result of primary viral pneumonia.

2) In vitro and in vivo characterization of new swine-origin H1N1 influenza viruses (Yasushi Itoh et al.)
http://www.nature.com/nature/journal/vnfv/ncurrent/pdf/nature08260.pdf

In mice and ferrets, CA04, an isolate of novel influenza A (H1N1) virus, and other swine-origin influenza isolates replicate more efficiently than currently circulating human H1N1. CA04 also replicates efficiently in non-human primates and causes more severe pathological lesions in lungs of infected mice, ferrets and non-human primates. The assessment of human sera from different age groups suggests that infection with human H1N1 viruses antigenically closely related to viruses circulating in 1918 confers neutralizing antibody activity to CA04. Also, CA04 is sensitive to approved and experimental antiviral drugs, suggesting that these compounds could function as a first line of defense against the recently declared novel influenza A (H1N1) pandemic.

NEW ENGLAND JOURNAL OF MEDICINE

1) Perspective: The persistent legacy of the 1918 Influenza virus (David M. Morens, Jeffery K. Taubenberger, and Anthony S. Fauci. July 16, 2009)
http://content.nejm.org/cgi/content/full/361/3/225

This article explains evolution of influenza viruses throughout history. The novel pandemic strain of H1N1 influenza A is a descendant of the virus which caused the pandemic of 1918. In the past 90 years, the virus has undergone genetic reassortment with avian and swine influenza viruses. As a result, new strains of the virus are constantly appearing. This constant genetic shift and drift causes mutations that result in new viruses which haven’t been encountered by the human immune system before. These viruses then have the capability to cause pandemics in humans.

2) Review article: Historical Perspective — Emergence of Influenza A (H1N1) Viruses (Shanta M. Zimmer, M.D., and Donald S. Burke, M.D. July 16, 2009)
http://content.nejm.org/cgi/content/full/361/3/279

In this article, the authors outline the series of evolutionary and epidemiologic events that led to the emergence of the novel H1N1 influenza strain causing the current pandemic. The 1918 pandemic strain of influenza A H1N1 is related to an influenza virus causing a similar sickness in swine during the same time period. The current pandemic strain of influenza A H1N1 is a result of the reassortment of two swine influenza A H1N1 viruses. These viruses were the products of at least four independent avian to mammalian cross-species transmissions, with at least four previous reassortments of gene segments among avian, swine and human-adapted viruses.
**PUBLIC LIBRARY OF SCIENCE ONE (PLoS ONE)**
- Nothing new on H1N1 since last week

**PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES (PNAS)** NEW THIS WEEK
1) Dating the emergence of pandemic influenza viruses *(Gavin J. D. Smith et al.)*
http://www.pnas.org/content/early/2009/07/10/0904991106.full.pdf+html

The authors estimate the evolutionary history and inferred introduction to humans. Results indicate that genetic components of the 1918 H1N1 pandemic virus circulated in mammalian hosts, i.e. swine and humans, as early as 1911 and was not likely to be a recently introduced avian virus. Phylogenetic relationships suggest that the A/Brevig Mission/1/1918 virus (BM/1918) was generated by reassortment between mammalian viruses and a previously circulating human strain, either in swine or, possibly, in humans. Furthermore, seasonal and classic swine H1N1 viruses were not derived directly from BM/1918, but their precursors co-circulated during the pandemic.

**SCIENCE**
1) Don't Blame Birds for 1918 Flu *(Martin Enserink 13 July 2009)*
http://sciencenow.sciencemag.org/cgi/content/full/2009/713/1

It has become almost common wisdom that the virus that caused the 1918 flu pandemic was an avian strain introduced into the human population shortly before the pandemic erupted. But a new study by Smith et al. in Proceedings of the National Academy of Sciences disputes that hypothesis, arguing instead that genes of the 1918 virus had circulated in mammalian hosts, most likely pigs and humans, for several years before 1918. Multiple gene-swapping events brought them together in a single killer strain, say the researchers; improving surveillance in humans and in swine could alert scientists to such events early in the future.

**CONFERENCE**

**What:** The H1N1 influenza pandemic is receiving unprecedented attention from media, the public, and governments. As such, The Ministry of Health China, WHO, The Lancet, and The Lancet Infectious Diseases have now joined forces to respond to this global health emergency.

**Title:** International Symposium on Influenza Pandemic Response and Preparedness,

**Where:** Beijing, China

**When:** August 21-22, 2009. The Lancet conference on Influenza in the Asia Pacific will be held at the same venue on August 22-23, 2009.

**More Information:** http://www.asiaflu.thelancetconferences.com/
WEEKLY SYNTHESIS OF SURVEILLANCE INFORMATION, LITERATURE & GOVERNMENT UPDATES
(WEEK 28 - ENDING IN JULY 24, 2009)

CASE COUNTS*

As of July 27, 2009, over 120 countries have officially reported 163,789 cases of influenza A (H1N1) infection, including 998 deaths. Please see hyperlinks in table for most up to date case counts.

<table>
<thead>
<tr>
<th>COUNTRIES/PROVINCES</th>
<th>CASE COUNTS</th>
<th>DEATHS</th>
<th>HOSPITALIZATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA (PHAC)</td>
<td>10,156</td>
<td>55</td>
<td>1,115</td>
</tr>
<tr>
<td>- BC</td>
<td>382</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>- AB</td>
<td>1348</td>
<td>4</td>
<td>87</td>
</tr>
<tr>
<td>- SK</td>
<td>859</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>- MB</td>
<td>831</td>
<td>7</td>
<td>201</td>
</tr>
<tr>
<td>- ON</td>
<td>3,636</td>
<td>18</td>
<td>302</td>
</tr>
<tr>
<td>- QC</td>
<td>2,259</td>
<td>19</td>
<td>488</td>
</tr>
<tr>
<td>- NB</td>
<td>42</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NS</td>
<td>330</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>- PEI</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NL</td>
<td>44</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Yukon</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- NWT</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Nunavut</td>
<td>405</td>
<td>1</td>
<td>38</td>
</tr>
<tr>
<td>U.S. (CDC)</td>
<td>43,771</td>
<td>302</td>
<td></td>
</tr>
<tr>
<td>E.U. and EFTA (ECDC)</td>
<td>16,969</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>15,383</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>11,641</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>3,056</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>17,061</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>2,585</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>163,789</td>
<td>998</td>
<td></td>
</tr>
</tbody>
</table>

* As of July 16, 2009, the WHO will no longer issue the global tables showing the numbers of confirmed cases for all countries. However, as part of continued efforts to document the global spread of the H1N1 pandemic, regular updates will be provided describing the situation in the newly affected countries. Thus, the reported cases presented in this table will severely underestimate the true incidence in the country and will not be comparable to countries still recommending laboratory tests of all suspected influenza cases.

Note: PHAC numbers updated last at 3:00pm (EST) on July 15; CDC numbers updated last at 11:00 am on July 24; ECDC numbers updated last at 5:00 pm (CEST) on July 27, 2009
NOTE: Testing parameters are influenced by the most current knowledge of the H1N1 virus and risk groups. Therefore, the frequency of laboratory tests conducted and the risk groups that are being tested may change over time.

DEATHS AMONG NOVEL H1N1 INFLUENZA A VIRUS, APRIL 13-JULY 22, 2009

- 18 deaths have been reported, representing a population-based mortality rate of 0.1 deaths per 100,000 population.
- Almost all of these fatalities were hospitalized prior to death (83%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 58 years and average is 55 years.
- Among confirmed cases that have died, 13 or 72% had underlying chronic medical conditions compared to 55% of hospitalized cases.

HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES

As of July 22, 2009 in Ontario:

- 302 confirmed cases have been hospitalized to date, also representing a population-based hospitalization rate of 2.3 hospital admissions per 100,000 population in Ontario.
- Of these, 250 cases have been discharged.
- The average length of stay was less than 24 hours to 45 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease, diabetes, etc).
- 89% of cases that were discharged had a length of stay of at least 2 days
- Of the 52 cases that are currently hospitalized, a total of 29 were placed on a ventilator and/or were admitted to ICU.

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>Ventilator and/or ICU</th>
<th>Not in ICU and Not on Ventilator</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>29</td>
<td>23</td>
<td>52</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>25</td>
<td>224</td>
<td>249</td>
</tr>
<tr>
<td>Total hospitalized to date</td>
<td>54</td>
<td>247</td>
<td>301*</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, July 22, 2009.
* Excludes case with a length of stay of less than 24 hours

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>Hospitalized Cases*</th>
<th>Non-hospitalized Cases</th>
<th>Total Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20 years</td>
<td>148</td>
<td>2170</td>
<td>2318</td>
</tr>
<tr>
<td>Greater than or equal to 20 years</td>
<td>152</td>
<td>1409</td>
<td>1561</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>3579</td>
<td>3879</td>
</tr>
</tbody>
</table>

Source: MOHLTC, iPHIS data as of 8:30 am, July 22, 2009. Age was unknown for 11 cases
GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

July 24, 2009: CDC H1N1 Flu Surveillance Update. The site can be found at: http://www.cdc.gov/h1n1flu/update.htm

Weekly Flu View Map and Surveillance Report for Week Ending July 18, 2009
Map includes both seasonal flu and H1N1 flu activity. During week 28, (July 12—July 18 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 99% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Five influenza-associated pediatric deaths were reported and four of the five deaths were associated with novel influenza A (H1N1) virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels. http://www.cdc.gov/flu/weekly/

July 20, 2009: Questions & Answers - Novel H1N1 Influenza Vaccine
http://www.cdc.gov/h1n1flu/vaccination/public/vaccination_qa_pub.htm

July 14, 2009: CDC Update: Possible Novel H1N1 Flu Screening for International Travelers. Due to the outbreak of novel H1N1 flu occurring in the United States and many other countries, airport staff in some countries may check the health of arriving passengers. Many countries, including Japan and China, are screening arriving passengers for illness due to novel H1N1 flu. These health screenings are being used to reduce the spread of novel H1N1 flu.

July 17, 2009: Travel Notices - Novel H1N1 Flu: Global Situation
CDC recommends that travelers at high risk for complications from any form of flu discuss their travel plans with their doctor. Together, they should look carefully at the H1N1 flu situation in their destination and the available health-care options in the area. They should discuss their specific health situations and possible increased risk of traveling to the area affected by novel H1N1 flu.
http://wwwn.cdc.gov/travel/content/outbreak-notice/novel-h1n1-flu-global-situation.aspx

July 14, 2009: Interim CDC Guidance on Day and Residential Camps in Response to Human Infections with the Novel Influenza A (H1N1) Virus
This document provides interim guidance on suggested means to reduce the spread of the novel influenza A (H1N1) virus in day, residential, or overnight camp settings. Recommendations are interim, based on current knowledge of the H1N1 outbreak in the United States, and may be revised as more information becomes available.
http://www.cdc.gov/h1n1flu/camp.htm

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 28 (July 12 - 28, 2009)
The overall influenza activity increased slightly this week; the national ILI consultation rate (27 consultations per 1,000 visits vs. 21) and the reported activity level (7 regions
reported localized activity vs. 4) are higher compared to the last week. However, the proportion of influenza positive tests decreased for the fifth consecutive week. The proportion of specimen tested positive for Pandemic (H1N1) 2009 was 98.7% this week. http://www.phac-aspc.gc.ca/fluwatch/08-09/w28_09/pdf/fw2009-28-eng.pdf

July 23, 2009: Deaths Associated with H1N1 flu virus in Canada
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters. http://www.phac-aspc.gc.ca/alert-alerte/swine-porcine/surveillance-eng.php

July 23, 2009: Canada Takes Further Action to Better Understand the H1N1 Flu Virus
The Public Health Agency of Canada's National Microbiology Laboratory Canada is partnering with intensive care units across the country in a study to determine how and why severe illness affects some people after they become infected with H1N1 Influenza, Minister of Health Leona Aglukkaq and Canada's Chief Public Health Officer, Dr. David Butler-Jones announced today. http://www.phac-aspc.gc.ca/media/nr-rp/2009/2009_0723-eng.php

WORLD HEALTH ORGANIZATION (WHO)

July 23/27, 2009: WHO offices issue pandemic flu surveillance updates. The World Health Organization (WHO) recently posted surveillance and status updates for regions where the pandemic H1N1 is just gaining a foothold, including the Mideast, Africa, and parts of Asia and the Pacific, which showed Southeast Asia as the hardest hit of those areas. http://www.who.int/csr/don/2009_07_27/en/index.html

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)


July 20, 2009: Managing schools during the current A (H1N1) 2009-10 pandemic – Reactive and proactive school closures in Europe.
Proactive school closures, that is, closing schools ahead of a pandemic arriving in an area, is a public health measure that has been commonly suggested for mitigating the impact of pandemics. http://ecdc.europa.eu/en/health_content/phdev/090720_ph.aspx

HEALTH/SURVEILLANCE BULLETINS:

Countries reporting first case(s) of pandemic H1N1

July 23, 2009: Kazakhstan - Kazakhstan yesterday reported its first three novel H1N1 cases, involving three students who were diagnosed after returning from London.
July 22, 2009: Hungary - Hungary today reported its first novel H1N1 death, in a 41-year-old man who had underlying heart and lung problems, Reuters reported. The country has so far confirmed 37 cases, and two patients are hospitalized with mild illnesses.

http://www.reuters.com/article/americasCrisis/idUSLM334123

July 21, 2009: Namibia - Namibia has reported its first two cases of novel H1N1 infection, both in young people who traveled abroad, a July 20th Agence France-Presse (AFP) report said. One case was in a 13 year old boy who went on a rugby trip to South Africa with 20 other students; the other involved a "young student" who was treated at a hospital after returning from Europe, the story said. Two neighboring countries, South Africa and Botswana, had their first cases in June and last week, respectively.

http://www.int.iol.co.za/index.php?set_id=1&click_id=68&art_id=nw20090720204819945C218738

Southern Hemisphere

July 23, 2009: Southern hemisphere sees H3N2 seasonal flu variant. Laboratory experts in the southern hemisphere are reporting the circulation of a drifted strain of the seasonal H3N2 flu virus, raising the threat of a vaccine mismatch for the northern hemisphere's upcoming flu season. Officials, overwhelmed by handling a deluge of pandemic H1N1 samples, aren't sure how common the variant is. It was first identified in March by researchers in British Columbia.

http://www.google.com/hostednews/canadianpress/article/ALeqM5jPDEE_BdufsSNIxDs5NN-W0GiWoQ

Australia

July 27, 2009: Total confirmed cases as of 12:00 AEST are 17,061; Total deaths associated with pandemic H1N1 influenza is 50. Currently, there are 378 hospitalized cases of pandemic H1N1 and 103 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 2014.

July 22, 2009: The first trials of a Federal Government-commissioned swine flu vaccine that is likely to be distributed globally will begin in Adelaide, South Australia on July 22, 2009. Rachel David from vaccine makers CSL says the Royal Adelaide Hospital trials will take about seven months, but there will be enough data by September for the Government to start planning distribution in October. A trial on children aged from six months to nine years will start at Adelaide's Women's and Children's Hospital next month. The Federal Government has ordered 21 million doses of the vaccine.


July 22, 2009: Australia, China launch novel H1N1 vaccine trials. Two Australian pharmaceutical companies said they began human trials this week of their pandemic H1N1 vaccines. CSL, based in Melbourne, said it hoped that results will allow release of the government-contracted vaccine in October, and Vaxine said it hoped to have results
in 6 to 8 weeks. Meanwhile, two Chinese companies said they launched clinical trials of novel H1N1 vaccines. They are Hualan Biological Engineering and Sinovac. 
http://www.stuff.co.nz/world/swine-flu/2664951/Australia-starts-swine-flu-vaccine-trials

**Australia, New South Wales: Weekly Summary (as of July 22, 2009)**
The latest 7 day count of 1229 presentations with ILI is nearly four times higher than the highest seasonal peak of the last 6 years. Australia has moved their pandemic planning phase to “Protect”, in which testing parameters have changed to testing those with more severe illness who require hospitalization. As of July 15 2009, highest number of hospitalized confirmed cases of pandemic H1N1 is in children aged 0-4 years. As of July 15, 2009, there were 654 confirmed H1N1 hospitalized cases, 96 of those cases required ICU admission and have been 30-59 year age group

**New Zealand**

**July 27, 2009:** New Zealand now has 2662 laboratory-confirmed cases. The level of illness would be much higher than the number of laboratory-confirmed cases reported daily. Testing is now done only in the management of severe cases. Also, many people with swine flu are able to look after themselves at home and do not need to see their GP. There have now been 12 deaths in New Zealand linked to the pandemic. All who have died had underlying health conditions.

**New Zealand: Weekly Summary (July 13-19, 2009)**
The report describes the continuing sharp increase in ILI through the sentinel surveillance. The highest ILI consultation rates have been reported among children and teenagers between the ages of 0-19 years. The current ILI rate of influenza is higher than at the same time last year. A total of 26 Influenza A H1N1 viruses have been tested for oseltamivir-resistant by ether phenotypic assay or a molecular assay and all 26 have come back positive.

**South America & the Americas**

**July 18, 2009: Argentina** - The government declared a nationwide animal health emergency following the discovery of the new H1N1 flu virus in at least one pig herd.
http://www.buenosairesherald.com/BreakingNews/View/6666

**PAHO Pandemic H1N1 epidemiology summary last updated July 10, 2009.** As of July 10, 2009 76,761 confirmed cases of Influenza A H1N1 2009 infection, including 505 deaths, have been notified in 31 countries of the Americas. 
http://new.paho.org/hq/index.php?option=com_content&task=view&id=1574&Itemid=1167
July 23, 2009: Canadian employers are reporting "huge increases" in absenteeism tied to concerns about the H1N1 virus, according to Karen Seward of Shepell-fgi, a Canadian firm that provides health and productivity services to businesses. Seward said her company is getting many questions from employers about handling absences. She said employers and public health officials are giving conflicting advice about when sick workers should see a doctor.
http://www.thespec.com/article/605227

July 23, 2009: British businesses lag on preparedness Absenteeism in British workplaces is three times normal for this time of year, a consultant group told the British government this week, leading to fears that businesses will struggle when the H1N1 influenza pandemic peaks. Many companies have instituted hygiene steps, but an expert said most haven't planned for absences, such as making telecommuting plans, boosting customer self-service systems, and identifying key workers.
http://www.ft.com/cms/s/0/93f305ae-76f0-11de-b23c-00144feabdc0.html?nclick_check=1

July 23, 2009: Muslim countries bar high-risk groups from hajj. Health ministers from Middle Eastern countries who met yesterday to discuss pandemic flu risks decided to ban children, the elderly, and those with chronic health conditions from attending the hajj pilgrimage in Saudi Arabia in late November. The ban applies to children under 12 and adults over 65. Some Muslim clerics have opposed pilgrimage travel bans and have said flu risks are exaggerated.
http://www.google.com/hostednews/ap/article/ALeqM5j1QLBhDS5eGcWH27j3B9HajsT8hwD99K8P880

July 22, 2009: Canada, Japan finds new oseltamivir-resistant cases. Canada reported its first and Japan its second case of oseltamivir (Tamiflu)-resistant pandemic H1N1 flu. The Canadian patient is a 60-year-old Quebec man who was treated with the drug, and public health officials said it appears to be an isolated incident. The Japanese patient is from Yamaguchi and received the drug as postexposure prophylaxis. The patient's virus was sensitive to zanamivir, and officials said there was no sign of additional spread.
http://www.google.com/hostednews/canadianpress/article/ALeqM5gaNQxQtkte8cDFnwA_JRXyesKjAQ

July 22, 2009: Canadian inspectors got sick after exposure to infected pigs The Canadian Food Inspection Agency said yesterday that two of its employees contracted the novel H1N1 virus during their investigation earlier this spring of an Alberta pig herd that had the virus. The employees reportedly removed their protective masks, contrary to recommended procedures, in the hog barn after their equipment fogged up. They got sick within days of their exposure to the virus in the barn.
http://www.vancouversun.com/health/Swine+inspectors+became+infected+themselves+Alberta+farm/1814007/story.html

July 22, 2009: Sanofi set to launch human vaccine trials. An official from Sanofi Pasteur today said the company would begin human trials of its pandemic H1N1 vaccine in early August and expects to have a vaccine ready by November or December. The clinical trials, which could last about 2 months, will take place in the United States, France, and
one other European country. The company said it doesn't know yet how much antigen will be needed for each dose.

July 22, 2009: Glaxo issues vaccine update, triples Relenza production
In an update on its pandemic activities, GlaxoSmithKline (GSK) said in a press release today that it is talking with regulatory agencies about testing its pandemic H1N1 vaccine, which consists of antigen and its AS03 adjuvant, to be combined before administration. The firm said its first orders will be delivered to countries in September, but the delivery pace will depend on production yield. GSK also said it tripled production of its antiviral drug, zanamivir (Relenza).

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal (CMAJ)
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One

AMERICAN JOURNAL OF PUBLIC HEALTH
- Nothing new on H1N1 since June 18.

BRITISH MEDICAL JOURNAL
1) "You can’t have swine flu" (Susan Mayor July 22, 2009)
http://www.bmj.com/cgi/content/full/339/jul22_1/b2969

A journalist with BMJ presents her views about her experience with influenza A (H1N1): 'My observational study (n=1) suggests that the assumption that swine flu causes only mild illness may have been simplistic. Sadly, the recent deaths of people who apparently had no underlying illness also indicates that assumptions that swine flu poses no real risk may have been premature.'

2) Predicting and preparing for pandemic flu (Fiona Godlee July 23, 2009)
http://www.bmj.com/cgi/content/full/339/jul23_1/b2988

This editorial stresses the importance of accurate forecasting in the influenza A(H1N1) pandemic in order to plan for the coming months.
3) How well is the UK managing the influenza A/H1N1 pandemic? (Roy M Anderson July 25, 2009)
http://www.bmj.com/cgi/content/full/339/jul15_4/b2897

In this editorial, the author answers the question posed in the title. In his opinion, the UK is doing a good job of managing the influenza A (H1N1) pandemic. He points to the quick response of government to the pandemic, detailed and prompt epidemiologic analysis at the beginning of the pandemic and the large stockpile of antiviral medication and their early use as prophylaxis as examples of the UK’s ample response to the influenza A (H1N1) pandemic.

4) Government tries to end confusion over swine flu advice to pregnant women (Adrian O'Dowd July 22, 2009)
http://www.bmj.com/cgi/content/full/339/jul22_1/b2984

The government has issued new guidance that comes after a weekend of conflicting messages about pregnancy and influenza A (H1N1) infection from different sources. A statement from England’s chief medical officer, said that the health department was not advising pregnant women to avoid going to work or busy public places. But it advised that they should observe good hand hygiene, avoid contact wherever possible with someone who is known or suspected to have swine flu, and to contact their GP if they had flu-like symptoms. Pregnant healthcare workers should avoid seeing patients with flu-like symptoms if this is possible and practical, the Royal College of General Practitioners says.

5) A/H1N1 influenza update (Adrian O'Dowd July 23, 2009)
http://www.bmj.com/cgi/content/full/339/jul23_1/b2977

Journalist Adrian O'Dowd reports on the most up to date information regarding pandemic influenza A (H1N1). He answers such questions as: ‘What more do we know about A/H1N1 compared with two months ago?’ ‘What are the latest predictions on how serious this virus is?’ And ‘What are the likely arrangements for distribution of the A/H1N1 vaccine?’

http://www.bmj.com/cgi/content/full/339/jul14_3/b2840

This article describes two potential sources of bias in measuring the case fatality ratio for the novel influenza A (H1N1) pandemic. Study designs and statistical methods are proposed to obtain accurate estimates for the case fatality ratio. The first source of bias is in case ascertainment, where typically only severe cases of influenza will end up being reported. The second is delays between onset, death, and reporting. Thus among reported cases there may be people who will die but are still alive at the time of statistical analysis. This is known statistically as censoring.

**CANADIAN MEDICAL ASSOCIATION JOURNAL (CMAJ)**

1) Infectious disease experts expect the unexpected with respect to swine flu (Paul Webster)
http://www.cmaj.ca/cgi/rapidpdf/cmaj.091176
Top influenza control officials from Mexico, Canada and the United States warn that the Novel A (H1N1) influenza pandemic may intensify further, while a vaccine won’t be available in Canada until November.

2) Analysis: Modelling an influenza pandemic: a guide for the perplexed (David Fisman and Pandemic Influenza Outbreak Research Modelling Team)
http://www.cmaj.ca/cgi/rapidpdf/cmaj.090885

Mathematical models can be used to synthesize data on newly emerging pathogens and can project plausible scenarios. Using previously estimated numbers including the effective reproductive number and average generation time, it is possible to estimate the final size of an epidemic, with or without control measures. Models can also account for antiviral resistance and what the most useful strategy for providing antiviral medication to control influenza.

3) Investigation of the first cases of human-to-human infection with the new swine-origin influenza A (H1N1) virus in Canada (Jennifer Cutler et al.)
http://www.cmaj.ca/cgi/rapidpdf/cmaj.090859

This paper outlines the epidemiologic and clinical characteristics for the first cluster of novel influenza A (H1N1) among students in a private school in Nova Scotia. A cluster of cases of acute respiratory illness were first reported on April 23, 2009. An outbreak investigation found that some of the students had traveled to Mexico in the previous weeks. Samples had to be sent to the National Microbiology Lab in Winnipeg, as the technology to identify novel influenza A (H1N1) was not in place yet in the provinces. Control measures included isolating cases, using oseltamivir on cases to reduce infectious period and giving oseltamivir prophylaxis to students and staff. As of May 8, 2009, there were 99 suspected and probable cases of novel influenza A (H1N1) associated with this cluster.

CLINICAL INFECTIOUS DISEASES

1) Benefits of a universal influenza immunization program: more than the reduction in the use of antibiotics (W. Paul Glezen July 22, 2009)
http://www.journals.uchicago.edu/doi/full/10.1086/605088

The Universal Influenza Immunization Program is a program unique to Ontario. Since it was implemented, Ontario has a higher rate of vaccine coverage compared to the rest of Canada and most American states. The increased vaccine coverage rates for preschool- and school-aged children have the potential not only to reduce morbidity among those with the highest influenza attack rates but also to provide indirect protection (herd protection) for their older contacts in the community. The Ontario experience provides a proven model for improving influenza control in the United States.

2) Brief report: The Effect of Universal Influenza Immunization on Antibiotic Prescriptions: An Ecological Study (Jeffrey C. Kwong et al. July 22, 2009)
http://www.journals.uchicago.edu/doi/full/10.1086/605087
The Canadian province of Ontario introduced universal influenza immunization in 2000, offering free vaccines to the entire population. From 1996–1997 to post-2000, overall vaccine uptake increased from 18% to 38% in Ontario, compared with an increase from 13% to 24% in other provinces. The authors compared changes in rates of influenza-associated respiratory antibiotic prescriptions before and after universal immunization in Ontario with corresponding changes in other provinces. Universal influenza immunization is associated with reduced influenza-associated antibiotic prescriptions. Rates of influenza-associated antibiotic prescriptions decreased from 17.9 to 6.4 per 1000 people in Ontario, compared with a decrease from 8.3 to 8.2 per 1000 people in other provinces.


In response to health care worker influenza vaccination rates that are below desired targets, strategies designed to stimulate vaccination have been proposed, including the use of declination statements for those refusing vaccination. The impact of these statements has not been thoroughly investigated and may be affected by their specific language and context. This review examines the available data on the use and impact of declination statements to increase health care worker vaccination rates and notes some potential pitfalls and issues that may arise with their use.

EMERGING INFECTIOUS DISEASES


The authors of this study investigated the genetic diversity in all 8 gene segments of representative oseltamivir-resistant influenza viruses A (H1N1) (ORVs) and oseltamivir-sensitive viruses (OSVs) collected during December 2007–March 2008 by the National Influenza Sentinel Surveillance System in Luxembourg. The His275Tyr (N1 numbering) mutation in the neuraminidase (NA) genes of influenza virus A (H1N1) that confers resistance to oseltamivir has previously been associated with impaired virus replication, infectivity, and pathogenicity. They speculate that the unexpected fitness of the 2007–08 influenza viruses (H1N1) may be caused by a new genetic background that is most likely encoded in the PB2 gene.


During an influenza pandemic, illness among nurses might result in staff shortage. The authors aimed to show the value of individual data from the healthcare sector for mathematical modeling of infectious disease transmission. Using a paper diary approach, they compared nurses’ daily contacts with those of matched controls from a representative population survey. For nurses, 51% of work-related contacts were with patients (74% involving skin-to-skin contact, and 63% lasted <15 minutes). The data, used with simulation models, can help predict staff availability and provide information for pandemic preparedness planning.
EUROSURVEILLANCE

1) Modified surveillance of Influenza A (H1N1) virus infections in France (Influenza A (H1N1) Investigation Teams, July 23, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19276

Up to early July 2009, surveillance of H1N1 cases in France was based on the identification of all possible cases in order to implement, around each of them, control measures aimed at delaying the spread of the virus. The global dissemination of the virus and the starting community transmission in France led us to shift to a population-based surveillance relying mainly on the identification and investigation of clusters of influenza-like illness, on the identification and individual follow-up of confirmed hospitalized cases as well as on the monitoring, through various sentinel systems, of the use of ambulatory and hospital care for influenza-like symptoms.

2) Enhanced surveillance of Influenza A (H1N1) in Greece during the containment phase (T. Lytras et al. July 23, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19275

Following the emergence of a novel influenza virus (influenza A(H1N1)v) with pandemic potential in late April 2009, public health measures were put in place in an effort to contain disease spread in Greece. These included enhanced surveillance of infections due to influenza A(H1N1)v virus, in order to continuously ascertain the situation and guide further public health action. On 15 July, Greece moved to mitigation phase. This report summarizes surveillance findings in Greece during the delaying (or “containment”) phase, from 30 April to 14 July 2009.

3) Clinical features of cases of Influenza A (H1N1) in Osaka Prefecture, Japan, May 2009 (N. Komiya et al. July 23, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19272

This report describes the clinical characteristics of influenza A(H1N1)v virus infection in Osaka. By the end of May, 171 cases had been reported in Osaka. Most patients were from one school. No patient had a serious underlying medical condition. Clinical symptoms were mild and resembled those of seasonal influenza. The sensitivity of the rapid antigen test was 77%. Antivirals were given to the majority of the cases. Early antiviral treatment may have shortened the duration of fever.

4) Europe’s initial experience with pandemic (H1N1) 2009: mitigation and delaying policies and practices (A. Nicoll and D. Coulombier, July 23, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19279

To date the distribution of transmission of pandemic influenza (H1N1) has been highly heterogeneous between and within countries in Europe, with one country the United Kingdom (UK) experiencing the most cases and the highest transmission rates. Most infections are mild but there are steadily increasing numbers of people needing hospital care and more deaths are being reported. An initial difference in practice between Europe and North America was over case-finding and treatment with some authorities in Europe using active case-finding, contact tracing and treatment/prophylaxis with antivirals to try and delay transmission. This article details the history of this practice in
the past two months and explains how and why countries are moving to mitigation, especially treating with antivirals those at higher risk of experiencing severe disease.

**JOURNAL OF INFECTIOUS DISEASES**

1) Influenza in hospitalized adults: gaining insight into a significant problem (*Michael G. Ison, August 15, 2009*)  
http://www.journals.uchicago.edu/doi/full/10.1086/600384

This was the first study of hospitalized patients to perform careful and serial sampling of the respiratory tract to monitor the duration of viral shedding and to correlate these findings with clinical symptoms.

2) Viral loads and duration of viral shedding in adult patients hospitalized with Influenza (*Nelson Lee et al. August 15, 2009*)  
http://www.journals.uchicago.edu/doi/full/10.1086/600383

Patients hospitalized with severe influenza have more active and prolonged viral replication. Weakened host defenses slow viral clearance, whereas antivirals started within the first 4 days of illness enhance viral clearance.

**THE LANCET**

1) Non-invasive ventilation in acute respiratory failure (*Stefano Nava and Nicholas Hill. 18 July 2009*)  
http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60496-7/fulltext#article_upsell

Non-invasive mechanical ventilation has been increasingly used to avoid or serve as an alternative to intubation. Compared with medical therapy, and in some instances with invasive mechanical ventilation, it improves survival and reduces complications in selected patients with acute respiratory failure.

**LANCET INFECTIOUS DISEASES**

Much of the August 2009 issue discusses the H1N1 pandemic  
http://www.lancet.com/journals/laninf/issue/current

1) Running faster to stay in the same place (*Editorial, p. 455. August 2009*)  
http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70180-X/fulltext

For a UK based infectious diseases journal, albeit one with a global perspective, August would not, in any other year, be the obvious month for an influenza themed issue. But 2009 is not just any other year for influenza—for the first time in their careers, clinicians and researchers are facing the global challenge of an influenza pandemic. This issue also coincides with *The Lancet* Conference on Influenza in the Asia–Pacific to be held in Beijing, Aug 21–23, in which international experts come together to discuss various aspects of influenza research from insights on the virus, to surveillance, and, pertinently, pandemic response.

2) Possible origin of current influenza A H1N1 viruses (*Hong Zhang, Ling Chen, August 2009*)
The ongoing outbreak of swine-origin influenza A H1N1 in Mexico, the USA, and 40 other countries reminds us that the risk of an influenza pandemic is high and will persist in the future.

3) Influenza in the tropics (Yee-Sin Leo, David C Lye, Angela Chow, August 2009)
http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70182-3/fulltext

Compared with temperate countries, data on tropical influenza remain scarce. Russell and colleagues suggest that epidemics of new variants of influenza are seeded into temperate regions from continuously circulating viruses in east and southeast Asia through temporary regionally overlapping epidemics.

4) Economics of stockpiling for an influenza pandemic (Praveen Dhankhar, Erik J Dasbach, Elamin H Elbasha, August 2009)
http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70183-5/fulltext

Secondary bacterial infections (especially Streptococcus pneumoniae infections) were the leading cause of death during past influenza pandemics. One way to prevent pneumococcal infections in adults during the next pandemic is to stockpile pneumococcal vaccines. The usefulness of strategies such as stockpiling can be evaluated using cost-effectiveness analysis.

5) Influenza at the 26th ICC (John McConnell, August 2009)
http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70187-2/fulltext

The 26th International Congress of Chemotherapy and Infection, in Toronto, Ontario, Canada (June 18—21), was held just a week after declaration by WHO of an influenza pandemic. A session on the pandemic-causing H1N1 virus was a highlight of the conference, and is described below. Frank Plummer (National Microbiology Laboratory, Winnipeg, Manitoba, Canada) presented details of Canada's early involvement in identifying the novel H1N1 virus.

6) Containment abandoned for unstoppable pandemic (Peter Hayward, August 2009)
http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70188-4/fulltext

Since the last update in The Lancet Infectious Diseases, the situation of swine-origin influenza A H1N1 has continued to change day to day.

7) Closure of schools during an influenza pandemic (Review) (Simon Cauchemez et al. August 2009)
http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70176-8/fulltext

This article reviews non-pharmaceutical interventions, for example school closure, that are commonly suggested for mitigating influenza pandemics. Health officials taking the decision to close schools must weigh the potential health benefits of reducing transmission and thus case numbers against high economic and social costs, difficult ethical issues, and the possible disruption of key services such as health care. Also, if schools are expected to close as a deliberate policy option, or just because of high
levels of staff absenteeism, it is important to plan to mitigate the negative features of closure.

8) Influenza in immunosuppressed populations: a review of infection frequency, morbidity, mortality, and vaccine responses (Ken M Kunisaki, Edward N Janoff, August 2009)
http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70175-6/fulltext

Multiple guidelines recommend influenza vaccination for patients infected with HIV, who have received solid-organ transplants, who have received haemopoietic stem-cell transplants, and patients on haemodialysis. However, immunosuppression might also limit vaccine responses. To better inform policy, we reviewed the published work relevant to incidence, outcomes, and prevention of influenza infection in these patients, and in patients being treated chemotherapy and with systemic corticosteroids.

MORBIDITY AND MORTALITY WEEKLY REPORT (MMWR)

1) Neurologic Complications Associated with Novel Influenza A (H1N1) Virus Infection Among Children (July 24, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5828a2.htm

This report highlights the potential for children with novel influenza A (H1N1) virus infection to experience neurological complications. It describes four cases of patients, aged 7-17, who were admitted to hospital with signs of influenza-like illness (ILI) and seizures or altered mental status. Physicians who are caring for children hospitalized with influenza-like illness and unexplained seizures or mental status changes should consider that the neurological symptoms may be related to influenza, send respiratory specimens for testing, and start treatment with antiviral medications used against flu.

2) Prevention and control of seasonal influenza with vaccines (Anthony E. Fiore, July 24, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr58e0724a1.htm?s_cid=rr58e0724a1_x

This report updates the 2008 recommendations by CDC's Advisory Committee on Immunization Practices (ACIP) regarding the use of influenza vaccine for the prevention and control of seasonal influenza. Information on vaccination issues related to the recently identified novel influenza A H1N1 virus will be published later in 2009. Vaccination efforts should begin as soon as vaccine is available and continue through the influenza season. Approximately 83% of the United States population is specifically recommended for annual vaccination against seasonal influenza; however, <40% of the U.S. population received the 2008--09 influenza vaccine.

NATURE

1) Regulators face tough flu-jab choices (Declan Butler, July 21, 2009)

Regulatory agencies may have to approve pandemic vaccines — both adjuvanted and non-adjuvanted — without all the data they would normally require, warns Marie-Paule Kieny, the WHO’s vaccine research director. Some preliminary clinical and safety data may be available by September, when flu cases could surge in the Northern

OAHPP Weekly H1N1 Digest
Hemisphere, but complete data for adults are unlikely to be available until the end of December and not until February 2010 for children. Regulators would accompany pandemic vaccine rollouts with parallel clinical trials, and, as in any mass-vaccination campaign, extensive surveillance would monitor for any adverse side effects.

NEW ENGLAND JOURNAL OF MEDICINE

1) Pneumonia and respiratory failure from swine-origin Influenza A (H1N1) in Mexico (Rogelio Perez-Padilla et al. July 20, 2009)
http://content.nejm.org/cgi/content/full/NEJMoa0904252v1

In late March 2009, an outbreak of a respiratory illness later proved to be caused by novel swine-origin influenza A (H1N1) virus (S-OIV) was identified in Mexico. This study describes the clinical and epidemiologic characteristics of persons hospitalized for pneumonia at the national tertiary hospital for respiratory illnesses in Mexico City who had laboratory-confirmed S-OIV infection. A total of 18 cases of pneumonia and confirmed S-OIV infection were identified among 98 patients hospitalized for acute respiratory illness. Over 50% of the 18 case patients were between 13 and 47 years of age, and only 8 had preexisting medical conditions. Twelve patients required mechanical ventilation, and seven died. S-OIV infection can cause severe illness, the acute respiratory distress syndrome, and death in previously healthy persons who are young to middle-aged.

2) Severe respiratory disease concurrent with the circulation of H1N1 Influenza (Gerardo Chowell et al. July 20, 2009)
http://content.nejm.org/cgi/content/full/NEJMoa0904023v1

In the spring of 2009, an outbreak of severe pneumonia was reported in conjunction with the concurrent isolation of a novel swine-origin influenza A (H1N1) virus (S-OIV) in Mexico. During the study period, 87% of deaths and 71% of cases of severe pneumonia involved patients between the ages of 5 and 59 years, as compared with average rates of 17% and 32%, respectively, in that age group during the referent periods. Features of this epidemic were similar to those of past influenza pandemics in that circulation of the new influenza virus was associated with an off-season wave of disease affecting a younger population. During the early phase of the pandemic, there was a sudden increase in the rate of severe pneumonia and a shift in the age distribution of patients with such illness, which was similar to past pandemics. This also suggests relative protection for persons who were exposed to H1N1 strains during childhood before the 1957 pandemic. These findings suggest a rationale for focusing prevention efforts on younger populations.

3) Correspondence - Rapid-test sensitivity for Novel Swine-Origin Influenza A(H1N1) in Humans (Dennis J. Faix et al. July 20, 2009)

The Naval Health Research Center serves as the Navy hub for the Department of Defense’s Global Emerging Infections Surveillance and Response System (GEIS), in which it monitors influenza-like illness among recruit trainees of all military service members. The first two human cases of novel swine-origin influenza A (H1N1) virus in the United States were detected through these programs. The centre processed 3066 specimens with the use of a real-time reverse-transcriptase–PCR (RT-PCR) assay. The
study findings suggest that rapid-test sensitivity may vary according to the influenza A subtype. Further investigation is needed to confirm these results and evaluate possible explanations. This finding has implications for the diagnosis and treatment of patients with influenza-like illness now and during the next influenza season. As seasonal and zoonotic influenza viruses continue to drift and shift, we must continuously assess the sensitivity and specificity of available diagnostic tests.

**PLoS One**

-Nothing new on H1N1 this week
Weekly Synthesis of Surveillance Information, Literature & Government Updates

(WEEK 29- ENDING IN JULY 31, 2009)

Hospitalization & Death Counts:
The WHO will no longer issue the global tables showing the numbers of confirmed cases for all countries. Thus, the reported cases presented in this table will severely underestimate the true incidence in the country and will not be comparable to counties still recommending laboratory tests of all suspected influenza cases. The following table provides global updates on H1N1-associated deaths. Please see hyperlinks in table for most up to date counts.

<table>
<thead>
<tr>
<th>COUNTRIES/PROVINCES</th>
<th>DEATHS</th>
<th>HOSPITALIZATIONS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA (PHAC)</td>
<td>59</td>
<td>1271</td>
</tr>
<tr>
<td>- BC</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>- AB</td>
<td>5</td>
<td>114</td>
</tr>
<tr>
<td>- SK</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>- MB</td>
<td>7</td>
<td>201</td>
</tr>
<tr>
<td>- ON**</td>
<td>19</td>
<td>326</td>
</tr>
<tr>
<td>- QC</td>
<td>20</td>
<td>564</td>
</tr>
<tr>
<td>- NB</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NS</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>- PEI</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NL</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- Yukon</td>
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<td>0</td>
</tr>
<tr>
<td>- NWT</td>
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<td>0</td>
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<tr>
<td>- Nunavut</td>
<td>1</td>
<td>42</td>
</tr>
<tr>
<td>U.S. (CDC)</td>
<td>353</td>
<td>5514</td>
</tr>
<tr>
<td>E.U. and EFTA (ECDC)</td>
<td>39</td>
<td>889†</td>
</tr>
<tr>
<td>Mexico</td>
<td>146</td>
<td></td>
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<tr>
<td>Chile</td>
<td>79</td>
<td></td>
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<tr>
<td>Argentina</td>
<td>165</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>61</td>
<td>2525</td>
</tr>
<tr>
<td>New Zealand</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,148</td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 4:00pm (EST) on July 30; CDC numbers updated last at 11:00 am on July 30; ECDC numbers updated last at 5:00 pm (CEST) on July 31 2009.
† Source: ECDC as of July 31, 2009.
**Deaths Among Novel H1N1 Influenza A Virus, April 13-July 29, 2009**

- 19 deaths have been reported, representing a population-based mortality rate of 0.1 deaths per 100,000 population.
- Almost all of these fatalities were hospitalized prior to death (84%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 58 years and the average age is 56 years.
- Among confirmed cases that have died, 14 or 74% had underlying chronic medical conditions compared to 57% of hospitalized cases.

**Hospitalizations Among Novel H1N1 Influenza A Virus Cases**

As of July 29, 2009 in Ontario:

- 326 confirmed cases have been hospitalized to date, also representing a population-based hospitalization rate of 2.5 hospital admissions per 100,000 population in Ontario.
- Of these, 277 cases have been discharged.
- The average length of stay was less than 24 hours to 67 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease, diabetes, etc).
- 88% of cases that were discharged had a length of stay of at least 2 days
- Of the 49 cases are currently hospitalized, a total of 27 were placed on a ventilator and/or were admitted to ICU.

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>Ventilator and/or ICU</th>
<th>Not in ICU and not on Ventilator</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>27</td>
<td>22</td>
<td>49</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>33</td>
<td>243</td>
<td>276</td>
</tr>
<tr>
<td>Total hospitalized to date</td>
<td>60</td>
<td>265</td>
<td>325*</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, July 29, 2009.
* Excludes case with a length of stay of less than 24 hours

<table>
<thead>
<tr>
<th>Hospitalization Status</th>
<th>Hospitalized Cases*</th>
<th>Non-Hospitalized Cases</th>
<th>Total Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20 years</td>
<td>156</td>
<td>2192</td>
<td>2348</td>
</tr>
<tr>
<td>Greater than or equal to 20 years</td>
<td>169</td>
<td>1410</td>
<td>1579</td>
</tr>
<tr>
<td>Total</td>
<td>325</td>
<td>3602</td>
<td>3927</td>
</tr>
</tbody>
</table>

Source: MOHLTC, iPHIS data as of 8:30 am, July 29, 2009. Age was unknown for 11 cases
## GOVERNMENT UPDATES

### CENTRE FOR DISEASE CONTROL (CDC)

**July 31, 2009: CDC H1N1 Flu Surveillance Update.**
http://www.cdc.gov/h1n1flu/update.htm

**Weekly Flu View Map and Surveillance Report for Week Ending July 25, 2009.**
Map includes both seasonal flu and H1N1 flu activity. During week 29, (July 19—July 25 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 98% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Two influenza-associated pediatric deaths were reported and both were associated with novel influenza A (H1N1) virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels.
http://www.cdc.gov/flu/weekly/

**July 30, 2009: Managing Calls and Call Centers during a Large-Scale Influenza Outbreak: Implementation Tool.**
During a response to a large-scale influenza outbreak such as the current H1N1 outbreak, a community’s 9-1-1 and healthcare systems may experience a surge in calls or walk-in visits for care, advice, and information. This implementation tool provides a step-by-step approach to achieving this objective by focusing on alternative call center resources.
http://www.cdc.gov/h1n1flu/callcenters.htm

**July 30, 2009: Novel H1N1 Vaccination Recommendations**
With the new H1N1 virus continuing to cause illness, hospitalizations and deaths in the US during the normally flu-free summer months and some uncertainty and about what the upcoming flu season might bring, CDC’s Advisory Committee on Immunization Practices has taken an important step in preparations for a voluntary novel H1N1 vaccination effort to counter a possibly severe upcoming flu season.
http://www.cdc.gov/h1n1flu/vaccination/acip.htm

**July 29, 2009: Interim Guidance for the Detection of Novel Influenza A Virus Using Rapid Influenza Diagnostic Tests.**
This interim guidance provides an overview of the sensitivities of rapid influenza diagnostic tests (RIDT) in detecting novel influenza A (H1N1) virus in order to help guide the reporting and interpretation of test results.
http://www.cdc.gov/h1n1flu/guidance/rapid_testing.htm

**July 24, 2009: Novel H1N1 Vaccination Guidance for State, Local, Tribal and Territorial Health Officials**- information for vaccine planners.
http://www.cdc.gov/h1n1flu/vaccination/statelocal/

### PUBLIC HEALTH AGENCY OF CANADA (PHAC)

**FluWatch Week 29 (July 19–25, 2009)**
The overall influenza activity increased slightly this week; the national ILI consultation rate (19 consultations per 1,000 visits vs. 21) and long-term care facilities (0 vs. 2) are lower compared to the last week. However, the proportion of influenza positive tests
decreased for the fifth consecutive week. In addition, the proportion of influenza positive tests decreased for the sixth consecutive week. Approximately 90% of all hospitalized cases and 85% of deaths have been reported in 4 provinces (QC, ON, MB, AB). The first Canadian case of oseltamivir resistance was reported on 21 July, 2009 in Quebec.
http://www.phac-aspc.gc.ca/fluwatch/08-09/w29_09/index-eng.php

July 30, 2009: Deaths Associated with H1N1 Flu Virus in Canada
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

July 29, 2009: Canadian government guidance on H1N1 prevention and control

July 29, 2009: Workers in Long-Term Care facilities - Infection Control

July 28, 2009: Workers in Acute Care facilities - Infection Control

July 28, 2009: Interim Guidance on Infection Control in PreHospital Care

WORLD HEALTH ORGANIZATION (WHO)

July 27, 2009: WHO offices issue pandemic flu surveillance updates. The World Health Organization (WHO) recently posted surveillance and status updates for regions where the pandemic H1N1 is just gaining a foothold, including the Mideast, Africa, and parts of Asia and the Pacific, which showed Southeast Asia as the hardest hit of those areas.

July 31, 2009: Pandemic influenza in pregnant women.

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

July 31, 2009: Planning assumptions for the First Wave of Pandemic A (H1N1) 2009 in Europe.
As it is summer in Europe the 2009 pandemic has yet to really accelerate in EU countries but the experience in temperate Southern Hemisphere countries suggests it is inevitable that Europe will be affected by a major first A (H1N1) 2009 pandemic wave in the autumn and winter.

HEALTH/SURVEILLANCE BULLETINS:

Countries reporting first case(s) of pandemic H1N1

July 30, 2009: Moldova - Moldova's health ministry reported the country's first pandemic H1N1 case, in a 24-year-old woman who had recently taken a 2-week trip in Europe. In other developments, Azerbaijan reported its first two novel flu cases, in a 14-year-old boy and a woman. Both were returning from European countries and were screened and identified at the airport as they returned home.  

Southern Hemisphere

Australia

July 31, 2009: Total confirmed cases as of 1200 AEST are 21,668; Total deaths associated with pandemic H1N1 influenza is 61. Currently, there are 416 hospitalized cases of pandemic H1N1 and 108 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 2525.

July 25, 2009: Concerns about spread of Pandemic (H1N1) 2009 influenza on return to school. With the reopening of schools after the school holidays across Australia parents and schools need to follow simple measures to reduce the transmission of H1N1 Influenza 09 in the school community. For example, if children develop influenza-like symptoms, it is important that parents keep them away from school until they are well.

Australia, New South Wales: Weekly Summary (as of July 29, 2009)  

New Zealand

July 27, 2009: New Zealand now has 2662 laboratory-confirmed cases. The level of illness would be much higher than the number of laboratory-confirmed cases reported daily. Testing is now done only in the management of severe cases.  

New Zealand: Weekly Summary (July 20-26, 2009)  
There has been a slightly decrease in consultations for influenza-like illness through sentinel surveillance in week 30 (20-26 July 2009). However, the weekly ILI consultation rate is still higher than previous years for the same week. The highest weekly ILI rates were reported from Hutt, Otago and Canterbury health districts. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.  

South America & the Americas

July 31, 2009: Argentina's pandemic H1N1 cases have peaked, and so far the death rate from the disease seems to be less than for seasonal flu, said public health experts. Quoted in a July 31st Associated Press (AP) report. However, one official said the
Disease has had its greatest impact on young people. With more than a month left of the country's flu season, scientists report that viruses isolated in Argentina are nearly identical to those circulating in North America.


**July 27, 2009:** El Salvador extends school vacation to battle pandemic. El Salvador announced it will extend a scheduled school vacation to 2 weeks to fight the spread of the H1N1 flu. School vacations that began yesterday and last from 2 days to a week, depending on the region, will be extended until Aug 10. The action will affect nearly 2 million students. The country has had 545 confirmed cases of H1N1 flu, including seven fatal ones.

http://news.yahoo.com/s/ap/20090728/ap_on_re_la_am_ca/lt_salvador_swine_flu

**CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)**

**July 30, 2009:** Packaging, not yield, may be problem for nasal-spray H1N1 vaccine.

http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/jul3009medimmune.html

**July 30, 2009:** Canadian officials hold off on flu vaccine priority list. Canadian health officials said yesterday that they would wait until at least September to finalize pandemic H1N1 vaccine priorities, Canwest News Service reported today. Dr. David Butler-Jones, chief public health officer, said authorities still have time to assess developments, such as the southern hemisphere’s evolving flu season. Yesterday US officials recommended five priority groups to receive the vaccine, with pregnant women topping the list.

**July 29, 2009:** Japan finds two more Tamiflu-resistant H1N1 cases. Japan has detected two more cases of Tamiflu-resistant pandemic H1N1 flu, Alexander Klimov, PhD, of the CDC’s flu surveillance branch, revealed at the CDC’s vaccine advisory committee today. He also said that Chinese officials revealed during a World Health Organization conference call that they may have one more antiviral-resistant case. Klimov said all cases so far have been linked to Tamiflu prophylaxis or treatment, except for one involving an American girl who was diagnosed in Hong Kong.

**July 29, 2009:** Study on pandemic flu risks in pregnancy finds antiviral treatment delays. Pregnant women who have pandemic H1N1 influenza infection appear to be at greater risk of complications, but some healthcare providers have been hesitant to treat them early with antivirals despite recommendations to do so, researchers from the US Centers for Disease Control and Prevention (CDC) reported today.

http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/jul2909pregnancy.html

**July 28, 2009:** Pregnant women bear disproportionate share of flu deaths. About 6% of pandemic H1N1 deaths in the United States have occurred in pregnant women, though they make up just 1% of the population. The numbers are based on 266 detailed death reports that the Centers for Disease Control and Prevention (CDC) has received. Fifteen deaths occurred in pregnant women. The CDC’s vaccine advisory committee meets tomorrow and is expected to list pregnant women among the high-priority groups to receive the pandemic H1N1 vaccine.

http://www.google.com/hostednews/ap/article/ALeqM5jgQXxHCPrh-RrvL-bJ_WMc4Q5NVgD99NCHIO1
July 28, 2009: Chinese officials say policy of quarantining foreigners is working. Chinese authorities assert that their aggressive quarantine policy to prevent foreign visitors from spreading H1N1 flu has worked well. Officials say China has had few cases and proudly note that no deaths have been reported. But the newspaper tells the story of an American woman who said her surgery for appendicitis was delayed because of the quarantine policy. More than 1,800 Americans have been quarantined in China since the start of the pandemic.

July 28, 2009: Canadian cities group says national pandemic plan is lacking. The head of the Federation of Canadian Cities has charged that Canada has no national plan for protecting critical frontline workers such as police, firefighters, and transit workers. In an open letter to federal Health Minister Leona Aglukkaq, Basil Stewart said Canada's pandemic plan does not say who will have priority access to vaccines and antivirals. A spokesman for Aglukkaq said ongoing epidemiologic studies will guide vaccine allocation.

July 28, 2009: WHO to probe antiviral use patterns. A World Health Organization (WHO) spokeswoman said today that the agency will host a technical teleconference soon to discuss antiviral use during the H1N1 pandemic and the risks of antiviral resistance, Agence France-Presse reported. Countries vary in their use of oseltamivir (Tamiflu). Some use it widely for prevention and treatment of mild cases, while others are reserving it for infections in high-risk groups and for severe cases. So far, five antiviral-resistant cases have been identified.

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- Science

AMERICAN JOURNAL OF PUBLIC HEALTH

- Nothing new on H1N1 this week

BRITISH MEDICAL JOURNAL

1) Doctors call for guidance on how to prioritise critically ill patients in swine flu pandemic (Rebecca Coombes, July 29, 2009) http://www.bmj.com/cgi/content/full/339/jul29_3/b3092?q=w_pandemic_flu

Pressure is expected on critical care beds this autumn, as the A/H1N1 influenza pandemic is set to enter a severe phase. However, the Department of Health has yet to
clarify how it plans to meet demand, according to a House of Lords report this week. The House of Lords Science and Technology Committee heard in May that strategies would be introduced to boost intensive care capacity. Some health workers have raised concerns about ethical issue regarding the provision of services if the capacity for critical care is exceeded.


A “panic pandemic” is worsening the crisis in the UK said health ministers over the weekend. People who are not sick are becoming anxious regarding influenza A H1N1 are overwhelming health services in Britain. Opposition parties blame the government for launching the national flu pandemic service too late. The government says that they were advised by doctors to wait as long as they did. The writer points to a study that modeled outcomes from the pandemic in London. While the estimates for hospital admissions may not be completely accurate, there is a possibility that the critical care capacity will be exceeded.

3) EU Prepares new guidelines for monitoring swine flu (Rory Watson, July 24, 2009) http://www.bmj.com/cgi/content/full/339/jul24_1/b3012

The European Centre for Disease Prevention and Control is planning to issue new surveillance advice to national authorities of the A/H1N1 influenza pandemic. The suggest that countries that have become overwhelmed with monitoring all cases of influenza A H1N1 limit reporting to only the most severe cases. This is in line with advice from the WHO, which has said that if the caseload becomes too high, governments should work on qualitative indicators that provide an overall impression of the situation. These would cover geographical spread, trends and intensity of the pandemic, and its overall impact on a country’s health system.

4) Swine flu website inundated as cases in England double in a week (Nayanah Siva, July 24, 2009) http://www.bmj.com/cgi/content/full/339/jul24_2/b3029

The Department of Health for England said that the number of cases of influenza A/H1N1 has almost doubled, increasing to 100,000, from about 55,000 a week ago. This led to more people trying to access the government’s new flu website. The website was overwhelmed with 9.3 million hits per hour. The website capacity was increased fourfold in order to accommodate all viewers. It is hoped that this service will help relieve some of the pressure on physicians, as people with mild symptoms can consult the website and not their GP.

5) Predicting and preparing for pandemic flu (Fiona Godlee, July 24, 2009) http://www.bmj.com/cgi/content/full/339/jul23_1/b2988

This editorial stresses the importance of accurate forecasting in the influenza A(H1N1) pandemic in order to plan for the coming months.

6) A/H1N1 influenza virus: the basics (Geoff Watts, July 24, 2009) http://www.bmj.com/cgi/content/full/339/jul24_2/b3046
Do you know your H1N1s from your H2N2s? Journalist Geoff Watts explains the basic science of the influenza virus. He includes topics such as genetic variants of influenza, antigenic ‘shift’ and ‘drift’, and evolution and cross-species movements. He also gives reasons to remain optimistic throughout the pandemic.

7) A/H1N1 Influenza Update (Adrian O'Dowd, July 23, 2009)
http://www.bmj.com/cgi/content/full/339/jul23_1/b2977

Journalist Adrian O'Dowd reports on the most up to date information regarding pandemic influenza A (H1N1). He answers such questions as: 'What more do we know about A/H1N1 compared with two months ago?' 'What are the latest predictions on how serious this virus is?' And ‘What are the likely arrangements for distribution of the A/H1N1 vaccine?'

CLINICAL INFECTIOUS DISEASES
- Nothing new on H1N1 this week

EMERGING INFECTIOUS DISEASES
1) Policy Review: Strategy to Enhance Influenza Surveillance Worldwide (Justin R. Ortiz)
http://www.cdc.gov/eid/content/15/8/1271.htm

This review describes a sentinel surveillance system that could enhance the quality of influenza epidemiologic and laboratory data and strengthen a country's capacity for seasonal, novel, and pandemic influenza detection and prevention. This system would 1) provide data for a better understanding of the epidemiology and extent of seasonal influenza, 2) provide a platform for the study of other acute febrile respiratory illnesses, 3) provide virus isolates for the development of vaccines, 4) inform local pandemic planning and vaccine policy, 5) monitor influenza epidemics and pandemics, and 6) provide infrastructure for an early warning system for outbreaks of new virus subtypes.

2) Perspective: Use of Revised International Health Regulations during Influenza A (H1N1) Epidemic, 2009 (Rebecca Katz)
http://www.cdc.gov/eid/content/15/8/1165.htm

Strong international health agreements and good planning created a structure and common procedure for nations involved in detection and evaluation of the emergence of influenza A (H1N1). This report describes a timeline of events that led to the determination of the epidemic as a public health emergency of international concern, following the agreed-upon procedures of the International Health Regulations. These events illustrate the need for sound international health agreements and should be a call to action for all nations to implement these agreements to the best of their abilities.

3) More Diseases Tracked by Using Google Trends (Camille Pelat et al.)
http://www.cdc.gov/eid/content/15/8/1327.htm

The ability of Internet search-engine query data to predict influenza in the United States presented by Ginsberg et al. appears to have a broader application for surveillance of other infectious diseases in other countries. The authors looked at Google search queries for 3 diseases (influenza-like-illness, gastroenteritis and chicken pox) over a period of 5 years. They found that their queries were highly correlated with disease incidence, based on French surveillance data.

OAHPP Weekly H1N1 Digest
EUROSURVEILLANCE

http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19287

This report describes the results of a survey on adherence to, and side effects from oseltamivir for prophylaxis for pupils from schools with confirmed cases of influenza A(H1N1)v in London in April-May 2009. Less than half (48%) of primary schoolchildren completed a full course, compared to three-quarters (76%) of secondary school children. More than half (53%) of all schoolchildren taking prophylactic oseltamivir reported one or more side effects. Gastrointestinal symptoms were reported by 40% of children and 18% reported a mild neuropsychiatric side effect. The results confirmed anecdotal evidence of poor adherence, provided information to assist decision-making, and formed part of the body of evidence that contributed to policy changes to restrict widespread use of prophylaxis for school contacts of confirmed cases of influenza A(H1N1)v.

2) Compliance and side effects of prophylactic oseltamivir treatment in a school in South West England (A Wallensten and D. Olivier., July 30, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19285

The authors evaluated the protective effect, compliance with and side effects of oseltamivir chemoprophylactic treatment with a ten-day course given to 11-12-year-old pupils in one school year in a secondary school in South West England. Compliance with chemoprophylaxis was high, 77% took the full course, 91% took at least seven days. Fifty-one percent experienced symptoms such as feeling sick (31.2%), headaches (24.3%) and stomach ache (21.1%). Compliance with oseltamivir chemoprophylaxis was high, although likely side effects were common. The burden of side effects needs to be considered when deciding on mass oseltamivir chemoprophylaxis in children especially given that the symptoms of A(H1N1)v influenza are generally mild.

3) Pandemic influenza A(H1N1)v viruses currently circulating in New Zealand are sensitive to oseltamivir (R J Hall, et al., July 30, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19282

New Zealand, like other southern hemisphere countries with a temperate climate, has been in the winter period with seasonal influenza activity. New Zealand has also experienced a dramatic increase in the number of cases of pandemic influenza A(H1N1)v virus. Early reports from the northern hemisphere at the beginning of the pandemic showed that the virus was sensitive to the antiviral drug oseltamivir. In this study we report that pandemic influenza A(H1N1)v viruses currently circulating in New Zealand are sensitive to oseltamivir, but seasonal influenza A(H1N1) viruses – the co-circulating predominant seasonal strain, is resistant to oseltamivir.

4) Epidemiologic analysis of the laboratory-confirmed cases of influenza A(H1N1)v in Colombia (M Á Castro-Jiménez et al., 30 July 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19284

From 2 May to 16 July 2009, a total of 183 laboratory-confirmed cases of influenza A(H1N1)v were reported in Colombia, 117 (63.9%) of these had travelled outside the country. Hospital admission was necessary in 26 (14.21%) cases and seven patients
died (fatality-case ratio: 3.8%). The infection affected younger age-groups and the symptoms most frequently reported were cough, fever and sore throat. Our findings are consistent with recent reports from other countries.

5) How the media reported the first days of the pandemic (H1N1) 2009: results of EU-wide media analysis (B Duncan, July 30, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19286

The European Centre for Disease Prevention and Control (ECDC) commissioned an in-depth review of European media coverage of the opening days of the pandemic (H1N1) 2009. A total of 3,979 articles were collected from 31 European countries in the period 27 April until 3 May 2009. National and international public health authorities were by far the leading source of information on the new virus. They were identified as the main source of information in 75% of the articles analyzed. 94% of the articles were either neutral, relaying factual information (70%), or expressing support for the authorities’ handling of the situation (24%). These results seem to vindicate the communication strategy adopted by the public health authorities.

JOURNAL OF INFECTIOUS DISEASES

1) Editorial Commentary: Influenza in Hospitalized Adults: Gaining Insight into a Significant Problem (Michael G. Ison, August 15, 2009)
http://www.journals.uchicago.edu/doi/full/10.1086/600384

The author summarizes the Lee et al. study in this issue of Journal of Infectious Diseases and compares it to other similar retrospective studies regarding influenza among hospitalized adults. Taken together all of these studies help to understand differences between clinical presentation and course of influenza in ambulatory and hospitalized adults.

2) Viral Loads and Duration of Viral Shedding in Adult Patients Hospitalized with Influenza (Nelson Lee, August 15, 2009)
http://www.journals.uchicago.edu/doi/full/10.1086/600383

Study investigators measured viral RNA concentrations prospectively in 147 hospitalized patients with influenza A (H3N2), to determine factors associated with viral loads and viral shedding. Major co morbidities, advanced age and systemic corticosteroid use were associated with persistent viral RNA detection. Treatment with antiviral medication within the first 4 days of symptoms shortened the duration of viral RNA detection. Viral RNA clearance was associated with a shorter hospital stay.

LANCET

1) H1N1 2009 influenza virus infection during pregnancy in the USA (Denise J Jamieson et al., 29 July 2009)
http://www.lancet.com/journals/lancet/article/PIIS0140-6736(09)61304-0/fulltext

The authors summarized cases of pandemic H1N1 virus in pregnant women identified in the USA during the first month of the present outbreak, and deaths associated with the virus during the first 2 months of the outbreak. The Centers for Disease Control and Prevention (CDC) systematically collected additional information about cases and deaths in pregnant women with pandemic H1N1 infection as part of enhanced
surveillance. The estimated rate of admission to hospital for influenza A H1N1 infection in pregnant women during the first month of the outbreak was higher than it was in the general population. These data lend support to the present recommendation to promptly treat pregnant women with H1N1 influenza infection with anti-viral drugs.

**THE LANCET INFECTION DISEASES**

- Nothing new on H1N1 this week

**MORBIDITY AND MORTALITY WEEKLY REPORT (MMWR)**

1) Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2009 (Anthony E. Fiore et al., July 31, 2009)

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5808a1.htm?s_cid=rr5808a1_x

This report updates the 2008 recommendations by CDC’s Advisory Committee on Immunization Practices (ACIP) regarding the use of influenza vaccine for the prevention and control of seasonal influenza. Information on vaccination issues related to the recently identified novel influenza A H1N1 virus will be published later in 2009. Vaccination efforts should begin as soon as vaccine is available and continue through the influenza season. Approximately 83% of the United States population is specifically recommended for annual vaccination against seasonal influenza; however, <40% of the U.S. population received the 2008--09 influenza vaccine.

**NATURE**

1) U.S. puts flu vaccines on trial (Declan Butler, July 28, 2009)


The US National Institute of Allergy and Infectious Diseases (NIAID) announced last week that it will begin five clinical trials for two pandemic H1N1 influenza vaccines in early August. These trials will help inform a likely US mass-vaccination campaign beginning in September. NIAID director Anthony Fauci talks about what vaccines were chosen, and why.

**NEW ENGLAND JOURNAL OF MEDICINE**

- Nothing new on H1N1 this week.

**PLoS ONE**

1) 2009 Swine-origin Influenza A (1=H1N1) resembles previous influenza isolates (Carl Kingsford, Niranjan Nagarajan, Steven L. Salzberg, July 29 2009)

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006402

The study investigators conducted a comprehensive computational search of all available sequences of the surface proteins of H1N1 swine influenza isolates and found that a similar strain to S-OIV appeared in Thailand in 2000. Their main result is that no other sequenced examples of this triple-reassortant swine influenza A pattern besides the discussed Thai isolates could be found. Among publicly available sequences these isolates represent the complete catalog of such events. The collection shows that this has happened at least twice within the past ten years and that all previous such sequenced reassortments were collected in Thailand.
2) Assessment of Local Public Health Workers' Willingness to Respond to Pandemic Influenza through Application of the Extended Parallel Process Model (Daniel J. Barnett et al., July 29, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006365

The authors used Witte's Extended Parallel Process Model (EPPM) as a lens for examining the influences of perceived threat and efficacy on local public health workers' response willingness to pandemic influenza. Reported unwillingness to respond by approximately 1 in 6 means that additional efforts are required to increase and sustain the proportion of local health department employees willing to respond. Our data indicate that 'concerned and confident' local public health employees are most likely to be willing to respond to an influenza pandemic. This finding may allow public health agencies to design, implement, and evaluate training programs focused on emergency response willingness in health departments.

**SCIENCE**

1) Laurie Garrett Interview: U.S. Global Health Leader MIA on Swine Flu (Helen Branswell, July 28, 2009)

In an interview with ScienceInsider last week, Laurie Garrett, a senior fellow for global health at the Council on Foreign Relations (CFR) in New York City, decried the Obama Administration’s failure to appoint a head for the little known Office of Global Health Affairs within the Department of Health and Human Services (HHS). This failure, she argues, has far-reaching consequences for the H1N1 pandemic and international relations in general. She particularly worried that the Administration has not squarely addressed the issue of H1N1 vaccine supply for the world, and urges the government to see the central role the United States could play in assuring that equity prevails.
HOSPITALIZATION & DEATH COUNTS:

The WHO will no longer issue the global tables showing the numbers of confirmed cases for all countries. Thus, the reported cases presented in this table will severely underestimate the true incidence in the country and will not be comparable to counties still recommending laboratory tests of all suspected influenza cases. The following table provides global updates on H1N1-associated deaths. Please see hyperlinks in table for most up to date counts.

<table>
<thead>
<tr>
<th>COUNTRIES/PROVINCES</th>
<th>DEATHS</th>
<th>HOSPITALIZATIONS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA (PHAC)</td>
<td>64</td>
<td>1315</td>
</tr>
<tr>
<td>- BC</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>- AB</td>
<td>6</td>
<td>116</td>
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<td>- SK</td>
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<td>22</td>
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<td>- MB</td>
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<td>201</td>
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<tr>
<td>- ON**</td>
<td>21</td>
<td>332</td>
</tr>
<tr>
<td>- QC</td>
<td>21</td>
<td>579</td>
</tr>
<tr>
<td>- NB</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NS</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>- PEI</td>
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<td>1</td>
</tr>
<tr>
<td>- NL</td>
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<td>2</td>
</tr>
<tr>
<td>- Yukon</td>
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<td>0</td>
</tr>
<tr>
<td>- NWT</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Nunavut</td>
<td>1</td>
<td>42</td>
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<tr>
<td>U.S. (CDC)</td>
<td>436</td>
<td>6506</td>
</tr>
<tr>
<td>E.U. and EFTA (ECDC)</td>
<td>42</td>
<td>1076†</td>
</tr>
<tr>
<td>Mexico</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>337</td>
<td></td>
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<tr>
<td>Australia</td>
<td>85</td>
<td>3009</td>
</tr>
<tr>
<td>New Zealand</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,569</td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 4:00pm (EST) on August 6; CDC numbers updated last at 11:00 am on August 6; ECDC numbers updated last at 5:00 pm (CEST) on August 7 2009.
* Source: PHAC Flu Watch, Week 30 ending August 1 2009.
** Source: Ontario Flu Bulletin as of August 1, 2009.
† Source: ECDC as of August 7, 2009.
DEATHS AMONG NOVEL H1N1 INFLUENZA A VIRUS, APRIL 13-AUGUST 5, 2009

- 21 deaths have been reported, representing a population-based mortality rate of 0.16 deaths per 100,000 population.
- Almost all of these fatalities were hospitalized prior to death (86%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 58 years and the average age is 56 years.
- Among confirmed cases that have died, 15 or 71% had underlying chronic medical conditions compared to 57% of hospitalized cases.

HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES

As of August 5, 2009 in Ontario:
- 332 confirmed cases have been hospitalized to date, also representing a population-based hospitalization rate of 2.5 hospital admissions per 100,000 population in Ontario.
- Of these, 283 cases have been discharged.
- The average length of stay was less than 24 hours to 80 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease diabetes, etc).
- 89% of cases that were discharged had a length of stay of at least 2 days
- Of the 48 cases are currently hospitalized, a total of 26 were placed on a ventilator and/or were admitted to ICU.

<table>
<thead>
<tr>
<th>HOSPITALIZATION STATUS</th>
<th>VENTILATOR AND/OR ICU</th>
<th>NOT IN ICU AND NOT ON VENTILATOR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>26</td>
<td>22</td>
<td>48</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>36</td>
<td>247</td>
<td>283</td>
</tr>
<tr>
<td>Total hospitalized to date</td>
<td>62</td>
<td>269</td>
<td>331*</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, August 5, 2009.
* Excludes case with a length of stay of less than 24 hours

<table>
<thead>
<tr>
<th>HOSPITALIZATION STATUS</th>
<th>HOSPITALIZED CASES*</th>
<th>NON-HOSPITALIZED CASES</th>
<th>TOTAL CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20 years</td>
<td>156</td>
<td>2208</td>
<td>2367</td>
</tr>
<tr>
<td>Greater than or equal to 20 years</td>
<td>173</td>
<td>1432</td>
<td>1605</td>
</tr>
<tr>
<td>Total</td>
<td>332</td>
<td>3640</td>
<td>3927</td>
</tr>
</tbody>
</table>

Source: MOHLTC, iPHIS data as of 8:30 am, August 5, 2009. Age was unknown for 11 cases
<table>
<thead>
<tr>
<th>GOVERNMENT UPDATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENTRE FOR DISEASE CONTROL (CDC)</td>
</tr>
<tr>
<td>August 7, 2009: CDC H1N1 Flu Surveillance Update.</td>
</tr>
<tr>
<td><a href="http://www.cdc.gov/h1n1flu/update.htm">http://www.cdc.gov/h1n1flu/update.htm</a></td>
</tr>
</tbody>
</table>

**Weekly Flu View Map and Surveillance Report for Week Ending August 1, 2009.**  
Map includes both seasonal flu and H1N1 flu activity. During week 29, (July 26—August 1 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 98% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. One influenza-associated pediatric deaths were reported and both were associated with novel influenza A (H1N1) virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels.  
http://www.cdc.gov/flu/weekly/  

August 5, 2009: CDC Recommendations for the amount of time persons with ILI should be away from others.  
http://www.cdc.gov/h1n1flu/guidance/exclusion.htm  

August 5, 2009: Home care guidance: physician directions to patient/parent  
http://www.cdc.gov/h1n1flu/guidance_homecare_directions.htm  

August 5, 2009: Interim guidance for novel H1N1 flu (Swine Flu): Taking care of a sick person in your home.  
http://www.cdc.gov/h1n1flu/guidance_homecare.htm  

August 5, 2009: Interim CDC guidance for institutions of higher education and post-secondary educational institutions in response to human infections with novel influenza A (H1N1) virus.  
http://www.cdc.gov/h1n1flu/guidance/guidelines_colleges.htm  

August 5, 2009: Interim recommendations for facemask and respirator use to reduce novel Influenza A (H1N1) virus transmission.  
http://www.cdc.gov/h1n1flu/masks.htm  

August 5, 2009: Interim novel Influenza A (H1N1) guidance for cruise ships.  
http://www.cdc.gov/h1n1flu/guidance/cruiseships.htm  

August 5, 2009: Interim guidance for airlines regarding flight crews arriving from domestic and international areas affected by swine influenza.  
http://www.cdc.gov/h1n1flu/guidance/air-crew-dom-intl.htm  

<table>
<thead>
<tr>
<th>PUBLIC HEALTH AGENCY OF CANADA (PHAC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FluWatch Week 30 (July 26 – 1, 2009)</td>
</tr>
</tbody>
</table>
The overall influenza activity decreased this week; the national ILI consultation rate (15 consultations per 1,000) is lower compared to the last week. However, the proportion of influenza positive tests increased slightly this week. In addition, the proportion of |
influenza positive tests increased slightly this week. 
http://www.phac-aspc.gc.ca/fluwatch/08-09/w30_09/index-eng.php

**August 6, 2009: Deaths Associated with H1N1 Flu Virus in Canada**
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters. 

**August 6, 2009: Government of Canada announces intention to order 50.4 million doses of H1N1 vaccine.**

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**WORLD HEALTH ORGANIZATION (WHO)**

**August 4, 2009:** WHO offices issue pandemic flu surveillance updates. The World Health Organization (WHO) recently posted surveillance and status updates for regions where the pandemic H1N1 is just gaining a foothold, including the Mideast, Africa, and parts of Asia and the Pacific, which showed Southeast Asia as the hardest hit of those areas. 

**August 6, 2009:** Safety of pandemic vaccines
http://www.who.int/csr/disease/swineflu/notes/h1n1_safety_vaccines_20090805/en/index.html

**August 6, 2009:** Pandemic influenza vaccine manufacturing process and timeline
http://www.who.int/csr/disease/swineflu/notes/h1n1_vaccine_20090806/en/index.html

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**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)**

**August 7, 2009:** ECDC situation report (daily surveillance report).

**August 5, 2009:** Pandemic Influenza A (H1N1) in pregnancy places women at higher risk of adverse outcome- published analytic study from the US.

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**HEALTH/SURVEILLANCE BULLETINS:**

Countries reporting first case(s) of pandemic H1N1

**August 10, 2009:** Pakistan- Pakistan's health ministry today reported the country's first novel H1N1 case, according to Xinhua, China's state news agency. The patient is 1 of 25 people with suspected cases undergoing treatment. No other details were available. The health minister revealed the case in a speech to Pakistan's parliament
http://news.xinhuanet.com/english/2009-08/10/content_11858801.htm

OAHPP Weekly H1N1 Digest
**August 7, 2009:** *Ghana*- The country had recorded its first two cases of novel H1N1 flu. One case is in a 19-year-old woman from Accra, the capital, who may have been infected by a relative who had visited Britain. The other case involves a woman from the Western Region. Kumbour said Ghana, in collaboration with the World Health Organization, has procured drugs for H1N1 treatment.


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**Southern Hemisphere**

**Australia**

**August 7, 2009:** Total confirmed cases as of 1200 AEST are 24,949; Total deaths associated with pandemic H1N1 influenza is 85. Currently, there are 426 hospitalized cases of pandemic H1N1 and 114 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 3009.

**Australia, New South Wales: Weekly Summary (as of August 5, 2009)**


**New Zealand**

**August 7, 2009:** New Zealand now has 2916 laboratory-confirmed cases. The level of illness would be much higher than the number of laboratory-confirmed cases reported daily. Testing is now done only in the management of severe cases.


**New Zealand: Weekly Summary (July 27-August 2, 2009)**

There has been a continuing decline in consultations for influenza-like illness through sentinel surveillance in week 31 (July 27- August 2 2009). However, the weekly ILI consultation rate is still higher than previous years for the same week. The highest weekly ILI rates were reported from Southland, Hutt and Otago health districts. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.


**South America & the Americas**

**August 6, 2009:** Argentina flu deaths double in latest count. The number of novel H1N1 flu deaths in Argentina has risen to 337, according to the health ministry's latest report, suggesting that Argentina could soon pass United States as the country with the most fatalities. The number was more than double the deaths reported in the ministry’s last report 2 weeks ago. Though Argentina has more fatalities than any South American country, officials believe novel flu cases have peaked.

**Center for Infectious Disease Research and Policy (CIDRAP)**

**August 7, 2009:** Hanoi closes all schools in bid to stop pandemic. Hanoi today closed all of its schools until further notice in an effort to contain the novel H1N1 outbreak. The
city’s education department said three schools have had cases among their students. Schools just began opening this week, though the new school year doesn’t begin until Aug 17. Vietnam has had 1,043 H1N1 cases since May, but only one death, which occurred Aug 3 and involved a 29-year-old woman in Khanh Hoa province. 
http://www.asiaone.com/News/Latest%2BNews/Asia/Story/A1Story20090807-159739.html

August 6, 2009: Iran bars pilgrims from attending the Hajj. To slow the spread of the pandemic H1N1 virus, Iran’s health ministry has banned the country’s citizens from attending the annual Hajj pilgrimage in December in Saudi Arabia. The health minister said through state media that the event draws 3 million pilgrims from all over the world, presenting a heightened risk of flu transmission. Iran has confirmed 145 cases so far, but no fatalities.

August 6, 2009: California nurses protest inadequate safety equipment. California nurses protested outside the University of California-San Francisco (UCSF) medical center yesterday to demand better equipment to protect them against the pandemic virus. Nurses also protested the alleged firing of a UCSF nurse for complaining about inadequate safety gear. The California Hospital Association has denied the claims.

August 5, 2009: Review finds parallels between 1957 and 2009 pandemics
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/aug0509panflu57.htm

August 4, 2009: Federal officials weigh narrowing school closure advice. Federal officials are considering plans to recommend fewer school closures. Early in the novel H1N1 flu outbreak, officials recommended closures when student illnesses were confirmed, but later recommended closing only when large numbers were ill. The new guidance might recommend closure only under "extenuating circumstances," such as schools that have large numbers of children with chronic medical conditions

August 4, 2009: China cancels camps in flu-stricken areas. China’s health ministry is canceling summer camps in areas where novel H1N1 outbreaks are occurring. The action follows reports of more than 120 illnesses in students and adults at summer camps in Beijing and in Guangzhou in southern China. The ministry statement said camps elsewhere in the country should be held "only when necessary."

OTHER:
1) Public Health and Medical Responses to the 1957-58 Influenza Pandemic (D. A. Henderson et al., August 5, 2009)

As the U.S. prepares to respond this fall and winter to pandemic (H1N1) 2009, a review of the 1957-58 pandemic of Asian influenza (H2N2) could be useful for planning purposes because of the many similarities between the 2 pandemics. Using historical surveillance reports, published literature, and media coverage, this article provides an overview of the epidemiology of and response to the 1957-58 influenza pandemic in the U.S., during which an estimated 25% of the population became infected with the new pandemic virus strain. While it cannot be predicted with absolute certainty how the H1N1
pandemic might play out in the U.S. this fall, lessons from the 1957-58 influenza pandemic provide useful and practical insights for current planning and response efforts.

2) U.K Flu Survey

Registration for the UK Flu Survey began in the middle of July. Almost 5000 users have now registered, from all over the UK. Important results are starting to come in, including treatment-seeking behaviour etc.

**JOURNALS SCANNED:**

- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- Science

**AMERICAN JOURNAL OF PUBLIC HEALTH**

- Nothing new on H1N1 since last week

**BRITISH MEDICAL JOURNAL**

1) Swine flu incidence in England is slowing down *(Nayanah Siva, August 3, 2009)*
http://www.bmj.com/cgi/content/full/339/aug03_2/b3134

It is estimated that there were 110,000 new cases in the week ending 26 July, up from 100,000 cases the previous week. Previously the number of new cases each week had been doubling. Across England, GP consultation rates among all age groups have fallen in the last week, with the biggest drop in children aged 1-4 years. The number of patients in hospital with swine flu has also fallen, from 800 in the week ending 19 July to 746 in the following week. However, the number of patients in intensive care rose over the same two weeks, from 63 to 81 patients. There was a notable reduction in the number of children aged under 5 years being hospitalized.

**CLINICAL INFECTIOUS DISEASES**

1) Immunization Programs for Infants, Children, Adolescents, and Adults: Clinical Practice Guidelines by the Infectious Diseases Society of America *(Larry K. Pickering et al. August 6, 2009)*
http://www.journals.uchicago.edu/doi/full/10.1086/605430

OAHPP Weekly H1N1 Digest
Evidence-based guidelines for immunization of infants, children, adolescents, and adults have been prepared by an Expert Panel of the Infectious Diseases Society of America (IDSA). These updated guidelines replace the previous immunization guidelines published in 2002. Since 2002, the capacity to prevent more infectious diseases has increased markedly for several reasons. Many of these changes have resulted in expansion of the adolescent and adult immunization schedules. In addition, increased emphasis has been placed on removing barriers to immunization. This document includes 46 standards that, if followed, should lead to optimal disease prevention through vaccination in multiple population groups while maintaining high levels of safety.

**Emerging Infectious Diseases**

1) Clinical and Epidemiologic Characteristics of 3 Early Cases of Influenza A Pandemic (H1N1) 2009 Virus Infection, People’s Republic of China, 2009 (Bin C, et al., July 31, 2009)
http://www.cdc.gov/eid/content/15/9/pdfs/09-0794.pdf

This article describes the clinical and epidemiologic characteristics of 3 early confirmed cases of pandemic (H1N1) 2009 in China. Within the first two weeks of May 2009, two cases were imported from the United States and one from Canada. All 3 cases were young (Chinese students studying abroad). In all cases, the resulting illness was mild and the patients recovered quickly. The most common symptoms were fever, sore throat and headache. All close contacts were tested for influenza A H1N1 and only one, the mother of one of the 3 cases, tested positive. This woman did not have a fever or any symptoms of influenza-like-illness.

**Eurosurveillance**

1) Description of the early stage of pandemic (H1N1) 2009 in Germany, 27 April-16 June 2009 (Novel influenza A (H1N1) investigation team, July 28, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19295

This article reports characteristics of the early stage of the pandemic (H1N1) 2009 in Germany. Until 16 June 2009, 198 confirmed cases were notified. Almost half of the cases (47%) were imported, mostly from Mexico and the United States. About two thirds of indigenous cases were outbreak-related (with two large school-associated outbreaks, n=74). According to our results Germany is still in the early stage of the pandemic with limited domestic transmission.

2) Interim analysis of pandemic influenza (H1N1) 2009 in Australia: surveillance trends, age of infection and effectiveness of seasonal vaccination (H Kelly, K Grant, July 29, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19288

Between May and September each year, influenza sentinel surveillance is conducted in general practices in Melbourne and the state of Victoria in southern Australia. The authors describe the first 11 weeks of sentinel surveillance in 2009, and investigate the protective effect of seasonal influenza vaccine against laboratory-confirmed infection caused by the pandemic virus. The proportion of cases positive for any influenza virus increased from 6% in the first week of surveillance to 59% by the eleventh, during which time the proportion of influenza viruses detected as pandemic influenza increased from zero to 95%, with at least 91% of all influenza viruses confirmed as pandemic influenza.

OAHPP Weekly H1N1 Digest
by the eighth week of surveillance. There was no evidence of significant protection from seasonal vaccine against pandemic influenza virus infection in any age group.

3) A preliminary analysis of the epidemiology of influenza A(H1N1)v virus infection in Thailand from early outbreak data, June-July 2009 (U C de Silva, J Warachit, S Waicharoen, M Chittaganpitch, July 29, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19292

As the influenza A (H1N1)v pandemic unfolds globally, it is vital to monitor closely for signals of change in the current patterns of transmission. The authors estimate the basic reproduction ratio for A (H1N1)v virus in Thailand and propose a method to keep track of the actual case count notwithstanding the exponential growth rate.

4) Public health preparedness for two mass gathering events in the context of pandemic influenza (H1N1) 2009 - Serbia, July 2009 (G. Loncarevic et al., July 21, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19296

Preparedness planning for two large mass gatherings events were considered in Serbia in the context of pandemic influenza (H1N1) 2009. Planning included approaches to prevention, detection and response in order to mitigate the situation at this early stage of the epidemic in Serbia. Cases of influenza A (H1N1)v were identified nationally immediately prior to the mass gatherings but also identified in association with both events, as expected in the context of the pandemic situation. This article describes the experiences of planning and the epidemiological situation during the period of the mass gathering events.

5) Community transmission of influenza A (H1N1)v virus at a rock festival in Belgium, 2-5 July 2009 (I Gutiérrez et al., August 3, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19294

On 6 July 2009 the Belgian enhanced surveillance system for influenza-like illness among travellers returning from influenza A (H1N1)v affected areas detected a case linked to a rock festival which took place on 2-5 July. The health authorities implemented communication and control measures leading to the detection of additional cases. This paper describes the outbreak and its impact on the management of the influenza pandemic in Belgium.

JOURNAL OF INFECTIOUS DISEASES
- Nothing new on H1N1 this week.

LANCET
-Nothing new on H1N1 this week

MMWR
1) Evaluation of rapid influenza diagnostic tests for detection of novel influenza (August 7, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5830a2.htm?s_cid=mm5830a2_x

As an initial assessment, CDC conducted an evaluation of multiple rapid influenza diagnostic tests (RIDTs). Sixty-five clinical respiratory specimens collected during April-
May 2009 that had previously tested positive either for novel influenza A (H1N1) or for seasonal influenza A (H1N1) or A (H3N2) viruses by real-time reverse transcription–polymerase chain reaction (rRT-PCR) assay were used in the evaluation. The results showed that, although the RIDTs were capable of detecting novel A (H1N1) virus from respiratory specimens containing high levels of virus, the overall sensitivity was low (40%–69%) among all specimens tested and declined substantially as virus levels decreased.

**NATURE**

1) Modelling to contain pandemics (*Joshua M. Epstein, August 6, 2009*)
http://www.nature.com/nature/journal/v460/n7256/full/460687a.html

Agent-based computational models (ABMs) are artificial societies in which every person is represented by a distinct software individual (referred to as an 'agent'). ABMs are useful for modeling pandemic influenza A H1N1 as they can take into account irrational behaviour, complex social networks and global scale, which can all have a huge effect on disease progression. The newest of these models is the Global-Scale Agent Model (GSAM), created by a colleague of the author. It includes 6.5 billion agents and their movement and day-to-day interactions. Due to its speed, user-friendliness and visual outputs, the GSAM will make a good tool for modeling teams. It may even be used for real-time streaming of surveillance data for disease tracking.

**NEW ENGLAND JOURNAL OF MEDICINE**

1) Podcast: Treatment of pregnant women with suspected H1N1: A conversation with Denise Jamieson of the CDC (*July 31, 2009*)
http://podcasts.jwatch.org/?p=565

It’s simple: pregnant women (for un-simple reasons) are at greater risk for flu complications. It’s true even among hitherto apparently healthy patients. Journal Watch spoke with a CDC researcher who’s just published a paper in *Lancet* that urges prompt treatment, even in the face of pending lab results, with antivirals.

2) ACIP recommends five groups as priority targets for H1N1 vaccination (*July 30, 2009*)
http://firstwatch.jwatch.org/cgi/content/full/2009/730/2

The CDC’s Advisory Committee on Immunization Practices (ACIP) has recommended which U.S. population groups should be targeted to receive H1N1 influenza vaccine when it becomes available. The ACIP says five groups should be targeted: (1) pregnant women; (2) household contacts of infants under 6 months; (3) healthcare and emergency-services workers; (4) young people between 6 months and 24 years of age; (5) and nonelderly adults with underlying risk conditions. The five groups comprise about 160 million people, about half the U.S. population. Dr. Anne Schuchat, director of the CDC’s center for immunization, said at a press conference that people over 65 received ACIP’s lowest priority for H1N1 vaccination because the virus "has, to a large extent, spared that population."

3) In Pregnancy, treat suspected H1N1 promptly without awaiting test results (*August 7, 2009*)
http://firstwatch.jwatch.org/cgi/content/full/2009/729/1
Pregnant women with novel H1N1 are at increased risk for severe complications, and they should be treated promptly with anti-influenza drugs, according to research from the CDC published in the *Lancet*. Writing online in *Lancet*, the researchers detail the cases of novel H1N1 influenza and deaths among pregnant women early in the pandemic. According to their calculations, pregnant women were over four times more likely to be admitted for severe H1N1 disease than the general population. The researchers point out that none of those who died had received prompt antiviral treatment (within 48 hours of illness onset). The CDC recommends that pregnant women with suspected H1N1 disease start treatment even without viral testing.

**PLoS One**
- Nothing new on H1N1 this week

**Science**
- Nothing new on H1N1 this week
WEEKLY SYNTHESIS OF SURVEILLANCE INFORMATION, LITERATURE & GOVERNMENT UPDATES  
(WEEK 31 - ENDING IN AUGUST 14, 2009)

**HOSPITALIZATION & DEATH COUNTS:**

The WHO will no longer issue the global tables showing the numbers of confirmed cases for all countries. Thus, the reported cases presented in this table will severely underestimate the true incidence in the country and will not be comparable to counties still recommending laboratory tests of all suspected influenza cases. The following table provides global updates on H1N1-associated deaths. Please see hyperlinks in table for most up to date counts.

<table>
<thead>
<tr>
<th>COUNTRIES/PROVINCES</th>
<th>DEATHS</th>
<th>HOSPITALIZATIONS*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CANADA (PHAC)</strong></td>
<td>66</td>
<td>1366</td>
</tr>
<tr>
<td>- BC</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>- AB</td>
<td>7</td>
<td>122</td>
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<tr>
<td>- SK</td>
<td>4</td>
<td>22</td>
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<tr>
<td>- MB</td>
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<td>201</td>
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<tr>
<td>- ON**</td>
<td>21</td>
<td>339</td>
</tr>
<tr>
<td>- QC</td>
<td>21</td>
<td>584</td>
</tr>
<tr>
<td>- NB</td>
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<td>2</td>
</tr>
<tr>
<td>- NS</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>- PEI</td>
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<td>1</td>
</tr>
<tr>
<td>- NL</td>
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<td>2</td>
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<tr>
<td>- Yukon</td>
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</tr>
<tr>
<td>- NWT</td>
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<td>1</td>
</tr>
<tr>
<td>- Nunavut</td>
<td>1</td>
<td>48</td>
</tr>
<tr>
<td><strong>U.S. (CDC)</strong></td>
<td>477</td>
<td>7511</td>
</tr>
<tr>
<td><strong>E.U. and EFTA (ECDC)</strong></td>
<td>59</td>
<td></td>
</tr>
<tr>
<td><strong>Mexico</strong></td>
<td>163</td>
<td></td>
</tr>
<tr>
<td><strong>Chile</strong></td>
<td>105</td>
<td></td>
</tr>
<tr>
<td><strong>Argentina</strong></td>
<td>404</td>
<td></td>
</tr>
<tr>
<td><strong>Australia</strong></td>
<td>108</td>
<td>3562</td>
</tr>
<tr>
<td><strong>New Zealand</strong></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL (ECDC)</strong></td>
<td>2,004</td>
<td></td>
</tr>
</tbody>
</table>

*Source: PHAC Flu Watch, Week 31 ending August 8 2009.

**Source: Ontario Flu Bulletin as of August 12, 2009.**

Note: PHAC numbers updated last at 11:00pm (EST) on August 13; CDC numbers updated last at 11:00 am on August 14; ECDC numbers updated last at 5:00 pm (CEST) on August 15 2009.
DEATHS AMONG NOVEL H1N1 INFLUENZA A VIRUS, APRIL 13-AUGUST 12, 2009

- 21 deaths have been reported, representing a population-based mortality rate of 0.16 deaths per 100,000 population.
- Almost all of these fatalities were hospitalized prior to death (86%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 58 years and the average age is 56 years.
- Among confirmed cases that have died, 18 or 86% had underlying chronic medical conditions compared to 62% of hospitalized cases.

HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES

As of August 12, 2009 in Ontario:
- 339 confirmed cases have been hospitalized to date, also representing a population-based hospitalization rate of 2.6 hospital admissions per 100,000 population in Ontario.
- Of these, 294 cases have been discharged.
- The average length of stay was less than 1 day to 80 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease diabetes, etc).
- 89% of cases that were discharged had a length of stay of at least 2 days
- Of the 44 cases that were currently hospitalized, a total of 23 were placed on a ventilator and/or were admitted to ICU.

<table>
<thead>
<tr>
<th>HOSPITALIZATION STATUS</th>
<th>VENTILATOR AND/OR ICU</th>
<th>NOT IN ICU AND NOT ON VENTILATOR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>23</td>
<td>21</td>
<td>44</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>43</td>
<td>251</td>
<td>294</td>
</tr>
<tr>
<td>Total hospitalized to date</td>
<td>66</td>
<td>272</td>
<td>338*</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, August 12, 2009.
* Excludes case with a length of stay of less than 24 hours

<table>
<thead>
<tr>
<th>HOSPITALIZATION STATUS</th>
<th>HOSPITALIZED CASES*</th>
<th>NON-HOSPITALIZED CASES</th>
<th>TOTAL CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20 years</td>
<td>162</td>
<td>2214</td>
<td>2376</td>
</tr>
<tr>
<td>Greater than or equal to 20 years</td>
<td>176</td>
<td>1443</td>
<td>1619</td>
</tr>
<tr>
<td>Total</td>
<td>338</td>
<td>3657</td>
<td>3995</td>
</tr>
</tbody>
</table>

Source: MOHLTC, iPHIS data as of 8:30 am, August 12, 2009. Age was unknown for 11 cases
**Government Updates**

**Centre for Disease Control (CDC)**

August 14, 2009: CDC H1N1 Flu Surveillance Update.  
http://www.cdc.gov/h1n1flu/update.htm

Map includes both seasonal flu and H1N1 flu activity. During week 31, (August 2-8, 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 98% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Three influenza-associated pediatric deaths were reported and both were associated with novel influenza A (H1N1) virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels.  
http://www.cdc.gov/flu/weekly/

August 12, 2009: Novel H1N1 Vaccination Guidance for State, Local, Tribal and Territorial Health Officials  
http://www.cdc.gov/h1n1flu/vaccination/statelocal/

**Public Health Agency of Canada (PHAC)**

FluWatch Week 31 (August 2-8, 2009)  
The overall influenza activity decreased this week; the national ILI consultation rate (15 consultations per 1,000) is lower compared to the last week. The proportion of influenza positive tests decreased this week (5.5% vs. 9.9%), the overall number of influenza outbreaks increased (4 vs. 0).  
http://www.phac-aspc.gc.ca/fluwatch/08-09/w31_09/index-eng.php

August 12, 2009: Interim Guidance: Prevention and management of cases of ILI that may be due to pandemic (H1N1) 2009 virus on cruise ships  

August 13, 2009: Deaths Associated with H1N1 Flu Virus in Canada  
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.  
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php

**World Health Organization (WHO)**

August 12, 2009: WHO offices issue pandemic flu surveillance updates. The World Health Organization (WHO) recently posted surveillance and status updates for regions where the pandemic H1N1 is just gaining a foothold, including the Mideast, Africa, and parts of Asia and the Pacific, which showed Southeast Asia as the hardest hit of those areas.  

OAHPP Weekly H1N1 Digest
**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)**


August 13, 2009: Studies in a pandemic: fourth meeting of a SSiaP working group

ECDC release: Interim guidance: Use of specific pandemic influenza vaccines during H1N1 2009 pandemic.

**HEALTH/SURVEILLANCE BULLETINS:**

Countries reporting first case(s) of pandemic H1N1

**August 17 2009- The Democratic Republic of Congo** reported its first novel flu case, in a South African mining official employed by a US firm in Katanga province. The man, who is recovering, had recently returned from a vacation in South Africa, and so far none of his family contacts have had flu-like symptoms.

**Southern Hemisphere**

**Australia**

**As of August 15, 2009:** Total confirmed cases are 29,833; Total deaths associated with pandemic H1N1 influenza is 108. Currently, there are 451 hospitalized cases of pandemic H1N1 and 97 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 3562.

**Australia Influenza Surveillance Summary Report, No. 13, 2009, reporting period:** August 1-7 2009.

Indigenous Australians are approximately 5 times more likely than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009, representing 10.4% of all hospitalizations. Most cases had underlying medical conditions, including cancer, diabetes mellitus and morbid obesity. With a 20% clinical attack rate and no intervention; it has been projected by the end of winter 1 in 5 Australians (4.3 million could become infected with the pandemic virus, leading to 40-80, 000 hospitalizations, and 6,000 deaths. Over the last week, the average proportion of hospitalized cases in an ICU on any given day was 27%, this is the same as the previous week. Highest hospitalization rate occurred in young children less than 5 years of age, and higher among people aged 50-60 years of age.
Australia, New South Wales: Weekly Summary (as of August 12, 2009)

New Zealand

August 15, 2009: New Zealand now has 3038 laboratory-confirmed pH1N1 cases. The level of illness would be much higher than the number of laboratory-confirmed cases reported daily. Testing is now done only in the management of severe cases.

New Zealand: Weekly Summary (August 3 - 9, 2009)
There has been a continuing decline in consultations for influenza-like illness through sentinel surveillance in week 32 (August 3-9 2009). However, the weekly ILI consultation rate is still higher than previous years for the same week. The highest weekly ILI rates were reported from Hutt, Otago and Wanganui health districts. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

South America & the Americas

Argentina: In the previous 3 weeks, a downward trend in the number of cases is observed in 18 of 24 provinces. The epi reported during weeks 20 to 30 have shown that there was significant increase in the pH1N1 up to a peak in week 25 however, in the past 2 weeks, influenza A detections have been declining, and the greater proportion of viral circulation has been from RSV. Of the deaths associated with the pH1N1, the most affected age group is those 50-59 years of age, and 47% of the cases have a history of underlying medical conditions or chronic illness. For both sexes, the most common risk factors are obesity (18%), heart disease (8%) and COPD (7%). Source: PHAC, FluWatch Week 31.

Chile: There has been a decline in the incidence of pH1N1 and a decrease in ILI cases. Of the confirmed pH1N1 cases, 45% of these cases had an underlying chronic disease. The rate of severe infection has been declining since the peak in week 27 (127.8 per 100,000) to 10.1 per 100,000 in week 30. In the past two weeks, the proportion of pH1N1 has decline from 34 to 20% of all respiratory virus detections. However, there has been an increase in the RSV and parainfluenza detections. Source: PHAC, FluWatch Week 31.

Center for Infectious Disease Research and Policy (CIDRAP)

August 14, 2009: Oseltamivir resistance in two immunosuppressed H1N1 patients-
Oseltamivir (Tamiflu) resistance developed in two immunosuppressed patients in Seattle who were treated with the drug for novel H1N1 flu. Both patients, a teenage boy and a woman in her 40s, were receiving immunosuppressive therapy for leukemia, and both had prolonged viral shedding. The cases were not epidemiologically linked. The CDC said clinicians caring for such patients should be aware of the potential for antiviral resistance and prolonged viral shedding.
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58d0814a1.htm?s_cid=mm58d0814a1_e/?date=081409

OAHPP Weekly H1N1 Digest
**August 12, 2009:** Officials close schools in Bombay- Government officials in India's Maharashtra state have ordered all schools and colleges in Bombay to close for a week to slow the spread of novel flu. The state has the country's highest number of confirmed pandemic H1N1 cases and has reported four deaths over the past 10 days. The health minister told reporters this week other diseases are more serious and costly. [http://health.yahoo.com/news/afp/indiahealthflueducation_20090812093724.html](http://health.yahoo.com/news/afp/indiahealthflueducation_20090812093724.html)

**August 12, 2009:** Seven members of the native Amazonian Matsigenka tribe tested positive for pandemic and have recovered. [http://www.reuters.com/article/middleeastCrisis/idUSN12120370](http://www.reuters.com/article/middleeastCrisis/idUSN12120370)

**Other:**

1) **Proceedings from the Workshop on Personal Protective Equipment for Healthcare Workers in the Workplace Against Novel H1N1 Influenza A (August 11-13, 2009)**
[http://www.iom.edu/CMS/3740/71769/71867.aspx](http://www.iom.edu/CMS/3740/71769/71867.aspx)
Experts discussed:
- the emerging science and clinical experience base associated with nH1N1 criteria used to delineate infection control guidelines
- criteria used to assess risk to the healthcare workforce
- what's known about the effectiveness of medical masks, respirators, gowns, gloves, and eye protection in preventing nH1N1 and seasonal influenza transmission

2) **Update to U.K. Flu Survey**
Includes treatment-seeking behaviours and map of cases

3) **WHO: Transparency during public health emergencies: from rhetoric to reality / P O'Malley, J Rainford & A Thompson**

Unlike many other public health indicators, transparency by public health authorities can be difficult to track. Definitions of transparency may vary, measurement norms are ill-defined and, ultimately, assessments may be subjective. The strong sense among those closely involved, however, is that transparent public communication during crisis situations remains an elusive goal. Indeed, interviews conducted with WHO communication staffs who were involved in various high profile public health emergencies between 2004 and 2008 reflect several persistent challenges.

**Journals scanned:**
- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of the American Medical Association (added this week)
- Journal of Infectious Diseases
- Journal of Virology (added this week)
- Lancet
- Nothing new on H1N1 this week

**BRITISH MEDICAL JOURNAL**

http://www.bmj.com/cgi/content/full/339/aug10_1/b3172

This article provides a systematic review and mete-analysis of data from published and non-published randomized control trials. Neuraminidase inhibitors provide a small benefit by shortening the duration of illness in children with seasonal influenza and reducing household transmission. They have little effect on asthma exacerbations or the use of antibiotics. Their effects on the incidence of serious complications, and on the current A/H1N1 influenza strain remain to be determined.

2) Is Tamiflu useful in children or not? (Tom Nolan, August 11, 2009)  

Why did the operator at the National Pandemic Flu Service give the child Tamiflu? The cynics will say because the algorithm told him to, but the real answer, according to the UK government, is that it’s the safest thing to do to prevent severe infections. New research in the BMJ questions that policy and looks likely to cause confusion among the public and doctors alike.

3) Officials watch events in southern hemisphere as swine flu rates in UK slow down (Oona Mashta, August 7, 2009)  
http://www.bmj.com/cgi/content/full/339/aug07_2/b3263

Experts are closely monitoring how A/H1N1 influenza in the southern hemisphere, where the death rate from the virus is rising in some countries, to help predict what might happen in the United Kingdom over the winter months. The first wave of swine flu in England has passed its peak in recent days indicate figures from the Health Protection Agency that show a substantial decrease in the overall number of new cases, doctors’ consultations, and use of the pandemic flu service. The number of confirmed deaths has risen to 337 in the past week in Argentina. There are also indications that Mexico, which was the first country to peak, has a second wave of the virus.

4) Communicating with patients on swine flu (Podcast) (Helen Morant, August 10, 2009)  
http://podcasts.bmj.com/pandemic-flu/2009/08/10/communicating-with-patients/?q=w_pandemic_flu
**CLINICAL INFECTIOUS DISEASES**
- Nothing new on H1N1 this week.

**EMERGING INFECTIOUS DISEASES**
1) Genomic diversity of oseltamivir-resistant influenza virus A (H1N1), Luxembourg, 2007–08 (N.A. Gerloff et al.)
http://www.cdc.gov/eid/content/15/9/pdfs/09-0452.pdf

Investigation of the genetic diversity in all 8 gene segments of representative oseltamivir-sensitive viruses and oseltamivir resistant viruses collected during December 2007–March 2008 by the National Influenza Sentinel Surveillance System in Luxembourg.

**EUROSURVEILLANCE**
1) Epidemiological and transmissibility analysis of influenza A(H1N1)v in a southern hemisphere setting: Peru (C V Munayco et al, July 31, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19299

A preliminary analysis of 1,771 confirmed cases of influenza A(H1N1)v reported in Peru by 17 July 2009 including the frequency of the clinical characteristics, the spatial and age distribution of the cases and the estimate of the transmission potential. Age-specific frequency of cases was highest among school age children and young adults, with the lowest frequency of cases among seniors, a pattern that is consistent with reports from other countries. Estimates of the reproduction number lie in the range of 1.2 to 1.7, which is broadly consistent with previous estimates for this pandemic in other regions.

2) What will the next influenza season bring about: seasonal influenza or the new A(H1N1)v? An analysis of German influenza surveillance data (H Upphoff et al., August 11, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19303

For the next influenza season (winter 2009-10) the relative contributions to virus circulation and influenza-associated morbidity of the seasonal influenza viruses A(H3N2), A(H1N1) and B, and the new influenza A(H1N1)v are still unknown. The study estimated the chances of seasonal influenza to circulate during the upcoming season using data of the German influenza sentinel scheme from 1992 to 2009. We calculated type and subtype-specific indices for past exposure and the corresponding morbidity indices for each season. For the upcoming season 2009-10 our model suggests that it is unlikely that influenza A(H3N2) will circulate with more than a low intensity, seasonal A(H1N1) with more than a low to moderate intensity, and influenza B with more than a low to median intensity. The probability of a competitive circulation of seasonal influenza A with the new A(H1N1)v is low, increasing the chance for the latter to dominate the next influenza season in Germany.

**JAMA**
- Nothing new on H1N1 this week
1) Safety and Immunogenicity of a Novel Influenza Subunit Vaccine Produced in Mammalian Cell Culture (Agnieszka Szymczakiewicz-Multanowska, et al., August 12, 2009)
http://www.journals.uchicago.edu/doi/full/10.1086/605505

Immunization remains the best prevention strategy for influenza, but production constraints for egg-based influenza vaccines have prompted the development of innovative cell culture manufacturing processes. In this study, the authors describe a novel cell culture–derived influenza vaccine (CCIV) was produced in Madin-Darby canine kidney cells. CCIV was well tolerated and highly immunogenic in adults 18 years of age or older. Cell culture may offer greater flexibility of supply during periods of high demand for both seasonal and pandemic vaccines.

2) Subunit Influenza Vaccines Produced from Cell Culture or in Embryonated Chicken Eggs: Comparison of Safety, Reactogenicity, and Immunogenicity (Keith S. Reisinger, et al., August 12, 2009)
http://www.journals.uchicago.edu/doi/full/10.1086/605506

This study assessed the safety, reactogenicity, and immunogenicity of an injectable cell culture–derived influenza vaccine (CCIV), compared with those of an injectable egg-based trivalent inactivated influenza vaccine (TIV). There was no clinically relevant difference between the safety and reactogenicity profiles of the 2 vaccines. The immunogenicity of CCIV was demonstrated to be noninferior to that of TIV on the basis of the ratio of postvaccination GMTs between the 2 vaccines. GMTs, seroprotection rates, and seroconversion rates were comparable between the 2 vaccines.

3) Influenza Vaccine Manufacture: Keeping up with Change (Kathleen M. Neuzil & Rick A. Bright, August 12, 2009)
http://www.journals.uchicago.edu/doi/full/10.1086/605507

Until the time when influenza vaccines with broad-spectrum and long-lasting immunity are available, improvements that allow for enhanced immunogenicity, speed of production, and cross-reactivity are needed. US efforts in pandemic preparedness have resulted in an improved overall production capacity and manufacturer readiness, yet the ability to respond remains encumbered by the current realities of the influenza vaccine manufacturing process.

JOURNAL OF VIROLOGY

-Nothing new on H1N1 this week

LANCET

- Nothing new on H1N1 this week

LANCET INFECTIOUS DISEASES

1) Prescription of anti-influenza drugs for healthy adults: a systematic review and meta-analysis (Jane Burch, et al., August 8, 2009)
http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70199-9/abstract
In publicly funded health systems with finite resources, management decisions are based on assessments of clinical effectiveness and cost-effectiveness. The UK National Institute for Health and Clinical Excellence commissioned a systematic review to inform their 2009 update to guidance on the use of antiviral drugs for the treatment of influenza. We searched databases for studies of the use of neuraminidase inhibitors for the treatment of seasonal influenza. We present the results for healthy adults (ie, adults without known comorbidities) and people at-risk of influenza-related complications.

**MORBIDITY AND MORTALITY REPORT (MMWR)**

- Nothing new on H1N1 since last week

**NATURE**

1) In vitro and in vivo characterization of new swine-origin H1N1 influenza viruses (Y Itoh et al., July 13, 2009)
http://www.nature.com/nature/journal/vnfv/ncurrent/pdf/nature08260.pdf

To assess the risk posed by the new swine-origin H1N1 influenza virus, the authors characterized one of the first US S-OIV (swine-origin influenza virus) isolates, A/California/04/09 (H1N1; CA04), as well as several other S-OIV isolates, in vitro and in vivo. In mice and ferrets, CA04 and other S-OIV isolates tested replicate more efficiently than a currently circulating human H1N1 virus. In addition, CA04 replicates efficiently in non-human primates, causes more severe pathological lesions in the lungs of infected mice, ferrets and non-human primates. The authors also show that CA04 is sensitive to approved and experimental antiviral drugs, suggesting that these compounds could function as a first line of defence against the recently declared S-OIV pandemic.

**NEW ENGLAND JOURNAL OF MEDICINE**

1) Letter: Rapid-test sensitivity for novel swine-origin Influenza A (H1N1) virus in humans (Faix, Sherman and Waterman, August 13, 2009)
http://content.nejm.org/cgi/content/full/361/7/728?query=TOC

S-OIV continues to cocirculate with seasonal influenza strains but may be differentially detected by rapid influenza tests. The findings of this study suggest that rapid-test sensitivity may vary according to the influenza A subtype. Further investigation is needed to confirm this finding and evaluate possible explanations. This finding has implications for the diagnosis and treatment of patients with influenza-like illness now and during the next influenza season. As seasonal and zoonotic influenza viruses continue to drift and shift, we must continuously assess the sensitivity and specificity of available diagnostic tests.

2) Letter: Vaccine refusal and the risks of vaccine-preventable diseases (Denis G. Gill)
http://content.nejm.org/cgi/content/full/361/7/723?query=TOC

Does a developed, educated democracy such as that in the United States still need compulsory vaccination laws to achieve target compliance rates of 90 to 95%? Most member states of the European Union, especially the Scandinavian countries, achieve high levels of compliance with the use of information, education, persuasion, and subtle coercion — but not compulsion. The European Academy of Paediatrics is campaigning to make access to immunization a stated right of children. Surely compulsory immunization is anticonstitutional with respect to parental autonomy?
3) Severe respiratory disease concurrent with the circulation of H1N1 Influenza (G. Chowell et al., August 13, 2009)
http://content.nejm.org/cgi/content/full/361/7/674?query=TOC

During the early phase of this influenza pandemic, there was a sudden increase in the rate of severe pneumonia and a shift in the age distribution of patients with such illness, which was reminiscent of past pandemics and suggested relative protection for persons who were exposed to H1N1 strains during childhood before the 1957 pandemic. If resources or vaccine supplies are limited, these findings suggest a rationale for focusing prevention efforts on younger populations.

4) Pneumonia and respiratory failure from swine-origin Influenza A (H1N1) in Mexico (R. Perez-Padilla et al., August 13, 2009)
http://content.nejm.org/cgi/content/full/361/7/680?query=TOC

The authors describe the clinical and epidemiologic characteristics of persons hospitalized for pneumonia at the national tertiary hospital for respiratory illnesses in Mexico City who had laboratory-confirmed Swine-origin influenza virus (S-OIV) infection, also known as swine flu. The authors used retrospective medical chart reviews to collect data on the hospitalized patients. S-OIV infection was confirmed in specimens with the use of a real-time reverse-transcriptase–polymerase-chain-reaction assay. S-OIV infection can cause severe illness, the acute respiratory distress syndrome, and death in previously healthy persons who are young to middle-aged. None of the secondary infections among health care workers were severe.

5) Poverty, wealth and access to pandemic influenza vaccines (Tadataka Yamada, August 12, 2009)
http://content.nejm.org/cgi/content/full/NEJMp0906972?query=TOC

In contemplating equal access to such a vaccine, it is important to consider three key issues: manufacturing capacity, cost, and delivery. Only a few countries in the world have plants for manufacturing influenza vaccine, and three companies — GlaxoSmithKline, Sanofi-Aventis, and Novartis — account for most of the world’s manufacturing capacity. The number of doses of vaccine against H1N1 influenza that could be produced with the existing capacity is very large, but the sobering truth is that even if production were switched over completely from seasonal influenza vaccine to pandemic influenza vaccine, there would not be nearly enough for everyone in the world.

**PLOS One**
- Nothing new on H1N1 this week.

**SCIENCE**
- Nothing new on H1N1 this week.
Hospitalization & Death Counts:
The WHO will no longer issue the global tables showing the numbers of confirmed cases for all countries. Thus, the reported cases presented in this table will severely underestimate the true incidence in the country and will not be comparable to counties still recommending laboratory tests of all suspected influenza cases. The following table provides global updates on H1N1-associated deaths. Please see hyperlinks in table for most up to date counts.

### COUNTRIES/PROVINCES

<table>
<thead>
<tr>
<th>COUNTRIES/PROVINCES</th>
<th>DEATHS</th>
<th>HOSPITALIZATIONS*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Canada (PHAC)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>4</td>
<td>39</td>
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<tr>
<td>AB</td>
<td>7</td>
<td>123</td>
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<td>MB</td>
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<tr>
<td>ON**</td>
<td>22</td>
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<td>QC</td>
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<td>590</td>
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<td>17</td>
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<tr>
<td>NL</td>
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<tr>
<td>Yukon</td>
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<td>NWT</td>
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<td>Nunavut</td>
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<td>56</td>
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<tr>
<td><strong>U.S. (CDC)</strong></td>
<td>522</td>
<td>7983</td>
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<tr>
<td><strong>E.U. and EFTA (ECDC)</strong></td>
<td>79</td>
<td></td>
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<tr>
<td>Mexico</td>
<td>164</td>
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<tr>
<td>Chile</td>
<td>128</td>
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<tr>
<td>Argentina</td>
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<td>Australia</td>
<td>131</td>
<td>4082</td>
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<tr>
<td>New Zealand</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td><strong>Total (ECDC)</strong></td>
<td>2,430</td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 11:00pm (EST) on August 18; CDC numbers updated last at 10:00 am on August 20; ECDC numbers updated last at 5:00 pm (CEST) on August 21 2009.

* Source: PHAC Flu Watch, week ending August 15 2009.

DEATHS AMONG NOVEL H1N1 INFLUENZA A VIRUS, APRIL 13-AUGUST 19, 2009

- 22 deaths have been reported, representing a population-based mortality rate of 0.17 deaths per 100,000 population.
- Almost all of these fatalities were hospitalized prior to death (86%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 58 years and the average age is 55 years.
- Among confirmed cases that have died, 19 or 86% had underlying chronic medical conditions compared to 65% of hospitalized cases.

HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES

As of August 19, 2009 in Ontario:
- 352 confirmed cases have been hospitalized to date, also representing a population-based hospitalization rate of 2.7 hospital admissions per 100,000 population in Ontario.
- Of these, 315 cases have been discharged.
- The average length of stay range from less than 1 day to 80 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease, diabetes, etc).
- 89% of cases that were discharged had a length of stay of at least 2 days
- Of the 37 cases are currently hospitalized, a total of 19 were placed on a ventilator and/or were admitted to ICU.

<table>
<thead>
<tr>
<th>HOSPITALIZATION STATUS</th>
<th>VENTILATOR AND/OR ICU</th>
<th>NOT IN ICU AND NOT ON VENTILATOR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>19</td>
<td>18</td>
<td>37</td>
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<tr>
<td>Number of Hospitalized and Discharged</td>
<td>50</td>
<td>264</td>
<td>314</td>
</tr>
<tr>
<td>Total hospitalized to date</td>
<td>69</td>
<td>282</td>
<td>351*</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, August 19, 2009.
* Excludes case with a length of stay of less than 24 hours

<table>
<thead>
<tr>
<th>HOSPITALIZATION STATUS</th>
<th>HOSPITALIZED CASES*</th>
<th>NON-HOSPITALIZED CASES</th>
<th>TOTAL CASES</th>
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<tbody>
<tr>
<td>Less than 20 years</td>
<td>167</td>
<td>2228</td>
<td>2395</td>
</tr>
<tr>
<td>Greater than or equal to 20 years</td>
<td>184</td>
<td>1447</td>
<td>1631</td>
</tr>
<tr>
<td>Total</td>
<td>351</td>
<td>3657</td>
<td>4026</td>
</tr>
</tbody>
</table>

Source: MOHLTC, iPHIS data as of 8:30 am, August 19, 2009. Age was unknown for 11 cases
<table>
<thead>
<tr>
<th>GOVERNMENT UPDATES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CENTRE FOR DISEASE CONTROL (CDC)</strong></td>
</tr>
</tbody>
</table>
| **August 20, 2009: CDC H1N1 Flu Surveillance Update.**  
   [http://www.cdc.gov/h1n1flu/update.htm](http://www.cdc.gov/h1n1flu/update.htm) |
| **Weekly Flu View Map and Surveillance Report for Week Ending August 15, 2009.**  
   Map includes both seasonal flu and H1N1 flu activity. During week 32 (August 9-15, 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 98% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Four influenza-associated pediatric deaths were reported and both were associated with novel influenza A (H1N1) virus infection. |
| **CDC Guidance for Businesses and Employers to Plan and Respond to the 2009-2010 Influenza Season** *(CDC, August 19, 2009).*  
   [http://www.cdc.gov/h1n1flu/business/guidance/](http://www.cdc.gov/h1n1flu/business/guidance/)  
   The guidance includes additional strategies to use if flu conditions become more severe and some new recommendations regarding when a worker who is ill with influenza may return to work. The guidance may change as additional information about the severity of the 2009-2010 influenza season and the impact of 2009 H1N1 influenza become known. |
| **PUBLIC HEALTH AGENCY OF CANADA (PHAC)** |
| **FluWatch Week 32 (August 9-15, 2009)** |
| The overall influenza activity decreased this week; the national ILI consultation rate (15 consultations per 1,000) is lower compared to the last week. The proportion of influenza positive tests decreased this week (4.2%), the overall number of influenza outbreaks lower this week.  
| **Surveillance Protocol for laboratory-confirmed influenza in adults** *(Public Health Agency of Canada, August 20, 2009)*  
   CNISP has been asked to extend their seasonal laboratory-confirmed influenza surveillance to a yearly reporting of both confirmed cases of flu and hospitalizations with possible influenza-associated admitting diagnosis. A real-time hospital based surveillance system that will capture influenza-associated hospitalizations and deaths is useful for monitoring trends and characterizing severe influenza related disease. |
| **Public Health Guidance for Post Secondary and Boarding Schools regarding the Prevention and Management of Influenza-like-illness (ILI), Including the Pandemic (H1N1) 2009 influenza Virus** *(Public Health Agency of Canada, August 20, 2009)*  
   Post secondary and boarding schools should develop communication programs that meet the needs of parents/guardians, students, faculty and staff. Information that can be included in these education programs is outlined. |
Public Health Guidance for Child Care Programs and Schools (k-12 grade) regarding the Prevention and Management of ILI, including Pandemic H1N1 2009 Influenza Virus (PHAC, August 19, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/interim-provisoires0819-eng.php
This document updates the May 3 “Interim Recommendations Regarding Schools and Daycare Centres” guidance. It should be noted that this guidance has been developed based on the Canadian situation and thus may differ somewhat from other guidance documents developed by other countries.

Interim Guidance: Infection Prevention and Control Measures for Health Care Workers in Long-term Care Facilities (Public Health Agency of Canada, August 20, 2009)
This fact sheet has been developed to provide interim guidance for health care workers (HCWs) in long-term care (LTC) facilities for the infection prevention and control management of residents with Influenza-like Illness (ILI) suspected or confirmed to be due to Pandemic (H1N1) 2009 (H1N1 2009).

August 20, 2009: Deaths Associated with H1N1 Flu Virus in Canada
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

WORLD HEALTH ORGANIZATION (WHO)

August 21, 2009: WHO offices issue pandemic flu surveillance updates. The World Health Organization (WHO) recently posted surveillance and status updates for regions where the pandemic H1N1 is just gaining a foothold, including the Mideast, Africa, and parts of Asia and the Pacific, which showed Southeast Asia as the hardest hit of those areas. Countries reporting their first pandemic H1N1 confirmed case(s) include Ghana, Zambia, and Tuvalu.

August 21, 2009: WHO says cases declining in temperate parts of southern hemisphere. H1N1 flu cases in temperate areas of the southern hemisphere are declining, except South Africa, the WHO reported in a revised situation update today. But cases are increasing in tropical parts of Asia that are entering their monsoon season, such as India. The WHO expects the new strain to dominate the early part of the northern hemisphere’s flu season. Twelve oseltamivir-resistant cases have been reported.

Recommended use of antivirals (August 21,2009)
http://www.who.int/csr/disease/swineflu/notes/h1n1_use_antivirals_20090820/en/index.html
The WHO guidelines for the use of antivirals in the management of patients infected with the H1N1 pandemic virus.

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

**HEALTH/SURVEILLANCE BULLETINS:**

Countries reporting first case(s) of pandemic H1N1

**August 20, 2009- Zimbabwe:** the country's first novel H1N1 cases, in five private-school children who got sick in early August. Doctors at Zimbabwe's state hospitals are on strike over wage and allowance issues, but the health minister said the medical system is coping.

**August 20, 2009- Belarus:** the country confirmed its first novel flu case yesterday, in a Chinese man who had recently returned from visiting China.

**August 18, 2009- Mozambique:** the country's first novel flu case, in a 46-year-old woman who had recently traveled to South Africa.

**Southern Hemisphere**

**Australia**

**As of August 21, 2000,** total confirmed cases are 33,179; Total deaths associated with pandemic H1N1 influenza is 131. Currently, there are 456 hospitalized cases of pandemic H1N1 and 98 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 4082.

**Australia Influenza Surveillance Summary Report, No. 14, 2009, reporting period: August 8-14 2009.**


Overall, the current national influenza activity appears to be steady. Most jurisdictions have reported that pandemic H1N1 2009 activity has peaked or has plateaued. Pandemic H1N1 activity varies across geographical areas. Most jurisdictions are reporting that ILI presentations to ED are decreasing. Absenteeism rates have decreased in the last week and are below levels seen at the same time in 2007.

The number of people with confirmed H1N1 requiring hospitalization continues to increase. As of August 14, 447 people are hospitalized and 104 are in ICU, with a total of 3,524 people who are hospitalized. Highest hospitalization rate occurred in young children less than 5 years of age (24.5 per 100,000 population). The number of deaths associated with H1N1 continues to increase. As of August 14, 106 people have died, and of these deaths four were pregnant women and 14 (13.2%) were Indigenous.

Indigenous Australians are approximately 5 times more likely than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009, representing 12.8% of all hospitalizations. Most cases had underlying medical conditions, including cancer, diabetes mellitus and morbid obesity.

With a 20% clinical attack rate and no intervention; it has been projected by the end of winter 1 in 5 Australians (4.3 million could become infected with the pandemic virus, leading to 40-80,000 hospitalizations, and 6,000 deaths. NOTE: Currently the number of hospitalizations and deaths are tracking below these estimations, suggesting that efforts to protect the vulnerable are effective.
Australia, New South Wales: Weekly Summary (as of August 19, 2009)

New Zealand

August 21, 2009: New Zealand now has 3090 laboratory-confirmed pH1N1 cases. The level of illness would be much higher than the number of laboratory-confirmed cases reported daily. Testing is now done only in the management of severe cases. The number of deaths associated with pandemic H1N1 is 15.

New Zealand: Weekly Summary (August 10 - 16, 2009)
There has been a slight increase in consultations for influenza-like illness through sentinel surveillance in week 33 (August 10-16, 2009). However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

South America & the Americas

Argentina: Since epi reporting of week 27, there has been a downward trend in the number of cases reported. At the peak of influenza A detection, pandemic H1N1 represented 93.3% of all respiratory viruses circulating in patients over 5 years old. In children under 5 years, RSV is responsible for 72/2% of cases. There are 404 confirmed pandemic H1N1 associated deaths in Argentine. Source: PHAC, FluWatch Week 32.

Chile: There has been a decline in the incidence of pH1N1 and a decrease in ILI cases throughout the country. The highest rate of confirmed cases is observed in those 5-14 years old, followed by similar rates in the less than 5 year and 15-59 year old age groups. The rate of severe infection has been declining since week 27, and is highest in those under 1 year old. The proportion of pH1N1 has decline compared to other respiratory viruses. However, there has been an increase in the RSV and parainfluenza detections. Source: PHAC, FluWatch Week 32.

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

August 21, 2009: Chile finds novel flu virus in turkeys. Chile’s agriculture ministry yesterday reported an outbreak of novel H1N1 flu at two turkey farms west of Santiago, the first such report in birds. The farms were quarantined on Aug 13 after a change in egg production prompted testing.

August 21, 2009: WHO official predicts ‘explosion’ of H1N1 cases this fall. A World Health Organization (WHO) official speaking in Beijing today said he expects to see an "explosion in case numbers" this fall when novel H1N1 virus activity picks up again in the northern hemisphere,. Shin Young-soo, the WHO's Western Pacific director, said cases in many countries could double every 3 to 4 days. But a US CDC official said that while vigilance is needed, fall outbreaks might resemble only a bad flu season.

OAHPP Weekly H1N1 Digest
August 20, 2009: Flu fatality study finds half of patients had underlying conditions. A review by French researchers of 574 novel flu deaths reported globally through mid July found that about half involved people with underlying conditions, most notably pregnancy and obesity. Reporting in the latest issue of Eurosurveillance, they said more research is needed to explore if other conditions contribute to higher death rates in obese patients. Though older people seem to have some immunity, the group found that elderly patients who had novel flu infections were more likely to die. [http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19309](http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19309)

August 20, 2009: Study says flu vaccination should target kids and their parents. A modeling study to assess flu vaccine allocation strategies found that immunizing school children and adults their parents' age, 30 to 39, might be optimal. Their rationale is that school children are responsible for most flu transmission and that their parents spread the virus to the wider community. The authors wrote that CDC recommendations for seasonal and novel flu vaccination don't fully address those transmission factors. [http://www.sciencemag.org/cgi/content/abstract/1175570/?date=082109](http://www.sciencemag.org/cgi/content/abstract/1175570/?date=082109)


**JOURNALS SCANNED:**

- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Influenza and Other Respiratory Viruses (added this week)
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- Science

**AMERICAN JOURNAL OF PUBLIC HEALTH**

- Nothing new on H1N1 this week

**BRITISH MEDICAL JOURNAL**

- Nothing new on H1N1 this week

**CLINICAL INFECTIOUS DISEASES**

Evaluation of the ability of direct fluorescent antigen (DFA) influenza tests to identify novel H1N1 influenza virus. DFA results were compared with polymerase chain reaction results. The negative predictive value of DFA testing was at least 96%. Therefore, when performed on specimens of adequate quality, DFA tests can effectively rule out infection due to novel H1N1 virus.

**EMERGING INFECTIOUS DISEASES**

- Nothing new on H1N1 this week.

**EUROSURVEILLANCE**

1) The importance of school and social activities in the transmission of influenza A(H1N1)v: England, April – June 2009 (I Kar-Purkayastha, C Ingram, H Maguire, A Roche, August 17, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19311

During the containment phase in the United Kingdom (April to June 2009), a cluster of influenza A(H1N1)v cases was identified prompting further investigation and public health action by the Health Protection Agency. In this cluster, investigators found that significant transmission occurred in two classes with attack rates of 17% and 7%. In each of the two classes a case had attended school whilst symptomatic. Minimum and maximum attack rates were 14% and 25% for the party. The study did not find any evidence of transmission on two school bus trips despite exposure over 50 minutes to a symptomatic case and over two periods of 30 minutes to a case during the prodromal phase (i.e. within 12 hours of symptom onset). Nor was there onward transmission in another school despite exposure over several hours to two cases, both of whom attended school during the prodromal phase.

2) Epidemiological and clinical characteristics of influenza A(H1N1)v infection in children: The first 45 cases in Cyprus, June – August 2009 (M Koliou, et al., August 16, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19312

Following the first imported case in a tourist in Cyprus on 2 June 2009, the influenza A(H1N1)v virus has spread on the island affecting mainly young adults and children. The study describes the first 45 cases in school age children. The investigation revealed that five children were hospitalised, and overall their symptoms were mild. Adherence to oseltamivir treatment was very high, and there was low frequency of gastrointestinal side effects such as nausea and vomiting. Camping places and summer schools played a significant role in spreading the infection among children of school age.

**INFLUENZA AND OTHER RESPIRATORY VIRUSES** (added this week)

http://www3.interscience.wiley.com/cgi-bin/fulltext/122555484/HTMLSTART

There are of course areas of uncertainty and concern remaining: Will the H1N1v vaccines be immunogenicity and safe, as they are likely to have only been tested previously in an H5N1 formulation? Who will receive the first vaccine doses and will they be ready in time? Will the virus become more virulent and overwhelm our health care systems? Will resistance of H1N1v viruses to oseltamivir become more widespread? Will the H1N1v virus reassort with seasonal influenza viruses or even worse, H5N1 viruses?
2) A review of medical masks and respirators for use during an influenza pandemic (Holly Seale, et al., August 18, 2009)
http://www3.interscience.wiley.com/cgi-bin/fulltext/122555482/HTMLSTART

Despite the lack of high level evidence, recommendations on the use of face masks and respirators for HCWs are made by many health authorities. To ensure that HCWs wear face masks to protect themselves during this time, cultural attitudes and the physical discomfort and mechanical issues associated with long-term respirator use must be addressed. Other factors that affect the use of personal protective equipment, such as staff and management attitudes about the value of respirator use, fatigue and the availability of replacement masks, also need to be considered.

3) Initial human transmission dynamics of the pandemic (H1N1) 2009 virus in North America (Babak Pourbohloul et al, August 18, 2009)
http://www3.interscience.wiley.com/cgi-bin/fulltext/122555483/HTMLSTART

This study analyzed three mutually exclusive datasets from Mexico City Distrito Federal which constituted all suspect cases from 15 March to 25 April. Investigators estimated the initial reproduction number from 497 suspect cases identified prior to 20 April, using a novel contact network methodology incorporating dates of symptom onset and hospitalization, variation in contact rates, extrinsic sociological factors, and uncertainties in underreporting and disease progression. Robustness of this estimate was tested using both the subset of laboratory-confirmed pandemic (H1N1) 2009 infections and an extended case series through April 25th, adjusted for suspected ascertainment bias. The estimated transmission characteristic of pandemic (H1N1) suggests that pharmaceutical and non-pharmaceutical measures may limit its spread prior to the development of an effective vaccine.

JOURNAL OF INFECTIOUS DISEASES

-Nothing new on H1N1 this week

LANCET

1) Health care workers treating H1N1 patients may resist wearing respirators (Splete. Heidi, August 14, 2009)
http://www.thelancet.com/H1N1-flu/egmn/0c03af73

A study found earlier this year in the JAMA, 27 health care workers with an average age of 48 years volunteered to wear each of eight different types of respirators, including the N95 and the powered air purifying respirator (PAPR), for as long as they could tolerate during an 8-hour shift. Overall, 59% of the participants removed the respirators before their shifts ended. Reported reasons for intolerance include: heat, pressure or pain, burning eyes, nausea, dizziness, mechanical impairments with duties and diminished vision, speech and hearing acuity. The investigators discuss the tolerability of respirators as a top issue for health care workers.

2) Obstetricians still not comfortable with Novel H1N1 influenza in pregnancy (Johnson, Kate, August 14, 2009)
http://www.thelancet.com/H1N1-flu/egmn/0c03af7d
This article reviews a study published in the Lancet, discussing H1N1 infection in pregnancy. Of the 34 pregnant women you contracted the virus, only 50% were treated with oseltamivir, and just 8% received treatment within 48 hours of symptom onset. The investigators found that the antivirals have the best impact within the first 48 hours of treatment. They also noted that the most recent deaths in pregnant women who stated the treatment late. The article also suggests to the Infectious Diseases Society for Obstetrics and Gynecology needs to get the message out that practitioners should be thinking about the importance of H1N1 and pregnancy and recommend they should “recognize that influenza in pregnancy is not trivial, and they should consider early treatment”.

3) Fewer Novel H1N1 vaccine doses may be available when immunizations begin (Evans, Jeff, August 14, 2009)
http://www.thelancet.com/H1N1-flu/egmn/0c03afa7

In the United States, although vaccination programs still are slated for mid-October, the number of doses that will be available by then has been lowered from 120 million to 45 million, with 20 million doses coming out each week afterward. Vaccine production and testing are on schedule, and clinical trial testing of the inactive and attenuated virus vaccines are already underway and programs for distributing the vaccines and conducting surveillance should be developed in advance when vaccines are ready. However, an unexpected difficulty in mass production of the vaccine has slowed in progress. This a result of lower than expected vaccine yield, compared to previous yields with seasonal fly vaccines.

**Lancet Infectious Diseases**

-Nothing new on H1N1 this week

**MMWR**

1) Oseltamivir-resistant Novel Influenza A (H1N1) Virus Infection in Two Immunosuppressed Patients (J. Eglund et al., August 17, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58d0814a1.htm?s_cid=mm58d0814a1_x

This report summarizes the case histories and investigations of: a) close monitoring for antiviral drug resistance immunesuppressed patients receiving treatment for pandemic influenza A (H1N1) and b) the implications for infection control in the hospital setting. Initially, both patients were infected with oseltamivir-susceptible viruses; oseltamivir resistance developed later during antiviral treatment. One patient's symptoms resolved after treatment with oseltamivir, and the other patient was receiving treatment with zanamivir and ribavirin as of August 13. There was no evidence of virus transmission between the patients and health-care personnel (HCP) contacts and other close contacts.

**Nature**

-Nothing new on H1N1 this week

**New England Journal of Medicine**

- Nothing new on H1N1 this week.
1) Comparative pathogenesis of an avian H5N2 and a swine H1N1 influenza virus in pigs (de Vleeschauwer, Annebel et al., August 19, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006662

Pigs are considered intermediate hosts for the transmission of avian influenza viruses (AIVs) to humans but the basic organ pathogenesis of AIVs in pigs has been barely studied. The study used 42 four-week-old influenza naive pigs and two different inoculation routes (intranasal and intratracheal) to compare the pathogenesis of a low pathogenic (LP) H5N2 AIV with that of an H1N1 swine influenza virus. The researchers suggests that LP H5 AIV infection of pigs may be useful to examine heterologous protection provided by H5 vaccines or other immunization strategies, as well as for future studies on the molecular pathogenesis and neurotropism of AIVs in mammals.

2) Estimating sensitivity of laboratory testing for influenza in Canada through modeling (Dena L. Schanzer et al, August 19, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006681

This study aimed to estimate the sensitivity of influenza testing in Canada based on results of a national respiratory surveillance system. The weekly number of negative influenza tests from 1999 to 2006 was modeled. The estimated sensitivity of influenza tests reported to this national laboratory surveillance system is considerably less than reported test characteristics for most laboratory tests. A number of factors may explain this difference which includes specimen quality and procurement issues, in addition to test characteristics. The authors suggest that improved diagnosis would permit better estimation of the burden of influenza.

3) Chances and limitations of wild bird monitoring for the avian influenza virus H5N1 – detection of pathogens highly mobile in time and space (Hendrik Wilking et al., August 19, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006639

The aim of this study was to analyze the efficacy of highly pathogenic influenza virus (HPAIV) H5N1 monitoring programs in Germany in wild birds. A statistical model was developed to evaluate and estimate the prevalence of HPAIV H5N1 in wild bird. Due to low sample sizes and partially untargeted sampling, the probability of detection of infected animals was low for most intervals and bird species. The study suggests that an improved targeting of the monitoring system as part of a risk-based approach with the perspective of reducing sample sizes for future research.

SCIENCE
-Nothing new on H1N1 this week
The WHO will no longer issue the global tables showing the numbers of confirmed cases for all countries. Thus, the reported cases presented in this table will severely underestimate the true incidence in the country and will not be comparable to counties still recommending laboratory tests of all suspected influenza cases. The following table provides global updates on H1N1-associated deaths. Please see hyperlinks in table for most up to date counts.

<table>
<thead>
<tr>
<th>COUNTRIES/PROVINCES</th>
<th>DEATHS</th>
<th>HOSPITALIZATIONS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA (PHAC)</td>
<td>72</td>
<td>1441</td>
</tr>
<tr>
<td>- BC</td>
<td>4</td>
<td>42</td>
</tr>
<tr>
<td>- AB</td>
<td>7</td>
<td>126</td>
</tr>
<tr>
<td>- SK</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>- MB</td>
<td>7</td>
<td>217</td>
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<tr>
<td>- ON**</td>
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<td>353</td>
</tr>
<tr>
<td>- QC</td>
<td>25</td>
<td>591</td>
</tr>
<tr>
<td>- NB</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>- NS</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>- PEI</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NL</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>- Yukon</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- NWT</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>- Nunavut</td>
<td>1</td>
<td>62</td>
</tr>
<tr>
<td>U.S. (CDC)</td>
<td>556</td>
<td>8843</td>
</tr>
<tr>
<td>E.U. and EFTA (ECDC)</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>179</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>128</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>439</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>131</td>
<td>4398</td>
</tr>
<tr>
<td>New Zealand</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,873</td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 11:00pm (EST) on August 27; CDC numbers updated last at 10:00 am on August 28; ECDC numbers updated last at 5:00 pm (CEST) on August 28 2009.

* Source: PHAC Flu Watch, week ending August 22 2009.
DEATHS AMONG NOVEL H1N1 INFLUENZA A VIRUS, APRIL 13-AUGUST 26, 2009

- 23 deaths have been reported among confirmed cases.
- Almost all of these fatalities were hospitalized prior to death (83%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 56 years and the average age is 54 years.
- Among confirmed cases that have died, 20 or 87% had underlying chronic medical conditions compared to 66% of hospitalized cases.

HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES

As of August 26, 2009 in Ontario:
- 360 confirmed cases have been hospitalized to date for greater than 24 hours to date.
- Of these, 335 cases have been discharged.
- The average length of stay range from less than 1 day to 80 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease diabetes, etc).
- 89% of cases that were discharged had a length of stay of at least 2 days.
- Of the 25 cases are currently hospitalized, a total of 13 were placed on a ventilator and/or were admitted to ICU.

<table>
<thead>
<tr>
<th>HOSPITALIZATION STATUS</th>
<th>VENTILATOR AND/OR ICU</th>
<th>NOT IN ICU AND NOT ON VENTILATOR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>13</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>60</td>
<td>275</td>
<td>335</td>
</tr>
<tr>
<td>Total hospitalized to date</td>
<td>73</td>
<td>287</td>
<td>360*</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, August 26, 2009.
* Excludes case with a length of stay of less than 24 hours

<table>
<thead>
<tr>
<th>HOSPITALIZATION STATUS</th>
<th>HOSPITALIZED CASES*</th>
<th>NON-HOSPITALIZED CASES</th>
<th>TOTAL CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20 years</td>
<td>171</td>
<td>2237</td>
<td>2408</td>
</tr>
<tr>
<td>Greater than or equal to 20 years</td>
<td>189</td>
<td>1445</td>
<td>1634</td>
</tr>
<tr>
<td>Total</td>
<td>360</td>
<td>3682</td>
<td>4042</td>
</tr>
</tbody>
</table>

Source: MOHLTC, iPHIS data as of 8:30 am, August 26, 2009. Age was unknown for 11 cases
<table>
<thead>
<tr>
<th><strong>GOVERNMENT UPDATES</strong></th>
</tr>
</thead>
</table>

**CENTRE FOR DISEASE CONTROL (CDC)**

**August 20, 2009: CDC H1N1 Flu Surveillance Update.**
http://www.cdc.gov/h1n1flu/update.htm

**Weekly Flu View Map and Surveillance Report for Week Ending August 22, 2009.**
http://www.cdc.gov/flu/weekly/

Map includes both seasonal flu and H1N1 flu activity. During week 33, (August 16-22, 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 99% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Five influenza-associated pediatric deaths were reported and both were associated with novel influenza A (H1N1) virus infection.

**CDC Guidance for Response to Influenza for Institutions of Higher Education during the 2009-2010 Academic Year (August 26, 2009)**
http://www.cdc.gov/h1n1flu/institutions/guidance/

This document provides guidance to help decrease the spread of flu among students, faculty, and staff of institutions of higher education (IHE) and post-secondary educational institutions during the 2009-2010 academic year.

**CDC Influenza A (H1N1) 2009 Monovalent Vaccine Safety Monitoring: CDC Planning Recommendations for State, Local, Tribal, and Territorial Health Officials: Vaccine Safety Monitoring (August 21, 2009)**
http://www.cdc.gov/h1n1flu/vaccination/safety_planning.htm

This guidance document addresses key components of the vaccine safety monitoring plan for 2009 H1N1 monovalent vaccines and presents suggested roles for state, local, tribal and territorial health officials involved in this monitoring.

**PUBLIC HEALTH AGENCY OF CANADA (PHAC)**

**FluWatch Week 33 (August 16 - 22, 2009)**
The overall influenza activity decreased this week; the national ILI consultation rate (15 consultations per 1,000) is lower compared to the last week. The proportion of influenza positive tests decreased this week (4.2%), the overall number of influenza outbreaks lower this week.

**Government of Canada announces two initiatives to support healthcare workers in treating and preventing H1N1 (August 27, 2009)**

Description of move to meet in Winnipeg next week to share and discuss best practices for treating severe H1N1 infections, as well as investment of $2.7 million to the Influenza Research Network to evaluate the safety and efficacy of the pandemic vaccine, as well as to monitor and evaluate vaccine implementation programs.

**Deaths Associated with Influenza A (H1N1) as of August 27, 2009**
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php

The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.
**WORLD HEALTH ORGANIZATION (WHO)**

**August 28, 2009: WHO Preparing for the second wave: lessons from current outbreaks.**
http://www.who.int/csr/disease/swineflu/notes/h1n1_second_wave_20090828/en/index.html

**August 28, 2009: The World Health Organization (WHO) posted surveillance and status updates for regions where the pandemic H1N1 is just gaining a foothold, including the Mideast, Africa, and parts of Asia and the Pacific, which showed Southeast Asia as the hardest hit of those areas.**

**August 21, 2009: Weekly Epidemiological Record, vol. 84, 24 (pp 341-348)**

**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)**

**August 28, 2009: ECDC situation report (daily surveillance report).**

**HEALTH/SURVEILLANCE BULLETINS:**

Countries reporting first case(s) of pandemic H1N1

**August 25, 2009- Angola:** the country's first four pandemic H1N1 cases. The patients include two Brazilian and two Angolans from the same family, both of whom traveled internationally. All patients are in isolation and reported as stable.

**August 24, 2009- Kyrgyzstan:** the country reported its first confirmed pH1N1 cases in a 24 year old man and his wife who had traveled to Dubai in mid August. The two were admitted to an infectious disease hospital with fly symptoms. Lab tests in Moscow confirmed the diagnosis.

**Global Information**

Rates of influenza illness continue to decline in the temperate region of the southern hemisphere, except in South Africa where pH1N1 appeared slightly later than the other countries. Active transmission is still seen in some later affected areas of Australia, Chile and Argentina even as national rates decrease. Areas of tropical Asia are reporting increasing rates of illness as they enter their monsoon season.

WHO has been notified of 12 cases of oseltamivir resistance, following post-exposure prophylaxis (9), people treatment of infection (1), or in immunocompromised patients (2). These cases have arisen in different parts of the world (Japan, USA, HK China, Denmark, Canada and Singapore).

**Southern Hemisphere**

**Australia**

**As of August 28, 2009** total confirmed cases are 34,467; Total deaths associated with pandemic H1N1 influenza is 131. Currently, there are 417 hospitalized cases of
pandemic H1N1 and 83 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 4398.

**Australia Influenza Surveillance Summary Report, No. 15, 2009, reporting period: August 15-21 2009.**

Overall, the current national influenza activity appears to be decreasing. Most jurisdictions have reported that pandemic H1N1 2009 activity has peaked or has plateaued. Pandemic H1N1 activity varies across geographical areas. In general, most jurisdictions are reporting that ILI presentations to ED are decreasing. Absenteeism rates have decreased in the last week and are below levels seen at the same time in 2007.

The number of people with confirmed H1N1 requiring hospitalization is stabilizing. As of August 21st, 456 people are hospitalized and 98 are in ICU, with a total of 4082 people who are hospitalized. Highest hospitalization rate occurred in young children less than 5 years of age (34.6 per 100,000 population). However, the number of deaths associated with H1N1 continues to increase. As of August 21, 131 people have died, and of these deaths four were pregnant women and 18 (13.7%) were Indigenous.

Indigenous Australians are approximately 5 times more likely than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009, representing 13.6% of all hospitalizations. Most cases had underlying medical conditions, including cancer, diabetes mellitus and morbid obesity.

With a 20% clinical attack rate and no intervention; it has been projected by the end of winter 1 in 5 Australians (4.3 million could become infected with the pandemic virus, leading to 40-80,000 hospitalizations, and 6,000 deaths. NOTE: Currently the number of hospitalizations and deaths are tracking below these estimations, suggesting that efforts to protect the vulnerable are effective.

**Australia, New South Wales: Weekly Summary (as of August 26, 2009)**

**New Zealand**

**August 28, 2009:** New Zealand now has 3127 laboratory-confirmed pH1N1 cases. The level of illness would be much higher than the number of laboratory-confirmed cases reported daily. Testing is now done only in the management of severe cases. The number of deaths associated with pandemic H1N1 is 16.

**New Zealand: Weekly Summary (August 17 - 23, 2009)**
There has been a slight increase in consultations for influenza-like illness through sentinel surveillance in week 34 (August 17-23, 2009). However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

OAHPP Weekly H1N1 Digest
As of August 26, 2009, weekly ILI consultation rates are nearly three times higher than the winter peak experienced in the last two years. The number of ILI consultations has decreased over recent weeks. Schools are reporting usual levels of absenteeism for this time of year.

South America & the Americas

In the southern hemisphere, most countries (represented by Chile, Argentina, New Zealand, and Australia) appear to have passed their peak of influenza activity and have either returned to baseline levels or are experiencing focal activity in later affected areas; while a few others (represented by South Africa and Bolivia) continue to experience high levels of influenza activity.

Argentina: In week 32, pH1N1 influenza represented 92.4% of all respiratory viruses circulating in patients over 5 years old. In children under 5 years, RSV is responsible for 70.4% of cases, and pH1N1 only for 23.47%. Source: PHAC, FluWatch Week 33.

Chile: Since epi week 28 the proportion of pH1N1 relative to other respiratory viruses has declined to reach 11% of respiratory virus detections in week 32. Very few of influenza detections (<1%) of influenza detections in week 32. Very few of influenza detections are seasonal strains. In persons over 5 years old, pH1N1 predominates. Source: PHAC, FluWatch Week 33.

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

August 27, 2009: South Korea rolls out strict flu measures. The education ministry in Korea announced strict measures to curb the spread of the pandemic H1N1 virus, including checking all students' temperatures each day, sterilizing classrooms daily, and refraining from group activities. So far 46 schools have closed or delayed the start of fall classes. The government expects to place school children on its vaccine priority list.

August 25, 2009: Sweden targets entire population for vaccine. Sweden has set aside $142 million to pay for the vaccination of its entire population against pandemic flu. The country has signed an agreement with British vaccine maker GlaxoSmithKline for 18 million vaccine doses enough to cover its population of about 9.3 million with two doses each. Sweden's vaccination program will be voluntary.
http://www.swedishwire.com/politics/811-sweden-to-fund-mass-swine-flu-vaccination

August 24, 2009: Smokers may be susceptible to severe H1N1 illness. A Hong Kong health official said smokers may be prone to suffering life-threatening complications from novel H1N1 flu. Thomas Tsang of Hong Kong's Centre for Health Protection said 12 of 27 patients who suffered pneumonia and other serious complications were current or former smokers, and some had no other known risk factors. About 1 in 200 people in Hong Kong who tested positive for H1N1 experienced severe disease
http://www.bloomberg.com/apps/news?pid=20601202&sid=aSs9.rvfo7g8

August 25, 2009: PLoS Library of Science, Public Library of Science, a nonprofit, open-access scientific publisher, recently introduced a new portal for rapidly disseminating preliminary influenza-related research findings. Articles on the Web site, called PLoS Currents: Influenza, are screened by a board of moderators but are not thoroughly peer
reviewed. The site currently contains 10 articles, including one on pandemic H1N1 virulence and another on the outbreak and intensive care capacity.
http://knol.google.com/k/plos/plos-currents-influenza/28qm4w0q65e4w/1%23#

OTHER:

Pandemic influenza: Guidance on preparing acute hospitals in England
While not intended to provide detailed operational guidance for responding to an influenza pandemic, this document provides general information to support the preparations necessary for the operational response to such an event.

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents (new this week)
- Science

AMERICAN JOURNAL OF PUBLIC HEALTH

- Nothing new on H1N1 this week.

BRITISH MEDICAL JOURNAL

1) BMJ group launches online swine flu forum for doctors across the globe (Emma Dickinson)
Responding to concerns from doctors in many countries, the BMJ Group has now made available a forum on pandemic flu though doc2doc.bmj.com – a new international on-line community for doctors

2) Monitoring the emergence of community transmission of Influenza A/H1N1 2009 in England: a cross sectional opportunistic survey of self sampled telephone callers to NHS Direct (Alex J. Elliot et al., August 27, 2009)
http://www.bmj.com/cgi/content/full/339/aug27_2/b3403
This study evaluated the ascertainment of the onset of community transmission of pH1N1 in England during the early phase of the pandemic by comparing two surveillance systems: NHS direct telephone health line and regional laboratory results on patients who tested for pH1N1. Trends in the proportion of patients with influenza A/H1N1 2009 across regions detected through clinical management were mirrored by
the proportion of NHS Direct callers with laboratory confirmed infection. The authors suggest that the reports from HPA regional laboratories could be used to recognise the extent to which local community transmission was occurring.

3) Willingness of Hong Kong healthcare workers to accept pre-pandemic influenza vaccination at different WHO alert levels: two questionnaire surveys (Josette S. Y. Chor et al., August 25, 2009)
http://www.bmj.com/cgi/content/full/339/aug25_2/b3391

This study assessed the acceptability of pre-pandemic influenza vaccination among health care workers in public hospitals in Hong Kong and the effect of the pandemic alert level by the WHO. Health care workers completed a questionnaire in the two studies. The outcome measured was health care workers- nurses, doctors and allied health professionals- willingness to accept pre-pandemic influenza vaccination. The willingness to accept pre-pandemic influenza vaccination was low, and no significant effect was observed with the change in WHO alert level. Further studies are required to examine the cause of the low intention to accept pre-pandemic vaccination.

4) Opposition to swine flu vaccine seems to be growing worldwide (Zosia Kmietowicz, August 26, 2009)
http://www.bmj.com/cgi/content/full/339/aug26_1/b3461

As governments gear up to launch national vaccination programmes against swine flu, questions are beginning to emerge about how many people will be prepared to take up the offer of the vaccine.

5) Incidence of swine flu in England continues to fall but winter surge is predicted (Nayarah Siva, August 21 2009)
http://www.bmj.com/cgi/content/full/339/aug21_2/b3421

The number of new cases of A/H1N1 influenza reported in England continues to fall, but the government forecasts a sharp rise in cases during the winter months. England’s chief medical officer states the incidence of swine fly is unusual at this time of the year. He also states that a decline in pattern is noted, but that it does not mean it is truly reducing and an expected second wave is forecasted this winter.

6) Should healthcare workers have the swine flu vaccine? (Editorial, August 25, 2009)
http://www.bmj.com/cgi/content/full/339/aug25_2/b3398

In a pandemic there are many uncertainties, but without vaccination many healthcare workers will become infected. Although this will be a mild illness for most, deaths in previously healthy young adults have occurred. Flu vaccination is likely to reduce this risk and has a well understood safety profile. Vaccination may also help to keep the healthcare system operating at maximum capacity throughout the pandemic. Evidence from decades of seasonal vaccination suggests likely benefits and low risk of adverse events.

CLINICAL INFECTIOUS DISEASES
-Nothing new on H1N1 this week

EMERGING INFECTIOUS DISEASES
-Nothing new on H1N1 this week

OAHPP Weekly H1N1 Digest
EUROSURVEILLANCE

1) Influenza A(H1N1)v in Germany: the first 10,000 cases (A Gilsdorf & G Poggensee, on behalf of the working group pandemic influenza A(H1N1)., August 25, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19318

As of 25 August 2009, 14,940 cases of influenza A(H1N1)v have been reported in Germany. Germany wants to continue the current reporting system until the number of respiratory infections increases significantly, as can be expected in autumn again. Then it is planned to stop the case-based reporting by physicians and get the necessary information from the laboratory-based reporting of confirmed cases as it is done for seasonal influenza viruses and the sentinel surveillance.

JOURNAL OF INFECTIOUS DISEASES

-Nothing new on H1N1 this week

LANCET

-Nothing new on H1N1 this week

MORBIDITY AND MORTALITY REPORT (MMWR)

1) Use of Influenza A (H1N1) 2009 Monovalent Vaccine. Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2009
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5810a1.htm?s_cid=rr5810a1_x

Recommendations by CDC's Advisory Committee on Immunization Practices (ACIP) regarding the use of vaccine against infection with novel influenza A (H1N1) virus. Specific vaccines against the novel influenza A (H1N1) virus are being manufactured, and licensed vaccine is expected to be available in the United States by mid-October 2009 (9). However, the initial supply of these vaccines might not be enough to meet the demand for vaccine. For this reason, the ACIP recommends that certain groups at highest risk for infection or influenza-related complications should be the initial targets for vaccination. Highlights of these recommendations include 1) the identification of initial target groups for vaccination efforts, 2) establishment of priority for a subset of persons within the initial target groups in the event that initial vaccine availability is unable to meet demand, and 3) guidance on use of vaccine in other adult population groups as vaccine availability increases.

2) Surveillance for the 2009 Pandemic Influenza A (H1N1) Virus and Seasonal Influenza Viruses - New Zealand, 2009 (August 28, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5833a2.htm?s_cid=mm5833a2_x

To track the incidence of influenza-like illness (ILI) and compare the number of viruses identified as 2009 pandemic influenza A (H1N1) with the number identified as seasonal influenza, New Zealand public health officials analyzed weekly data from the country's sentinel general practitioner (GP) surveillance system and nonsentinel laboratory surveillance network for the period extending from the week ending May 3 through the week ending August 2. This report describes the results of those analyses. Like other southern hemisphere countries with temperate climates, New Zealand entered its winter season with cocirculation of both seasonal and 2009 pandemic influenza A (H1N1) strains. By the week ending July 5, 80% of the viruses identified by sentinel GP surveillance were the 2009 pandemic influenza A (H1N1) virus.
3) 2009 Pandemic Influenza A (H1N1) Virus Infections --- Chicago, Illinois, April--July 2009 (August 28, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5833a1.htm?s_cid=mm5833a1_x

On April 24, in response to reports from the CDC of the first cases of 2009 pandemic influenza A (H1N1) virus infection in the United States, the Chicago Department of Public Health (CDPH) established enhanced surveillance for 2009 pandemic influenza A (H1N1) virus infections. This report summarizes laboratory-confirmed cases identified during April 24--July 25 and provides clinical and epidemiologic data for a subset of those cases.

**NATURE**
- Nothing new on H1N1 this week.

**NEW ENGLAND JOURNAL OF MEDICINE**
1) H1N1 Influenza, Public Health Preparedness, and Health Care Reform (N. Lurie, August 26, 2009)
http://healthcarereform.nejm.org/?p=1622&amp;query=TOC

In December 2009, the Department of Health and Human Services will present to Congress its first-ever national health security strategy, outlining high-priority activities and areas of investment for strengthening the capability of the United States to prepare for, respond to, and recover from large-scale public health emergencies. The strategy is being developed in parallel with a national debate over health care reform, since national health security will not be achievable without key elements of reform. These elements include an effective focus on prevention and wellness, universal access to needed care, widespread deployment of health information technology, changes in the organization of and payment for care, and research on comparative effectiveness. A U.S. health security strategy will need to build on, and take full advantage of, core components of a reformed health care system. With the right approach, reform could facilitate vast improvements in our ability to respond to and recover from large-scale health emergencies.

**PLoS One**
- Nothing new on H1N1 this week.

**PLoS Currents (New This Week)**
1) Molecular modeling of swine influenza A/H1N1, Spanish H1N1, and avian H5N1 flu N1 neuraminidases bound to Tamiflu and Relenza (Schulten, Lee and Le, August 27, 2009)
http://knol.google.com/k/ly-le/molecular-modeling-of-swine-influenza/30e8n4orj1dsd/1?collectionId=28qm4w0q65e4w.1&amp;position=1#

A molecular model of the swine influenza A/H1N1 type-I neuraminidase was built using the pathogenic avian H5N1 type-I neuraminidase as a basis, due to the higher sequence identity between A/H1N1 and H5N1 (91.47%) compared to Spanish H1N1 (88.37%) neuraminidase. All-atom molecular dynamics (MD) simulations of all three neuraminidases were performed; the simulations allowed for the identification of both conserved and unique drug-protein interactions across all three proteins. Specifically, conserved networks of hydrogen bonds stabilizing the drugs in the sialic acid binding site of the simulated neuraminidases are analyzed, providing insight into how disruption due to mutations may lead to increased drug resistance. A possible mechanism through
which the residue 294 mutation acquires drug resistance is proposed by mapping the mutation site onto an electrostatic pathway which may play a role in controlling drug access to the binding pocket of neuraminidase, establishing a starting point for further investigations of neuraminidase drug resistance.

2) Tracking the evolution and geographic spread of Influenza A (Donovan H. Park, Norman J. MacDonals and Robert G. Beiko, August 27, 3009)
http://knol.google.com/k/donovan-parks/tracking-the-evolution-and-geographic/1049pdwpgoubk/1?collectionId=28qm4w0q65e4w.1&position=2#

Consistent with seasonal flu outbreaks, the current pandemic strain, 2009 swine-origin strain of Influenza A H1N1, has shown rapid dispersal, with multiple examples of introduction into different geographic regions. Here the authors use an automated pipeline to collect data for analysis in the geospatial package GenGIS, which allows the geographic and temporal tracking of new sequence types and polymorphisms. Using this approach, the authors examine a pair of amino acid changes in the neuraminidase protein that are implicated in antibody recognition, and exhibit global dispersal with little or no geographic structure.

**SCIENCE**

-Nothing new on H1N1 this week
HOSPITALIZATION & DEATH COUNTS:

The WHO will no longer issue the global tables showing the numbers of confirmed cases for all countries. Thus, the reported cases presented in this table will severely underestimate the true incidence in the country and will not be comparable to counties still recommending laboratory tests of all suspected influenza cases. The following table provides global updates on H1N1-associated deaths. Please see hyperlinks in table for most up to date counts.

<table>
<thead>
<tr>
<th>COUNTRIES/PROVINCES</th>
<th>DEATHS</th>
<th>HOSPITALIZATIONS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA (PHAC)</td>
<td>72</td>
<td>1,454</td>
</tr>
<tr>
<td>- BC</td>
<td>4</td>
<td>42</td>
</tr>
<tr>
<td>- AB</td>
<td>7</td>
<td>127</td>
</tr>
<tr>
<td>- SK</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>- MB</td>
<td>7</td>
<td>221</td>
</tr>
<tr>
<td>- ON**</td>
<td>23</td>
<td>366</td>
</tr>
<tr>
<td>- QC</td>
<td>25</td>
<td>591</td>
</tr>
<tr>
<td>- NB</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>- NS</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>- PEI</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>- NL</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>- Yukon</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- NWT</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>- Nunavut</td>
<td>1</td>
<td>62</td>
</tr>
<tr>
<td>U.S. (CDC)</td>
<td>593</td>
<td>9,079</td>
</tr>
<tr>
<td>E.U. and EFTA (ECDC)</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>199</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>465</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>161</td>
<td>4,548</td>
</tr>
<tr>
<td>New Zealand</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>3,315</td>
<td></td>
</tr>
</tbody>
</table>

Note: PHAC numbers updated last at 11:00pm (EST) on September 3; CDC numbers updated last at 09:00 am on September 3; ECDC numbers updated last at 5:00 pm (CEST) on September 4 2009.

* Source: PHAC Flu Watch, week ending August 29 2009.
DEATHS AMONG NOVEL H1N1 INFLUENZA A VIRUS, APRIL 13-SEPTEMBER 3, 2009

- 23 deaths have been reported among confirmed cases.
- Almost all of these fatalities were hospitalized prior to death (83%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 56 years and the average age is 54 years.
- Among confirmed cases that have died, 20 or 87% had underlying chronic medical conditions compared to 66% of hospitalized cases.

HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES

As of September 3, 2009 in Ontario:

- 366 confirmed cases have been hospitalized to date for greater than 24 hours to date.
- Of these, 347 cases have been discharged.
- The average length of stay range from less than 1 day to 80 days.
- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease diabetes, etc).
- 89% of cases that were discharged had a length of stay of at least 2 days.
- Of the 19 cases that are currently hospitalized, a total of 12 were placed on a ventilator and/or were admitted to ICU.

<table>
<thead>
<tr>
<th>HOSPITALIZATION STATUS</th>
<th>VENTILATOR AND/OR ICU</th>
<th>NOT IN ICU AND NOT ON VENTILATOR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>12</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Number of Hospitalized and Discharged</td>
<td>62</td>
<td>285</td>
<td>347</td>
</tr>
<tr>
<td>Total hospitalized to date</td>
<td>74</td>
<td>292</td>
<td>366*</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, September 3, 2009.
* Excludes case with a length of stay of less than 24 hours

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>HOSPITALIZATIONS</th>
<th>RATE/100,000</th>
<th>DEATHS</th>
<th>RATE/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>20</td>
<td>14.93</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>1-4</td>
<td>48</td>
<td>8.79</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>5-19</td>
<td>107</td>
<td>4.43</td>
<td>3</td>
<td>0.12</td>
</tr>
<tr>
<td>20-49</td>
<td>106</td>
<td>1.89</td>
<td>4</td>
<td>0.07</td>
</tr>
<tr>
<td>50-64</td>
<td>50</td>
<td>2.08</td>
<td>9</td>
<td>0.37</td>
</tr>
<tr>
<td>65+</td>
<td>35</td>
<td>2.03</td>
<td>7</td>
<td>0.41</td>
</tr>
<tr>
<td>Total</td>
<td>366</td>
<td>2.83</td>
<td>23</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Source: Ontario Influenza Bulletin (surveillance week 34) MOHLTC, iPHIS data as of 8:30 am, September 3, 2009; Ontario population projections for 2008 PHPDB as of February, 12 2009.

OAHPP Weekly H1N1 Digest
### GOVERNMENT UPDATES

#### CENTRE FOR DISEASE CONTROL (CDC)

**September 4, 2009: CDC H1N1 Flu Surveillance Update.**
[http://www.cdc.gov/h1n1flu/update.htm](http://www.cdc.gov/h1n1flu/update.htm)

**Weekly Flu View Map and Surveillance Report for Week Ending August 29, 2009.**

Map includes both seasonal flu and H1N1 flu activity. During week 34, (August 23-29 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 97% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. One influenza-associated pediatric deaths were reported and both were associated with novel influenza A (H1N1) virus infection.

**CDC Guidance on helping child care and early childhood programs respond to influenza during the 2009-2010 influenza season (September 04, 2009)**
[http://www.cdc.gov/h1n1flu/childcare/guidance.htm](http://www.cdc.gov/h1n1flu/childcare/guidance.htm)

This document provides guidance to help decrease the spread of influenza (flu) among children in early childhood programs and among early childhood providers during the 2009–2010 flu season.

#### PUBLIC HEALTH AGENCY OF CANADA (PHAC)

**FluWatch Week 34 (August 23-29, 2009)**
The overall influenza activity decreased this week; the national ILI consultation rate is nearly within the range of expected range at this time of the year. The peak period of pH1N1 occurred between weeks 22 to 24. The intensity of pH1N1 in the population is low with only a few number of hospitalized cases (n=13) and one death reported this week. Children under 2 years of age, pregnant women, persons under 65 years of age with underlying medical conditions and Aboriginal populations have higher rates of hospitalizations and greater risk of severe outcomes (ICU admissions and deaths). Aboriginal communities experience severe pH1N1 cases compared to the general Canadian population.

**Canada well-positioned to provide flu vaccine on time (September 2, 2009)**

As public health officials, intensive care specialists, and medical experts from Canada and abroad gathered in Winnipeg today to discuss how to treat severe cases of H1N1 flu virus, Health Minister Leona Aglukkaq reinforced the important work the Government is doing to prepare for a major H1N1 vaccination campaign this fall.

**Deaths Associated with Influenza A (H1N1) as of September 03, 2009**

The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.
ONTARIO- MOHLTC

H1N1 flu in Ontario Report, MOHLTC (September 3, 2009). A report by Ontario’s Chief Medical Officer of Health. The report discusses the current situation in Ontario and provides an outline of the current plan for fall 2009.

WORLD HEALTH ORGANIZATION (WHO)

September 04, 2009: In temperate regions of the northern hemisphere, there are wide geographical variations in the level of influenza activity being reported. In Japan, influenza activity continues to increase past the seasonal epidemic threshold, indicating an early beginning to the annual influenza season. In Canada & the US, influenza activity remain low overall, however regional increases are being detected in the Southeastern United States.

September 04, 2009: Weekly Epidemiological Record, vol. 84, 36 (pp 361-372)

WHO supports fair access to pH1N1 vaccine. An interview with Marie-Paule Kieny (September 4, 2009)

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)


First report of transmission of the pandemic A(H1N1) 2009 influenza virus from humans to birds / ECDC (September 2, 2009)

On August 29 Chile’s health ministry confirmed that the strain of H1N1 2009 influenza pandemic found in turkey farms was the same as that currently circulating in humans in the Southern hemisphere.

HEALTH/SURVEILLANCE BULLETINS:

Global Information

The highest hospitalization rates in many countries are reported among young children less than 5 years of age. Tropical regions of South and Southeast Asia continue to experience widespread influenza activity. Many countries in the region are reporting increasing or sustained high levels of respiratory disease, and a few (Thailand and Brunei Darussalam) have begun to report a decline in the level of respiratory diseases.

In Europe and Central and Western Asia, although little influenza activity is being reported, a few countries are reporting widespread influenza activity. pH1N1 continues to be the predominant circulating virus of influenza, both in the northern and southern hemisphere. Source: WHO as of September 4, 2009.
Southern Hemisphere

Most countries in the southern hemisphere (Chile, Argentina, New Zealand, Australia) appear to have passed their peak influenza activity, but others (South Africa and Bolivia) continue to experience high levels of influenza activity. Countries in the equatorial and tropical regions of South America (represented by Ecuador, Venezuela, Peru, and parts of Brazil) continue to experience widespread influenza activity, with many reporting an increasing trend in the level of respiratory diseases.

Although many countries in temperate regions of the southern hemisphere (Chile, Argentina, Australia, and New Zealand) have passed the peak of their winter influenza epidemic, sustained influenza activity continues to be reported in South Africa and in the Southern and Western parts of Australia. Source: WHO as of August 4, 2009.

Australia

As of September 04, 2009, total confirmed cases are 35,444; Total deaths associated with pandemic H1N1 influenza are 161. Currently, there are 375 hospitalized cases of pandemic H1N1 and 71 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 4548.


Overall, the current national influenza activity appears to be decreasing. Most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is starting to decrease. Pandemic H1N1 activity varies across geographical areas. In general, most jurisdictions are reporting that ILI presentations to ED are decreasing. Absenteeism rates remained steady in the last week and are below levels seen at the same time in 2007.

The number of people with confirmed H1N1 requiring hospitalization is stabilizing. As of August 28th, 4515 people are hospitalized and 83 are in ICU, with a total of 4398 people who are hospitalized. Highest hospitalization rate occurred in young children less than 5 years of age (34.6 per 100,000 population). 4% of the hospitalized cases have been reported as pregnant. During the month of July, pregnant women accounted for 32% of all hospitalized women were confirmed cases aged between 25-29 years.

Indigenous Australians are approximately 5 times more likely than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009, representing 13.8% of all hospitalizations. Most cases had underlying medical conditions, including cancer, diabetes mellitus and morbid obesity.

With a 20% clinical attack rate and no intervention; it has been projected by the end of winter 1 in 5 Australians. NOTE: Currently the number of hospitalizations and deaths are tracking below these estimations, suggesting that efforts to protect the vulnerable are effective.

Australia, New South Wales: Weekly Summary (as of September 2, 2009)

OAHPP Weekly H1N1 Digest
New Zealand

September 4, 2009: New Zealand now has 3143 laboratory-confirmed pH1N1 cases. The level of illness would be much higher than the number of laboratory-confirmed cases reported daily. Testing is now done only in the management of severe cases. The number of deaths associated with pandemic H1N1 is 17.

[link]

New Zealand: Weekly Summary (August 24 - 30, 2009)

There has been a slight increase in consultations for influenza-like illness through sentinel surveillance in week 35 (August 24-30, 2009). However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years. As of August 30 2009, weekly ILI consultation rates have decreased, but the rate is still higher than previous years for the same week.

Center for Infectious Disease Research and Policy (CIDRAP)

September 4, 2009: Tiered epidemic plans could improve response. The public health measures taken in response to swine fly may be seen as alarmist, overly restrictive, or even unjustified, says a US expert. Calibrated responses based on four types of risk assessments that take into account disease distribution and severity could build public trust and engage the public’s attention to warning messages.

[link]

September 3, 2009: Institute of Medicine (IOM) affirms existing federal CDC guidelines that healthcare workers caring for pH1N1 infected patients should wear fit-tested N95 respirators, not just surgical masks, to protect them from the virus.

[link]

September 2, 2009: Study- H1N1 likely to dominate, not mix with, seasonal flu. When scientists infected ferrets with the pandemic virus and one of two seasonal flu strains, the pandemic virus multiplied faster than the seasonal strain, caused more severe disease, and spread more easily to other ferrets. The team found no signs that the strains reassorted (mixed) to create new hybrids.

[link]

September 2, 2009: New York City offer kids free pandemic flu shots. New York City's school district it will offer free novel H1N1 flu vaccine to all its students. Hundreds of US school districts will provide vaccinations in schools as the vaccine becomes available, projected to occur next month.

[link]

September 1, 2009: Openness was Mexico’s most effective tactic against H1N1. Mexican health officials who are examining what worked and what didn’t in fighting the first wave of H1N1 flu say that rapid notification of the public about the virus was the most effective step, though it cost the economy billions of tourist dollars. Rapid diagnosis, treatment, and quarantine, along with hand-washing, also were helpful. Ineffective steps included travel bans, school closures, and widespread use of surgical masks.

[link]
**AMERICAN JOURNAL OF PUBLIC HEALTH**

- Nothing new on H1N1 this week

**BRITISH MEDICAL JOURNAL**


http://www.bmj.com/cgi/content/abstract/339/aug27_2/b3403

This study evaluated the ascertainment of the onset of community transmission of pH1N1 in England during the early phase of the pandemic by comparing two surveillance systems: NHS direct telephone health line and regional laboratory results on patients who tested for pH1N1. Trends in the proportion of patients with influenza A/H1N1 2009 across regions detected through clinical management were mirrored by the proportion of NHS Direct callers with laboratory confirmed infection. The authors suggest that the reports from HPA regional laboratories could be used to recognize the extent to which local community transmission was occurring.

2) Tom Nolan: The swine flu will be back after the break (Juliet Walker, September 1, 2009)


With everything seemingly back to normal it’s tempting to forget all about swine flu. But we shouldn’t get too comfortable: this time should be used to prepare for the next wave of flu. But what more can be done? We’ve already had a dress rehearsal this summer and clinicians’ knowledge, skills and organisation regarding swine flu are now fine-tuned. Perhaps the best thing people can do is take a hard earned break to recharge the batteries for the winter ahead.

**CANADIAN MEDICAL ASSOCIATION JOURNAL** CMAJ (added this week)

1) Editorial: The H1N1 vaccine race: Can we beat the pandemic? (Paul C. Hébert and Noni MacDonald, August 31, 2009)

http://www.cmaj.ca/earlyreleases/31aug09_editorial.shtml

The article discusses the possibility in providing a fast-track standard vaccine to high-risk groups be protected in a timely way, while the general public awaits the arrival of the
adjuvant vaccine. Without an immediate change in policy, high-risk groups in Canada will be waiting for protection, while their US and European counterparts are vaccinated. The author recommends that health professionals have access to standard vaccines by early October and to adjuvant vaccine no later than mid-November to protect the public.

**CLINICAL INFECTIOUS DISEASES**

1) Virologically Confirmed Population-Based Burden of Hospitalization Caused by Influenza A and B among Children in Hong Kong (Susan S. Chiu et al., September 1, 2009)
   [http://www.journals.uchicago.edu/doi/full/10.1086/605570](http://www.journals.uchicago.edu/doi/full/10.1086/605570)

This study examined the virologically confirmed hospitalization rates associated with influenza virus infection among Hong Kong children. Patients <18 years of age who lived on Hong Kong Island (a separate island within Hong Kong) and were admitted to either of the only 2 public hospitals for a febrile acute respiratory infection from October 2003 through September 2006 were prospectively recruited. All cases of influenza A during 2003–2004 were caused by H3N2 virus, whereas 85.7% of cases during 2004–2005 were due to H3N2 virus, and 93.5% during 2005–2006 were due to H1N1 virus. This population-based study of hospitalizations due to virologically confirmed influenza demonstrated a very high burden of disease among young children in Hong Kong. The morbidity varied with virus type, subtype, and antigenic variants.

2) Editorial: The Burden of Influenza in Children: Time for Prevention (Kathryn M. Edwards, September 1, 2009)
   [http://www.journals.uchicago.edu/doi/full/10.1086/605571](http://www.journals.uchicago.edu/doi/full/10.1086/605571)

The CDC funded a network to specifically define the rates of hospitalization for influenza virus infection among young children in the United States and to measure the impact of vaccination on these rates. A team of investigators established a population-based laboratory surveillance network, the New Vaccine Surveillance Network (NVSN), for children <5 years of age in 3 geographically distinct regions in the United States.

3) Neuraminidase Inhibitor Resistance after Oseltamivir Treatment of Acute Influenza A and B in Children (Iain Stephenson, September 1, 2009)
   [http://www.journals.uchicago.edu/doi/full/10.1086/596311](http://www.journals.uchicago.edu/doi/full/10.1086/596311)

This study investigates the emergence of drug-resistant infection in children treated with a tiered weight-based dosing regimen. Clinical NP samples were analyzed before and after oseltamivir therapy. The viruses were isolated, tested for drug resistance with use of fluorescence-based neuraminidase inhibition assay, performed neuraminidase gene sequencing, and quantitative viral loads. The researchers found drug resistance emerging at a higher rate in influenza A subtype H1N1 virus than in influenza A H3N2 or influenza B after tiered weight-based oseltamivir therapy. Surveillance for patterns of drug resistance is essential for determination of antiviral treatment strategies and for composition of pandemic preparedness stockpiles.

**EMERGING INFECTIOUS DISEASES**

1) Lack of Airborne Transmission during Outbreak of Pandemic (H1N1) 2009 among Tour Group Members, China, June 2009 (Ke Han, et al., August 31, 2009)
   [http://www.cdc.gov/eid/content/15/10/pdfs/09-1013.pdf](http://www.cdc.gov/eid/content/15/10/pdfs/09-1013.pdf)

This article investigates mode of transmission and risk factors of an outbreak of pH1N1 cases among member of a tour group in China. This is a retrospective cohort design, in which index case status was identified and secondary cases were traced during the
follow-up investigation. This outbreak was apparently caused by droplet transmission during coughing or talking. That airborne transmission was not a factor is supported by lack of secondary cases among fellow bus and air travelers. The authors suggest the need to prevent transmission by droplet and fomites during a pandemic.

**EUROSURVEILLANCE**

1) Assessment of secondary attack rate and effectiveness of antiviral prophylaxis among household contacts in an influenza A(H1N1)v outbreak in Kobe, Japan, May–June 2009 (F Odaira, et al., August 31, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19320

This study describes the assessment of the secondary attack rate (SAR) and the effectiveness of post-exposure antiviral prophylaxis among household contacts in the first domestic outbreak of a novel influenza A(H1N1)v between mid-May and early June 2009 in Kobe city, Japan. The authors could not conclude whether antiviral prophylaxis was effective or not. However, among close contacts with underlying disease who received prophylaxis, none of those individuals developed a severe form of the disease.

http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19323

This short report presents the epidemiological characteristics of the early stage of the pH1N1 outbreak in Bolivia, from 5 May - 2 August 2009, on the basis of data collected by CENETROP. After the first imported cases from the United States and Peru, the locally acquired infections predominated (90%). The number of cases was highest in the age group of 10 to 29 year-olds, and 89.6% of cases were observed in people less than 40 years of age. Symptoms of those with pH1N1 are similar to those of seasonal influenza, and many people in Bolivia would not usually consult at healthcare clinic for such symptoms. The volume of medical consultations has overwhelmed the CENETROP laboratory which succeeded in managing the extraordinary work load but experienced a shortage in reagents after only a few weeks. This study highlights the difficulty, with regard to local resources, of managing an epidemic surveillance system at a high level and for a long time.

**JOURNAL OF CLINICAL MICROBIOLOGY (added this week)**

1) Rapid Multiplex Reverse Transcription-PCR Typing of Influenza A and B Virus, and Subtyping of Influenza A Virus into H1, 2, 3, 5, 7, 9, N1 (Human), N1 (Animal), N2, and N7, Including Typing of Novel Swine Origin Influenza A (H1N1) Virus, during the 2009 Outbreak in Milwaukee, Wisconsin (Jie He, et al., September 2009)
http://jcm.asm.org/cgi/content/full/47/9/2772

The authors had recently developed a rapid multiplex reverse transcription-PCR enzyme hybridization assay (FluPlex) to determine the type (A or B) and subtype of influenza viruses. Comparisons of the FluPlex results with results from multiple validated in-house molecular assays, CDC-validated FDA-approved assays, and gene sequencing demonstrated positive agreement for the typing of influenza A and B viruses, subtyping of H1N1 (animal), H1N1 (human), and H3N2 (human) viruses, and identification of negative clinical samples and 100% negative agreement for all viruses tested except H1N1 (human) (97.7%). The FluPlex is a rapid, inexpensive, sensitive, and specific method for the typing and subtyping of influenza viruses and demonstrated outstanding utility during the first 2 weeks of a swine-origin influenza virus (S-OIV) infection outbreak.
2) Rapid Semiautomated Subtyping of Influenza Virus Species during the 2009 Swine Origin Influenza A H1N1 Virus Epidemic in Milwaukee, Wisconsin (Michael E. Bose et al., September 2009)
http://jcm.asm.org/cgi/content/full/47/9/2779

The Midwest Respiratory Virus Program laboratory developed a semiautomated real-time multiplex reverse transcription-PCR assay (Seasonal), employing the NucliSENS easyMAG system and a Raider thermocycler, that typed influenza A virus, influenza B virus, and respiratory syncytial virus (RSV) and subtyped influenza A virus into the currently circulating H1 and H3 subtypes, as well as a similar assay that identified H1 of S-OIV. This study has demonstrated the use of a semiautomated system for sensitive, specific, and rapid detection of influenza A and B viruses and RSV and subtyping of influenza A virus. This assay/system performed well in clinical testing of regular seasonal influenza virus subtypes and was outstanding during the 2009 Milwaukee S-OIV infection outbreak.

3) Rapid Method To Support Diagnosis of Swine Origin Influenza Virus Infection by Sequencing of Real-Time PCR Amplicons from Diagnostic Assays (R. J. Hall, M. Peacey, Q. S. Huang, and P. E. Carter, September 2009)
http://jcm.asm.org/cgi/content/full/47/9/3053?etoc

Nonspecific detection of S-OIV was made with a primer/probe set that targets a highly conserved region of the matrix gene of seasonal influenza A strains. An additional primer/probe set designed to subtype H1 and H3 seasonal influenza strains was unable to detect S-OIV. Therefore, a probable diagnosis of S-OIV was based upon the detection of influenza A virus that could not be subtyped as H1 or H3. To add confidence to this test result, the authors have determined that sequencing of the real-time PCR matrix gene amplicon can distinguish between human seasonal A/H1N1 and S-OIV.

4) Influenza A Virus Subtyping: Paradigm Shift in Influenza Diagnosis (Michael Vinikoor, Jane Stevens, John Nawrocki, and Kamaljit Singh, September 2009)
http://jcm.asm.org/cgi/content/full/47/9/3055?etoc

The authors introduced influenza virus reverse transcription-PCR (RT-PCR) testing in our laboratory using the Luminex xTAG respiratory viral panel (RVP) during the 2007 to 2008 season, but, following reports of oseltamivir resistance, the authors started reporting both influenza type A virus and subtypes H1 and H3 to allow for more accurate selection of antiviral therapy. At the end of April 2009, the authors identified their first cases of pandemic A/H1N1 influenza virus, which typed as influenza A but were unsubtypeable (negative for subtype H1 or H3) using RVP which allowed easy discrimination from seasonal influenza A/H1N1 and A/H3N2 viruses. In this article, they describe the results of influenza A virus subtype identification using the RVP during the 2007 to 2008 and 2008 to 2009 influenza seasons.

**JOURNAL OF INFECTIOUS DISEASES**

1) What Is a Pandemic? (David M. Morens, Gregory K. Folkers, and Anthony S. Fauci, August 27, 2009)
http://www.journals.uchicago.edu/doi/full/10.1086/644537

Simply defining a pandemic as a large epidemic may make ultimate sense in terms of comprehensibility and consistency. The authors of this article suggest that use of the term is best reserved for infectious diseases that share many of the same epidemiologic features discussed above (i.e. wide geographic extension, disease movements, High attack rates and explosiveness, etc.). With respect to influenza, the “rules” of
pandemicity are being extensively rewritten and are likely to be modified further in coming months. The authors expect that improved understanding of the science of influenza—among the most important of the endemic, epidemic, and pandemic diseases—will lead to more-precise and better-understood terminology, as well as to clearer communication.

**LANCET**

1) Office Test for Oseltamivir-Resistant Pandemic Influenza A(H1N1) Available *(Michele G. Sullivan, August 27, 2009)*

http://www.lancet.com/H1N1-flu/egmn/0c03b3f9

A Montreal biosciences company has developed a genetic assay for in-office use, to identify oseltamivir-resistant pandemic influenza A(H1N1). The test results, available in 2 working days, could be used to help guide patient treatment decisions, said the vice president of Warnex Medical Laboratories Inc. Although physicians shouldn’t wait on test results to initiate treatment, the short turnaround time would give quick notice on any need to switch drugs due to resistance. The test uses genetic sequencing to detect the H275Y mutation of the neuraminidase gene, which has been shown to cause resistance to oseltamivir.

**LANCET INFECTIOUS DISEASES**

1) Possible origin of current influenza A H1N1 viruses *(Hong Zhang, Ling Chen, August 2009)*


Scientists from the US CDC submitted to GenBank (on April 27, 2009) the first set of completed coding sequences for the new influenza A virus. By use of the Basic Local Alignment Search Tool program, the authors compared eight gene segments of this newly isolated virus with hundreds of other available influenza sequences in GenBank. They found that circulating strains of the H1N1 viruses isolated from different countries were essentially identical, and all eight gene segments of the new influenza A virus possibly originated from swine influenza viruses. Sequence analysis also suggests that six gene segments of circulating H1N1 viruses probably came from swine influenza H1N2 viruses circulating in the USA from 1999 to 2001 and two gene segments possibly originated from swine influenza H1N1 viruses circulating in Europe from 1985–98.

2) Economics of stockpiling for an influenza pandemic *(Praveen Dhankhar, Erik J Dasbach, Elamin H Elbasha, August 2009)*


Stockpiling of drugs can be an important part of the preparation for the next influenza pandemic. Economic evaluations can help to guide policy makers on the economic feasibility of stockpiling. Extending these studies to account for the probability of a pandemic, shelf life of vaccine or antiviral, management of the stockpile, optimum stockpile inventory, and other pandemic preparation strategies might provide policy makers with additional information to make informed decisions for the use of scarce health-care resources to yield greatest benefits.

3) Influenza in the tropics *(Yee-Sin Leo, David C Lye, Angela Chow, August 2009)*

Influenza infections happen throughout the year in the tropics; most countries report two peaks in the number of infections associated with rainy seasons. Clinical data on disease characteristics and impact on health-care services are lacking. A recent laboratory project at Tan Tock Seng Hospital in Singapore showed that about 10% of respiratory samples from patients admitted within 48 h period were positive for influenza by PCR assay. None of these patients were diagnosed clinically or isolated during hospitalisation, and 60% fulfilled the case definition for influenza-like illness. This highlights the under-recognition and under diagnosis of influenza in hospitals. Importantly, public health policy on influenza vaccination in the tropics is lacking.

4) Containment abandoned for unstoppable pandemic (Peter Hayward, August 2009) 
http://download.thelancet.com/flatcontentassets/H1N1-flu/epidemiology/epidemiology-68.pdf

Nearly 140 countries or territories have confirmed cases of novel H1N1, including Africa, the last inhabited continent to be affected. The apparent absence of a dip in infections in the northern hemisphere as summer progresses is causing concern. The disease caused by novel H1N1 remains mild. But as the number of deaths increases, pregnant women, people who are overweight, and people with underlying disorders seem most at risk.

**MORBIDITY AND MORTALITY WEEKLY REPORT**

1) Surveillance for pediatric deaths associated with 2009 Pandemic Influenza A (H1N1) virus infection – United States, April-August 2009 (September 4, 2009)  
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5834a1.htm?s_cid=mm5834a1_x

As of August 8, 2009, CDC had received reports of 477 deaths associated with 2009 pandemic influenza A (H1N1) in the United States, including 36 deaths among children aged <18 years. To characterize these cases, CDC analyzed data from April to August 2009. The results of that analysis indicated that, of 36 children who died, seven (19%) were aged <5 years, and 24 (67%) had one or more of the high-risk medical conditions. Twenty-two (92%) of the 24 children with high-risk medical conditions had neurodevelopmental conditions. Among 23 children with culture or pathology results reported, laboratory-confirmed bacterial coinfections were identified in 10 (43%), including all six children who 1) were aged ≥5 years, 2) had no recognized high-risk condition, and 3) had culture or pathology results reported.

**NATURE**

1) Pandemic flu: from the front lines (September 2, 2009)  

Researchers describe the scientific and public-health challenges they face in battling the H1N1 virus. This article contains an overview of the H1N1 Pandemic in Mexico, Australia, Japan, Argentina, Vietnam, United States, India, and Sub-Saharan Africa.

**NEW ENGLAND JOURNAL OF MEDICINE**

-Nothing new on H1N1 this week

**PLoS One**

1) Early epidemiological assessment of the virulence of emerging infectious diseases: a case study of an influenza pandemic (Hiroshi Nishiura, Don Klinkenberg, Mick Roberts, Johan A. P. Heesterbeek, September 2, 2009)
The authors describe a simple method developed to obtain an unbiased estimate of confirmed CFR (cCFR), using only the confirmed cases as the denominator, at an early stage of epidemic, even when there have been only a few deaths. Their method adjusts the biased cCFR by a factor of underestimation which is informed by the time from symptom onset to death. They examined the approach by analyzing an outbreak of SARS in Hong Kong (2003) with known unbiased cCFR estimate, and then investigate published epidemiological datasets of novel swine-origin influenza A (H1N1) virus infection in the USA and Canada (2009). The maximum likelihood estimate of the unbiased cCFR for influenza may lie in the range of 0.16–4.48%. The estimates for influenza suggest that the virulence is comparable to the early estimate in Mexico.

2) Sources and coverage of medical news on front pages of US newspapers (William Y. Y. Lai, Trevor Lane, Alison Jones, September 2, 2009)

Using the online resource Newseum, the authors investigated front-page newspaper coverage of four prominent medical stories, and a high-profile non-medical news story as a control, reported in the US in 2007. In total, 1630 front pages were searched. Each medical story appeared on the front pages of 85 to 117 (67.5%–78.7%) ranked newspaper titles that had a cumulative daily circulation of 23.1 to 33.4 million, or 61.8% to 88.4% of all newspapers. In contrast, the non-medical story achieved front-page coverage in 152 (99.3%) newspaper titles with a total circulation of 41.0 million, or 99.8% of all newspapers. Front-page medical stories varied in their sources, but the Washington Post, Los Angeles Times, New York Times and the Associated Press together supplied 61.7% of the total coverage of target front-page medical stories.

3) Differences in patient age distribution between Influenza A subtypes (Hossein Khiabanian, Gregory M. Farrell, Kirsten St. George, Raul Rabadan, September 2, 2009)

Since the spring of 1977, two subtypes of influenza A virus (H3N2 and H1N1) have been seasonally infecting the human population. Here, the authors describe the distribution of patient ages within the populations that exhibit symptomatic disease caused by each of subtype of seasonal influenza viruses. When the information is pooled across multiple geographical locations and seasons, differences emerge between these subtypes. The authors report that the symptomatic flu due to H1N1 is distributed mainly in a younger population relative to H3N2. (The median age of the H3N2 patients is 23 years while H1N1 patients are 9 years old.) These characteristic spectra of age groups are consistent with previous reports from various regional population studies and also findings on the evolutionary dynamics of each subtype.

**PLOS CURRENTS**
-Nothing new on H1N1 this week

**SCIENCE**
-Nothing new on H1N1 this week
INTERNATIONAL SITUATION:
The pandemic H1N1 (pH1N1) influenza virus continues to be the dominant influenza virus in circulation in the world. In the southern hemisphere, influenza activity continues to decrease or return to baseline. In contrast, more African countries have reported their first laboratory confirmed cases. There have been no significant changes detected in the pH1N1 virus isolated from persons in the Southern hemisphere compared to persons in the Northern Hemisphere. In the northern hemisphere activity is variable. In the US, regional increases in influenza activity are being reported, most notably in the south eastern states. Most of Europe is reporting low or moderate respiratory diseases activity, but parts of Eastern Europe are beginning to report increases in activity. Sources: CDC, ECDC as of September 11; WHO as of September 6.

CANADA:
The overall influenza activity in Canada remains similar to the previous week; the national ILI consultation rate was slightly higher than expected for this time of the year. The intensity of the pH1N1 infection in the Canadian population is low to moderate with only a small number of hospitalizations (n=11) and two deaths this week. As of September 5, 2009, the total of 1,445 hospitalized cases, 285 cases ICU admissions and 74 deaths had been reported since the beginning of the pandemic. Children < 2 years of age, pregnant women, persons < 65 years of age with underlying medical conditions and Aboriginal people have higher rates of hospitalizations and greater risk of severe outcomes (ICU admissions and deaths). Aboriginal communities experience severe pH1N1 cases compared to the general Canadian population. Source: FluWatch Week 35, PHAC, as of September 5.

ONTARIO:
Based on the provincial surveillance information as of September 10, 2009, influenza activity in Ontario is similar compared to the previous week. However, since ILI consultation rates are one of the early indicators of ILI activity, the rise in ILI consultation rate may suggest early increasing pH1N1 activity in Ontario, increased activity of other respiratory viruses, or increased health seeking behavior among the general public. Source: Ontario Influenza Bulletin, Surveillance Week 35 as of September 10.

Deaths Among Novel H1N1 Influenza A Virus, April 13-September 9, 2009
- 23 deaths have been reported among confirmed cases.
- Almost all of these fatalities were hospitalized prior to death (83%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 56 years and the average age is 54 years.
- Among confirmed cases that have died, 20 or 87% had underlying chronic medical conditions compared to 66% of hospitalized cases.

Hospitalizations Among Novel H1N1 Influenza A Virus Cases
As of September 9, 2009 in Ontario:
- 370 confirmed cases have been hospitalized to date for greater than 24 hours to date; of these, 350 cases have been discharged.
- The average length of stay range from less than 1 day to 80 days.
• Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease, diabetes, etc).
• 89% of cases that were discharged had a length of stay of at least 2 days
• Of the 20 cases that are currently hospitalized, a total of 13 were placed on a ventilator and/or were admitted to ICU.

<table>
<thead>
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<th>Hospitalization Status</th>
<th>Ventilator and/or ICU</th>
<th>Not in ICU and not on ventilator</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Number of Currently Hospitalized</td>
<td>13</td>
<td>7</td>
<td>20</td>
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<tr>
<td>Number of Hospitalized and Discharged</td>
<td>63</td>
<td>287</td>
<td>350</td>
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<tr>
<td>Total hospitalized to date</td>
<td>76</td>
<td>294</td>
<td>370*</td>
</tr>
</tbody>
</table>

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, September 9, 2009.
* Excludes case with a length of stay of less than 24 hours

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Hospitalizations</th>
<th>Rate/100,000</th>
<th>Deaths</th>
<th>Rate/100,000</th>
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</thead>
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<td>2.03</td>
<td>7</td>
<td>0.41</td>
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<tr>
<td>Total</td>
<td>370</td>
<td>2.86</td>
<td>23</td>
<td>0.18</td>
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</table>

Source: Ontario Influenza Bulletin (surveillance week 34) MOHLTC, iPHIS data as of 8:30 am, September 9, 2009; Ontario population projections for 2008 PHPDB as of February, 12 2009.

**Government Updates**

**CENTRE FOR DISEASE CONTROL (CDC)**

September 11, 2009: CDC H1N1 Flu Surveillance Update.  
[http://www.cdc.gov/h1n1flu/update.htm](http://www.cdc.gov/h1n1flu/update.htm)

Map includes both seasonal flu and H1N1 flu activity. During week 35 (August 30-September 5, 2009), influenza activity increased in the US, however there are still higher levels of ILI than is normal for this time of year. Note: This is the first week that CDC is reporting data from a new system for monitoring the trend of influenza-related hospitalizations and deaths. This new system replaces the weekly report of laboratory confirmed 2009 H1N1-related hospitalizations and deaths. States and territories can now report to CDC either laboratory confirmed or pneumonia and influenza syndromic hospitalizations and deaths resulting from all types or subtypes of influenza, not just those from 2009 H1N1 influenza virus. Counts were reset to zero on August 30, 2009.
Interim Guidance for State and Local Health Departments for Reporting Influenza-Associated Hospitalizations and Deaths for the 2009-2010 Season (September 10, 2009).
http://www.cdc.gov/H1N1flu/hospitalreporting.htm
This interim guidance provides information for state and local health departments on how to report influenza-associated deaths and hospitalizations during the 2009-2010 season.

Updated Interim Recommendations for the Use of Antiviral Medications in the Treatment and Prevention of Influenza for 2009-2010 Season (September 8, 2009).
http://www.cdc.gov/H1N1flu/recommendations.htm
This document provides updated guidance on the use of antiviral agents for treatment and chemoprophylaxis of influenza including 2009 H1N1 influenza infection and seasonal influenza, and assist clinicians in prioritizing use of antiviral medications for treatment or chemoprophylaxis for patients at higher risk for influenza-related complications.

CDC Revised Recommendations for the Use of Influenza Antiviral Drugs, Questions & Answers (September 8, 2009).
http://www.cdc.gov/h1n1flu/antiviral.htm

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 35 (August 30 - September 5, 2009)
The overall influenza activity remains similar to the previous week; the national ILI consultation rate was slightly higher than expected for this time of the year. The peak period of pH1N1 occurred in the first three weeks of July.

The Pandemic Vaccine Prioritization Framework has been developed as guidance for those who will be making the recommendations on whether or not priority groups are required and, if they are, on who will be members of those groups.

Public Health Guidance for the prevention and management of Influenza-like-illness (ILI), including the Pandemic (H1N1) 2009 Influenza Virus, related to mass gatherings (September 9, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/phg-ldp-eng.php
This document provides guidance that local public health officials can use in developing recommendations for organizers of large gatherings in their communities.

Individual and Community Based Measures to Help Prevent Transmission of Influenza-Like-Illness (ILI) in the Community, Including the Pandemic Influenza (HINI) 2009 Virus (September 10, 2009)
This document has been developed to provide guidance to public health authorities regarding non-pharmaceutical measures that may contribute to the reduction of transmission of the pandemic influenza (H1N1) 2009 virus in the community.

PHAC news release: Government of Canada Takes Further Measures to Help Reduce H1N1 Transmission in Communities (September 10, 2009)
This week, the Government of Canada will launch radio ads to remind people to practice regular infection prevention behaviours.

Deaths Associated with Influenza A (H1N1) as of September 10, 2009
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.
Influenza activity in Ontario is similar compared to the previous week. However, ILI consultation rates have increased.

Newsroom: Ontario helping every household fight the flu (September 9, 2009).
McGuinty government prepares for a different flu season and wants to help prepare all residents for the upcoming flu season. To ensure all Ontarians are properly informed about this flu season, beginning next week every home in Ontario will be receiving information in the mail regarding the vaccination programs.

World Health Organization (WHO)

Situation Update 65, September 11 2009:
In temperate regions of the northern hemisphere, there are wide geographical variations in the level of influenza activity being reported. In Japan, influenza activity continues to increase past the seasonal epidemic threshold, indicating an early beginning to the annual influenza season. In Canada & the US, influenza activity remain low overall, however regional increases are being detected in the Southeastern United States.

Measures in school settings (September 11, 2009).
http://www.who.int/csr/disease/swineflu/notes/h1n1_school_measures_20090911/en/index.html WHO is issuing advice on measures that can be undertaken in schools to reduce the impact of the H1N1 influenza pandemic. Recommendations draw on recent experiences in several countries as well as studies of the health, economic, and social consequences of school closures.

European Centre for Disease Prevention & Control (ECDC)

First report of transmission of the pandemic A(H1N1) 2009 influenza virus from humans to birds / ECDC (September 2, 2009)
On August 29 Chile’s health ministry confirmed that the strain of H1N1 2009 influenza pandemic found in turkey farms was the same as that currently circulating in humans in the Southern hemisphere.

Health/Surveillance Bulletins:

Southern Hemisphere
In the southern hemisphere (countries such as Chile, Argentina, Australia, New Zealand, and South Africa), influenza activity continues to decrease or return to baseline. Active transmission persists in tropical regions of the Americas and Asia. Many countries in Central America and the Caribbean continue to report declining activity for the second week in a row. However, countries in the tropical region of South America (countries such as Bolivia, Ecuador, and Venezuela) are reporting increasing levels of respiratory disease. In the tropical regions of Asia, respiratory disease activity remains geographically regional or widespread but the trend is generally increasing in India, Bangladesh, and Cambodia. 
Source: WHO as of September 11.
Australia


Overall, the current national influenza activity appears to be decreasing. Most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is starting to decrease. ILI presentations to the ED are decreasing across all reporting systems this reporting period. Absenteeism rates remained steady in the last week and are below levels seen at the same time in 2007.

The number of people with confirmed H1N1 requiring hospitalization appears to be decreasing. As of September 4, a total of 375 people were hospitalized and 71 are currently in ICU, with a total of 4548 people who are hospitalized. Highest hospitalization rate occurred in young children less than 5 years of age. 4.4% of the hospitalized cases have been reported as pregnant. Indigenous Australians are approximately 8 times more likely than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009, representing 14.7% of all hospitalizations.

Australia, New South Wales: Weekly Summary (as of September 9, 2009)  

New Zealand

Situation Update in New Zealand as of September 11, 2009 see link:  

New Zealand: Weekly 36 Summary (August 31 - September 6, 2009)  

There has been a decrease in consultations for ILI through sentinel surveillance in week 36. However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

September 11: Results point to 1-dose regimen for H1N1 vaccines. US health officials offered more evidence today that a single dose of pandemic H1N1 influenza vaccines may be enough to protect adults, saying preliminary findings in government-sponsored trials reinforce early results from company trials.  
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/sep1109vaccine.html

September 10: Inhaled H1N1 vaccine may ship within days. An official from MedImmune, which is making an inhaled vaccine against pandemic H1N1 influenza, stated the company would begin shipping orders to the US government by the end of September. An official from the company said there are no "red flags" in the safety data submitted to the Food and Drug Administration and that 5 million doses will likely be delivered by the end of the month, about 2 weeks ahead of other pandemic vaccine makers.  
http://www.reuters.com/article/GCA-SwineFlu/idUSTRE5895K820090910

September 9: NIAID launches trial of pandemic vaccine in pregnant women. Federal officials announced the start of the first clinical trial of a pH1N1 vaccine in pregnant women, who face an increase risk of complications from the virus. The trial is to enroll up to 120 women in the 2nd or 3rd trimester of pregnancy.  
http://www3.niaid.nih.gov/NIAID/Templates/Specialized/PreseedableLeftRightNav.aspx?NRMODE=Published&NRNODEGUID=%7bE36BA6A7-6A47-4491-A44F-D3286B9A8327%7d&NFORMID=ID%2fnews%2fnewsreleases%2f2009%2fH1N1pregnanttrials%2ehtm&NRCACHEINT=Guest#
**JOURNALS SCANNED:**
- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Journal of Virology (*added this week*)
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science

**AMERICAN JOURNAL OF PUBLIC HEALTH**
- Nothing new on H1N1 this week

**BRITISH MEDICAL JOURNAL**
1) Should I have an H1N1 flu vaccination after Guillain-Barré syndrome? (*Laura Claire Price, September 8, 2009*)
   [http://www.bmj.com/cgi/content/full/339/sep09_1/b3577](http://www.bmj.com/cgi/content/full/339/sep09_1/b3577)
   In December 2008 Laura Claire Price developed severe Guillain-Barré syndrome but is making a good recovery. She finds herself asking the difficult question of whether to be vaccinated against H1N1 flu when she returns to work as a hospital doctor this autumn.

2) Australia’s swine flu vaccination plans come under fire (*Melissa Sweet, September 8, 2009*)
   [http://www.bmj.com/cgi/content/full/339/sep08_1/b3656](http://www.bmj.com/cgi/content/full/339/sep08_1/b3656)
   The Australian Infection Control Association this week warned the government against proceeding with the vaccination program, stating the planned use of multidose vials (used to vaccinate several people) posed a "significant potential risk to patient safety."

3) Antiviral drugs: distinguish treatment from prophylaxis (*Benjamin J Cowling, Sophia Ng, Ira M Longini, Jr, September 8, 2009*)
   [http://www.bmj.com/cgi/content/full/339/sep08_1/b3620](http://www.bmj.com/cgi/content/full/339/sep08_1/b3620)
   The use of antiviral drugs for treatment needs to be distinguished from their use as chemoprophylaxis against infection or illness is important. In the current pandemic oseltamivir treatment has been widely used in many countries as part of "mitigation phase" protocols whereas chemoprophylaxis has rarely been used since the initial "containment phase."

5) Podcast: Tamiflu - the wrong message? (*Twisselman, September 4, 2009*)
   Dr Ike Iheanacho, *Drug & Therapeutics Bulletin (DTB)* editor, discusses the policy with two members of the *DTB* editorial board, Dr Paul Caldwell, a general practitioner and Dr Mahdad Noursadeghi, an infectious diseases consultant.

**CLINICAL INFECTIOUS DISEASES**
- Nothing new on H1N1 this week.
EMERGING INFECTIOUS DISEASES

1) Using Satellite Images of Environmental Changes to Predict Infectious Disease Outbreaks (Timothy E. Ford et al., September 8, 2009)
   http://www.cdc.gov/eid/content/15/9/1341.htm

   This article reviews infectious diseases and how it relates to the changing human-constructed and natural environments. The article describes airline travel, population increase and displacement, pollution, agricultural activity, changing socioeconomic structures and international conflict contributes to infectious diseases (epidemics and pandemics) worldwide. The researchers discuss advances in the ability to predict these events and, in particular, the critical role that satellite imaging could play in mounting an effective response.

2) A Model-based Assessment of Oseltamivir Prophylaxis Strategies to Prevent Influenza in Nursing Homes (Carline van den Dool, Eelko Hak, Marc J.M. Bonten, and Jacco Wallinga, September 9, 2009)
   http://www.cdc.gov/eid/content/15/10/pdfs/08-1129.pdf

   Researchers used a stochastic individual-based model that simulates influenza virus transmission in a long-term care nursing home department to study the protection offered to patients by different strategies of prophylaxis with oseltamivir and determined the effect of emerging resistance. Without resistance, postexposure and continuous prophylaxis reduced the patient infection attack rate from 0.19 to 0.13 (RR 0.67) and 0.05 (RR 0.23), respectively. Postexposure prophylaxis prevented more infections per dose (118 and 323 daily doses needed to prevent 1 infection, respectively) and required fewer doses per season than continuous prophylaxis.

3) Poor Clinical Sensitivity of Rapid Antigen Test for Influenza A Pandemic (H1N1) 2009 Virus (Jan Felix Drexler, et al., September 9, 2009)
   http://www.cdc.gov/eid/content/15/10/pdfs/09-1186.pdf

   This study evaluates the clinical applicability of a widely distributed rapid test in patients with pH1N1. Influenza A pandemic (H1N1) 2009 virus RNA was detected by reverse transcription–PCR in 144 clinical samples from Bonn, Germany. A common rapid antigen–based test detected the virus in only 11.1% of these samples. The paramount feature of rapid test–positive samples was high virus concentration. The results from this study suggest that testing of patients suspected of pH1N1 infection with antigen-based assays may produce misleading results in clinical practice. The article concludes, the application of such assays should be discouraged in favor of continued molecular diagnostics.

EUROSURVEILLANCE

1) Detection of Influenza A(H1N1)v virus by real-time RT-PCR (M Panning et al., September 10, 2009)
   http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19329

   This study examined and validated real-time RT-PCR assay for the influenza A (H1N1) following industry-standard criteria. The novel real-time RT-PCR assay for the influenza A matrix gene recommended in 2007 by the World Health Organization was modified to work under the same reaction conditions as the influenza A(H1N1)v virus-specific test. Both assays were equally sensitive. Clinical applicability of both assays was demonstrated by screening of almost 2,000 suspected influenza (H1N1)v specimens. The
new methodology proved its principle and might assist public health laboratories in the upcoming influenza pandemic.

**JOURNAL OF INFECTIOUS DISEASES**

- Nothing new on H1N1 this week.

**JOURNAL OF VIROLOGY** *(added this week)*

1) Elastase-Dependent Live Attenuated Swine Influenza A Viruses Are Immunogenic and Confer Protection against Swine Influenza A Virus Infection in Pigs *(Aleksandar Masic, et al., September 8, 2009)*

http://jvi.asm.org/cgi/content/full/83/19/10198

This study investigated immunogenicity and the ability of pigs to protect against the SIV infection was assessed. Two vaccinations with R345V provided pigs with complete protection from homologous H1N1 SIV infection and partial protection from heterologous subtypic H3N2 SIV infection. This protection was characterized by significantly reduced macroscopic and microscopic lung lesions, lower virus titers from the respiratory tract, and lower levels of proinflammatory cytokines. The results from this study suggest that elastase-dependent SIV mutants can be used as live-virus against swine influenza in pigs.


http://jvi.asm.org/cgi/content/abstract/83/19/10309

This study developed a multisegment reverse transcription-PCR (M-RTPCR) approach that simultaneously amplifies eight genomic RNA segments, irrespective of virus subtype. M-RTPCR amplicons can be used for high-throughput sequencing and/or cloned into modified reverse-genetics plasmids via regions of sequence identity. These procedures rescued a contemporary H3N2 virus and a swine origin H1N1 virus directly from human swab specimens. Together, M-RTPCR and the modified reverse-genetics plasmids that the authors designed streamline the creation of vaccine seed stocks (9 to 12 days). The study demonstrated the importance of rapid genomic analysis and creation of vaccines.

**LANCET**

1) Influenza vaccination attitudes and practices among US registered nurses *(Sarah J. Clark, Anne E. Cowan, and Pascale M. Wortley, September 8, 2009)*

http://download.thelancet.com/flatcontentassets/H1N1-flu/vaccination/vaccination-64.pdf

The influenza vaccination rate among US health care personnel (HCP) remains low and may vary by occupational categories. The objective of this study was to explore knowledge, attitudes, and beliefs associated with influenza vaccination in a broad population of registered nurses. The study used a cross-sectional mail survey of registered nurses in 4 US states. The majority of respondents (59%) reported receiving influenza vaccine during the 2005-2006 influenza season. The most common reason for being vaccinated was protecting oneself from illness (95%), and the most common reason for not being vaccinated was concern about adverse reactions (39%). Future efforts to improve vaccination rates should include data on vaccine effectiveness and adverse effects, as well as descriptions of high-risk populations.

2) Pandemic Flu Virus’s Binding Properties May Contribute to Lung Pathology *(Heidi Splete, September 9, 2009)*

http://www.thelancet.com/H1N1-flu/egmn/0c03b677

The pandemic influenza A(H1N1) virus appears to replicate faster and strike harder in the lungs of animal models, compared with the seasonal H1N1 virus, according to correspondence published in the journal Nature Biotechnology on Sept. 10. Differences in the receptor-binding characteristics of the viruses may partly explain the differences in virulence and severity, said Dr. Robert A. Childs. The researchers used
carbohydrate microarray analysis to compare the receptor-binding characteristics of two isolates of the pandemic influenza A (H1N1) virus with a seasonal H1N1 virus.

**MORBIDITY AND MORTALITY REPORT**

1) Update: Influenza Activity - United States, April-August 2009 *(September 10, 2009)*
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58e0910a1.htm?s_cid=mm58e0910a1_x

Pandemic H1N1 influenza activity peaked in the US during May and June and declined during July and early August. From mid-April to August 30, a total of 9,079 hospitalizations and 593 deaths associated with laboratory-confirmed 2009 pandemic influenza A (H1N1) virus infections. Data from the 122 Cities Mortality Reporting System indicate that the proportion of deaths attributed to pneumonia and influenza was within the bounds of what is expected in the summer and did not exceed the epidemic threshold for 2 or more consecutive weeks at any time during April - August. 47 paediatric deaths associated with laboratory-confirmed pandemic H1N1 influenza occurred during April 26 - August 29. Six states (Alabama, Alaska, Florida, Georgia, Mississippi, and South Carolina) and Puerto Rico reported widespread influenza activity for the most recent reporting week (August 23-29)

2) Oseltamivir-Resistant 2009 Pandemic Influenza A (H1N1) Virus Infection in Two Summer Campers Receiving Prophylaxis - North Carolina, 2009 *(September 11, 2009)*
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5835a1.htm?s_cid=mm5835a1_x

On July 14, CDC was contacted by a physician at a summer camp in North Carolina regarding two cases of influenza-like illness (ILI) in adolescent girls receiving oseltamivir chemoprophylaxis during an ILI outbreak that had begun June 18. The two girls stayed in the same cabin, and both received oseltamivir during a mass chemoprophylaxis program. On July 20 and July 22, the North Carolina State Laboratory of Public Health confirmed pandemic H1N1 virus infection in respiratory specimens from both girls. On August 14 and August 19, CDC detected the H275Y mutation in neuraminidase from both specimens. The H275Y mutation is associated with resistance to oseltamivir. This is the first report of oseltamivir resistance in pandemic H1N1 cases with an epidemiologic link.

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5835a2.htm?s_cid=mm5835a2_x

To assess the percentage of women who were vaccinated during pregnancy among women with recent live births, CDC analyzed data from the Pregnancy Risk Assessment and Monitoring System (PRAMS) from Georgia and Rhode Island. In Georgia, the prevalence of influenza vaccination during the woman's most recent pregnancy increased from 10.4% in 2004 to 15.5% in 2006. In Rhode Island, vaccination prevalence increased from 21.9% in 2004 to 33.4% in 2007. Increased efforts are needed to assess vaccine coverage during pregnancy and to educate providers and pregnant women about ACIP and ACOG recommendations on providing intramuscular, inactivated influenza vaccine during any trimester of pregnancy.

**NATURE**

1) First swine flu death on the Galapagos (Henry Nicholls, September 8, 2009)

Swine flu has reached the Galapagos Islands, and the first human fatality there has caused widespread alarm, threatening to undermine a booming tourist industry — mixed news for conservation efforts on the Ecuadorian archipelago. Since the middle of August, when the first case of pandemic H1N1 influenza on the Galapagos was confirmed, the population of Puerto Ayora on Santa Cruz — the island with the biggest human population — has been on high alert.
NEW ENGLAND JOURNAL OF MEDICINE

1) Response after one dose of a monovalent Influenza A(H1N1) 2009 Vaccine: preliminary report (M.E. Greenberg et al., September 11, 2009)
http://content.nejm.org/cgi/content/full/NEJMoa0907413?query=TOC

This report evaluates the immunogenicity and safety of the vaccine 21 days after the first of two scheduled doses. A total of 240 subjects were enrolled and underwent randomization to receive either 15 µg or 30 µg of hemagglutinin antigen by intramuscular injection. By day 21 after vaccination, antibody titers of 1:40 or more were observed in 116 of 120 subjects (96.7%) who received the 15-µg dose and in 112 of 120 subjects (93.3%) who received the 30-µg dose. No deaths, serious adverse events, or adverse events of special interest were reported. Local discomfort (e.g., injection-site tenderness or pain) was reported by 46.3% of subjects, and systemic symptoms (e.g., headache) by 45.0% of subjects. A single 15-µg dose of 2009 H1N1 vaccine was immunogenic in adults, with mild-to-moderate vaccine-associated reactions.

2) Trial of Influenza A (H1N1) 2009 monovalent MF59-Adjuvanted vaccine: preliminary report (T.W. Clark et al., September 11, 2009)
http://content.nejm.org/cgi/content/full/NEJMoa0907650?query=TOC

The authors conducted a single-center study, involving 175 adults, 18 to 50 years of age, to test the monovalent influenza A/California/2009 (H1N1) surface-antigen vaccine. Subjects were randomly assigned to receive two intramuscular injections of vaccine containing 7.5 µg of hemagglutinin on day 0 in each arm or one injection on day 0 and the other on day 7, 14, or 21; or two 3.75-µg doses of MF59-adjuvanted vaccine, or 7.5 or 15 µg of nonadjuvanted vaccine, administered 21 days apart. Antibody responses were measured on days 0, 14, 21, and 42 after injection of the first dose. Results of an interim analysis of the responses to the 7.5-µg dose of MF59-adjuvanted vaccine by days 14 and 21 are presented. In preliminary analyses, the monovalent influenza A (H1N1) 2009 MF59-adjuvanted vaccine generates antibody responses likely to be associated with protection within 14 days after a single dose is administered.

3) Cross-reactive antibody responses to the 2009 pandemic H1N1 Influenza virus (K. Hancock et al., September 11, 2009)
http://content.nejm.org/cgi/content/full/NEJMoa0906453?query=TOC

The authors measured cross-reactive antibodies to pandemic H1N1 virus (2009 H1N1) in stored serum samples from persons who either donated blood or were vaccinated with recent seasonal or 1976 swine influenza vaccines. Vaccination with recent seasonal nonadjuvanted or adjuvanted influenza vaccines induced little or no cross-reactive antibody response to 2009 H1N1 in any age group. Persons under the age of 30 years had little evidence of cross-reactive antibodies to the pandemic virus. However, a proportion of older adults had preexisting cross-reactive antibodies.

PLoS ONE

1) Use of cumulative incidence of novel Influenza A/H1N1 in foreign travelers to estimate lower bounds on cumulative incidence in Mexico (Marc Lipitsch et al., September 9, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006895

The authors used a simple approach to leverage measures of incident influenza A/H1N1 among a relatively small and well observed group of US, UK, Spanish and Canadian travelers who had visited Mexico to estimate the incidence among a much larger and less well surveyed population of Mexican residents. They find that the number of cases in Mexican residents may exceed the number of confirmed cases by two to three orders of magnitude. While the extent of disease spread is greater than previously appreciated, the estimate suggests that severe disease is uncommon since the total number of cases is likely to be much larger than those of confirmed cases.

2) Influenza outbreak during Sydney World Youth Day 2008: the utility of laboratory testing and case definitions on mass gathering outbreak containment (Sebastiaan J. van Hal et al., September 9, 2009)
An influenza outbreak was identified during World Youth Day 2008 in Sydney. From the data collected on pilgrims presenting to a single clinic, a Markov model was developed and validated against the actual epidemic curve. Simulations were performed to examine the utility of different clinical case definitions and laboratory testing strategies for containment of influenza outbreaks. Clinical case definitions were found to have the greatest impact on averting further cases with no added benefit when combined with any laboratory test.

**PLoS CURRENTS**

- Nothing new on H1N1 this week.

**SCIENCE**

- Nothing new on H1N1 this week
GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

September 18, 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 36 (September 6-12, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Updated Interim Recommendations for Obstetric Health Care Providers Related to Use of Antiviral Medications in the Treatment and Prevention of Influenza for 2009-2010 Season (September 17, 2009).
http://www.cdc.gov/H1N1flu/pregnancy/antiviral_messages.htm

Planning for 2009 H1N1 Influenza: A preparedness guide for Small Business (September 16, 2009).
http://www.cdc.gov/H1N1flu/business/guidance/smallbiz.htm
Small businesses play a key role in protecting employees' health and safety as well as limiting the impact to the economy and society during an influenza pandemic. Advance planning for pandemic influenza, a novel infectious disease that could occur in varying levels of severity, is critical.

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 36 (September 6 - 12, 2009)
The overall influenza activity remains similar to the previous week; the national ILI consultation rate is within range of expected level at this time of the year. The peak period of pH1N1 occurred in the first three weeks of June.

Prevention and management of cases of ILI that may be due to pH1N1 influenza virus on cruise ships (September 15, 2009).
This document has been developed by the Public Health Agency of Canada to provide guidance to cruise ship operators, medical staff and crew calling on ports in Canada on the prevention and management of influenza-like illness (ILI) that may be due to
pandemic (H1N1) 2009 influenza virus in passengers or crew.

**Guidance on H1N1 Vaccine Sequencing (September 16, 2009)**


This document provides guidance for some individuals or groups who may be at higher risk of severe illness or hospitalization due to socio-economic and lifestyle conditions, access to health care, and elevated risk of exposure to the H1N1 flu virus. Consideration will be given to targeting these individuals for immunization as our understanding of the virus evolves.

**News Release: Government of Canada Issues Guidance of H1N1 Influenza Vaccine Sequencing (September 16, 2009).**


**Deaths Associated with Influenza A (H1N1) as of September 17, 2009**


The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

**Ontario- MOHLTC**

**Ontario Influenza Bulletin 2008-2009 Season, Surveillance Week 36 (September 6-12, 2009).**


Influenza activity in Ontario is similar compared to the previous week. Many of the measures indicate that influenza activity in week 36 were similar or slightly lower to activity in week 35.

**World Health Organization (WHO)**

**Situation Update 66, September 18, 2009:**


In temperate regions of the northern hemisphere, there are wide geographical variations in the level of influenza activity being reported. In North America, the US is reporting increases in ILI activity above the seasonal baseline, most notably in the southern, southeastern, and parts of the northeastern US. In Canada, influenza activities remain low. In Europe and Central Asia influenza activity remains low overall, except in France, which is reporting increases in ILI activity (for week 37) above the seasonal epidemic threshold.

**Pandemic vaccine donations for the developing world (September 18, 2009).**


WHO applauds and welcomes the announcement of donations of pandemic vaccine made today by the United States of America, in concert with Australia, Brazil, France, Italy, New Zealand, Norway, Switzerland, and the United Kingdom.
**European Centre for Disease Prevention & Control (ECDC)**


**Health/Surveillance Bulletins:**

**Southern Hemisphere**

In regions of the Americas and Asia, influenza transmission remains active. Geographically regional to widespread influenza activity continues to be reported throughout much of South and Southeast Asia, with increasing trends in respiratory diseases being reported in India and Bangladesh. Geographically regional to widespread influenza activity continues to be reported for the tropical regions of Central and South America without a consistent pattern in the trend of respiratory diseases (continued increases are being reported in Bolivia and Venezuela).

In the southern hemisphere, influenza activity continues to decrease or has returned to the seasonal baseline in most countries. In Australia, later affected areas are also now reporting declining levels of ILI. In South Africa, influenza activity appears to have recently passed over the second peak (the first peak was due to seasonal influenza A (H3N2) and second peak was due to pandemic (H1N1) 2009). *Source: WHO as of September 18.*

**Australia**

**Australia Influenza Surveillance Summary Report, No. 18, 2009, reporting period: September 5 - 11 2009.**

Overall, the current national influenza activity continues to decrease. Most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is decreasing. ILI presentations to the ED are decreasing across all reporting systems this reporting period. Absenteeism rate increased in the last week and are similar to those seen at the same time in 2007.

The number of people with confirmed H1N1 requiring hospitalization continues to decrease. As of September 11,a total of 94 new people were hospitalized, with a total of 4642 people who are hospitalized since the beginning of the pandemic. Highest hospitalization rate occurred in young children less than 5 years of age. 5% of the hospitalized cases have been reported as pregnant, which reinforces the fact that pregnancy particularly in the second and third trimesters is a risk factor for hospitalization with pH1N1. Indigenous Australians are approximately 8 times more likely than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009, representing 15% of all hospitalizations.

**Australia, New South Wales: Weekly Summary (as of September 16, 2009)**
New Zealand

Situation Update in New Zealand as of September 16, 2009 see link:

New Zealand: Weekly 37 Summary (September 7-13, 2009)

There has been a decrease in consultations for ILI through sentinel surveillance in week 37. However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

September 17: UK sees signs of 2nd pandemic wave. British health officials said today that surveillance data show a slight increase in pandemic H1N1 cases, which might herald the start of a second wave of infections. Suspected outbreaks have been reported at six schools, though there are no closure plans. Scottish officials also reported a rise in novel flu cases.

JOURNALS SCANNED:

- American Journal of Infection Control (added this week)
- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal (added this week)
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science

AMERICAN JOURNAL OF INFECTION CONTROL (NEW THIS WEEK)

1) Stockpile of personal protective equipment in hospital settings: Preparedness for influenza pandemics (Mayuko Hashikura and Junko Kizu, September 11, 2009)
http://www.sciencedirect.com/science?ob=ArticleURL&udi=B6W9M-4X6M98S-1&user=7390936&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&acc=C000071363&version=1&_urlVersion=0&userid=7390936&md5=e20ce585e3555cd35b36f6183d67c7d5
This paper proposes a personal protective equipment (PPE) calculation system to help hospitals to decide their PPE stockpile. The researchers examined influenza guidelines from a number of countries and research papers on protective devices and infectious disease. The PPE calculation system included factors such as the influenza pandemic period, risk classification by health care workers (HCW) type, and the type and number of PPE for HCW per day. The study concluded that 4 sets of PPE (N95 respirators, double gloves, gowns, and goggles) per day should be prepared for HCWs in a high-risk group. Furthermore, 2 sets of appropriate PPE, depending on the risk level, are required for medium- and low-risk groups. In addition, 2 surgical masks are required for every worker and inpatient and 1 for each outpatient. The study recommends that PPE stockpile should be prepared to cover at least an 8-week pandemic.

**AMERICAN JOURNAL OF PUBLIC HEALTH**

- Nothing new on H1N1 this week.

**BRITISH MEDICAL JOURNAL**

1) Swine flu vaccine is a "thousandfold" safer than the infection, say experts (Oliver Ellis, September 16, 2009)
http://www.bmj.com/cgi/content/full/339/sep16_2/b3802

Experts this week down-played the risk of adverse reactions from the forthcoming swine flu vaccine, saying that even in the worse case scenario people would be in a "thousandfold better off" having the vaccination than the disease. Concerns among experts have been raised that the vaccine may carry a risk of causing Guillain-Barre Syndrome. New surveillance procedures have been put in place by regulatory bodies and drug manufacturers to evaluate safety, not just passive reporting of events, but also a more active monitoring of adverse events.

http://www.bmj.com/cgi/content/full/339/sep15_3/b3680

This article reviews the literature on the safety of flu vaccines and provides guidelines for the administration of these vaccines to children with egg allergy. The authors recommend that all individuals with egg allergy should be immunized with mammalian culture based on flu vaccine. If this is not available, the authors recommend using virosomal vaccine for seasonal fly as this has the lowest egg content of any vaccine based on hens’ egg and has clinical data to support its use. Although egg-free flu vaccines are expected to be available for this season, the provision of sufficient amounts of this vaccine cannot be guaranteed at this time, and a practical strategy for the safe immunisation of children with egg allergy is required.

3) GPs are to be paid £5.25 a shot for swine flu vaccination (Zosia Kmietowicz, September 15, 2009)
http://www.bmj.com/cgi/content/full/339/sep15_3/b3815

GPs in England are to be paid £5.25 for every dose of swine flu vaccine they administer, once it is licensed, under a deal agreed between the BMA and the Department of Health. In total, GPs stand to earn an extra £47m between them, or about £1424 each, if they vaccinate all the nine million people in England identified as being at risk. This article
describes the incentivize practices to achieve the highest possible uptake of the vaccination for these most at-risk patients.

**CANADIAN MEDICAL ASSOCIATION JOURNAL (CMAJ)**

1) Swine flu breaks out on Vancouver Island *(September 17, 2009)*

Tofino, BC, family physician Dr. John Armstrong says he has treated “dozens” of people infected with the virus, while the outbreak is such that the province’s public health lab in Vancouver recently instructed him to stop sending swabs, having confirmed that all of the samples he had already forwarded were, in fact, positive for the H1N1 virus. Armstrong states that it is important that Tamiflu be “prepositioned” and readily available to those infected with the virus.

**CLINICAL INFECTIOUS DISEASES**

- Nothing new on H1N1 this week.

**EMERGING INFECTIOUS DISEASES**

1) Influenza (H1N1) 2009 Outbreak and School Closure, Osaka Prefecture, Japan *(R. Kawaguchi et al., October 2009)*
[http://www.cdc.gov/eid/content/15/10/pdfs/09-1029.pdf](http://www.cdc.gov/eid/content/15/10/pdfs/09-1029.pdf)

This report describes the Osaka governments’ implementation of school closures as a public health measure to mitigate the spread of pH1N1. The prefectural-wide school closure strategy may have had an impact on not only the reduction of virus transmission and elimination of successive large outbreaks, but also may have fostered greater public awareness about the need for preventive measures.

**EUROSURVEILLANCE**

1) Sub-optimal hand sanitiser usage in a hospital entrance during an influenza pandemic, New Zealand, August 2009 *(R Murray et al., September 18, 2009)*

An observational study was undertaken to examine hand hygiene behaviours by people passing a hand sanitiser station in the foyer of a public hospital in New Zealand in August 2009. Of the 2,941 subjects observed, 449 (18.0%, 95% confidence interval: 16.6, 19.6) used the hand sanitiser. The results from this study indicate sub-optimal response to the health promotion initiatives in the setting of a pandemic. These findings suggest the need for more effective health promotion of hand hygiene and also the need to provide baseline measurements for future evaluation of hygiene practices.

2) Economic consequences to society of pandemic H1N1 influenza 2009 – preliminary results for Sweden *(L Brouwers et al., September 18, 2009)*

This study aimed to develop a model to allow for simulation of the spread of infection in a population in a realistic manner, and examine the effects of applying different policy strategies. Experiments using a microsimulation platform show that vaccination against pandemic H1N1 influenza is highly cost-effective. Swedish society may reduce the costs of pandemic by about SEK 2.5 billion (approximately EUR 250 million) if at least 60 per cent of the population is vaccinated, even if costs related to death cases are excluded.
The cost reduction primarily results from reduced absenteeism. These results are preliminary and based on comprehensive assumptions about the infectiousness and morbidity of the pandemic, which are uncertain in the current situation.

**JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (JAMA)** (*added this week*)

- Nothing new on H1N1 this week

**JOURNAL OF INFECTIOUS DISEASES**

- Nothing new on H1N1 this week

**LANCET**

1) Efficacy and economic assessment of conventional ventilatory support versus extracorporeal membrane oxygenation for severe adult respiratory failure (CESAR): a multicentre randomised controlled trial (*Giles J. Peek et al., September 16, 2009*)


This study investigated the safety, clinical efficacy, and cost-effectiveness of extracorporeal membrane oxygenation (ECMO) compared with conventional ventilation support. This study randomly assigned 180 adults in a 1:1 ratio to receive continued conventional management or referral to consideration for treatment by ECMO. Eligible patients aged 18-65 years and had severe but potentially reversible respiratory failure. We recommend transferring of adult patients with severe but potentially reversible respiratory failure, whose Murray score exceeds 3·0 or who have a pH of less than 7·20 on optimum conventional management, to a centre with an ECMO-based management protocol to significantly improve survival without severe disability.

**MMWR**

1) Update: Influenza Activity -United States, April-August 2009 (*September 18, 2009*)

[http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5836a6.htm?s_cid=mm5836a6_x](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5836a6.htm?s_cid=mm5836a6_x)

Pandemic H1N1 influenza activity peaked in the United States during May and June and declined during July and early August. From mid-April to August 30, a total of 9,079 hospitalizations and 593 deaths associated with laboratory-confirmed 2009 pandemic influenza A (H1N1) virus infections were reported to CDC. Of 1,372 pandemic H1N1 viruses tested for antiviral resistance at CDC, 1,364 (99.4%) have been susceptible to oseltamivir. All eight pandemic H1N1 viruses found to be resistant to oseltamivir were obtained from persons taking oseltamivir for treatment or prophylaxis at the time of specimen collection. Data from the 122 Cities Mortality Reporting System indicate that the proportion of deaths attributed to pneumonia and influenza did not exceed the epidemic threshold for 2 or more consecutive weeks at any time during April-August. However, 47 pediatric deaths associated with laboratory-confirmed pandemic H1N1 influenza occurred during April 2–August 29.

**NATURE**

- Nothing new on H1N1 this week

**NEW ENGLAND JOURNAL OF MEDICINE**

1) Poverty, Wealth, and Access to Pandemic Influenza Vaccines (*T. Yamada, September 17, 2009*)

OAHPP Weekly H1N1 Digest
Only a few countries in the world have plants for manufacturing influenza vaccine, and three companies — GlaxoSmithKline, Sanofi-Aventis, and Novartis — account for most of the world's manufacturing capacity. The number of doses of vaccine against H1N1 influenza that could be produced with the existing capacity is very large, but the sobering truth is that even if production were switched over completely from seasonal influenza vaccine to pandemic influenza vaccine, there would not be nearly enough for everyone in the world. The size of the gap in potential supply depends greatly on the dose that is required, and it may be possible to reduce the necessary dose by as much as 75% with the use of an adjuvant. The challenging problem is that much, if not most, of the manufacturing capacity is already spoken for through purchasing contracts held by many of the world's wealthy countries.

**PLoS One**

1) EpiCollect: linking smartphones to web applications for epidemiology, ecology and community data collection *(David M. Aanensen et al., September 17, 2009)*

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006968

In this paper the authors describe a generic framework, consisting of mobile phone software, EpiCollect, and a web application located within www.spatial Epidemiology.net. Data collected by multiple field workers can be submitted by phone, together with GPS data, to a common web database and can be displayed and analyzed, along with previously collected data, using Google Maps (or Google Earth). Similarly, data from the web database can be requested and displayed on the mobile phone, again using Google Maps. Data collection frameworks utilizing mobile phones with data submission to and from central databases are widely applicable and can give a field worker similar display and analysis tools on their mobile phone that they would have if viewing the data in their laboratory via the web. The authors demonstrate their utility for epidemiological data collection and display, and briefly discuss their application in ecological and community data collection.

**PLoS Currents**

- Nothing new on H1N1 this week

**Science**

- Nothing new on H1N1 this week
WEEKLY SYNTHESIS OF SURVEILLANCE INFORMATION, LITERATURE & GOVERNMENT UPDATES

(WEEK ENDING SEPTEMBER 25, 2009)

GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

September 25, 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

Map includes both seasonal flu and H1N1 flu activity. During week 37 (September 13-19, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Updated Interim Recommendations for Obstetric Health Care Providers Related to Use of Antiviral Medications in the Treatment and Prevention of Influenza for 2009-2010 Season (September 22, 2009).
http://www.cdc.gov/H1N1flu/pregnancy/antiviral_messages.htm

Interim CDC Guidance for Public Gatherings in Response to Human Infections with Novel Influenza A (H1N1) (September 23, 2009).
http://www.cdc.gov/h1n1flu/guidance/public_gatherings.htm
This document provides interim guidance for state, local, territorial, and tribal officials to use in developing recommendations for large public gatherings in their communities. Such gatherings can include college and university commencement exercises, church services, sporting events, concerts, social and cultural celebrations, weddings, conferences, and other similar activities attended by relatively large groups of people.

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 36 (September 6 - 12, 2009)
The overall influenza activity remains similar to the previous week; the national ILI consultation rate is within range of expected level at this time of the year. The peak period of pH1N1 occurred in the first three weeks of June.

News Release: Government of Canada launches television advertising on infection prevention in partnership with provinces and territories (September 21, 2009).
Deaths Associated with Influenza A (H1N1) as of September 22, 2009
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

ONTARIO- MOHLTC

Influenza activity in Ontario is similar compared to the previous week. Many of the measures indicate that influenza activity in week 37 were similar or slightly higher compared to activity in week 36.

News Room: Ontario Announces Flu Shot Rollout for Seasonal and H1N1 Vaccines (September 24, 2009).
Ontario will provide seasonal flu shots to people aged 65 and over and residents of long-term care homes in October, followed by the H1N1 flu vaccination program for all Ontarians. Seasonal flu vaccine will be available to the rest of the province following the H1N1 flu vaccination program.

WORLD HEALTH ORGANIZATION (WHO)

Situation Update 67, September 25, 2009:
In the temperate regions of the northern hemisphere, influenza-like-illness (ILI) activity continues to increase in many areas. In North America, the US has reported continued increases in activity above the seasonal baseline for the last 2 to 3 weeks, primarily in the southeast but now also appearing in the upper midwest and the northeast. In Europe and Central/Western Asia, the UK is reporting regional increases in ILI activity in Northern Ireland and Scotland. In Japan, influenza activity continues to be slightly above the seasonal epidemic threshold.

Antiviral use and the risk of drug resistance (September 25, 2009).
Growing international experience in the treatment of pandemic H1N1 virus infections underscores the importance of early treatment with the antiviral drugs, oseltamivir or zanamivir.

Pandemic influenza vaccines: current status (September 24, 2009).
Regulatory authorities have licensed pandemic vaccines in Australia, China and the United States of America, soon to be followed by Japan and several countries in Europe.
Southern Hemisphere

In the tropical regions of the Americas and Asia, influenza activity remains variable. In parts of India, Bangladesh and Cambodia, influenza transmission continues to be active, while other countries in the Southeast Asia have been recently reporting declining transmission (Indonesia, Singapore and Thailand). Although most countries in the tropical regions of the Americas are still reporting regional to widespread influenza activity, there is no consistent pattern in the trend of respiratory diseases. Peru and Mexico have reported an increasing trend in some areas, while most others are reporting an unchanged or decreasing trend (most notably Bolivia, Venezuela and Brazil).

In the southern hemisphere, influenza transmission has largely returned to baseline (Chile, Argentina, and New Zealand) or is continuing to decline (Australia and South Africa). Source: WHO as of September 25.

Australia


Nationally, most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is decreasing nationally with a number of regions reporting no new notifications in the last week, indicating that the first wave of the pandemic has subsided.

Seven jurisdictions have reported no new hospitalizations in the week ending September 18 2009. In total, 4,720 people have been hospitalized, with 13% admitted to ICU. The overall hospitalizations rate is 21/100,000 populations and the highest hospitalization rate occurred in young children less than 5 years of age. 32% of the hospitalized cases have been reported as pregnant, which reinforces the fact that pregnancy particularly in the second and third trimesters is a risk factor for hospitalization with pH1N1. Indigenous Australians are approximately 10 times more likely than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009, representing 20% of all hospitalizations.
Australia, New South Wales: Weekly Summary (as of September 23, 2009)

New Zealand

Situation Update in New Zealand as of September 23, 2009 see link:

New Zealand: Weekly 38 Summary (September 14-20, 2009)

There has been a decrease in consultations for ILI through sentinel surveillance in week 38. However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

September 25, 2009: As H1N1 sweeps US, officials brace for vaccine launch. The pandemic H1N1 virus is spreading widely through the United States, and as health officials feverishly prepare to distribute the first vaccine doses due to arrive in early October, the public should expect some initial bumps in the road.
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/sep2509season.html

OTHER:

1) Randomized Control Trial to Study the Efficacy of the Surgical Mask Versus the N95 Respirator to Prevent Influenza (McMaster University, September 19, 2008)
http://clinicaltrials.gov/ct2/show/results/NCT00756574

The study aimed to compare the efficacy of surgical mask to the N95 respirator in protecting nurses from influenza in the hospital setting. The investigators propose a non-inferiority randomized controlled trial whereby nurse were randomized to either using a surgical mask or an N95 respirator when caring for patients with febrile respiratory illness during the influenza season. The hypothesis is that the surgical mask offers similar protection against influenza to that of the N95. The specific objective of the study is to assess whether the rates of influenza, as well as secondary outcomes (ILI, workplace absenteeism, physician visit) are similar among nurses using surgical mask compared to those using an N95 respirator.

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal (added this week)
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Journal of Virology (added this week)
AMERICAN JOURNAL OF PUBLIC HEALTH
- Nothing new on H1N1 this week

BRITISH MEDICAL JOURNAL
1) Flu’s unexpected bonus (Andrew Jack, September 18, 2009)
http://www.bmj.com/cgi/content/full/339/sep18_2/b3811
With over 96 countries stockpiling oseltamivir, Andrew Jack, pharmaceuticals correspondent, examines countries who have benefited from pandemic flu.

2) Chief medical officer warns that swine flu may be on the rise again (Nayanah Siva, September 18, 2009)
http://www.bmj.com/cgi/content/full/339/sep18_2/b3863
The incidence of swine flu has risen in the past week in England, the first weekly increase in incidence since late July. Liam Donaldson, England’s chief medical officer, said that although the increase is slight, it may be "the start of an upturn."

3) Physical interventions to interrupt or reduce the spread of respiratory viruses: systematic review (Tom Jefferson, et al., September 22, 2009)
http://www.bmj.com/cgi/content/full/339/sep21_1/b3675
This study provides a systematic review of the evidence of effectiveness of physical interventions to interrupt or reduce the spread of respiratory viruses. The review found that routine long term implementation of some of the measures to interrupt or reduce the spread of respiratory viruses might be difficult. However, many simple and low cost interventions reduce the transmission of epidemic respiratory viruses. More resources should be invested into studying which physical interventions are the most effective, flexible, and cost effective means of minimising the impact of acute respiratory tract infections.

CANADIAN MEDICAL ASSOCIATION JOURNAL (added this week)
1) Flu vaccination campaign poses monitoring difficulties (Roger Collier, September 21, 2009)
Provincial health authorities will have to shift into scramble mode this fall if they are to fully monitor the efficacy and safety of the pH1N1 vaccine as it will be administered near or during a resurgence of the virus, according to infectious diseases experts and public health officials. Health officials in Ontario express confidence that the province will be able to effectively monitor the vaccine’s safety. Experts say that Canada is experienced in monitoring and reporting adverse events post-vaccine administrations to the public.
2) Flu pandemic prompts other vaccination delays (Roger Collier, September 21, 2009)  

Health officials in many provinces are concerned about lacking the necessary human resources to administer the H1N1 vaccine during this fall’s flu season. For example, Nova Scotia is deferring by a year its human papillomavirus and meningococcal C vaccination program for Grade 7 students to free human resources to administer the pH1N1 to students in Grade 7 and Grade 8.

3) Improved flu screening needed at airports (Paul Webster, September 21, 2009)  

The author reviews the role of air travel in international disease spread of infectious diseases based on an important study conducted infectious disease researchers in Toronto. Airports in Toronto and Vancouver act as major gateways for infectious diseases and the federal government must better manage health risks arising from international air travel, warns a landmark report prepared for the Public Health Agency of Canada (PHAC). A PHAC spokesperson plans to review this study with officials in order to ensure updates are considered for Canada’s pandemic influenza plan.

4) Pandemic (H1N1) 2009 lives in some people for at least eight days (September 24, 2009)  
http://www.cmaj.ca/earlyreleases/24sept09_pandemic_h1n1.shtml

A team of Quebec researchers have found that the pH1N1 virus remains alive on the eighth day in 8-13 % of people after they develop flu symptoms, a team of Quebec researchers has determined. The results of the study indicate that a large number of people with pH1N1 are still contagious after their fever breaks, and at least a proportion of people with the virus may be able to transmit it to others for a day or two longer than those who have seasonal influenza.

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**CLINICAL INFECTIOUS DISEASES**

- Nothing new on H1N1 this week.

**EMERGING INFECTIOUS DISEASES**

1) Xing Z, Cardona CJ. Preexisting immunity to pandemic (H1N1) 2009 [letter] (Z. Xing & C.J. Cardona, September 25)  
http://www.cdc.gov/eid/content/15/11/pdfs/09-0685.pdf

This study performed a survey for known human immune epitopes present in the various proteins of seasonal influenza A virus strains and known to be efficient in stimulating lymphocytes. Although there are no experiments establishing a solid link, cross-reactive immunity or repeated exposure to seasonal influenza or vaccination may resulted in partial protection of patients infected with influenza virus (H5N1). This study suggests that the same type of immunity may have happened in persons exposed to pandemic (H1N1) 2009 virus as well.

http://www.cdc.gov/eid/content/15/11/pdfs/09-0868.pdf

Human pandemics occur when a new virus subtype emerges that is capable of human-to-human transmission in a population with little or no neutralizing antibodies to the new
virus. The current pH1N1 outbreak presents the first opportunity to directly observe this process. This study examined assays to detect antibodies in 4,043 serum samples from residents of 2 countries in Guangxi Province, People's Republic of China, collected during July-August 2008. The results suggest that most persons in the study are seronegative for pH1N1 2009 virus, which is different from US findings. Differences may be due to high proportion of seasonal influenza vaccination coverage in the US compared to the unvaccinated population in southern China.

**EUROSURVEILLANCE**

1) Enhanced surveillance of initial cases of pandemic H1N1 2009 influenza in Ireland, April - July 2009 (J Martin et al., September 25, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19337

This study provides a detailed case-based epidemiological investigation on all cases presented in the community and acute health care setting. The researchers report on the enhanced case based surveillance of the first 156 confirmed cases of pH1N1 2009 influenza up to 18 July 2009, when the strategy changed from containment to mitigation, and detailed case based surveillance of all cases ceased.

http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19334

The recent emergence of seasonal pH1N1 strains resistant to oseltamivir makes it necessary to monitor carefully the susceptibility of human influenza viruses to neuraminidase inhibitors. This study reported the prevalence of the oseltamivir resistance among Influenza A viruses (seasonal H1N1, seasonal H3N2, and pH1N1) circulating in south-western France over the past three years. This resistance may occur in the absence of antiviral drug use and also emerge rapidly under treatment. Presently two anti-influenza drugs are commercially available: oseltamivir and zanamivir, which selectively inhibit the neuraminidase of both influenza A and B viruses. Oseltamivir is preferred over zanamivir because it is administered by the oral route. NAIs have been prescribed worldwide since 1999. In France, their use was limited before the influenza pandemic 2009.

3) Sub-optimal hand sanitizer usage in a hospital entrance during an influenza pandemic, New Zealand, August 2009 (R Murray et al., September 17, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19331

An observational study was undertaken to examine hand hygiene behaviours by people passing a hand sanitizer station in the foyer of a public hospital in New Zealand in August 2009. Of the 2,941 subjects observed, 449 (18.0%, 95% confidence interval: 16.6, 19.6) used the hand sanitizer. The results from this study indicate sub-optimal response to the health promotion initiatives in the setting of a pandemic. These findings suggest the need for more effective health promotion of hand hygiene and also the need to provide baseline measurements for future evaluation of hygiene practices.

4) Economic consequences to society of pandemic H1N1 influenza 2009 – preliminary results for Sweden (L Brouwers, B Cakici M Camitz, A Tegnell, M Boman, September 17, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19333
This study involved experiments using a microsimulation platform show that vaccination against pH1N1 influenza is highly cost-effective. Swedish society may reduce the costs of pandemic by approximately EUR 250 million if at least 60 per cent of the population is vaccinated, even if costs related to death cases are excluded. The cost reduction primarily results from reduced absenteeism. The results from this study are preliminary and based on comprehensive assumptions about the infectiousness and morbidity of the pandemic, which are uncertain in the current situation.

**JOURNAL OF INFECTIOUS DISEASES**

1) Recent Human Influenza A/H3N2 Virus Evolution Driven by Novel Selection Factors in Addition to Antigenic Drift *(Matthew J. Memoli, Brett W. Jagger, Vivien G. Dugan, Li Qi, Jadon P. Jackson, and Jeffery K. Taubenberger, October 15, 2009)*
http://www.journals.uchicago.edu/doi/full/10.1086/605893

In this study, the authors examined the hypothesis that Fujian-like viruses from the 2003–2004 influenza season (clades A and B) and the derivative California-like strain associated with the dominant selective sweep in 2004–2005 (clade B′) would exhibit different phenotypic properties that correlated with the selection of clade B′ viruses in 2004–2005. The phenotypic properties of representative viruses from each clade were characterized in both cell culture and ferrets, and the role of the small number of amino acid mutations in the internal segments encoding the viral RNP of the clade B′ viruses was examined using an in vitro reporter assay. The newly dominant 2004–2005 clade B′, grew to higher titers in MDCK cells and ferret tissues and caused more severe disease in ferrets. The polymerase complex of this virus demonstrated enhanced activity in vitro, correlating directly to the enhanced replicative fitness and virulence in vivo.

**JOURNAL OF VIROLOGY (added this week)**

1) Zanamivir-Resistant Influenza Viruses with a Novel Neuraminidase Mutation *(Aaron C. Hurt, et al., October 2009)*
http://jvi.asm.org/cgi/content/abstract/83/20/10366?etoc

The authors investigated the frequency of oseltamivir and zanamivir resistance in circulating seasonal influenza A (H1N1) viruses in Australasia and Southeast Asia. Analysis of 391 influenza A (H1N1) viruses isolated between 2006 and early 2008 from Australasia and Southeast Asia revealed nine viruses (2.3%) that demonstrated markedly reduced zanamivir susceptibility and contained a previously undescribed Gln136Lys (Q136K) neuraminidase mutation. The mutation had no effect on oseltamivir susceptibility but caused approximately a 300-fold and a 70-fold reduction in zanamivir and peramivir susceptibility, respectively. Compared to susceptible influenza A (H1N1) viruses, the Q136K mutant strains displayed greater viral fitness than the wild-type virus in MDCK cells but equivalent infectivity and transmissibility in a ferret model.

**LANCET**

-Nothing new on H1N1 this week

**LANCET INFECTIOUS DISEASES**

1) Influenza as a trigger for acute myocardial infarction or death from cardiovascular disease: a systematic review *(Charlotte Warren-Gash, Liam Smeeth, Andrew C, Hayward, October 2009)*
Cardiac complications of influenza infection, such as myocarditis, are well recognised, but the role of influenza as a trigger of acute myocardial infarction is less clear. The authors of this study did a systematic review of the evidence that influenza triggers acute myocardial infarction or cardiovascular death. They examined the effectiveness of influenza vaccines at protecting against cardiac events and did a meta-analysis of data from randomised controlled trials. Many observational studies reported consistent associations between influenza and acute myocardial infarction. There was weaker evidence of an association with cardiovascular death. Two small randomised trials assessed the protection provided by influenza vaccine against cardiac events. One trial found that influenza vaccination gave significant protection against cardiovascular death, the other trial was inconclusive.

**MORBIDITY AND MORTALITY REPORT**

1) Performance of Rapid Influenza Diagnostic Tests During Two School Outbreaks of 2009 Pandemic Influenza A (H1N1) Virus Infection - Connecticut, 2009 (September 25, 2009)

This report summarizes the findings from the performance assessment of a rapid influenza diagnostic test (RIDT) for influenza A and B. Compared with rRT-PCR, the sensitivity of the RIDT for detecting infection in patients with 2009 pandemic influenza A (H1N1) was 47%, and the specificity was 86%. Sensitivity and specificity did not vary substantially by the presence or absence of CDC-defined influenza-like illness (ILI) or by time from symptom onset to specimen acquisition. In this group of patients, although positive RIDT results performed well in predicting confirmed infection with pandemic H1N1 virus (positive predictive value: 92%), negative tests did not accurately predict the absence of infection (negative predictive value: 32%). These results affirm recent CDC recommendations against using negative RIDT results for management of patients with possible 2009 pandemic influenza A (H1N1) infection.

**NATURE**

- Nothing new on H1N1 this week.

**NEW ENGLAND JOURNAL OF MEDICINE**

1) Comparative efficacy of inactive and live attenuated influenza vaccines (A.S. Monto et al., September 24, 2009)

The authors of this study carried out a randomized, double-blind, placebo-controlled trial of licensed inactivated and live attenuated influenza vaccines in healthy adults during the 2007–2008 influenza season and estimated the absolute and relative efficacies of the two vaccines. A total of 1952 subjects were enrolled and received study vaccines in the fall of 2007. The absolute efficacy against the influenza A virus was 72% (95% CI, 49 to 84) for the inactivated vaccine and 29% (95% CI, –14 to 55) for the live attenuated vaccine, with a relative efficacy of 60% (95% CI, 33 to 77) for the inactivated vaccine. In the 2007–2008 season, the inactivated vaccine was efficacious in preventing laboratory-confirmed symptomatic influenza A (predominately H3N2) in healthy adults. The live attenuated vaccine also prevented influenza illnesses but was less efficacious.
2) Risk of confusion in dosing Tamiflu oral suspension in children

http://content.nejm.org/cgi/content/full/NEJMc0908840?query=TOC

Most families and caregivers would not be able to identify or perform the cumbersome calculations required to administer Tamiflu safely to children, because the instructions on the pharmacy label, on the manufacturer’s printed label, and in the accompanying Consumer Medication Information and the prepackage dosing syringe are misaligned. Thus, there is a high chance for dosing errors, compromised treatment, or toxic effects. Unless immediate steps are taken to improve the prescribing instructions for this drug in children, its safe use will be compromised. The authors recommend that all pharmacies be instructed to ensure that the label instructions for use are in the same dosing units as those on the measurement device dispensed with oseltamivir. In addition, the Consumer Medication Information must be improved and the public alerted to the potential for oseltamivir dosing errors.

**PLoS One**

1) The feasibility of using high resolution genome sequencing of Influenza A viruses to detect mixed infections and quasispecies (Muthannan A. Ramakrishnan, et al., September 23, 2009)

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007105

The authors describe a new approach to comprehensively identify mixed infections and quasispecies in low passage influenza A isolates and cloacal swabs and add to the understanding of the ecology of influenza A virus populations. They evaluated quasispecies and mixed infections by de novo sequencing the whole genomes of 10 virus isolates, including eight avian influenza viruses grown in embryonated chicken eggs, and two tissue cultured H3N2 swine influenza viruses. Two waterfowl cloacal swabs were included in the analysis. Genomic subpopulations or quasispecies of viruses were identified in four egg grown avian influenza isolates and one cell cultured swine virus. A bald eagle isolate and the second cloacal swab showed evidence of mixed infections with two (H1 and H2) and three (H1, H3, and H4) HA subtypes, respectively.

2) Economic analysis of pandemic influenza vaccination strategies in Singapore (Vernon J Lee et al., September 23, 2009)

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007108

The authors analyzed the economic outcomes of pandemic vaccination (immediate vaccination and vaccine stockpiling) compared with treatment-only in Singapore using a decision-based model to perform cost-benefit and cost-effectiveness analyses. They also explored the annual insurance premium (willingness to pay) depending on the perceived risk of the next pandemic occurring. Vaccine stockpiling is not cost-effective in most scenarios even with 100% vaccine effectiveness. The annual insurance premium was highest with immediate vaccination, and was lower with increased duration to the next pandemic. The premium was also higher with higher vaccine effectiveness, attack rates, and case-fatality rates. High-risk sub-groups warrant higher premiums than low-risk sub-groups.

**PLoS Currents**

1) KNOL: Point of care strategy for rapid diagnosis of novel A/H1N1 influenza virus (Nougairede A et al., September 22, 2009)
In late June 2009, the authors implemented for public hospitals of Marseille Point of Care strategy for rapid diagnosis of novel A/H1N1 influenza virus. During two months, they have tested more than 900 specimens in both Point Of Care laboratories. They believe that implementation of Point of Care strategy for the largest number of suspect cases may improve quality of patients care and our knowledge of the epidemiology of the pandemic.

SCIENCE

-Nothing new on H1N1 this week
GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

October 02, 2009: CDC H1N1 Flu Surveillance Update.  
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/  
Map includes both seasonal flu and H1N1 flu activity. During week 38 (September 20-26, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILL was above the national baseline.

Interim Recommendations for Clinical Use of Influenza Diagnostic Tests During the 2009-10 Influenza Season (September 29, 2009).  
http://www.cdc.gov/h1n1flu/guidance/diagnostic_tests.htm

Patients with Asthma: Considerations for Clinicians Regarding 2009 H1N1 Influenza Virus (October 02, 2009).  
http://www.cdc.gov/h1n1flu/asthma_clinicians.htm  
This document provides updated interim recommendations on influenza diagnostic testing for clinicians treating patients with suspected 2009 H1N1 influenza virus infection and to assist clinicians with testing decisions for the 2009-10 influenza season.

Clinician Guidance: 2009-2010 Influenza Season Triage Algorithm for Adults (>18 Years) With Influenza-Like Illness (October 02, 2009).  
http://www.cdc.gov/h1n1flu/clinicians/pdf/adultalgorithm.pdf  
This algorithm is designed only to assist physicians and those under their supervision in identifying indicators of and responses to symptoms of flu-like illness (i.e., fever with cough or sore throat). It does not provide guidance for other medical conditions nor is it intended to substitute for professional medical advice.

2009 H1N1 Influenza Vaccine and Pregnant Women: Information for Healthcare Providers (October 02, 2009).  
http://www.cdc.gov/h1n1flu/vaccination/providers_qa.htm  
The purpose of this document is to provide information for healthcare providers on 2009 H1N1 influenza vaccination and pregnant women.

2009 H1N1 Influenza Shots and Pregnant Women: Questions & Answers for Patients (October 02, 2009).  
http://www.cdc.gov/h1n1flu/vaccination/pregnant_qa.htm
FluWatch Week 38 (September 20-26, 2009)
The overall influenza activity increased for a second consecutive week, but still relatively low. The national ILI consultation rate remained similar to the previous week but was slightly above the expected range for this time of the year. The proportion of positive tests and the number of regions with localized or widespread activity were also higher than the previous week.

Deaths Associated with Influenza A (H1N1) as of October 01, 2009
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

ONTARIO

Influenza activity in Ontario is similar compared to the previous week. Many of the measures indicate that influenza activity in week 38 was similar or slightly higher compared to activity in week 37.


BC CENTER FOR DISEASE CONTROL (BC CDC):

BC Pandemic H1N1 Surveillance Update as of September 28, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm#

WORLD HEALTH ORGANIZATION (WHO)

Situation Update 68, October 02, 2009:
Transmission of influenza virus and rates of ILI continue to increase in the temperate regions of the northern hemisphere. In North America, influenza transmission is geographically widespread and continues to increase. Levels of ILI have continued to increase and remain above the seasonal baseline for the past 4 weeks in most regions of the US. In Mexico, a high intensity of respiratory diseases has been reported for two consecutive weeks (week 37 - 38), with large increases in cases being reported in the
north and northwest of the country. About 85% of reported specimens were the pandemic strain.

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

October 05, 2009: ECDC Executive Update, Pandemic influenza A(H1N1) Issue 13

October 02, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

HEALTH/SURVEILLANCE BULLETINS:

Southern Hemisphere

In the tropical regions of the Americas and Asia, influenza transmission remains active but the trends in respiratory diseases activity are mixed. Although respiratory disease activity is geographically regional to widespread throughout the tropical region of the Americas, many countries have been recently reporting a declining, while others recently reported an increasing trend (Columbia and Cuba). In tropical regions of Asia, there continues to be an increasing trend in respiratory diseases in parts of India and in Cambodia. In the southern hemisphere, influenza transmission has largely returned to baseline (Chile, Argentina, and New Zealand) or has declined substantially (Australia and South Africa). Source: WHO as of October 02, 2009.

Australia

Nationally, most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is decreasing nationally with a number of regions reporting no new notifications in the last week, indicating that the first wave of the pandemic has subsided.

New Zealand

Situation Update in New Zealand as of September 30, 2009 see link:

New Zealand: Weekly 39 Summary (September 21-27, 2009)
There has been a decrease in consultations for ILI through sentinel surveillance in week 38. However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.
October 1, 2009: Sanofi study confirmed H1N1 vaccine 1-dose efficacy. Sanofi today announced the results of additional trials that confirm the company’s pandemic H1N1 vaccine is effective with just one dose, similar to initial findings from a National Institutes of Health study. 

September 30, 2009: Australia begins vaccination campaign. Australia began nationwide vaccinations against H1N1 influenza today, administering the first shots in what is intended to be a 21-million-dose campaign. 

JOURNALS SCANNED:

• American Journal of Public Health
• British Medical Journal
• Canadian Medical Association Journal (added this week)
• Clinical Infectious Diseases
• Emerging Infectious Diseases
• Eurosurveillance
• Journal of Infectious Diseases
• Lancet
• MMWR
• Nature
• New England Journal of Medicine
• PLoS One
• PLoS Currents
• Science

AMERICAN JOURNAL OF PUBLIC HEALTH (PH1N1 SPECIAL)

1) A Primer on Strategies for Prevention and Control of Seasonal and Pandemic Influenza (Scott Santibañez, et al., October 2, 2009)
http://www.ajph.org/cgi/content/full/99/S2/S216

This supplement to the American Journal of Public Health focuses on the challenges faced by at-risk and vulnerable populations in preparing for and responding to an influenza pandemic. The authors provide background information for subsequent articles found in this supplement. The article summarizes seasonal influenza epidemiology, transmission, clinical illness, diagnosis, vaccines, and antiviral medications. Furthermore, pandemic influenza vaccines, antiviral medications and non-pharmaceutical interventions are discussed.
2) Estimating Influenza-Associated Deaths in the United States (William W. Thompson, et al., October 2, 2009)
http://www.ajph.org/cgi/content/full/99/S2/S225

Recently published estimates of US deaths associated with influenza circulation suggest that previous estimates substantially overestimate deaths associated with influenza and conclude that the number of deaths during a future pandemic could be prevented because of improved medical care. The authors review data sources and methods used to estimate influenza-associated deaths. They suggest that discrepancies between the recent estimate and previous estimates of the number of influenza-associated deaths are attributable primarily to the use of different outcomes and methods. The authors also believe that secondary bacterial infections will likely result in substantial morbidity and mortality during a future influenza pandemic, despite medical progress. In order to plan to reduce the health effects of this, the US must be ready to make the best estimate of influenza's impact using rigorous and sound methods and understand how mortality estimates for a pandemic compare with those for seasonal influenza.

http://www.ajph.org/cgi/content/full/99/S2/S231

The authors reviewed the important ethical challenges presented by pregnant women and highlighted the considerations for all vulnerable groups when planning for a pandemic at both the local and the national level. The authors bring to light a key question in how to effectively and ethically distribute existing limited resources. The challenges arise when considering pregnant patients during pandemic planning efforts illustrates the practical and ethical considerations needed to effectively address the unique care of all other populations.

4) Pandemic Influenza Planning: Addressing the Needs of Children (Elizabeth Stevenson, et al., October 2, 2009)
http://www.ajph.org/cgi/content/full/99/S2/S255

Children represent one quarter of the US population. Because of its enormous size and special needs, it is critically important to address this population group in pandemic influenza planning. The authors describe ways in which children are vulnerable in a pandemic, provide an overview of existing plans, summarize the resources available, and, given the current experience with influenza H1N1, outline the evolving lessons learned with respect to planning for a severe influenza pandemic. This article focuses on issues affecting children such as vaccinations, medication availability, hospital capacity and mental health concerns and emphasizes strategies that will protect children exposure to the pandemic H1N1 virus, including infection control practices and activities in schools and child care programs.

5) Pandemic Influenza Preparedness and Vulnerable Populations in Tribal Communities (Amy V. Groom, et al., October 2, 2009)
http://www.ajph.org/cgi/content/full/99/S2/S271

American Indian and Alaska Native (AIAN) governments are sovereign entities with inherent authority to establish and administer public health programs within their communities and will be critical partners in national efforts to prepare for pandemic influenza. Within AIAN communities, some subpopulations will be particularly vulnerable during an influenza pandemic because of their underlying health conditions, whereas others will be at increased risk because of limited access to prevention or treatment.
interventions. This article outline potential issues to consider in identifying and providing services for selected vulnerable populations within tribal communities. The authors also highlight pandemic influenza preparedness resources available to tribal leaders and their partners in state and local health departments, community-based organizations, and the private sector.

6) Protecting Home Health Care Workers: A Challenge to Pandemic Influenza Preparedness Planning (Sherry Baron, et al., October 2, 2009)
http://www.ajph.org/cgi/content/full/99/S2/S301

Home health care is a critical element in a pandemic influenza emergency response. Roughly 85% of the 1.5 million workers delivering in-home care to clients are low-wage paraprofessionals, mostly women, and represent members of racial and ethnic minority groups. Home health care workers’ ability and willingness to respond during a pandemic depends on appropriate communication, training, and adequate protections, including influenza vaccination and respiratory protection. Preparedness planning should also include support for child care and transportation and help home health care workers protect their income and access to health care. The authors summarize findings from a national stakeholder meeting, which highlighted the need to integrate home health care employers, workers, community advocates, and labor unions into the planning process.

7) Effective Health Risk Communication About Pandemic Influenza for Vulnerable Populations (Elaine Vaughan and Timothy Tinker, October 2, 2009)
http://www.ajph.org/cgi/content/full/99/S2/S324

The authors summarize recent scientific evidence on communication challenges and examine how sociocultural, economic, psychological, and health factors can put at risk or facilitate public health interventions that require a cooperative public. If ignored, current communication gaps for vulnerable populations could result in unequal protection across society during an influenza pandemic. Current communication plans for pandemic influenza could be strengthened by more emphasis on managing a dynamic risk event and improving the fit between communication processes and life circumstances that influence behavior during a pandemic.

8) Pandemic Influenza: Implications for Programs Controlling for HIV Infection, Tuberculosis, and Chronic Viral Hepatitis (James D. Heffelfinger, et al., October 2, 2009)
http://www.ajph.org/cgi/content/full/99/S2/S333

Among vulnerable populations during an influenza pandemic are persons with or at risk for HIV infection, tuberculosis, or chronic viral hepatitis. HIV-infected persons have higher rates of hospitalization, prolonged illness, and increased mortality from influenza compared with the general population. Persons with tuberculosis and chronic viral hepatitis may also be at increased risk of morbidity and mortality from influenza because of altered immunity and chronic illness. These populations also face social and structural barriers that will be exacerbated by a pandemic. Authors conclude that critical public health priorities should expand the existing infrastructure and pandemic planning should include preparations to reduce the risks for these populations.

9) Changes in Prescribing of Antiviral Medications for Influenza Associated With New Treatment Guidelines (Adam L. Hersh, Judith H. Maselli, and Michael D. Cabana)
http://www.ajph.org/cgi/content/full/99/S2/S362

In 2006, the CDC recommended discontinuing the use of adamantanes to treat influenza because of high levels of resistance to this class of antivirals. The authors examined
changes in prescribing practices resulting from this recommendation and found that prescribing of adamantanes declined nationwide. This article provides evidence of a rapid change in clinical practice associated with the dissemination of treatment guidelines. The authors reinforce the importance in evaluating the effectiveness with which public health recommendations are translated into practice is important given the ongoing emergence of resistance to antiviral drugs and a novel H1N1 influenza virus.

10) Pandemic Influenza and Community Preparedness (Helen Marshall, et al., October 2, 2009)  
http://www.ajph.org/cgi/content/full/99/S2/S365

This study aimed to examine community knowledge about and attitudes towards the threat of pandemic influenza and assess the community acceptability of strategies to reduce its effect. The study used computer-aided telephone interviews using cross-section sampling design of rural and metropolitan residents of South Australia. The authors found that community knowledge about the pandemic influenza was poor despite widespread concern. They article suggest public education about pandemic influenza is essential if strategies to reduce the impact of the disease are to be effective.

http://www.ajph.org/cgi/content/full/99/S2/S383

The authors examine the short-term responsiveness of influenza vaccine demand to variation in timing and severity of influenza epidemics since 2000. They tested the hypothesis that weekly influenza epidemic activity is associate with annual an daily influenza vaccine receipt. Cross-sectional survival analysis from 2000-2001 to 2004-2005 influenza seasons among community-dwellings using Medicare Current Beneficiary Survey. The outcome variable was daily vaccine receipt, with other covariate including biweekly changes in epidemic and vaccine supply at 9 census region levels. The study found that the short-term epidemic responsiveness in predicting demand for influenza vaccination may improve vaccine distribution and the annual vaccination rate, and might assist pandemic preparedness planning.

BRITISH MEDICAL JOURNAL

1) European agency approves swine flu vaccines for licensing (Sophie Cook, September 29, 2009)  
http://www.bmj.com/cgi/content/full/339/sep29_2/b3992

Two pandemic H1N1 vaccines, including one of those to be used in the UK’s vaccination programme, were approved for licensing by the European Medicines Agency. The agency’s committee for medicinal products for human use expedited the assessment of the vaccines—Focetria from Novartis and Pandemrix from GlaxoSmithKline—and recommended that they be granted a license by the European Commission.

2) UN seeks $1.5bn and donations of vaccines to help poor nations fight swine flu (John Zarocostas, September 29, 2009)  
http://www.bmj.com/cgi/content/full/339/sep29_2/b3988

The United nations health officials have called for rich nations to pledge more money and donate vaccines against pandemic H1N1 virus to help developing countries fight the pandemic. The goal is to provide developing nations that depend entirely on donations
with enough vaccine to cover 5% to 10% of the population, says the report, compiled by
WHO and UN health experts.

**CANADIAN MEDICAL ASSOCIATION JOURNAL (CMAJ)**

1) Conflict emerges over value of handwashing as a preventive flu transmission
measure (October 1, 2009)
http://www.cmaj.ca/earlyreleases/1oct09_conflict_handwashing.shtml

There’s no evidence that good hand hygiene practices prevent influenza transmission,
according to a Council of Canadian Academies report commissioned by the Public
Health Agency of Canada. Despite those 2007 findings, PHAC still recommends
handwashing as the primary preventive measure against flu transmission. The
contradictory evidence and recommendations on preventive measures and other
pandemic (H1N1) 2009 issues leaves Canadian doctors at a loss as to the best advice
to provide patients, says College of Family Physicians of Canada President Dr. Sarah
Kredentser.

2) Preparing for pandemic (H1N1) 2009 (Paul C. Hébert and Noni MacDonald)
http://www.cmaj.ca/cgi/reprint/181/6-7/E102

This article outlines the steps that must be taken in order to prepare for a fall outbreak of
pandemic H1N1 influenza. Some of the recommendations made include creating
national leadership on pandemic H1N1 influenza and communication between all levels
of government.

3) Physicians, CIHR call for more H1N1 research funds (Laura Eggertson)
http://www.cmaj.ca/cgi/reprint/181/6-7/E108

Canadian physicians and researchers are calling on the federal and provincial
governments to join other industrialized countries in fast-tracking funding for immediate
applied research on the pandemic (H1N1) 2009 influenza virus to help combat an
expected second wave of infection.

**CLINICAL INFECTIOUS DISEASES**

1) Salicylates and Pandemic Influenza Mortality, 1918–1919 Pharmacology, Pathology,
and Historic Evidence (Karen M. Starko, September 30, 2009)
http://www.journals.uchicago.edu/doi/abs/10.1086/606060

The hypothesis presented herein is that aspirin contributed to the incidence and severity
of viral pathology, bacterial infection, and death in the 1918-1919 influenza pandemic,
because physicians of the day were unaware that the regimens (8.0–31.2 g per day)
produce levels associated with hyperventilation and pulmonary edema in 33% and 3% of
recipients, respectively. Recently, pulmonary edema was found at autopsy in 46% of 26
salicylate-intoxicated adults. Experimentally, salicylates increase lung fluid and protein
levels and impair mucociliary clearance. In 1918, the US Surgeon General, the US Navy,
and the *Journal of the American Medical Association* recommended use of aspirin just
before the October death spike. If these recommendations were followed, and if
pulmonary edema occurred in 3% of persons, a significant proportion of the deaths may
be attributable to aspirin.

**EMERGING INFECTIOUS DISEASES**

- Nothing new on H1N1 this week.
EUROSURVEILLANCE

1) Residual immunity in older people against the influenza A(H1N1) – recent experience in northern Spain (E Pérez-Trallero et al., October 1, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19344

The authors analyzed age at infection in symptomatic patients with influenza in the Basque Country (northern Spain), reported through the sentinel influenza surveillance system which monitors 2.2-2.5% of the population. Between September 1999 and August 2009, influenza A(H3N2) or seasonal influenza A(H1N1) was detected in 941 patients, and from April to August 2009, pandemic influenza A(H1N1) was detected in 112 patients. The H3/H1 seasonal influenza ratio was between 3.3 and 3.4 in the under 60 year-olds, but 9.8 in older individuals, suggesting that people born before 1950 have residual immunity against the influenza A H1N1 subtype (both seasonal and pandemic).

2) Early estimates of 2009 pandemic influenza A(H1N1) virus activity in general practice in France: incidence of influenza-like illness and age distribution of reported cases (C Turbelin et al., October 1, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19341

In the end of August 2009, an unusually elevated level of influenza-like illness (ILI) activity was reported to the French Sentinel Network. The authors quantified the observed excess in ILI cases in France during summer 2009 and characterised age patterns in reported cases. An excess of cases has been observed since 5 July, with a time increasing trend. The cumulated estimated excess number of ILI cases was 269,935 [179,585; 316,512], corresponding to 0.5% French population over the period. Compared to the same period in the past years, relative cumulated incidence was greater among young subjects and lower among subjects over 65 years-old. Compared to past epidemics, the relative cumulated incidence was greater in children less than five years-old.

JOURNAL OF INFECTIOUS DISEASES

-Nothing new this week on H1N1

LANCET

-Nothing new this week on H1N1

MORBIDITY AND MORTALITY WEEKLY REPORT

1) Early Release: Bacterial Coinfections in Lung Tissue Specimens from Fatal Cases of 2009 Pandemic Influenza A (H1N1) -United States, May-August 2009 (September 29 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58e0929a1.htm?s_cid=mm58e0929a1_e

During May 1-August 20, 2009, medical examiners and local and state health departments submitted specimens to CDC from 77 U.S. patients with fatal cases of confirmed 2009 pandemic influenza A (H1N1). This report summarizes the demographic and clinical findings from these cases and the laboratory evaluation of the specimens. Evidence of concurrent bacterial infection was found in specimens from 22 (29%) of the 77 patients, including 10 caused by Streptococcus pneumoniae. Duration of illness was available for 17 of the 22 patients; median duration was 6 days (range: 1-25 days).
Fourteen of 18 patients for whom information was available sought medical care while ill, and eight (44%) were hospitalized.

2) Influenza Vaccination Coverage Among Children Aged 6 Months-18 Years - Eight Immunization Information System Sentinel Sites, United States, 2008-09 Influenza Season (October 2, 2009)  
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5838a1.htm?s_cid=mm5838a1_e

To update previous estimates by assessing influenza vaccination coverage among children aged 6 months-18 years during the 2008-09 season, CDC averaged data from the eight immunization information system (IIS) sentinel sites. The results indicated that average (unweighted) vaccination coverage with ≥1 influenza vaccine doses decreased with increasing age from 47.8% for children aged 6-23 months to 9.1% for those aged 13-18 years. Among sites, average coverage with ≥1 doses among children aged 6-23 months increased from 40.8% during the 2007-08 influenza season to 47.8% during the 2008-09 season; however, coverage levels remained suboptimal.

3) Influenza Vaccination Coverage Among Children Aged 6-23 Months - United States, 2007--08 Influenza Season (October 2, 2009)  
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5838a2.htm?s_cid=mm5838a2_e

To assess influenza vaccination coverage among children aged 6-23 months during September-December of the 2007-08 influenza season, CDC analyzed data from the 2008 National Immunization Survey (NIS). The results of those analyses indicated that, during the 4 months, 40.7% of children aged 6-23 months received ≥1 doses of influenza vaccine, and 23.4% were fully vaccinated. Substantial variability was observed among the 50 states and participating local areas; the percentage of children with full vaccination ranged from 6.4% to 40.9% among states and local areas. Nationally, the percentage of children aged 6-23 months receiving ≥1 doses of influenza vaccine increased from 31.8% in 2006-07 to 40.7% in 2007-08, and the percentage with full vaccination increased from 21.3% to 23.4%; however, influenza vaccination coverage among children remains low.

NATURE
- Nothing new on H1N1 this week.

NEW ENGLAND JOURNAL OF MEDICINE

1) Novel H1N1 Influenza and Respiratory Protection for Health Care Workers (K.I. Shine et al., October 1, 2009)  
http://content.nejm.org/cgi/content/full/NEJMp0908437?query=TOC

On September 3, 2009, the Institute of Medicine (IOM) released a report entitled Respiratory Protection for Healthcare Workers in the Workplace against Novel H1N1 Influenza A. The IOM committee reviewed evidence showing that airborne exposure plays some role in the transmission of novel H1N1 influenza A virus. The extent of such transmission and how it compares with that of transmission through contact or droplet-spray exposure is uncertain. However, the evidence for some degree of airborne transmission increases the importance of good respiratory protection. It has been demonstrated that N95 respirators filter out 95 to 99% of relevant aerosol particles. Although these respirators function best when they are individually fitted, unfitted respirators do have efficacy. The available evidence indicates that the tight fit and
enhanced filtration capacity of these devices offer better protection against aerosol particles than do surgical masks.

2) CDC and FDA Response to Risk of Confusion in Dosing Tamiflu Oral Suspension (letter to editor)
http://content.nejm.org/cgi/content/full/NEJMc0909190v1
Together, the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) have acted promptly to provide information that emphasizes appropriate dosing and dispensing of Tamiflu for oral suspension. All communications recommend that, when dispensing commercially manufactured Tamiflu for oral suspension, pharmacists should ensure that the units of measure on the dosing instructions match those on the device provided. When dispensing this suspension for children younger than 1 year of age, according to the Emergency Use Authorization, the syringe in the package should always be replaced with an appropriate measuring device, because doses for children younger than 1 year of age cannot be measured with the manufacturer's syringe.

3) Risk of Confusion in Dosing Tamiflu Oral Suspension in Children (letter to Editor)
http://content.nejm.org/cgi/content/full/NEJMc0908840v2
Most families and caregivers would not be able to identify or perform the cumbersome calculations required to administer Tamiflu safely to children, because the instructions on the pharmacy label, on the manufacturer's printed label, and in the accompanying Consumer Medication Information and the prepackage dosing syringe are misaligned. Thus, there is a high chance for dosing errors, compromised treatment, or toxic effects. Unless immediate steps are taken to improve the prescribing instructions for this drug in children, its safe use will be compromised. The authors recommend that all pharmacies be instructed to ensure that the label instructions for use are in the same dosing units as those on the measurement device dispensed with oseltamivir. In addition, the Consumer Medication Information must be improved and the public alerted to the potential for oseltamivir dosing errors.

PLoS ONE

1) Stabilization of influenza vaccine enhances protection by microneedle delivery in the mouse skin (Fu-Shi Quan, et al., September 25, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007152
The authors hypothesized that vaccine delivery to the skin using a patch containing vaccine-coated microneedles could be an attractive approach to improve influenza vaccination compliance and efficacy. A single microneedle-based vaccination using stabilized influenza vaccine was found to be superior to intramuscular immunization in controlling virus replication as well as in inducing rapid recall immune responses post challenge.

2) Home educating in an extended family culture and aging society may fare best during a pandemic (Wayne Dawson and Kenji Yamamoto, September 28, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007221
To help understand the impact of an epidemic on family structure in a networked population, an individual based computer model that randomly generates networked cities with a specified range of population and disease characteristics and individual schedules, infectivity, transmission and hygiene factors was developed. Several salient
issues emerged. First, a city of highly active individuals may in fact diminish the number of fatalities because the average duration of the interactions between agents is reduced. Second, home schooling can significantly improve survival because the institutional clustering of weak individuals is minimized. Third, the worst scenario for an aging population is the nuclear family where the aged population is confined to large housing facilities.

**PLOS Currents**


An autumn-winter pandemic wave of pH1N1 with comparable severity per case could lead to a number of deaths in the range from considerably below that associated with seasonal influenza to slightly higher, but with greatest impact in young children and non-elderly adults. These estimates of impact depend on assumptions about total incidence of infection and would be larger if incidence of symptomatic infection were higher or shifted toward adults, if viral virulence increased, or if suboptimal treatment resulted from stress on the health care system; numbers would decrease if the proportion infected or symptomatic were lower.

2) Rapid Research Note: SegMonitor: Influenza analysis pipeline and visualization (Norman MacDonald, Donovan Parks, and Robert Beiko, September 23, 2009)

The authors have developed an influenza sequence pipeline, polymorphism data warehouse, and an interactive web-based analysis program to assist in managing the flow of sequence data. The system provides a framework for studying polymorphic associations with various metadata, for downloading subsets based on metadata criteria, as well as for tracking polymorphisms geographically and temporally. SeqMonitor is accessible at http://ratite.cs.dal.ca/SeqMonitor

3) Pandemic influenza dynamics and the breakdown of herd immunity (Guy Katriel, September 30, 2009)
http://knol.google.com/k/guy-katriel/pandemic-influenza-dynamics-and-the/1vf7it3yc9xzI/1?collectionId=28qm4w0q65e4w.1&position=1#

In this article, the authors use first-approximation parameter estimates for the SIR model to compare seasonal and pandemic influenza, and then explore the implications of the existing classical epidemiological theory. In particular, they note the dramatic nonlinear increase in attack rate as a function of the percentage of susceptibles initially present in the population. This has severe consequences for the pandemic, given the general lack of immunity in the global population.

**SCIENCE**

- Nothing new on H1N1 this week
GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

October 16, 2009: CDC H1N1 Flu Surveillance Update. 
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 40 (October 04-10, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Updated Interim Recommendations for the Use of Antiviral Medications in the Treatment and Prevention of Influenza for the 2009-2010 Season (October 16, 2009). 
http://www.cdc.gov/h1n1flu/recommendations.htm
These recommendations have been updated to provide additional guidance for clinicians in prescribing antiviral medications for treatment and prevention of influenza during the 2009-2010 season. In general, the priority use of antiviral medications during this season continues to be in people who are hospitalized with influenza and those at increased risk of influenza-related complications as outlined in the recommendations last updated on September 22, 2009.

Recommendations for the Use of Antiviral Medications for the Management of Influenza in Children and Adolescent for the 2009-2010 Season- Pediatric Supplement for Health Care Providers (October 16, 2009). 
http://www.cdc.gov/h1n1flu/recommendations_pediatric_supplement.htm
This document provides supplemental recommendations for health care providers of children and adolescents on the use of antiviral medications for the treatment and chemoprophylaxis of influenza including 2009 H1N1 influenza infection and seasonal influenza, and assist clinicians in prioritizing use of antiviral medications for hospitalized patients and those at higher risk for influenza-related complications.

http://www.cdc.gov/h1n1flu/vaccination/pediatricpatients.htm
Purpose of this document is to provide guidance for planning and conducting 2009 H1N1 influenza vaccination of pediatric patients in primary healthcare settings.

2009 H1N1 Flu and Seasonal Flu Information for Rheumatology Health Professionals (October 15, 2009). 
http://www.cdc.gov/h1n1flu/arthritis_clinicians.htm

2009 H1N1 Flu (referred to as “swine flu” early on) and Seasonal Flu Information for Rheumatology Health Professionals (October 15, 2009).
http://www.cdc.gov/h1n1flu/arthritis_clinicians.htm

http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm

CDC is releasing updated interim guidance on infection control measures to prevent transmission of 2009 H1N1 influenza in healthcare facilities

Q&A: CDC’s Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare setting, including Protection of Healthcare Personnel (October 14, 2009).
http://www.cdc.gov/h1n1flu/guidance/control_measures_qa.htm

Q&A: Respiratory Protection for Preventing 2009 H1N1 Influenza Among Healthcare Personnel (October 14, 2009).
http://www.cdc.gov/h1n1flu/guidelines_infection_control_qa.htm

http://www.cdc.gov/H1N1flu/guidance/control_measures_qa.htm

2009 H1N1 Influenza Vaccine (October 16, 2009)
http://www.cdc.gov/h1n1flu/vaccination/public/vaccination_qa_pub.htm

CDC National Institute for Occupational Safety and Health
Occupational Health Issues Associated with H1N1 Influenza Virus (October 16, 2009)
http://www.cdc.gov/niosh/topics/H1N1flu/healthcare-risk.html

Risk of Serious Illness Among Healthcare Personnel Associated With 2009 H1N1 Influenza: What Is NIOSH Learning?

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 40 (October 04-10, 2009)
The overall influenza activity increased for a fourth consecutive week and was higher than expected for this time of the year. Ill relatively low. The total number of influenza outbreaks was lower than last week but still high for this time of the year with 28 influenza outbreaks.

Deaths Associated with Influenza A (H1N1) as of October 15, 2009
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

Frequently asked questions-H1N1 Flu Virus (October 15, 2009).
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/faq_rg_h1n1-eng.php

Canada Supports Scientific Research to Deepen Knowledge of H1N1 flu Virus (October 14, 2009).
http://www.cihr.ca/e/40508.html

Regulation of H1N1 Vaccine (October 14, 2009).
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/faq_rg_h1n1-reg-eng.php
Influenza activity in Ontario is higher compared to the previous week. Many of the measures indicate that influenza activity in week 40 has increased compared to activity in week 39.

MOHLTC: Ontario Takes Additional Steps to Reduce H1N1 Transmission (October 16, 2009)

MOHLTC Guidance for Management of Patients with ILI in Emergency Departments during Pandemic (H1N1) 2009- Summary (October 14, 2009)

MOHLTC Guidance for the Management of ILI in Ambulatory Care Settings during Pandemic (H1N1) 2009- Summary (October 14, 2009)

MOHLTC Guidance for Management of Patients with ILI in Long-Term Care Settings during the Pandemic (H1N1) 2009- Summary Guidance Document (October 14, 2009)

MOHLTC Guidance for Pharmacists and Pharmacies on Ontario’s Antiviral Distribution Strategy for Managing ILI during Pandemic (H1N1) 2009- Summary (October 15, 2009)


BC CENTER FOR DISEASE CONTROL (BC CDC):

BC CDC: H1N1 flu virus update (October 13, 2009)
http://www.bccdc.ca/resourcemat/newsandalerts/healthalerts/H1N1FluVirusHumanSwineFlu.htm

Weekly BC Pandemic H1N1 Surveillance Update as of October 13, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm#

WORLD HEALTH ORGANIZATION (WHO)

Global Situation Update 70, October 11, 2009:
Influenza activity continues to increase in the northern zones across the world. In North America, the US is now experiencing nationwide rates of ILI well above seasonal baseline rates with high rates of pandemic H1N1 2009 virus detections in clinical laboratory specimens. Mexico also reports high intensity and active transmission in some areas of the country. Western Europe and northern Asia are experiencing increased rates of ILI, well above baseline in some countries but activity is generally not as widespread as in North America.
Clinical features of severe cases of pandemic influenza *(October 16, 2009)*

**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)**

October 19, 2009: Weekly ECDC Executive Update, Pandemic influenza A(H1N1) Issue 15

October 16, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

Recommendation to include influenza A(H1N1) 2009 in the 2010 Southern Hemisphere seasonal vaccines plus change of the influenza A(H3N2) component *(October 14, 2009)*

**UK’S HEALTH PROTECTION AGENCY (HPA) AND UK DEPARTMENT OF HEALTH**

Pandemic (H1N1) 2009 Influenza: information for health professionals

Enhanced surveillance of Guillain-Barré syndrome during the influenza pandemic

UK Department of Health: Rationale for Staff Vaccination

October 2009: The H1N1 swine flu vaccination programme 2009-2010 *(October 15, 2009)*

**HEALTH/SURVEILLANCE BULLETINS:**

Australia


Nationally, most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is decreasing nationally with a number of regions reporting no new notifications in the last week, indicating that the first wave of the pandemic has subsided.
New Zealand

New Zealand: Weekly 41 Summary (October 05-11, 2009)

There has been a decrease in consultations for ILI through sentinel surveillance in week 41. However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

October 19 2009: Concerned that H1N1 and seasonal flu will overwhelm providers this winter, the Minnesota Department of Health plans to launch a statewide hot line to triage people and prescribe medicine over the phone. Officials said the service will offer quick access to antiviral drugs for people at risk and also help people who lack health insurance.

October 15 2009: In response to questions from citizens at a meeting yesterday, a Food and Drug Administration (FDA) official said the agency would make a decision "fairly soon" about permitting emergency use of the experimental antiviral drug peramivir to help patients severely ill with pandemic H1N1 influenza.
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/oct1509peramivir.html

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science

AMERICAN JOURNAL OF PUBLIC HEALTH
- No new H1N1 content this week

BRITISH MEDICAL JOURNAL
- No new H1N1 content this week

OAHPP Weekly H1N1 Digest
CLINICAL INFECTIOUS DISEASES

1) Diagnostic Importance of Relative Lymphopenia as a Marker of Swine Influenza (H1N1) in Adults (Cunha BA, Pherez FM)
http://www.journals.uchicago.edu/doi/full/10.1086/644496

Early in the swine influenza (H1N1) pandemic (April and May 2009), a New York City emergency department was busy with 856 patient requests for rapid influenza A testing and/or evaluation. Unlike severe influenza A, which has characteristic findings, mild or moderate influenza A is clinically indistinguishable from influenza-like illness. The authors review laboratory results and found relative lymphopenia appears to be a laboratory marker of H1N1. Adults who test positive for H1N1, relative lymphopenia with or without thrombocytopenia was common, but leukopenia was not present. In adults who test positive for influenza A by the rapid influenza test, relative lymphopenia appears to be a marker to identify those likely to have H1N1 and thus to merit specific RT-PCR testing.

2) Severe Acute Respiratory Disease in the Setting of an Epidemic of Swine Origin Type A H1N1 Influenza at a Reference Hospital in Entre Ríos, Argentina (Bantar C et al.)
http://www.journals.uchicago.edu/doi/full/10.1086/644500

This article provides a descriptive analysis of the reported confirmed pandemic H1N1 cases in Argentina, including 52 cases (resulting in 1 death) in the province of Entre Ríos. The first confirmed case of novel H1N1 influenza in this province was reported on 18 June 2009, and the number of suspected cases increased to 330 by 4 July 2009. The findings from this preliminary analysis suggests that younger rather than older people are more susceptible to pandemic H1N1, like during the 1918 influenza epidemic, and that infected patients of any age should be observed carefully for the occurrence of complications. Such a situation is different from that of seasonal influenza, which affects children <5 years of age and persons ≥65 years of age. This article shows that severe acute respiratory disease may have a significant impact on the healthcare system in the setting of an epidemic of pandemic H1N1 influenza, which affects previously healthy young people.

CMAJ

1) Modelling mitigation strategies for pandemic (H1N1) 2009. (Zivkovic Gojovic M, Sander B, Fisman D, Krahn MD, Bauch CT. October 13, 2009.)
http://www.cmaj.ca/cgi/rapidpdf/cmaj.091641v1?ijkey=3ee0ca112ef686b9aa40a2dc75fa0a86649dfe

This study uses simulation models to project the effectiveness of mitigation strategies, but the choice of the best scenario may change depending on model assumptions and uncertainties. The authors developed a simulation model of a pandemic (H1N1) 2009 outbreak in a structured population using demographic data from a medium-sized city in Ontario and epidemiologic influenza pandemic data. The authors projected the attack rate (AR) under different combinations of vaccination, school closure and antiviral drug strategies. The researchers used "combinatorial uncertainty analysis" to assess the impact on epidemiologic uncertainty. This permitted us to identify the general features of public health response programs that resulted in the lowest attack rates. The authors found that delays in vaccination of 30 days or more reduced the effectiveness of vaccination in lowering the AR. However, pre-existing immunity in 15% or more of the population kept the attack rates low, even if the whole population was not vaccinated or vaccination was delayed. School closure was effective in reducing the AR, but this is not necessary if vaccine is available early or if pre-existing immunity is strong within the community.
study suggests that early action, such as rapid vaccine deployment, is disproportionately effective in reducing the AR.

**EMERGING INFECTIOUS DISEASES**

- No new H1N1 content this week

**EUROSURVEILLANCE**

1) Use Of An Inactivated Vaccine In Mitigating Pandemic Influenza A(H1n1) Spread: A Modelling Study To Assess The Impact Of Vaccination Timing And Prioritisation Strategies
   *(Sypsa V, Pavlopoulou I, Hatzakis A. 2009)*
   http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19356

The impact of prioritization and of timing of vaccination strategies on reducing transmission of pandemic influenza A(H1N1) was evaluated in a community with the structure of the Greek population using a stochastic simulation model. In the absence of intervention, an illness attack rate (AR) of 34.5% is anticipated. The authors found that vaccinating the priority groups before the epidemic (such as pregnant women, people who live with or care for children <6 months of age, healthcare/emergency services personnel, etc.) will have a negligible impact on the overall AR. Vaccinating the recommended groups before the epidemic (priority groups as well as all persons 6 months–24 years old and high-risk individuals 25–64 years old) is anticipated to result in overall and age-specific ARs within the range of seasonal influenza. Early initiation of vaccination early during the epidemic (AR<1% of the population) is predicted to result in overall ARs up to 15.2%-19.9% depending on vaccination coverage rates. The authors found that when vaccination is initiated late (AR: 5%), only coverage of 80% of the whole population at daily vaccination rates could reduce ARs to approximately 15%.

2) Pandemic H1n1 Influenza: Predicting The Course Of A Pandemic And Assessing The Efficacy Of The Planned Vaccination Programme In The United States *(Towers S.)*
   http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19358

The authors use data on confirmed cases of pandemic influenza A(H1N1), disseminated by the United States CDC to fit the parameters of a seasonally forced Susceptible, Infective, Recovered (SIR) model. They use the resulting model to predict the course of the H1N1 influenza pandemic in fall 2009, and assess the efficacy of the planned CDC H1N1 vaccination campaign. The model predicts that there will be a significant wave in fall of 63% of the population being infected, and that this wave will peak so early that the planned CDC vaccination campaign will likely not have a large effect on the total number of people with pandemic H1N1 infection.

3) Pandemic Influenza A(H1n1) 2009 Vaccines In The European Union *(Johansen K.)*
   http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19361

This article reviews composition of authorized pandemic vaccines from four manufacturers which are now available for use within the European Union (EU). The majority of the severely ill will be from known risk groups and the best strategy will be to start vaccinating in line with the recommendation from the EU Health Security Committee prioritising adults and children with chronic conditions, pregnant women and healthcare workers. The vaccine strain in all authorized pandemic vaccines worldwide is based on the same initial isolate of influenza A/California/7/2009 (H1N1)v but the vaccines differ in conditions for virus propagation, antigen preparation, antigen content and whether they are adjuvanted or not.
Delivery of the vaccines to the risk groups will pose difficulties where those with chronic illnesses are not readily identifiable to the healthcare services.

3) Resistance Of Turkeys To Experimental Infection With An Early 2009 Italian Human Influenza A(H1N1)V Virus Isolate (Terregino C, De Nardi R, Nisi R, Cilloni F, Salvato A, Fasolato M, Capua I.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19360

The authors performed an experimental infection of 21 and 70 day-old meat turkeys with an early human isolate of the pandemic H1N1 2009 influenza virus exhibiting an α-2,3 receptor binding profile. Virus was not recovered by molecular or conventional methods from blood, tracheal and cloacal swabs, lungs, intestine or muscle tissue. Seroconversion was detected in a limited number of birds with the homologous antigen only. These findings suggest that in its present form, the pandemic H1N1 influenza virus is not likely to be transmitted to meat turkeys and does not represent an animal/food safety issue for this species.

JAMA

1) Preparing for the Sickest Patients With 2009 Influenza A(H1N1) (White DB, Angus DC.)
http://jama.ama-assn.org/cgi/content/full/2009.1539

The authors review evidence about the nature and severity of the disease for preparation for the re-emergence of pandemic H1N1 influenza virus. The authors examine the current issue of JAMA, and describe the three reports. The authors describe epidemiological limitations of each study. They explain the difficulties to ascertain the true incidence of H1N1 infection in the population and accurate proportion of affected patients who required hospitalization, and other critical care interventions. It is also difficult to infer benefits of certain therapeutic interventions because of the potential for selection bias and residual confounding related to differences between groups that did and did not receive treatment. The authors raise questions on the ability of the influenza virus to mutate and whether the virus that will emerge this fall will produce similar rates and severity of clinical infection.

2) Extracorporeal Membrane Oxygenation for 2009 Influenza A(H1N1) Acute Respiratory Distress Syndrome (The Australia and New Zealand Extracorporeal Membrane Oxygenation (ANZ ECMO) Influenza Investigators.)
http://jama.ama-assn.org/cgi/content/full/2009.1535

The pandemic H1N1 influenza affected Australia and New Zealand during the 2009 southern hemisphere winter and has caused an epidemic of critical illness. This study describes the characteristics of all patients with pandemic H1N1 2009 influenza associated acute respiratory distress syndrome (ARDS) treated with extracorporeal membrane oxygenation (ECMO) and reports incidence, resource utilization, and patient outcomes. An observational study of all 68 patients with pandemic H1N1 influenza associated ARDS treated with ECMO in 15 ICUs in Australia and New Zealand between June 1 and August 31, 2009. The study found that 68 patients with severe influenza-associated ARDS were treated with ECMO, of whom 61 had either confirmed pandemic H1N1 or influenza A not subtyped, representing an incidence rate of 2.6 ECMO cases per million population. An additional 133 patients with influenza A received mechanical ventilation but no ECMO in the same ICUs. The 68 patients who received ECMO had a median age of 34.4 years and 34 patients were men. The median duration of ECMO support was 10 days. At the time of reporting, 70.6% of patients had survived to ICU discharge, of whom 32 had survived to hospital discharge and 16 remained as hospital inpatients. Fourteen patients had died and 6 remained in the ICU, 2 of whom were still receiving ECMO. The results from the study showed that during this time period, the ICUs at referral centers provided mechanical
ventilation for many patients with pandemic H1N1-associated respiratory failure had one third of whom received ECMO. These young adults with severe hypoxemia had a 21% mortality rate at the end of the study period.

3) Critically Ill Patients With 2009 Influenza A(H1N1) in Mexico (Guillermo Domínguez-Cherit G, Lapinsky SE, Macias AE, Pinto R, Espinosa-Perez L, de la Torre A, et al.)
http://jama.ama-assn.org/cgi/content/full/2009.1536

The population and health care system in Mexico City experienced the first and greatest early burden of critical illness from pandemic H1N1 (pH1N1) influenza infection. This study describes baseline characteristics, treatment, and outcomes of consecutive critically ill patients infected with pH1N1 in Mexico hospitals. This is an observational study of 58 critically ill patients with pH1N1 influenza at 6 hospitals between March 24 and June 1, 2009. The main outcome measured was the primary outcome measure was mortality. This study found that critical illness occurred in 58 of 899 patients. Patients were young; all presented with fever and all but 1 with respiratory symptoms. Few patients had comorbid respiratory disorders, but 36% were obese. Time from hospital to ICU admission was short (median, 1 day), and all patients but 2 received mechanical ventilation for severe acute respiratory distress syndrome and refractory hypoxemia (median day 1 ratio of PaO2 to fraction of inspired oxygen, 83 mm Hg). By 60 days, 24 patients had died (41.4%; 95% CI 28.9%-55.0%). Patients who died had greater initial severity of illness, worse hypoxemia, higher creatine kinase levels, higher creatinine levels, and ongoing organ dysfunction. After adjusting for a reduced opportunity of patients dying early to receive neuraminidase inhibitors, neuraminidase inhibitor treatment (vs no treatment) was associated with improved survival (odds ratio, 7.4; 95% CI 1.8-31.0).

http://jama.ama-assn.org/cgi/content/full/2009.1496

The authors describe characteristics, treatment, and outcomes of critically ill patients in Canada with pandemic H1N1 influenza infection. This is a prospective observational study of 168 critically ill patients with pandemic H1N1 infection in 38 adult and pediatric ICUs in Canada between April 16 and August 12, 2009. The primary outcome measures were 28-day and 90-day mortality. The results show that critical illness occurred in 215 patients with confirmed (n = 162) community-acquired pandemic H1N1 infection. Among the 168 patients who were confirmed or probable cases, the mean age was 32.3 (21.4) years; 113 were female and 50 were children. Overall mortality among critically ill patients at 28 days was 14.3% (95% CI 9.5%-20.7%). There were 43 patients who were aboriginal Canadians (25.6%). The median time from symptom onset to hospital admission was 4 days and from hospitalization to ICU admission was 1 day. Shock and nonpulmonary acute organ dysfunction was common. Neuraminidase inhibitors were administered to 152 or 90.5% patients. All patients were severely hypoxemic (mean ratio of PaO2 to FIO2 of 147 [128] mm Hg) at ICU admission. Mechanical ventilation was received by 136 patients. The median duration of ventilation was 12 days and ICU stay was 12 days. Overall mortality among critically ill patients at 90 days was 17.3% (95% CI 12.0%-24.0%; n = 29). The study found that critical illness due to pandemic H1N1 in Canada occurred rapidly after hospital admission, often in young adults, and was associated with severe hypoxemia, multisystem organ failure, a requirement for prolonged mechanical ventilation, and the frequent use of rescue therapies.

JOURNAL OF INFECTIOUS DISEASES
- No new H1N1 content this week

**Lancet**

http://www.thelancet.com/journals/lancet/article/PIIS0140673609615968/fulltext?rss=yes

This study examines the presentation and clinical course of H1N1 influenza in the dialysis population and compares this to the general population. Observations from this case (and another that is not mentioned in this review) suggest that presentation in dialysis patients may differ. Most pandemic H1N1 influenza cases meet the definition for ILI of fever plus cough or sore throat. However, these case definitions were not seen in two of our dialysis patients. Uraemia-induced immune dysfunction might lead to this atypical presentation in dialysis patients. The current recommendations for treatment of H1N1 influenza are oseltamivir or zanamivir. This article shows that pandemic H1N1 influenza is an important differential diagnosis in dialysis patients who are short of breath or febrile.

**MMWR**

1) Announcement: New System for Monitoring Emergency Department Visits for Influenza-Like Illness (MMWR Weekly October 9, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5839a5.htm?s_cid=mm5839a5_x

CDC has announced its partnership with the International Society for Disease Surveillance and the Public Health Informatics Institute to enhance surveillance for ILI through a system called "Distribute." The Distribute system aggregates information from hospital emergency department (ED) syndromic surveillance systems operated by state and local health departments. This new ILI surveillance system complements the existing CDC influenza surveillance systems by providing further characterization of geographic- and age-specific trends. The number of states or local areas represented on the Distribute web page will increase over time as additional health departments participate in the Distribute system.

**Nature**

- No new H1N1 content this week

**New England Journal of Medicine**

- No new H1N1 content this week

**PLoS Currents: Influenza**

- No new H1N1 content this week

**PLoS One**

- No new H1N1 content this week

**Science**

- No new H1N1 content this week

**Vaccine**
1) Swine influenza matrix 2 (M2) protein contributes to protection against infection with different H1 swine influenza virus (SIV) isolates (Kitikoon P et al. Vaccine October 16, 2009)

The authors used a swine influenza virus (SIV) vaccine-challenge pig model to study the potential of a conserved matrix 2 (M2) protein vaccine alone or in combination with an inactivated H1N1-vaccine to protect against H1N1 and H1N2 viruses. The H1N1-vaccine and heterologous H1N2-challenge virus model has previously been shown to prolong fever and increase SIV-associated pneumonic lesions. The M2 vaccine in combination with the H1N1-vaccine reduced the H1N2 induced fever but not virus shedding. The M2 vaccine alone reduced respiratory signs and pneumonic lesions to levels similar to the negative control pigs following H1N2 infection. This study found that the M2 protein has potential as a vaccine for SIV-associated disease prevention. However, development of an immune response towards the major envelope HA protein was required to reduce SIV shedding.


This study evaluated the safety of and humoral immune response to the anti-influenza vaccine in coronary artery disease (CAD) patients. The trivalent vaccine was administered to 137 eligible CAD patients and 67 age- and sex-matched healthy individuals. Antibody (Ab) titers were measured before and 1 month after vaccination. CAD and healthy controls (HC) groups were not significantly different in serologic response and magnitude of change in antibody titers against each of the vaccine antigens. In multivariate analyses, regular exercise and using multivitamin supplements were independently associated with better antibody response among CAD patients. This study found no major cardiac or general adverse effects associated with vaccines. Influenza vaccine was found safe in CAD patients and antibody responses were similar to HCs.

3) Intramuscular immunization with a vesicular stomatitis virus recombinant expressing the influenza hemagglutinin provides post-exposure protection against lethal influenza challenge (Barefoot BE, Athearn K, Sample CJ, Ramsburg EA. October 9, 2009)

The authors have developed a novel vaccine based on recombinant vesicular stomatitis virus which expresses the influenza hemagglutinin (rVSV HA) and protects mice from lethal influenza challenge when the vaccine is administered intramuscularly at least 24 h after delivery of the influenza challenge virus. Vaccines currently licensed for seasonal influenza induce antibodies against the influenza but require at least 2 weeks after immunization for the development of protective immunity. The study found that this was the first vaccine that effectively protects animals from lethal influenza challenge when delivered by a systemic route after influenza exposure has occurred. The results of this study are consistent with a model in which vaccination induces an immediate antiviral cytokine response, followed by development of humoral and cellular immune responses which act to reduce pulmonary viral loads and accelerate recovery.
GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

October 23, 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 41 (October 11-17, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Antiviral Treatment Options, including Intravenous Peramivir, for Treatment of Influenza in Hospitalized Patients for the 2009-2010 Season (October 24, 2009).
http://www.cdc.gov/h1n1flu/EUA/peramivir_recommendations.htm

Updated Interim Recommendations- HIV-Infected Adults and Adolescents: Consideration for Clinicians Regarding 2009 H1N1 Influenza (October 21, 2009).
http://www.cdc.gov/h1n1flu/guidance_HIV.htm
This update provides new information about vaccination and treatment of HIV-infected adults and adolescents affected by 2009 H1N1 influenza.

Q&A: NEJM article “Hospitalized Patients with 2009 H1n1 Influenza in the United States-April-June 2009” (October 23, 2009).
http://www.cdc.gov/h1n1flu/njem_qa.htm
The purpose of this study published by the New England Journal of Medicine (NEJM) was to analyze the clinical characteristics of patients hospitalized with 2009 H1N1 flu virus infections in the United States during April through June 2009.

Antiviral Safety Information (October 19, 2009).
http://www.cdc.gov/H1N1flu/antivirals/safety_info.htm

Top 10 frequently asked questions on use of influenza A (H1N1) 2009 monovalent vaccines (2009 H1N1 vaccines): Practical considerations for immunization programs and providers (October 21, 2009).
http://www.cdc.gov/H1N1flu/vaccination/top10_faq.htm
Two different influenza vaccines are available this influenza season, and many people will be recommended to receive both the seasonal influenza vaccine and the 2009 influenza A (H1N1) 2009 monovalent vaccine. This document is only intended to address the current pandemic situation and might change as the situation unfolds. They are not intended to be applied to routine use during future seasonal influenza vaccination efforts.
The overall influenza activity increased for a fifth consecutive week and was higher than expected for this time of the year. All indicators (proportion of positive influenza tests, national ILI consultation rate, number of regions reporting widespread and localized activity and number of influenza outbreaks) were higher this week compared to the previous weeks.

**Deaths Associated with Influenza A (H1N1) as of October 22, 2009**

The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

**Health Canada Approves Pandemic H1N1 Flu vaccine for Canadians (October 21, 2009).**

Minister of Health Leona Aglukkaq today announced that Health Canada has approved AREPANRIX, a vaccine against the pandemic H1N1 flu virus.

**Updated to the H1N1 flu virus frequently asked questions (October 21, 2009)**

Everyone is at risk of catching the H1N1 flu virus but individuals with chronic medical conditions may be at increased risk of catching H1N1 and of developing serious complications from the flu, such as pneumonia or respiratory distress.

**Information on Seniors and the Flu Virus (Seasonal and H1N1 flu) (October 21, 2009)**

Healthy people over 65 years of age don't seem to be at high risk of catching the H1N1 flu or of developing serious complications. However, seniors with chronic medical conditions or weakened immune systems may be at increased risk of catching H1N1 and of developing serious complications from the flu, such as pneumonia or respiratory distress.

**Information on Children Less than five years of age and the H1N1 flu virus (October 21, 2009)**

As with the seasonal flu, children less than five years old and especially those less than two, are more likely to catch the H1N1 flu virus, and if they do catch it, they are more likely to develop severe complications, like pneumonia or breathing problems.

**Information on Pregnancy, Breastfeeding and H1N1 Flu virus (October 21, 2009)**

Pregnant women are not more likely to get the H1N1 flu, but if they do catch it, they are more likely to suffer complications, like pneumonia and severe respiratory distress. This puts both the mother and the baby's health at risk. Severe complications from the flu could lead to early delivery or miscarriage.
H1N1 Flu vaccine: Dosing Recommendations *(October 21, 2009)*

Considering the Options- Getting the flu versus getting a vaccine or taking an antiviral *(October 21, 2009)*
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/options-eng.php
When considering your options about vaccination there are a number of factors that you should think about. This chart explains the risk of getting the flu versus the benefits and risks of getting an H1N1 flu vaccine and/or taking antiviral medication if you do get the flu.

Guidance Document on the Use of Pandemic Influenza A (H1N1) 2009 Inactivated Monovalent Vaccine October 21, 2009

**ONTARIO**

Ontario Influenza Bulletin 2009-2010, Surveillance Week 41 *(October 11-17, 2009)*
Influenza activity in Ontario is higher compared to the previous week. Many of the measures indicate that influenza activity increased in week 41 and continues to increase each week since week 38.

Information for Community-based healthcare providers and Long-Term Care Homes: pH1N1- Access to Supplies and Equipment *(October 22, 2009)*

Newsroom: Ontario will offer H1N1 vaccine on October 26 *(October 21, 2009)*

Newsroom: Ontario sends first shipment of 700,000 doses of H1N1 vaccine to health units *(October 23, 2009)*


**BC CENTER FOR DISEASE CONTROL (BC CDC):**

BC CDC: H1N1 flu virus update *(October 20, 2009)*
http://www.bccdc.ca/resourcemanagement/newsandalerts/healthalerts/H1N1FluVirusHumanSwineFlu.htm

Weekly BC Pandemic H1N1 Surveillance Update as of October 19, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm#

Provincial Tamiflu supply for treatment of illness *(October 23, 2009)*
Influenza activity in the northern hemisphere is much the same as in the last week, though respiratory disease activity continues to spread and increase in intensity. In the U.S. is still reporting nationwide rates of ILI well above baseline rates with high rates of pH1N1 2009 virus detections in clinical laboratory specimens. Canada reports increases in ILI rates for the fourth straight week but the highest level of activity is in the western province of BC. Although influenza activity is low in most countries in Europe, in Belgium, Israel, the Netherlands, Norway, and parts of the UK consultation ILI/ARI rates are above baseline levels.

ECDC Weekly Influenza surveillance overview (October 23, 2009)

Bacterial pulmonary infections in autopsy results from pandemic influenza (H1N1) 2009 deaths in the US (October 22, 2009)

Australia

Australia Influenza Surveillance Summary Report, No. 22, 2009, reporting period: October 03-09 2009 (Current as of October 26, 2009)

Nationally, most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is decreasing nationally with a number of regions reporting no new notifications in the last week, indicating that the first wave of the pandemic has subsided.

New Zealand

New Zealand: Weekly 42 Summary (October 12-18, 2009)

There has been a decrease in consultations for ILI through sentinel surveillance in week 42. However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.
**CENTERS FOR DISEASE CONTROL AND PREVENTION (CIDRAP)**

**October 23, 2009: Spikes in US indicators point to intensifying pandemic.** Pandemic flu activity is now widespread in 46 states, five more than the previous week, causing an increasing number of school closures and starting to hit the young adult age-group harder.

http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/oct2309flu.html

**October 23, 2009: More clouds in the H1N1 vaccine supply picture.** Questions about the tardy US supply of pandemic H1N1 vaccine have increased with the report that most of Novartis's doses may not reach the country until early in 2010 and a European regulatory recommendation that may have implications for the global vaccine supply.

http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/oct2309vaxsupply.html

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**JOURNALS SCANNED:**

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal *(added this week)*
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science

**AMERICAN JOURNAL OF PUBLIC HEALTH**

- No new H1N1 content this week

**BRITISH MEDICAL JOURNAL**

1) Only 12% of Germans say they will have H1N1 vaccine after row blows up over safety of adjuvants (Stafford, Ned)

http://www.bmj.com/cgi/content/full/339/oct21_2/b4335

Abstract:
No abstract available.

2) H1N1 vaccination begins as proportion of cases in hospital admitted to intensive care rises (Cook, Sophie)

http://www.bmj.com/cgi/content/full/339/oct19_2/b4291

Abstract:
The swine flu vaccination programme will begin on Wednesday 21 October, when the first vaccines are distributed to acute trusts for use in “very high risk” patients and healthcare professionals, the chief medical officer Liam Donaldson has announced.

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**OAHPP Weekly H1N1 Digest**
the Department of Health briefing of 15 October, Professor Donaldson said that he was worried by the fact that the proportion of patients admitted to hospital who are going into intensive care has risen from one in eight to one in five. David Salisbury, the Department of Health director of immunisation, emphasised the need for pregnant women to be vaccinated because they are at particular risk. He said that seasonal flu vaccinations had been safely used in pregnant women and that this group had experienced high case fatality rates in previous pandemics.

3) H1N1 pandemic flu found to cause viral pneumonia in severe cases, says WHO

(Zarocostas, John)
http://www.bmj.com/cgi/content/extract/339/oct20_2/b4313

Abstract:
The World Health Organization expressed heightened concern following the presentation of new evidence on clinical aspects of the H1N1 pandemic by experts from heavily affected countries, which document that "primary viral pneumonia is the most common finding in severe cases and a frequent cause of death."
Experts confirmed that most people infected by the H1N1 pandemic virus do not experience complications and recover within a week. But they also expressed concerns about small subsets of patients who rapidly develop severe progressive pneumonia. Pregnant women, children younger than 2 years old, and people with chronic lung disease, including asthma, were the groups with the most risk of severe or fatal illness, the briefing was told.

CLINICAL INFECTIOUS DISEASES
-No new H1N1 content this week

CMAJ
-No new H1N1 content this week

EMERGING INFECTIOUS DISEASES
1) Outbreak of Antiviral Drug–Resistant Influenza A in Long-Term Care Facility, Illinois, USA, 2008 (Dharan, Nila J. et al.)
http://www.cdc.gov/eid/content/15/12/pdfs/08-1644.pdf

Abstract:
An outbreak of oseltamivir-resistant influenza A (H1N1) occurred in a long-term care facility. Eight (47%) of 17 and 1 (6%) of 16 residents in 2 wards had oseltamivir-resistant influenza A virus (H1N1) infections. Initial outbreak response included treatment and prophylaxis with oseltamivir. The outbreak abated, likely because of infection control measures.

2) Oseltamivir-Resistant Influenza A Pandemic (H1N1) 2009 Virus, Hong Kong, China (Chen, H. et al.)
http://www.cdc.gov/eid/content/15/12/pdfs/09-1057.pdf

Abstract:
Resistance to oseltamivir was observed in influenza A pandemic (H1N1) 2009 virus isolated from an untreated person in Hong Kong, China. Investigations showed a resistant virus with the neuraminidase (NA) 274Y genotype in quasi-species from a nasopharyngeal aspirate. Monitoring for the naturally occurring NA 274Y mutation in this virus is necessary.
3) Extracorporeal Membrane Oxygenation for Pandemic (H1N1) 2009 (Firstenberg, M. et al.)
http://www.cdc.gov/eid/content/15/12/pdfs/09-1434.pdf

Abstract:
As the world struggles with the challenges of influenza A pandemic (H1N1) 2009, it is clear that treatment options for critically ill infected patients are suboptimal because deaths continue to be reported in otherwise young and healthy patients. Extracorporeal membrane oxygenation (ECMO) is an established therapeutic option for patients with medically refractory cardiogenic or respiratory failure. We describe the successful use of ECMO in a patient with complicated pneumonia and influenza A pandemic (H1N1) 2009 virus infection.

4) Respiratory Disease in Adults during Pandemic (H1N1) 2009 Outbreak, Argentina (Zala, C. and R. Gonzalez.)
http://www.cdc.gov/eid/content/15/12/pdfs/09-1062.pdf

Abstract:
We observed an unexpectedly high rate of lower respiratory disease in adults with ILI during an outbreak of pandemic (H1N1) 2009 in Argentina. This finding suggests that a unique pattern of virulence, pulmonary tropism, or both may characterize the current influenza A (H1N1) infection, although we could not rule out co-infection with other viral or bacterial respiratory pathogens. Considering the evolving nature of influenza viruses, the wide clinical spectrum of pandemic (H1N1) 2009 should be further investigated.

5) Serologic Analysis of Returned Travellers with Fever, Sweden (Askling, Helena H. et al.)
http://www.cdc.gov/eid/content/15/11/pdfs/09-1157.pdf

Abstract:
We studied 1,432 febrile travelers from Sweden who had returned from malaria-endemic areas during March 2005–March 2008. In 383 patients, paired serum samples were blindly analyzed for influenza and 7 other agents. For 21% of 115 patients with fever of unknown origin, serologic analysis showed that influenza was the major cause.

EUROSURVEILLANCE

1) Preliminary Analysis of the Pandemic H1N1 Influenza on Reunion Island (Indian Ocean): Surveillance Trends (July to Mid-September 2009) (Thouillot, F. et al.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19364

Abstract:
First infections with the 2009 pandemic H1N1 influenza virus were identified on Reunion Island in July 2009. By the end of July, sustained community transmission of the virus was established. Pandemic H1N1 influenza activity peaked during week 35 (24 to 30 August), five weeks after the beginning of the epidemic and has been declining since week 36. We report preliminary epidemiological characteristics of the pandemic on Reunion Island in 2009 until week 37 ending September 13.

2) The 2009 Pandemic H1n1 Influenza And Indigenous Populations Of The Americas And The Pacific (G La Ruche et al.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19366
Abstract:
There are few structured data available to assess the risks associated with pandemic influenza A(H1N1)v infection according to ethnic groups. In countries of the Americas and the Pacific where these data are available, the attack rates are higher in indigenous populations, who also appear to be at approximately three to six-fold higher risk of developing severe disease and of dying. These observations may be associated with documented risk factors for severe disease and death associated with pandemic H1N1 influenza infection (especially the generally higher prevalence of diabetes, obesity, asthma, chronic obstructive pulmonary disease and pregnancy in indigenous populations). More speculative factors include those associated with the risk of infection (e.g. family size, crowding and poverty), differences in access to health services and, perhaps, genetic factors. More...

3) Early Transmission Characteristics Of Influenza A(H1n1)V In Australia: Victorian State, 16 May – 3 June 2009 (E S McBryde et al.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19363

Abstract:
Australia was one of the first countries of the southern hemisphere to experience influenza A(H1N1)v with community transmission apparent in Victoria, Australia, by 22 May 2009. With few identified imported cases, the epidemic spread through schools and communities leading to 897 confirmed cases by 3 June 2009. The estimated reproduction ratio up to 31 May 2009 was 2.4 (95% credible interval (CI): 2.1-2.6). Methods designed to account for undetected transmission reduce this estimate to 1.6 (95% CI: 1.5-1.8). Time varying reproduction ratio estimates show a steady decline in observed transmission over the first 14 days of the epidemic. This could be accounted for by ascertainment bias or a true impact of interventions including antiviral prophylaxis, treatment and school closure. Most cases (78%) in the first 19 days in Victoria were under the age of 20 years-old. Estimates suggest that the average youth primary case infected at least two other youths in the early growth phase, which was sufficient to drive the epidemic.

4) Pandemic H1n1 Influenza Surveillance In Victoria, Australia, April – September, 2009 (J E Fielding et al.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19368

Abstract:
Victoria was the first Australian state to report widespread transmission of pandemic H1N1 2009 influenza. Notifiable laboratory-confirmed influenza and a general practitioner sentinel surveillance system measuring influenza-like illness (ILI), including laboratory confirmation of influenza as the cause of ILI, were used to assess the pandemic. The pandemic influenza A(H1N1)v virus quickly became the dominant circulating strain and notification rates were highest in children and young adults. Despite a high number of notified cases, comparison of ILI rates suggested the season peaked in late June, was similar in magnitude to 2003 and 2007 and less severe than 1997. The majority of clinical presentations were mild, but one quarter of hospitalised cases required admission to intensive care. More...

5) Progression And Impact Of The First Winter Wave Of The 2009 Pandemic H1n1 Influenza In New South Wales, Australia (New South Wales Public Health Network)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19365
Abstract:
A range of surveillance systems were used to assess the progression and impact of the first wave of pandemic H1N1 influenza in New South Wales, Australia during the southern hemisphere winter. Surveillance methods included laboratory notifications, near real-time emergency department syndromic surveillance, ambulance despatch surveillance, death certificate surveillance and purpose-built web-based data systems to capture influenza clinic and intensive care unit activity. The epidemic lasted 10 weeks. By 31 August 2009, 1,214 people with pandemic H1N1 influenza infection were hospitalised (17.2 per 100,000 population), 225 were admitted to intensive care (3.2 per 100,000), and 48 died (0.7 per 100,000). Children aged 0-4 years had the highest hospitalisation rates, while adults aged 50-54 had the highest rates of intensive care admission. More...

6) Pandemic Influenza In A Southern Hemisphere Setting: The Experience In Peru From May To September, 2009 (J Gómez et al.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19371

Abstract:
This paper presents a description of Peru’s experience with pandemic H1N1 influenza 2009. It is based on data from four main surveillance systems: a) ongoing sentinel surveillance of influenza-like illness cases with virological surveillance of influenza and other respiratory viruses; b) sentinel surveillance of severe acute respiratory infections and associated deaths; c) surveillance of acute respiratory infections in children under the age of five years and pneumonia in all age groups; and d) case and cluster surveillance. On 9 May 2009, the first confirmed case of pandemic H1N1 influenza in Peru was diagnosed in a Peruvian citizen returning from New York with a respiratory illness. By July, community transmission of influenza had been identified and until 27 September 2009, a total of 8,381 cases were confirmed. More...

7) Pandemic H1n1 Influenza In Brazil: Analysis Of The First 34,506 Notified Cases Of Influenza-Like Illness With Severe Acute Respiratory Infection (Sari) (W K Oliveira et al.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19362

Abstract:
Recently, the brunt of the current influenza pandemic has been felt in the southern hemisphere. We report an analysis of the first 34,506 cases of influenza-like illness with severe acute respiratory infection (SARI) notified in Brazil during the epidemiological weeks 16 to 33. The 5,747 confirmed cases of pandemic H1N1 influenza showed two incidence peaks across the age span: one in children up to the age of five years (3.8/100,000) and one in individuals aged 20 to 29 years (4.6/100,000). People over the age of 60 had the lowest incidence (1.1/100,000 inhabitants). The epidemic peaked rapidly. Ninety-four percent of cases were concentrated in two of Brazilâ€™s five geographic regions: the south and southeast, regions that have a more temperate climate and thus colder winters. Case-fatality of pandemic H1N1 influenza presenting with SARI was 11.2% (95% confidence interval (CI): 10.4%-12.1%). People with a reported comorbidity had approximately twice the risk of those without (relative risk=1.89; 95%CI: 1.64-2.18).

8) Interim Report On Pandemic H1n1 Influenza Virus Infections In South Africa, April To October 2009: Epidemiology And Factors Associated With Fatal Cases (B N Archer et al.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19369
Abstract:
We provide an interim report on pandemic H1N1 influenza activity in South Africa, with a focus on the epidemiology and factors associated with deaths. Following the importation of the virus on 14 July 2009, and the epidemic peak during the week starting 3 August, the incidence in South Africa has declined. A total of 12,331 cases and 91 deaths have been laboratory-confirmed as of 12 October 2009. Age distribution and risk groups were similar to those observed elsewhere. The median age of patients who died (33.5 years) was significantly higher than that of the non-fatal cases (15.0 years, p<0.01). The most common underlying conditions among fatal cases were infection with human immunodeficiency virus (17/32 tested) and pregnancy (25/45 women of reproductive age). Active tuberculosis coinfection was present in seven of 72 fatal cases. These findings should be taken into consideration when planning vaccination strategies for 2010.

9) Pandemic H1N1 Influenza Lessons From The Southern Hemisphere (M G Baker.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19370

Abstract:
Early in the 2009 H1N1 influenza pandemic, an editorial in Eurosurveillance noted the importance of observing experience with this novel virus in the southern hemisphere during their usual winter influenza season [1]. This special issue of Eurosurveillance is a timely response to that call. It contains reports from the island of Réunion, South Africa, South America (Brazil, Peru), and Australia (New South Wales and Victoria). It also includes an overview of the effect of the pandemic on indigenous people. This editorial summarises some of the key findings from these papers, reviews features of pandemic H1N1 influenza epidemiology in these countries, and lists some potential lessons for the northern hemisphere (and possible future waves in the southern hemisphere).

JAMA
-No new H1N1 content this week

JOURNAL OF INFECTIOUS DISEASES
-No new H1N1 content this week

LANCET
-No new H1N1 content this week

MMWR
1) Introduction and Transmission of 2009 Pandemic Influenza A (H1N1) Virus Kenya, June-July 2009
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5841a1.htm?s_cid=mm5841a1_e

Abstract:
This report documents household transmission from the first four laboratory-confirmed cases of pandemic H1N1 in Kenya. The overall 26% secondary attack rate (range: 7%--33%) for laboratory-confirmed pandemic H1N1 is similar to the recently reported 30% secondary attack rate for laboratory-confirmed pandemic H1N1 in a tourist group in China. However, among the two student groups (groups 1 and 2), the 33% secondary household attack rate was slightly higher than the 21%--26% usually reported for laboratory-confirmed seasonal influenza. The student groups were defined as household...
contacts because they lived together, ate together, and spent much of their time together, like members of typical households. However, unlike most households, the students were healthy young adults, and the nature of the students' interactions might have differed from typical household interactions. More...

**NATURE**

- No new H1N1 content this week

**NEW ENGLAND JOURNAL OF MEDICINE**

1) Use of Ribavirin to Treat Influenza (K.M. Chan-Tack, J.S. Murray, and D.B. Birnkrant)
   [http://content.nejm.org/cgi/content/full/361/17/1713](http://content.nejm.org/cgi/content/full/361/17/1713)

   **Abstract:**
   With the current H1N1 influenza pandemic, questions have arisen regarding the potential for ribavirin as a treatment option. These authors report that the published studies are inconclusive regarding the potential clinical benefits of the drug for the treatment of influenza. Substantial safety issues, such as the risk of hemolytic anemia and of teratogenicity, present further challenges to address if ribavirin is to be used for the treatment of influenza. To further address these issues, formal trials of ribavirin should be conducted to assess safety and efficacy.

2) A Novel Influenza A (H1N1) Vaccine in Various Age Groups (Feng-Cai Zhu et al., October 21, 2009)
   [http://content.nejm.org/cgi/content/full/NEJMoa0908535](http://content.nejm.org/cgi/content/full/NEJMoa0908535)

   **Abstract:**
   Background There is an urgent need for a vaccine that is effective against the 2009 pandemic influenza A (H1N1) virus. Methods A split-virus, inactivated candidate vaccine against the 2009 H1N1 virus was manufactured, and we evaluated its safety and immunogenicity in a randomized clinical trial. Subjects were between 3 and 77 years of age, stratified into four age groups. The immunization schedule consisted of two vaccinations, 21 days apart. Subjects were injected with placebo or with vaccine, with or without alum adjuvant, at doses of 7.5 µg, 15 µg, or 30 µg. Serologic analysis was performed at baseline and on days 21 and 35. Results A total of 2200 subjects received one dose, and 2103 (95.6%) received the second dose, of vaccine or placebo. No severe adverse side effects associated with the vaccine were noted. More...

**PLOs CURRENTS: INFLUENZA**

No new H1N1 content this week

**PLOs ONE**

- No new H1N1 content this week

**SCIENCE**

- No new H1N1 content this week

**VACCINE**

Abstract:
In 2006, national influenza surveillance was implemented in Vietnam. Epidemiologic and demographic data and a throat swab for influenza testing were collected from a subset of outpatients with influenza-like illness (ILI). During January 1, 2006 through December 31, 2007, of 184,521 ILI cases identified at surveillance sites, 11,082 were tested and 2112 (19%) were positive for influenza by reverse transcription polymerase chain reaction. Influenza viruses were detected year-round, and similar peaks in influenza activity were observed in all surveillance regions, coinciding with cooler and rainy periods. Studies are needed to ascertain the disease burden and impact of influenza in Vietnam.

2) Prior infection with an H1N1 swine influenza virus partially protects pigs against a low pathogenic H5N1 avian influenza virus (Van Reeth, Kristien et al.)

Abstract:
Most humans lack virus neutralizing (VN) and haemagglutination inhibition (HI) antibodies to H5N1 avian influenza viruses (AIVs), but cross-reactive neuraminidase inhibition (NI) antibodies and cell-mediated immune (CMI) responses are common. These immune responses result largely from infections with seasonal human H1N1 influenza viruses, but the protective effect of H1N1 infection-immunity against H5N1 infection has never been examined. To this purpose, we have used the pig model of influenza and a low pathogenic (LP) H5N1 AIV. Pigs were inoculated intranasally with sw/Belgium/1/98 (H1N1) 4 weeks before challenge with duck/Minnesota/1525/81 (H5N1). While the viruses failed to cross-react in HI and VN tests, the H1N1 infection induced high levels of H5N1 cross-reactive NI antibodies.

3) Characterisation of influenza A viruses with mutations in segment 5 packaging signals (Hutchinson, Edward C. et al.)

Abstract:
Influenza A virus vRNA segments contain specific packaging signals at their termini that overlap the coding regions. To further characterise segment 5 packaging signals, we introduced synonymous mutations into the terminal coding regions of the vRNA and characterised the replicative fitness of the resulting viruses. Most mutations tested were well-tolerated, but a virus with alterations to NP codons 464-466, near the 5′-end of the vRNA, produced small plaques and replicated to around one-tenth of the level of wild type virus. The mutant virus supported normal levels of NP and segment 5 vRNA synthesis but packaged reduced levels of both segment 5 and segment 3 into virus particles. This suggests an interaction between segments 3 and 5 during influenza A virus assembly.

4) Nuclear functions of the influenza A and B viruses NS1 proteins: Do they play a role in viral mRNA export? (Schneider, Jana and Thorsten Wolf.)

Abstract:
Although it is known for decades that influenza viruses replicate and transcribe their genome in the nucleus of the host cell, there is little knowledge about the cellular and viral factors mediating the nuclear transport of viral mRNA transcripts to the cytoplasm. Efficient export of mature cellular mRNA is coupled to their synthesis by the RNA
polymerase II and subsequent processing events such as splicing. This linkage necessitated influenza viruses to evolve a strategy to integrate their unspliced mRNAs generated by the viral polymerase into a cellular mRNA export pathway. Recent findings suggest that the major cellular mRNA export receptor Tap/NXF1 promotes the influenza virus mRNA export. Here, we review functions of the NS1 proteins of influenza A and B viruses and discuss the emerging evidence supporting a role of these viral factors in the export of viral mRNAs.

5) Influenza virus CTL epitopes, remarkably conserved and remarkably variable (Rimmelzwaan, Guus et al.)
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TD4-4XGB994-

Abstract:
Virus-specific cytotoxic T lymphocytes (CTL) contribute to the control of virus infections including those caused by influenza viruses. Especially under circumstances when antibodies induced by previous infection or vaccination fail to recognize and neutralize the virus adequately, CTL are important and contribute to protective immunity. During epidemic outbreaks caused by antigenic drift variants and during pandemic outbreaks of influenza, humoral immunity against influenza viruses is inadequate. Under these circumstances, pre-existing CTL directed to the relatively conserved internal proteins of the virus may provide cross-protective immunity. Indeed, most of the known human influenza virus CTL epitopes are conserved. However, during the evolution of influenza A/H3N2 viruses, the most important cause of seasonal influenza outbreaks, variation in CTL epitopes has been observed. The observed amino acid substitutions affected recognition by virus-specific CTL and the human virus-specific CTL response in vitro.

More...

6) Influenza vaccination and mortality benefits: New insights, new opportunities (Lone Simonsen, Cecile Viboud, Robert J. Taylor, Mark A. Miller, Lisa Jackson.)
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TD4-4XGB994-

Abstract:
Influenza vaccination control strategies in most countries rely on vaccination of seniors and other high risk groups. Although placebo-controlled randomized trials show influenza vaccine is effective in younger age groups, few seniors >70 years were studied even though they suffer >90% of influenza-related deaths. Excess mortality studies could not confirm a national decline in influenza-related mortality while vaccine coverage quadrupled. Cohort studies have consistently reported that vaccination reduces all-cause winter mortality by ~50%, an astonishing claim given only ~5% of all winter deaths are attributable to influenza. This VE overestimation has now been attributed to profound confounding frailty selection bias. A way forward includes a new generation of unbiased studies with laboratory endpoints, and requires an agreement that the evidence base was flawed. The latter may clear the way for more immunogenic vaccines for seniors and exploration of other influenza control strategies.

http://tiny.cc/DdlqP

Abstract:
Oseltamivir, one of the two anti-neuraminidase drugs, is currently the most widely used drug against influenza. Resistance to the drug has occurred infrequently among different
viruses in response to drug treatment, including A H5N1 viruses, but most notably has emerged among recently circulating A H1N1 viruses and has spread throughout the population in the absence of drug use. Crystal structures of enzyme–drug complexes, together with enzymatic properties, of mutants of H5N1 neuraminidase have provided explanations for high level oseltamivir resistance due to the common H275Y mutation, with retention of zanamivir susceptibility, and intermediate level resistance due to the N295S mutation. Complementation of enhanced NA activity due to a D344N mutation by the H275Y mutation suggests an explanation for the recent emergence and predominance of oseltamivir-resistant influenza A H1N1 viruses.
**Weekly Synthesis of Surveillance Information, Literature & Government Updates**

**(Week Ending October 30, 2009)**

**Government Updates**

**Centre for Disease Control (CDC)**

October 30, 2009: CDC H1N1 Flu Surveillance Update.  
[http://www.cdc.gov/h1n1flu/update.htm](http://www.cdc.gov/h1n1flu/update.htm)


Map includes both seasonal flu and H1N1 flu activity. During week 42 (October 18-24, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

[http://emergency.cdc.gov/coca/callinfo.asp](http://emergency.cdc.gov/coca/callinfo.asp)

**Public Health Agency of Canada (PHAC)**

FluWatch Week 42 (October 18-24, 2009)  

Striking increases in overall influenza activity were reported this week. All indicators (proportion of positive influenza tests, national ILI consultation rate, number of regions reporting widespread activity and number of influenza outbreaks) were considerably higher this week compared to the previous weeks. There is increased influenza activity across the country, particularly in the West (BC, AB, SK, NT) and in NL.

Deaths Associated with Influenza A (H1N1) as of October 29, 2009  

The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

Weekly Distribution of the H1N1 Flu Vaccine (October 31, 2009).  

The vaccine is being distributed to the provinces and territories on a per capita basis, as agreed to by the Chief Medical Officers of Health. The Territories have been supplied in full from initial shipments to minimize the number of shipments, given the logistical challenges of shipping to the North.

The Case of ActNowBC in British Columbia, Canada (October 26, 2009)  
HAJJ Pilgrims- Recommendations for Travel (Updated October 26, 2009)
This document provides recommendations that travellers to the Hajj get the vaccines required for entry by the Ministry of Saudi Arabia, and consider getting other vaccines recommended for travel to Saudi Arabia. Travellers should visit a travel health clinic at least 6 weeks before travel.

Prevention and management of cases of ILI, including the pH1N1 2009 influenza virus, on conveyances including airplanes, trains, ferries and buses (October 23, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/conveyances-transport-eng.php
This document has been developed by the Public Health Agency of Canada to provide guidance to conveyance operators and crew onboard airplanes, trains, ferries and buses, Canadian or foreign, as well as conveyances terminal operators and staff in Canada on the prevention and management of influenza-like-illness (ILI) in passengers or crew boarding or on board the conveyance.

Respiratory Virus Detections/Isolations in Canada (October 29, 2009)
The Respiratory Virus Detection Surveillance System reports on respiratory viruses in Canada. Each week, selected laboratories report numbers of tests performed and numbers positive for Influenza, Respiratory Syncytial Virus, Parainfluenza, and Adenovirus to the Centre for Immunization and Respiratory Infectious Diseases (CIRID), Public Health Agency of Canada.

Statement on Seasonal Trivalent Inactivated Influenza Vaccine (TIV) for 2009-2010 (October 29, 2009)
The purpose of this statement is to review the NACI recommendations for immunization with the seasonal trivalent inactivated influenza vaccine (TIV) for the 2009-2010 season in light of the recent H1N1 pandemic, based on evidence available at this time.

Recommendations for pH1N1 Vaccine in Pregnancy (October 30, 2009)

Pregnant Women- Which H1N1 Flu Vaccine is Right for you? (October 30, 2009)

Guidance on Clinical Management in Remote and Isolated Communities (October 30, 2009)

Ontario Influenza Bulletin 2009-2010, Surveillance Week 42 (October 18-24, 2009)
Influenza activity in Ontario is higher compared to the previous week. Many of the measures indicate that influenza activity increased in week 42 and continues to increase each week since week 38.

Guidance on Public Health Measures for pH1N1 Influenza Virus in First Nations Communities (October 30, 2009)

Guidance for the Prevention and Management of ILI in Shelters during the pH1N1 2009-summary (October 27, 2009)
Clinical Guidance for the Management of Clients with ILI in Home Care setting during the pH1N1 2009- summary (October 28, 2009)

Temporary changes to the Schedule of Benefits for Physician Services and to Primary Health Care Funding in Response to H1N1 (October 30, 2009)
http://www.health.gov.on.ca/english/providers/program/ohip/bulletins/4000/bul4501.pdf


**BC CENTER FOR DISEASE CONTROL (BC CDC):**

BC CDC: H1N1 flu virus update (October 27, 2009)
http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/H1N1FluVirusHumanSwineFlu.htm

Weekly BC Pandemic H1N1 Surveillance Update as of October 16, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm#

Pandemic H1N1 Influenza Vaccine Update (October 30, 2009)
http://www.bccdc.ca/resources/news-alerts/alerts/Oct_30_H1N1_vaccine.htm

**WORLD HEALTH ORGANIZATION (WHO)**

Global Situation Update 72, October 30, 2009:
In the northern hemisphere, influenza transmission continues to intensify marking an unusually early start to winter influenza season in some countries. In North America, the US, and parts of Western Canada continue to report high rates of ILI and numbers of pH1N1 2009 virus detections; Mexico has reported more confirmed cases since September than during the springtime epidemic. In Western Europe, high rates of ILI and proportions of respiratory specimens testing positive for pH1N1 have been observed in at least five countries. Many other countries in Europe and Western and Central Asia are showing evidence of early influenza transmission, including in Spain, Austria, parts of Northern Europe, Russia, and Turkey. In Japan, influenza activity has also increased sharply, especially on the northern island, approximately 10 weeks ahead the usual start of the winter influenza season.

**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)**

October 30, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

ECDC Weekly Influenza surveillance overview (October 30, 2009)
**HEALTH/SURVEILLANCE BULLETINS:**

**Australia**


Nationally, most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is decreasing nationally with a number of regions reporting no new notifications in the last week, indicating that the first wave of the pandemic has subsided.

**New Zealand**

**New Zealand: Weekly 43 Summary (October 19-25, 2009)**


There has been a decrease in consultations for ILI through sentinel surveillance in week 43. However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

**CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)**

**October 30, 2009: WHO experts favor single-dose H1N1 vaccine regimen.**

http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/oct3009sage.html

An expert committee that advises the WHO today updated its guidance on pH1N1 vaccines, recommending a single dose for most age-groups and advising that any of the forms are safe for pregnant women.

**October 28, 2009: Do seasonal flu shots impede little kids’ ability to fight off pandemic flu?**

http://www.google.com/hostednews/canadianpress/article/ALeqM5gJLYIRDvHWdvSLZTUQ_yymuF5rBg

Just when you thought the issue of seasonal and pandemic flu shots couldn't get any more confusing, European researchers are questioning whether it makes sense to vaccinate little kids against seasonal flu.

**October 29, 2009: Experts show benefits of IV antiviral for severe H1N1.**

http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/oct2909intravenous.html

Though only available for emergency use, intravenous (IV) antivirals peramivir and zanamivir have been lifesaving for some pandemic H1N1 patients, including two dramatic cases that doctors presented yesterday during a US CDC conference call for clinicians.

**October 29, 2009: Statins may help patients with severe seasonal flu.**

http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/oct2909idsa2.html

Commonly available drugs that are sold in lower-cost generic versions improve the survival of patients hospitalized for seasonal influenza, researchers reported today, raising the possibility of a widely available treatment that could be used in a severe flu pandemic if other drugs are in short supply.
October 28, 2009: US Student absenteeism, school closings climb. The number of students home sick with the flu and the number of school closings have been climbing steadily. By the end of last week, the number of closed schools reported by the US Department of Education reached 351, affecting 125,000 students. Officials suspected that many closing have not been reported. One especially hard-hit school was St. Charles East High in suburban Chicago, where 800 of 2,200 students were absent.
http://www.fox59.com/news/sns-ap-il--swineflu-schools,0,5088946.story

October 28, 2009: Gender-based vaccine doses suggested to boost supply. Two commentators writing in the New York Times say that using lower doses of flu vaccine in women could improve the vaccine supply without sacrificing protection. Sarah L. Klein, a Johns Hopkins immunologist, and Phyllis Greenbrier, president of the Society for Women's Health Research, point to studies in which women had a significantly stronger immune response to flu vaccines than men did. They say that besides stretching the supply, the step would reduce side effects for women.

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science
- Vaccine (added this week)

AMERICAN JOURNAL OF PUBLIC HEALTH (*Special issue, October 2009 “Influenza Preparedness and response”)

1) H1N1 Flu and the Tartar Steppe (Daniel Tarantola)
http://www.ajph.org/cgi/reprint/99/S2/S209

Abstract:
Whether the current H1N1 flu pandemic will grow to deadlier proportions, this cautionary tale reminds us of the hazards involved in scaling up a preemptive strike on a rapidly evolving viral foe.

2) A Primer on Strategies for Prevention and Control of Seasonal and Pandemic Influenza (Scott Santibañez, Anthony E. Fiore, Toby L. Merlin, and Stephen Redd)
The United States has made considerable progress in pandemic preparedness. Limited attention, however, has been given to the challenges faced by populations that will be at increased risk of the consequences of the pandemic, including challenges caused by societal, economic, and health-related factors. This supplement to the *American Journal of Public Health* focuses on the challenges faced by at-risk and vulnerable populations in preparing for and responding to an influenza pandemic. Here, we provide background information for subsequent articles throughout the supplement. We summarize (1) seasonal influenza epidemiology, transmission, clinical illness, diagnosis, vaccines, and antiviral medications; (2) H5N1 avian influenza; and (3) pandemic influenza vaccines, antiviral medications, and nonpharmaceutical interventions.


http://www.ajph.org/cgi/content/full/99/S2/S225

Abstract:
Most estimates of US deaths associated with influenza circulation have been similar despite the use of different approaches. However, a recently published estimate suggested that previous estimates substantially overestimated deaths associated with influenza, and concluded that substantial numbers of deaths during a future pandemic could be prevented because of improvements in medical care. We reviewed the data sources and methods used to estimate influenza-associated deaths. We suggest that discrepancies between the recent estimate and previous estimates of the number of influenza-associated deaths are attributable primarily to the use of different outcomes and methods. We also believe that secondary bacterial infections will likely result in substantial morbidity and mortality during a future influenza pandemic, despite medical progress.


http://www.ajph.org/cgi/content/full/99/S2/S231

Abstract:
Large-scale infectious epidemics present the medical community with numerous medical and ethical challenges. Recent attention has focused on the likelihood of an impending influenza pandemic caused by the H5N1 virus. Pregnant women in particular present policymakers with great challenges to planning for such a public health emergency. By recognizing the specific considerations needed for this population, we can preemptively address the issues presented by infectious disease outbreaks. We reviewed the important ethical challenges presented by pregnant women and highlighted the considerations for all vulnerable groups when planning for a pandemic at both the local and the national level.

5) The Open-Air Treatment of PANDEMIC INFLUENZA (*Richard A. Hobday and John W. Cason*)

http://www.ajph.org/cgi/content/full/99/S2/S236

Abstract:
The H1N1 "Spanish flu" outbreak of 1918–1919 was the most devastating pandemic on record, killing between 50 million and 100 million people. Should the next influenza pandemic prove equally virulent, there could be more than 300 million deaths globally. The conventional view is that little could have been done to prevent the H1N1 virus from spreading or to treat those infected; however, there is evidence to the contrary. Records
from an "open-air" hospital in Boston, Massachusetts, suggest that some patients and staff were spared the worst of the outbreak. A combination of fresh air, sunlight, scrupulous standards of hygiene, and reusable face masks appears to have substantially reduced deaths among some patients and infections among medical staff. We argue that temporary hospitals should be a priority in emergency planning. Equally, other measures adopted during the 1918 pandemic merit more attention than they currently receive.

**BRITISH MEDICAL JOURNAL**

1) Acceptability of A/H1N1 vaccination during pandemic phase of influenza A/H1N1 in Hong Kong: population based cross sectional survey *(Joseph T F Lau et al. October 27, 2009)*
http://www.bmj.com/cgi/content/full/339/oct27_1/b4164

Abstract:
The uptake of vaccination against influenza A/H1N1 by the general population of Hong Kong is unlikely to be high and would be sensitive to personal cost. Evidence about safety and efficacy is critical in determining the prevalence of uptake of vaccination.

2) Cases of swine flu in England almost double in a week *(Nayanah Siva October 26, 2009)*
http://www.bmj.com/cgi/content/full/339/oct26_1/b4415?q=w_pandemic_flu

Abstract:
The number of patients with swine flu who required intensive care rose to its highest level so far in the epidemic last week, with 99 patients being admitted compared with 63 at the end of July. "This is the most worrying figure we have had so far," said Liam Donaldson, chief medical officer for England.

**CANADIAN MEDICAL ASSOCIATION JOURNAL**

1) Fixing the fatal flaw in emergency planning *(Roz D. Lasker, Noni Macdonald and Paul C Hébert, October 26, 2009)*
http://www.cmaj.ca/cgi/rapidpdf/cmaj.091820v1?ijkey=5a5d779e17b1ae5bed885e5bcd99d

Abstract:
Unquestionably, emergency planners have critically important expertise for designing protective strategies. But without listening to the public, they can’t be aware of problems their plans may create.

2) Pandemic (H1N1) 2009 lives in some people for at least eight days after symptoms develop *(Laura Eggertson, October 27, 2009)*

Abstract:
The results of the study indicate that a large number of people with pandemic (H1N1) 2009 are still contagious after their fever breaks, and at least a proportion of people with the virus may be able to transmit it to others for a day or two longer than those who have seasonal influenza.

3) H1N1-related SIRS? *(Vivian C. McAlister, October 27, 2009)*
Is the development of SIRS with H1N1 a Th2 phenomenon and could it explain the susceptibility of pregnant women and Aboriginal or Mexican populations to this complication?

4) Dispensing antivirals in underserved communities (Wayne Kondro, October 27, 2009)  

Abstract:
The simplest solution, would be to have antivirals “prepositioned” within remote communities and have them distributed by a “responsible” local official who’s in telephone contact with physicians.

5) Improved flu screening needed at airports (Paul Webster, October 27, 2009)  

Abstract:  
Crafted by the Centre for Research on Inner City Health at St. Michael’s Hospital in Toronto, the report is generating praise from the World Health Organization (WHO) and led the Kingdom of Saudi Arabia to recruit its authors to help it prepare for several million pilgrims to Mecca in November.

6) Aboriginal groups seek presentation on pan-Canadian Public Health Network (Paul Webster, October 27, 2009)  

Abstract:  
Federal refusal to include Aboriginal groups in the pan-Canadian Public Health Network - the country’s main national public health advisory body — helped exacerbate pandemic (H1N1) 2009, health experts familiar with Aboriginal communities say. “They are making uninformed decisions,” says Assembly of First Nations Public Health Advisor Kim Barker, “and they don’t even know it.”

7) Local control over Aboriginal health care improves outcomes, study indicates (Paul Webster, October 27, 2009)  

Abstract:  
As officials scramble to explain why Canadian Aboriginal people are especially vulnerable to pandemic (H1N1) 2009, health scientists in Manitoba and British Columbia have compiled striking evidence that First Nations control of health care leads to better health.

8) Modelling mitigation strategies for pandemic (H1N1) 2009 (Marija Zivkovic Gojovic, B. Sand, D. Fisman, M. D Krahn, and C. Bauch, October 27, 2009)  

Abstract:  
Delays in vaccination of 30 days or more reduced the effectiveness of vaccination in lowering the attack rate. Early action, especially rapid vaccine deployment, is disproportionately effective in reducing the attack rate.

9) The H1N1 vaccine race: Can we beat the pandemic? (Paul C. Hébert and Noni MacDonald, October 27, 2009)  

Abstract:
Will we be able to immunize vulnerable populations in time? Under the current plan, the answer is “No.” Vaccines must pass a regulatory process for licensing, and Health Canada, the licensing authority, has decided to treat this virus like a new subtype rather than a variant H1N1 strain, requiring a more extensive review and a slower rollout.

10) The H1N1 vaccine plan (Elwyn Griffiths, October 27, 2009)

Abstract:
Although we are treating this vaccine as a new product, which it is, the extra work involved in the authorization was largely completed before this current pandemic was declared. Furthermore, as the regulatory review of the adjuvant has already been completed as part of the review of the H5N1 vaccine, no additional data on the adjuvant itself is being asked for by Health Canada.

11) Flu vaccination campaign poses monitoring difficulties (Roger Collier, October 27, 2009)

Abstract:
"Some people who will be getting the vaccine will have H1N1 infections or will get infected shortly after getting the vaccine, so this will complicate matters," says Dr. Perry Kendall, provincial health officer for British Columbia.

12) Should noninvasive ventilation be considered a high-risk procedure during an epidemic? (John McCracken, October 27, 2009)

Abstract:
Current infection-control policies that limit or prohibit the use of noninvasive ventilation as a high-risk intervention are based largely on supposition. Withholding the procedure under the current guidelines has the potential for considerable harm. In the face of the current influenza A (H1N1) epidemic, research is urgently needed to better inform the debate over whether noninvasive ventilation warrants classification as a high-risk procedure. Given the available evidence, the precautionary principle directs us toward the use of noninvasive ventilation during an epidemic.

CLINICAL INFECTIOUS DISEASES

1) Surfing The Web: Google Trends: A Web-Based Tool for Real-Time Surveillance of Disease Outbreaks (Herman Anthony Carneiro and Eleftherios Mylonakis, October 21, 2009)
http://www.journals.uchicago.edu/doi/pdf/10.1086/630200

Abstract:
Google Flu Trends can detect regional outbreaks of influenza 7–10 days before conventional Centers for Disease Control and Prevention surveillance systems. We describe the Google Trends tool, explain how the data are processed, present examples, and discuss its strengths and limitations. Google Trends shows great promise as a timely, robust, and sensitive surveillance system.
EMERGING INFECTIOUS DISEASES

1) Estimates of the prevalence of Pandemic (H1N1) 2009 United States, April-July 2009 (C. Reed et al., October 29, 2009) [Editor's note – first wave estimate]
http://www.cdc.gov/eid/content/15/12/pdfs/09-1413.pdf

Abstract:
Through July 2009, a total of 43,677 laboratory-confirmed cases of influenza A pandemic (H1N1) 2009 were reported in the United States, which is likely a substantial underestimate of the true number. Correcting for under-ascertainment using a multiplier model, we estimate that 1.8 million–5.7 million cases occurred, including 9,000–21,000 hospitalizations.

2) Evidence-based Tool for Triggering School Closures during Influenza Outbreaks, Japan (Asami Sasaki et al., November 2009)
http://www.cdc.gov/eid/content/15/11/1841.htm

Abstract:
Guidelines available to school administrators to support school closure decisions during influenza outbreaks are usually not evidence-based. Using empirical data on absentee rates of elementary school students in Japan, we developed a simple and practical algorithm for determining the optimal timing of school closures for control of influenza outbreaks.

3) Preexisting Immunity to Pandemic (H1N1) 2009 (Zheng Xing and Carol J. Cardona, November 2009)
http://www.cdc.gov/eid/content/15/11/1847.htm

Abstract:
Repeated exposure to seasonal influenza viruses or vaccination may have resulted in partial cell-mediated or humoral immunity to influenza virus (H5N1). The same type of immunity may have happened in persons exposed to pandemic (H1N1) 2009 virus as well.

4) Outbreak of antiviral drug-resistant Influenza A in Long-Term care facility, Illinois, USA, 2008 (N.J. Dharan et al.)
http://www.cdc.gov/eid/content/15/12/pdfs/08-1644.pdf

Abstract:
This outbreak underscores the possibility of 2 influenza A viruses, with different antiviral susceptibilities, in the same facility. During a facility outbreak of influenza, providers should consult antiviral recommendations of the Centers for Disease Control and Prevention and obtain influenza virus typing and subtyping to guide appropriate antiviral drug choices.

5) Oseltamivir-resistant Influenza A pandemic (H1N1) 2009 virus, Hong Kong China (H. Chen et al.)
http://www.cdc.gov/eid/content/15/12/pdfs/09-1057.pdf

Abstract:
Resistance to oseltamivir was observed in influenza A pandemic (H1N1) 2009 virus isolated from an untreated person in Hong Kong, China. Investigations showed a resistant virus with the neuraminidase (NA) 274Y genotype in quasi-species from a nasopharyngeal aspirate. Monitoring for the naturally occurring NA 274Y mutation in this virus is necessary.

6) Extracorporeal membrane oxygenation for pandemic (H1N1) 2009 (M. Firstenberg et al.)
http://www.cdc.gov/eid/content/15/12/pdfs/09-1434.pdf
Abstract:
We describe the successful use of ECMO in a patient with complicated pneumonia and influenza A pandemic (H1N1) 2009 virus infection.

7) Respiratory disease in adults during pandemic (H1N1) 2009 outbreak, Argentina (C. Zala and R. Gonzalez)
http://www.cdc.gov/eid/content/15/12/pdfs/09-1062.pdf

Abstract:
We observed an unexpectedly high rate of lower respiratory disease in adults with ILI during an outbreak of pandemic (H1N1) 2009 in Argentina. This finding suggests that a unique pattern of virulence, pulmonary tropism, or both may characterize the current influenza A (H1N1) infection, although we could not rule out co-infection with other viral or bacterial respiratory pathogens.

EUROSURVEILLANCE

1) In the bulletins: national updates by country
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19379

Abstract:
No Abstract available

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (JAMA)

1) Neurologic Complications Associated With Novel Influenza A (H1N1) Virus Infection in Children-Dallas, Texas, May 2009 (s.n., October 28, 2009)
http://jama.ama-assn.org/cgi/content/full/302/16/1746

Abstract:
In May 2009, the Dallas County Department of Health and Human Services notified CDC of four children with neurologic complications associated with novel influenza A (H1N1) virus infection admitted to hospitals in Dallas County, Texas, during May 18-28. This report summarizes the clinical characteristics of those four cases.

JOURNAL OF INFECTIOUS DISEASES

1) Avoiding Guillain-Barré Syndrome Following Swine Origin Pandemic H1N1 2009 Influenza Vaccination (Damon P. Eisen and Emma S. McBryde)
http://www.journals.uchicago.edu/doi/pdf/10.1086/644782

Abstract:
The demonstration that the H1N1/NJ/76 vaccine, along with other seasonal influenza vaccines, induces anti-ganglioside protein GM1 antibodies in mice is a substantial observation. Further, that the H1N1/NJ/76 vaccine hemagglutinin retained virally encoded sialic acid residues because of a relative lack of neuraminidase activity, increasing the molecular mimicry between the vaccine hemagglutinin and the monosialylated GM1, provides a biologically plausible if ultimately unproven explanation for the increase in GBS prevalence following H1N1/NJ/76 vaccination.
LANCET
-Nothing new on H1N1 this week

NATURE
- Nothing new on H1N1 this week

NEW ENGLAND JOURNAL OF MEDICINE
1) A Novel Influenza A (H1N1) Vaccine in Various Age Groups (Feng-Cai Zhu, et al. October 21, 2009)
http://content.nejm.org/cgi/content/full/NEJMoa0908535v1
Abstract:
A single dose of 15 µg of hemagglutinin antigen without alum adjuvant induces a typically protective immune response in the majority of subjects between 12 and 60 years of age. Lesser immune responses were seen after a single dose of vaccine in younger and older subjects.

2) Use of Ribavirin to Treat Influenza (Chan-Tack, K.M. et al., October 21, 2009)
http://content.nejm.org/cgi/content/full/361/17/1713
Abstract:
With the current H1N1 influenza pandemic, questions have arisen regarding the potential for ribavirin as a treatment option.

PLoS ONE
1) Fatal cases of Influenza A in childhood (Johnson, Benjamin F. et al., October 30, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007671
Abstract:
This work presents a rare insight into fatal influenza H3N2 in healthy children. It confirms that circulating seasonal influenza A H3N2 strains can cause severe disease and death in children in the apparent absence of associated bacterial infection or predisposing risk factors. This adds to the body of evidence demonstrating the burden of severe illness due to seasonal influenza A in childhood.

PLoS CURRENTS
1) Targeted vs. systematic early antiviral treatment against A(H1N1)v influenza with neuraminidase inhibitors in patients with influenza-like symptoms: Clinical and economic impact (Sylvie Deuffic-Burban et al., KNOL, October 27, 2009)
http://knol.google.com/k/sylvie-deuffic-burban/targeted-vs-systematic-early-
Abstract:
Estimate of the clinical and economic outcomes associated with early initiation of treatment with neuraminidase inhibitors in all patients with influenza-like illnesses (ILI) (systematic strategy) vs. only those at high risk of complications (targeted strategy).

SCIENCE
1) Video on egg-based vaccine production (October 28, 2009)
Abstract:
No Abstract Available

2) Quantifying the Impact of Immune Escape on Transmission Dynamics of Influenza
(Andrew W. Park et al., October 29, 2009)
http://www.sciencemag.org/cgi/content/abstract/326/5953/726?rss=1

Abstract:
Influenza virus evades prevailing natural and vaccine-induced immunity by accumulating antigenic change in the haemagglutinin surface protein. Linking amino acid substitutions in haemagglutinin epitopes to epidemiology has been problematic because of the scarcity of data connecting these scales. We use experiments on equine influenza virus to address this issue, quantifying how key parameters of viral establishment and shedding increase the probability of transmission with genetic distance between previously immunizing virus and challenge virus. Qualitatively similar patterns emerge from analyses based on antigenic distance and from a published human influenza study. Combination of the equine data and epidemiological models allows us to calculate the effective reproductive number of transmission as a function of relevant genetic change in the virus, illuminating the probability of influenza epidemics as a function of immunity.

3) The Transmissibility and Control of Pandemic Influenza A (H1N1) Virus (Yang Yang, et al., October 29, 2009)
http://www.sciencemag.org/cgi/content/abstract/326/5953/729?rss=1

Abstract:
Pandemic influenza A (H1N1) 2009 (pandemic H1N1) is spreading throughout the planet. It has become the dominant strain in the Southern Hemisphere, where the influenza season has now ended. Here, on the basis of reported case clusters in the United States, we estimated the household secondary attack rate for pandemic H1N1 to be 27.3% [95% confidence interval (CI) from 12.2% to 50.5%]. From a school outbreak, we estimated that a typical schoolchild infects 2.4 (95% CI from 1.8 to 3.2) other children within the school. We estimated the basic reproductive number, $R_0$, to range from 1.3 to 1.7 and the generation interval to range from 2.6 to 3.2 days. We used a simulation model to evaluate the effectiveness of vaccination strategies in the United States for fall 2009. If a vaccine were available soon enough, vaccination of children, followed by adults, reaching 70% overall coverage, in addition to high-risk and essential workforce groups, could mitigate a severe epidemic.

4) Hemagglutinin Receptor Binding Avidity Drives Influenza A Virus Antigenic Drift (Scott E. Hensley, et al.)
http://www.sciencemag.org/cgi/content/abstract/326/5953/734?rss=1

Abstract:
Rapid antigenic evolution in the influenza A virus hemagglutinin precludes effective vaccination with existing vaccines. To understand this phenomenon, we passaged virus in mice immunized with influenza vaccine. Neutralizing antibodies selected mutants with single–amino acid hemagglutinin substitutions that increased virus binding to cell surface glycan receptors. Passaging these high-avidity binding mutants in naïve mice, but not immune mice, selected for additional hemagglutinin substitutions that decreased cellular receptor binding avidity. Analyzing a panel of monoclonal antibody hemagglutinin escape mutants revealed a positive correlation between receptor binding avidity and escape from polyclonal antibodies. We propose that in response to variation in neutralizing antibody pressure between individuals, influenza A virus evolves by adjusting receptor binding avidity
via amino acid substitutions throughout the hemagglutinin globular domain, many of which simultaneously alter antigenicity.

**VACCINE**

1) SIP 5: Social distancing during a pandemic: not sexy, but sometimes effective: social distancing and non-pharmaceutical interventions (Ferguson, Nicol and Schwartz, October 23, 2009)


Abstract:
Under some scenarios the timely introduction of appropriate NPIs could reduce the infection rate from 80% to 50% and the clinical attack rate from 40% to 25%.
CENTRE FOR DISEASE CONTROL (CDC)

November 09, 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 43 (October 25-31, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Preparing for the Flu: A Communication Toolkit for Community and Faith-based Organizations (November 06, 2009)
http://www.cdc.gov/h1n1flu/faithbased/

People at High Risk of Developing Flu-Related Complications (November 03, 2009)
http://www.cdc.gov/h1n1flu/highrisk.htm

2009 H1N1 and People with Asthma (November 04, 2009)
http://www.cdc.gov/H1N1flu/asthma/

CDC Interim Guidance for Workers who are Employed at Commercial Swine Farms: Preventing the Spread of Influenza A Viruses, Including the 2009 H1N1 Virus (November 3, 2009)
http://www.cdc.gov/h1n1flu/guidelines_commerical_settings_with_pigs.htm

CDC Health Alert Network (HAN) Info Service Message: Key Issues for Clinicians Concerning Antiviral Treatments for 2009 H1N1 (November 06, 2009)
http://www.cdc.gov/H1N1flu/HAN/110609.htm

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 43 (October 25-31, 2009)
http://www.phac-aspc.gc.ca/fluwatch/09-10/w43_09/index-eng.php
Nationally, there was a considerable increase in the influenza activity level reported this week with the proportion of positive influenza tests of more than 35%, the national ILI consultation rate higher than 100 per 1,000 visits and over 700 influenza outbreaks reported. This increased activity occurred in almost all provinces and territories.
Deaths Associated with Influenza A (H1N1) as of November 05, 2009
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

Mass Immunization Clinics in Remote and Isolated Communities (November 04, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/mass_vacc/index-eng.php

Addendum – Guidance for Use of Panvax ™ H1N1 Vaccine (Unadjuvanted) (November 04, 2009)

Guidance for Preparedness and Management of ILI, including pH1N1 2009, in Residential Facilities in Remote and Isolated Communities (November 04, 2009)
This guidance document has been prepared to provide guidance to facility managers and planners on preparing for and managing outbreaks of ILI, including pH1N1 2009 in residential facilities (e.g. personal care homes, group homes, women’s shelters, homeless shelters, correctional institutions, and addictions facilities) in remote and isolated communities.

Weekly Distribution of H1N1 Flu Vaccine (November 05, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/dist-eng.php

Guidance: Infection prevention and control measures for Health Care Workers Providing Care or Service in the Home (November 05, 2009)

Assembly of First Nations and Health Canada to Co-host a Virtual Summit on H1N1 Preparedness November 10th, 2009 (November 6, 2009)

ONTARIO

Overall, influenza activity in Ontario during week 43, 2009, was higher as compared to week 42. The rate of ILI in patients seen by sentinel physicians was much higher than the range that is expected for this time of the year based on the average ILI rate reported in week 43 from the past 3 years.

Do you or your Child have the flu? Self-Assessment Tool (November 1, 2009)

Flu Assessment Centres Updated (November 4, 2009)
Clinics Updated (November 5, 2009)

Business Continuity Planning for Primary Care Settings (November 4, 2009)

Guidance in Child Care Settings (November 4, 2009)

Important Health Notice (IHN): Information for Family Physicians pH1N1- Primary Health Care Services and Supports (November 02, 2009)


**BC CENTER FOR DISEASE CONTROL (BC CDC):**

BC CDC: H1N1 flu virus update (October 30, 2009)
http://www.bccdc.ca/resourcemat...healhtalerts/2009HealthAlerts/Oct_30_H1N1_vaccine.htm

Weekly BC Pandemic H1N1 Surveillance Report Week 43 (October 25-31, 2009)
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

**WORLD HEALTH ORGANIZATION (WHO):**

Global Situation Update73, November 1, 2009

Intense and persistent influenza transmission continues to be reported in North America without evidence of a peak in activity. The proportion of sentinel physician visits due to ILI (8%) has exceeded levels seen over the past 6 influenza seasons; 42% of respiratory samples tested were positive for influenza and 100% of sub-typed influenza A viruses were pandemic H1N1 2009. Rates of ILI, proportions of respiratory samples testing positive for influenza, and numbers of outbreaks in educational settings continues to increase sharply in Canada as activity spreads eastward. Significantly more cases of pandemic H1N1 have been recorded in Mexico since September than were observed during the initial springtime epidemic.

**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC):**

November 9, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

ECDC Weekly Influenza surveillance overview (November 06, 2009)
http://ecdc.europa.eu/en/publications/Publications/091106_EISN_Weekly_Influenza_Surveillance_Ove...
HEALTH/SURVEILLANCE BULLETINS:

Australia

Australia Influenza Surveillance Summary Report, No. 24, 2009, reporting period: October 17-23 2009 (October 23, 2009)
Nationally, most jurisdictions have reported that pandemic H1N1 2009 activity has decreased peaked and is decreasing nationally with a number of regions reporting no new notifications in the last week, indicating that the first wave of the pandemic has subsided.

New Zealand

New Zealand: Weekly 44 Summary (October 26-01, 2009)
There has been a decrease in consultations for ILI through sentinel surveillance in week 44. However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

Saudis to begin mass flu vaccinations as hajj nears (Nov 2, 2009)
http://www.google.com/hostednews/afp/article/ALeqM5iCMtbr8Vh4wV9o79q6Siju7ZKKg
Studies reaffirm 2 vaccine doses in kids, show safety in pregnant women (Nov 2, 2009)
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/nov0209vaccine-jw.html
Obesity risk stands out in study of California’s sickest H1N1 patients (Nov 3, 2009)
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/nov0309california-br.html
Germany approves cell-based pandemic vaccine (Nov 5, 2009)
WHO warns countries not to underestimate pandemic virus (Nov 5, 2009)
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/nov0509global-jw.html
Infection of farmed animals with the pandemic virus (Nov 6, 2009)
HHS Orders Intravenous Antiviral Flu Medication to Help Patients Hospitalized with 2009 H1N1 (Nov 6, 2009)
http://www.cidrap.umn.edu/
Pandemic flu keeps strong grip on US (Nov 6, 2009)
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/nov0609flustatus.html
JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of the American Medical Association JAMA (added this week)
- Journal of Infectious Diseases
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents

AMERICAN JOURNAL OF PUBLIC HEALTH

- Nothing new on H1N1 this week

BRITISH MEDICAL JOURNAL

1) Number of swine flu patients going into intensive care is rising (Nayanah Siva, November 3, 2009)
http://www.bmj.com/cgi/content/full/339/nov02_2/b4528

Abstract
In the week to 28 October 157 of 751 hospitalised patients with the illness (21%) had to go into intensive care, up from 63 of 840 patients (7.5%) in the last week of July, when the epidemic reached a peak before the school holidays began.

CANADIAN MEDICAL ASSOCIATION JOURNAL

- Nothing new on H1N1 this week

CLINICAL INFECTIOUS DISEASES

- Nothing new on H1N1 this week

EMERGING INFECTIOUS DISEASES

1) Respiratory Infection in Institutions during Early Stages of Pandemic (H1N1) 2009, Canada (Alex Marchand-Austin, D. J. Farrell, F. B. Jamieson, N. Lombardi, E. Lombos, S. Narang, H. Akwar, D. E. Low, and J. B. Gubbay)
http://www.cdc.gov/eid/content/15/12/pdfs/09-1022.pdf

Abstract
Outbreaks of respiratory infection in institutions in Ontario, Canada were studied from April 20 to June 12, 2009, during the early stages of influenza A pandemic (H1N1) 2009. Despite widespread presence of influenza in the general population, only 2 of 83 outbreaks evaluated by molecular methods were associated with pandemic (H1N1) 2009.
2) Pandemic Influenza as 21st Century Urban Public Health Crisis (David M. Bell et al., November 5, 2009)  
http://www.cdc.gov/eid/content/15/12/pdfs/09-1232.pdf

Abstract
Crowded urban areas in developing and industrialized countries are uniquely vulnerable to public health crises and face daunting challenges in surveillance, response, and public communication. The revised International Health Regulations require all countries to have core surveillance and response capacity by 2012. Innovative approaches are needed because traditional local-level strategies may not be easily scalable upward to meet the needs of huge, densely populated cities, especially in developing countries. The responses of Mexico City and New York City to the initial appearance of influenza A pandemic (H1N1) 2009 virus during spring 2009 illustrate some of the new challenges and creative response strategies that will increasingly be needed in cities worldwide.

3) Genomic Signatures of Influenza A Pandemic (H1N1) 2009 Virus (Guang-Wu Chen and Shin-Ru Shih, November 5, 2009)  
http://www.cdc.gov/eid/content/15/12/pdfs/09-0845.pdf

Abstract
Adaptive mutations that have contributed to the emergence of influenza A pandemic (H1N1) 2009 virus, which can replicate and transmit among humans, remain unknown. We conducted a large-scale scanning of influenza protein sequences and identified amino acid–conserving positions that are specific to host species, called signatures. Of 47 signatures that separate avian viruses from human viruses by their nonglycoproteins, 8 were human-like in the pandemic (H1N1) 2009 virus. Close examination of their amino acid residues in the recent ancestral swine viruses of pandemic (H1N1) 2009 virus showed that 7 had already transitioned to human-like residues and only PA 356 retained an avian-like K; in pandemic (H1N1) 2009 virus, this residue changed into a human-like R. Signatures that separate swine viruses from human viruses were also present. Continuous monitoring of these signatures in nonhuman species will help with influenza surveillance and with evaluation of the likelihood of further adaptation to humans.

4) Cost-effectiveness Analysis of Hospital Infection Control Response to an Epidemic Respiratory Virus Threat (Yock Young Dan, et al., November 5, 2009)  
http://www.cdc.gov/eid/content/15/12/pdfs/09-0902.pdf

Abstract:
The outbreak of influenza A pandemic (H1N1) 2009 prompted many countries in Asia, previously strongly affected by severe acute respiratory syndrome (SARS), to respond with stringent measures, particularly in preventing outbreaks in hospitals. We studied actual direct costs and cost-effectiveness of different response measures from a hospital perspective in tertiary hospitals in Singapore by simulating outbreaks of SARS, pandemic (H1N1) 2009, and 1918 Spanish influenza. Protection measures targeting only infected patients yielded lowest incremental cost/death averted of $23,000 (US$) for pandemic (H1N1) 2009. Enforced protection in high-risk areas (Yellow Alert) and full protection throughout the hospital (Orange Alert) averted deaths but came at an incremental cost of up to $2.5 million/death averted.

EUROSURVEILLANCE

1) Surveillance of the first 205 confirmed hospitalised cases of pandemic H1N1 influenza in Ireland, 28 April-3 October 2009 (G Cullen, et al., November 5, 2009)  
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19389
Abstract:
From 28 April 2009 to 3 October 2009, 205 cases of confirmed pandemic H1N1 influenza were hospitalised in Ireland. Detailed case-based epidemiological information was gathered on all hospitalised cases. Age-specific hospitalisation rates were highest in the age group of 15 to 19 year-olds and lowest in those aged 65 years and over. Nineteen hospitalised cases (9%) were admitted to intensive care units (ICU) where the median length of stay was 24 days. Four hospitalised cases (2%) died. Fifty-one percent of hospitalised cases and 42% of ICU cases were not in a recognised risk group. Asthma was the most common risk factor among cases; however, people with haemoglobinopathies and immunosuppression were the most over-represented groups.

2) Measures against transmission of pandemic H1N1 influenza in Japan in 2009: simulation model (H Yasuda, K Suzuki, November 5, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19385

Abstract:
The first outbreak of pandemic H1N1 influenza in Japan was contained in the Kansai region in May 2009 by social distancing measures. Modelling methods are needed to estimate the validity of these measures before their implementation on a large scale. We estimated the transmission coefficient from outbreaks of pandemic H1N1 influenza among school children in Japan in summer 2009; using this transmission coefficient, we simulated the spread of pandemic H1N1 influenza in a virtual community called the virtual Chuo Line which models an area to the west of metropolitan Tokyo. Measures evaluated in our simulation included: isolation at home, school closure, post-exposure prophylaxis and mass vaccinations of school children. We showed that post-exposure prophylaxis combined with isolation at home and school closure significantly decreases the total number of cases in the community and can mitigate the spread of pandemic H1N1 influenza, even when there is a delay in the availability of vaccine.

3) Interpreting “Google Flu Trends” data for pandemic H1N1 influenza: The New Zealand experience (N Wilson, November 5, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19386

Abstract:
For the period of the spread of pandemic H1N1 influenza in New Zealand during 2009, we compared results from Google Flu Trends with data from existing surveillance systems. The patterns from Google Flu Trends were closely aligned with (peaking a week before and a week after) two independent national surveillance systems for influenza-like illness (ILI) cases. It was much less congruent with (delayed by three weeks) data from ILI-related calls to a national free-phone Healthline and with media coverage of pandemic influenza. Some patterns were unique to Google Flu Trends and may not have reflected the actual ILI burden in the community. Overall, Google Flu Trends appears to provide a useful free surveillance system but it should probably be seen as supplementary rather than as an alternative.

http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19388

Abstract:
Within I-MOVE (European programme to monitor seasonal and pandemic influenza vaccine effectiveness (IVE)) five countries conducted IVE pilot case-control studies in 2008-9. One
hundred and sixty sentinel general practitioners (GP) swabbed all elderly consulting for influenza-like illness (ILI). Influenza confirmed cases were compared to influenza negative controls. We conducted a pooled analysis to obtain a summary IVE in the age group of ≥65 years. We measured IVE in each study and assessed heterogeneity between studies qualitatively and using the I2 index. We used a one-stage pooled model with study as a fixed effect. We adjusted estimates for age-group, sex, chronic diseases, smoking, functional status, previous influenza vaccinations and previous hospitalisations. The pooled analysis included 138 cases and 189 test-negative controls. There was no statistical heterogeneity (I2=0) between studies but ILI case definition, previous hospitalisations and functional status were slightly different. The adjusted IVE was 59.1% (95% CI: 15.3-80.3%). IVE was 65.4% (95% CI: 15.6-85.8%) in the 65-74, 59.6% (95% CI: -72.6 -90.6%) in the age group of ≥75 and 56.4% (95% CI: -0.2-81.3%) for A(H3). Pooled analysis is feasible among European studies. The variables definitions need further standardisation. Larger sample sizes are needed to achieve greater precision for subgroup analysis. For 2009-10, I-MOVE will extend the study to obtain early IVE estimates in groups targeted for pandemic H1N1 influenza vaccination.

5) Influenza-like illness surveillance using a deputising medical service corresponds to surveillance from sentinel general practices (M Coory, K Grant, H Kelly, November 5, 2009) http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19387

Abstract:
Standard sources of data for influenza surveillance include notifications of laboratory-confirmed cases and notifications from sentinel general practices. These data are not always available in a timely fashion, leading to proposals to use more immediate data sources such as over-the-counter drug sales, ambulance call-outs and web searches to monitor influenza-like illness (ILI). We aimed to assess data from a deputising medical service as another source of data for timely syndromic influenza surveillance. We measured the extent of agreement between the weekly percentage of patients with ILI reported from sentinel general practices and the corresponding weekly percentage reported from a deputising medical service in Victoria, Australia over ten years, from 1999 to 2008. There was good agreement between the two data sources, with suitably narrow limits of agreement. The deputising medical service did not use a standardised definition of ILI and is not supplemented by laboratory confirmation of suspected cases. Nevertheless, the results of this study show that such data can provide low cost and timely ILI surveillance.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

1) Surgical Mask vs N95 Respirator for Preventing Influenza Among Health Care Workers: A Randomized Trial (Mark Loeb et al., November 3, 2009) http://jama.ama-assn.org/cgi/content/full/302/17/1865

Abstract:
Given the likelihood that N95 respirators will be in short supply during a pandemic and not available in many countries, knowing the effectiveness of the surgical mask is of public health importance. Among nurses in Ontario tertiary care hospitals, use of a surgical mask compared with an N95 respirator resulted in noninferior rates of laboratory-confirmed influenza.

2) Critically Ill Patients With 2009 Influenza A(H1N1) Infection in Canada (Anand Kumar et al., November 3, 2009) http://jama.ama-assn.org/cgi/content/full/302/17/1872
Critical illness due to 2009 influenza A(H1N1) in Canada occurred rapidly after hospital admission, often in young adults, and was associated with severe hypoxemia, multisystem organ failure, a requirement for prolonged mechanical ventilation, and the frequent use of rescue therapies.

3) Critically Ill Patients With 2009 Influenza A(H1N1) in Mexico (Guillermo Domínguez-Cherit et al., November 3, 2009)
http://jama.ama-assn.org/cgi/content/full/302/17/1880

Abstract:
Critical illness from 2009 influenza A(H1N1) in Mexico occurred in young individuals, was associated with severe acute respiratory distress syndrome and shock, and had a high case-fatality rate.

4) Extracorporeal Membrane Oxygenation for 2009 Influenza A(H1N1) Acute Respiratory Distress Syndrome (The Australia and New Zealand Extracorporeal Membrane Oxygenation (ANZ ECMO) Influenza Investigators, November 3, 2009)
http://jama.ama-assn.org/cgi/content/full/302/17/1888

Abstract:
During June to August 2009 in Australia and New Zealand, the ICUs at regional referral centers provided mechanical ventilation for many patients with 2009 influenza A(H1N1)–associated respiratory failure, one-third of whom received ECMO. These ECMO-treated patients were often young adults with severe hypoxemia and had a 21% mortality rate at the end of the study period.

JOURNAL OF INFECTIOUS DISEASES
- Nothing new on H1N1 this week

MORBIDITY AND MORTALITY REPORT (MMWR)

1) Introduction and Transmission of 2009 Pandemic Influenza A (H1N1) Virus - Kenya, June-July 2009 (October 23, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5841a1.htm

Abstract:
Surveillance activities in Kenya detected four separate introductions of the virus into the country. The introductions provided an opportunity to study transmission of the virus (including calculation of secondary household attack rates) in a virus-naive population that had not yet initiated the use of antiviral drugs. This report describes the four introductions and the accompanying analysis.

NEW ENGLAND JOURNAL OF MEDICINE (NEJM)

1) Emergency Use Authorization of Peramivir for Treatment of 2009 H1N1 (Debra Birnkrant, and Edward Cox, November 2, 2009)
http://content.nejm.org/cgi/content/full/NEJMp0910479?query=TOC

Abstract:
The FDA determined that despite the limited data on efficacy and safety, the criteria for an EUA for peramivir had been met for the treatment of certain patients hospitalized with known or suspected 2009 H1N1 influenza. Specifically, it is reasonable to believe that peramivir may be effective in patients with the pandemic virus on the basis of the limited
results available from trials in patients with seasonal influenza. Furthermore, the serious, and potentially fatal, nature of the disease observed to date in patients who have been hospitalized because of 2009 H1N1 influenza infection and the lack of alternative treatment options (i.e., an intravenous antiviral agent with activity against influenza) for many of these patients led to issuance of the EUA for peramivir.

2) Mandatory Vaccination of Health Care Workers (Alexandra M. Stewart, November 4, 2009)
http://content.nejm.org/cgi/content/full/NEJMp0910151?query=TOC

Abstract:
Certainly, courts must take into account Constitutional guarantees of personal autonomy, freedom of contract, and freedom of religion when reviewing the current lawsuits. These rights, however, have been constrained when they conflict with government measures that are intended to protect the community's health and safety. Health care workers have a profound effect on patients' health. Although they have the same rights as all private citizens, it is likely that courts will continue to make the health and safety of patients the priority in permitting exceptions to individual rights.

3) Novel H1N1 Influenza and Respiratory Protection for Health Care Workers (Kenneth I. Shine, Bonnie Rogers, and Lewis R. Goldfrank, November 5, 2009)
http://content.nejm.org/cgi/content/full/361/19/1823?query=TOC

Abstract:
The IOM committee has recommended that current CDC guidelines for respiratory protection be maintained. (see www.cdc.gov/h1n1flu/guidelines_infection_control.htm.) Until more data are available, the committee recommends that clinicians reach for the N95 respirator when confronting patients with influenza-like illnesses, particularly in enclosed spaces.

PLOs ONE

1) Novel pandemic influenza A (H1N1) viruses are potently inhibited by DAS181, a Sialidase fusion protein (Gallen B. Triana-Baltzer, et al., November 6, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007788

Abstract:
Resistance to antivirals can be a formidable problem as evidenced by the currently widespread oseltamivir- and adamantane-resistant seasonal influenza A viruses (IFV). Additional antiviral approaches with novel mechanisms of action are needed to combat novel and resistant influenza strains. DAS181 (Fludase™) is a sialidase fusion protein in early clinical development with in vitro and in vivo preclinical activity against a variety of seasonal influenza strains and highly pathogenic avian influenza strains (A/H5N1). Here, we use in vitro, ex vivo, and in vivo models to evaluate the activity of DAS181 against several pandemic influenza A(H1N1) viruses.

2) Inhibition of neuraminidase inhibitor-resistant influenza virus by DAS181, a novel Sialidase fusion protein (Gallen B. Triana-Baltzer, et al., November 6, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007838

Abstract:
DAS181 (Fludase®), a sialidase fusion protein, has been shown to have inhibitory activity against a large number of seasonal influenza strains and a highly pathogenic avian
influenza (HPAI) strain (H5N1). Here, we examine the in vitro activity of DAS181 against a panel of 2009 oseltamivir-resistant seasonal H1N1 clinical isolates.

3) Inducible costimulator expression regulates the magnitude of Th2-mediated airway inflammation by regulating the number of Th2 cells (Bryan S. Clay et al. (November 4, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007525

Abstract:
Inducible Costimulator (ICOS) is an important regulator of Th2 lymphocyte function and a potential immunotherapeutic target for allergy and asthma. A SNP in the ICOS 5′ promoter in humans is associated with increased atopy and serum IgE in a founder population and increased ICOS surface expression and Th2 cytokine production from peripheral blood mononuclear cells. However, it is unknown if increased ICOS expression contributes to disease progression or is a result of disease pathology.

PLOs CURRENTS

1) Knol: Antiviral usage for H1N1 treatment: pros, cons and an argument for broader prescribing guidelines in the United States (Edward Goldstein, Marc Lipsitsch, October 31, 2009)
http://knol.google.com/k/edward-goldstein/antiviral-usage-for-h1n1-treatment-

Abstract:
In the current situation in the US, with an elevated and evidently growing burden of influenza hospitalizations and mortality, a high percentage of individuals infected with influenza (with almost all of those carrying the H1N1pdm strain) among those who exhibit ILI and get tested for influenza virus, very low levels of antiviral resistance and little time left for antiviral resistance to take off before large quantities of vaccine become available, we think it is worthwhile to consider a revision to the current antiviral usage recommendations, such that physicians would be encouraged to consider prescribing antivirals to individuals with moderate to severe symptoms who present for treatment.

2) Knol: Rapid Development of an Efficacious Swine Vaccine for Novel H1N1 (Ryan Vander Veen et al., October 31, 2009)
http://knol.google.com/k/ryan-vander-veen/rapid-development-of-an-

Abstract:
Recombinant hemagglutinin (HA) from a novel H1N1 influenza strain was produced using an alphavirus replicon expression system. The recombinant HA vaccine was produced more rapidly than traditional vaccines, and was evaluated as a swine vaccine candidate at different doses in a challenge model utilizing the homologous influenza A/California/04/2009 (H1N1) strain. Vaccinated animals showed significantly higher specific antibody response, reduced lung lesions and viral shedding, and higher average daily gain when compared to non-vaccinated control animals.

3) Knol: Mining the NCBI Influenza Sequence Database: adaptive grouping of BLAST results using precalculated neighbor indexing (Leonid Zaslavsky and Tatiana Tatusova, November 1, 2009)
http://knol.google.com/k/leonid-zaslavsky/mining-the-ncbi-influenza-
**Abstract:**
The Influenza Virus Resource and other Virus Variation Resources at NCBI provide enhanced visualization web tools for exploratory analysis for influenza sequence data. Despite the improvements in data analysis, the initial data retrieval remains unsophisticated, frequently producing huge and imbalanced datasets due to the large number of identical and nearly-identical sequences in the database. We propose a data mining algorithm to organize reported sequences into groups based on their relatedness to the query sequence and to each other.

4) Knol: Quantifying the transmissibility of human influenza and its seasonal variation in temperate regions (James Truscott et al., November 3, 2009)
http://knol.google.com/k/james-truscott/quantifying-the-transmissibility-

**Abstract:**
These results give some insight into the extent to which transmissibility of the H1N1pdm pandemic virus may increase in Northern Hemisphere temperate countries in winter 2009. We find that the timescale for waning of immunity to current circulating seasonal influenza strain is between 4 and 8 years, consistent with studies of the antigenic variation of influenza, and that inter-subtype cross-immunity is restricted to low levels.
GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

November 13, 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 44 (November 1-7, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

H1N1: Resources for Tribal and Territorial Health Officials (November 16, 2009)
http://www.cdc.gov/h1n1flu/statelocal/tribalandterritorial.htm

2009 H1N1 Flu information for people with disability and their caregivers or personal assistants (November 16, 2009)
http://www.cdc.gov/h1n1flu/disabilities/

Interim Infection Control Guidance on 2009 H1N1 Influenza for Personnel at Blood and Plasma Collection Facilities (November 12, 2009)
http://www.cdc.gov/h1n1flu/guidance/blood_facilities.htm

2009 H1N1 and People with Diabetes (November 12, 2009)
http://www.cdc.gov/h1n1flu/diabetes/

Interim Guidance: Considerations Regarding 2009 H1N1 Influenza in Intrapartum and Postpartum Hospital Settings (November 10, 2009)
http://www.cdc.gov/h1n1flu/guidance/obstetric.htm

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 44 (November 1-7, 2009)
http://www.phac-aspc.gc.ca/fluwatch/09-10/w44_09/index-eng.php
Nationally, there was a considerable increase in the influenza activity level reported this week with a proportion of positive influenza tests of more than 38%, the national ILI consultation rate of almost 100 per 1,000 patient visits, 25 regions reporting widespread activity and over 750 influenza outbreaks reported. This increased activity occurred in almost all provinces and territories.
Deaths Associated with Influenza A (H1N1) as of November 12, 2009
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

Weekly Distribution of the H1N1 Vaccine (November 15, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/dist-eng.php

Health Canada Approves a Canadian Unadjuvanted H1N1 Flu Vaccine (November 13, 2009)

Update: H1N1 Flu Vaccine: One Dose Recommendations Changes for children 3-9 years (November 13, 2009)

ONTARIO

Ontario Influenza Bulletin 2009-2010, Surveillance Week 44 (November 1-7, 2009)
Overall, influenza activity in Ontario during week 44, 2009, was similar compared to week 43. All of the measures indicate that influenza activity is similar in week 44 compared to week 43. This is the first week that the overall assessment has not increased since week 38.

MOHLTC IHN: pH1N1 Access to Supplies & Equipment (November 12, 2009)

MOHLTC IHN: pH1N1 Information for Health Care providers (November 4, 2009)

Ontario to Offer H1N1 Vaccine to children 13 and under and Seniors with Underlying Health Conditions (November 13, 2009)

Flu Assessment Centres Updated (November 13 2009)

Ontario Expands H1N1 Vaccination Program (November 10, 2009)

MOHLTC: Ambulatory Care Settings Guidance Document (Version 2, Nov 13, 2009)

MOHLTC: Pre-Hospital Settings Guidance Document (Version 2, Nov 13, 2009)

MOHLTC: Long-Term Care Setting Guidance Document (Version 2, Nov13, 2009)


BC CENTER FOR DISEASE CONTROL (BC CDC):

BC CDC: H1N1 flu virus update (November 10, 2009)
http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/2009HealthAlerts/H1N1FluVirusHumanSwineFlu.htm

Weekly BC Pandemic H1N1 Surveillance Update as of November 7, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

WORLD HEALTH ORGANIZATION (WHO)

Global Situation Update74, November 13, 2009
The winter influenza season, which began unusually early across much of the Northern Hemisphere, shows early signs of peaking in parts of North America but is intensifying across much of Europe and Central and Eastern Asia. Canada reported sharp increases in rates of ILI, detections of pandemic H1N1 virus, and school outbreaks over the past three weeks as pandemic activity continues to spread west to east. In the US, influenza transmission remains geographically widespread and intense but largely unchanged since the previous reporting week; rates of hospitalizations among persons aged 0-4 years, 5-17 years, and 18-49 years have now exceeded those seen during recent previous influenza seasons. Disease activity may have peaked in the earlier affected southern and south eastern parts of the United States. In Mexico, influenza activity remains geographically widespread with a significant wave of cases reported since early September, most notably from central and southern Mexico.

Interim planning considerations for mass gatherings in the context of pandemic (H1N1) 2009 influenza (November 2009)

Weekly Epidemiological Record on pandemic (H1N1) 2009 (Nov 13, 2009)
EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

November 13, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

ECDC Weekly Influenza surveillance overview (November 16, 2009)

HEALTH/SURVEILLANCE BULLETINS:

Australia

Australia Influenza Surveillance Summary Report, No. 24, 2009, reporting period: October 17-23 2009 (October 23, 2009)

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

Research Study Profiles Aussi Hospital Cases (Nov 16, 2009)

Disparity between H1N1 and seasonal flu deaths explored (Nov 15, 2009)
http://chealth.canoe.ca/channel_health_news_details.asp?channel_id=1020&relation_id=71452&news_channel_id=1020&news_id=29487

Public Buy-in crucial in H1N1 response (Nov 15 2009)
http://www.informaworld.com/smpp/content~content=a916397252~db=all

CDC urges pneumococcal vaccine for risk groups (Nov 10, 2009)
http://www.cdc.gov/h1n1flu/vaccination/provider/lettertoprovider.htm/?rss

GBS reported in a boy who received H1N1 vaccine (Nov 11, 2009)
http://www.msnbc.msn.com/id/33845867/ns/health-cold_and_flu

Hispanics in Texas hit hard by H1N1
http://www.chron.com/disp/storympl/hotstories/6718072.html

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of the American Medical Association JAMA (added this week)
• Journal of Infectious Diseases
• MMWR
• Nature
• New England Journal of Medicine
• PLoS One
• PLoS Currents
• Science

AMERICAN JOURNAL OF PUBLIC HEALTH
- Nothing new on H1N1 this week

BRITISH MEDICAL JOURNAL
1) Reassure pregnant women over swine flu vaccine, health officials urge (Jacqui Wise, November 9, 2009)
http://www.bmj.com/cgi/content/full/339/nov09_1/b4642

Abstract:
The department has developed a question and answer sheet to support GPs in their consultations with pregnant women who may be anxious about the new vaccine

2) New pandemic flu guidelines: don’t forget your oximeter (Tom Nolan, November 13, 2009)

Abstract:
New guidelines on the management of pandemic H1N1 influenza were published recently by the Department of Health.

CANADIAN MEDICAL ASSOCIATION JOURNAL
1) Management of acute asthma in adults in the emergency department: assisted ventilation (Hodder Rick et al., November 9, 2009)
http://www.cmaj.ca/cgi/rapidpdf/cmaj.080073v1?ijkey=2569914ce1a4ef7cfdddb8ad12543

Abstract:
Noninvasive ventilation should be used only for selected patients with acute asthma, only in an acute care area and only by experienced personnel. A modified rapid-sequence technique should be used for intubation in acute asthma. Deep sedation, with doses of opioids sufficient to depress the respiratory drive and occasionally use of pharmacologic paralysis, is recommended during the initial period of invasive mechanical ventilation for acute asthma. The initial ventilator set-up for acute asthma should minimize the risk of worsening dynamic hyperinflation. Initial controlled mechanical hypoventilation allowing “permissive” hypercapnia is recommended for acute, potentially fatal asthma requiring mechanical ventilation.

CLINICAL INFECTIOUS DISEASES
-Nothing new on H1N1 this week

EMERGING INFECTIOUS DISEASES
1) [letter] Preexisting immunity to pandemic H1N1 2009 (Z Xing and Carol J. Cardona, November 15, 2009)
http://www.cdc.gov/eid/content/15/11/1847.htm
Abstract:
We found that repeated exposure to seasonal influenza viruses or vaccination may have resulted in partial cell-mediated or humoral immunity to influenza virus (H5N1). The same type of immunity may have happened in persons exposed to pandemic (H1N1) 2009 virus as well.

2) [letter] Serologic survey of pandemic (H1N1) 2009 virus, Guangxi province, China (H. Chen et al., November 15, 2009)
http://www.cdc.gov/eid/content/15/11/1849.htm

Abstract:
We hypothesize that the absence of neutralizing antibodies in our control group, all of whom had been vaccinated 3 times, suggests that prolonged and repeated vaccination is required for partial immunity to CA04 or that older vaccines may confer some degree of protection. If these serologic differences are indicative of increased susceptibility, we would expect higher infection attack rates in largely unvaccinated populations than in vaccinated populations in countries such as China.

3) [letter] Antiviral drugs for treatment of patients infected with pandemic (H1N1) 2009 virus (D.M. Hartley et al., November 15, 2009)
http://www.cdc.gov/eid/content/15/11/1851.htm

Abstract:
Appropriate use of antiviral chemotherapy is complex. Identifying the groups at high risk for serious illness for drug therapy and appropriate antiviral therapy in situations of co-circulation of seasonal and pandemic (H1N1) viruses with various susceptibility patterns needs elucidation. Without clear evidence-based guidance, a global public health disaster could occur if pandemic (H1N1) 2009 reemerges later this year with higher virulence or widespread antiviral drug resistance.

EUROSURVEILLANCE
1) A simple mathematical approach to deciding the dosage of vaccine against pandemic H1N1 influenza (H Nishiura, K Iwata, November 12, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19396

Abstract:
Results from early clinical trials have shown that a single dose of pandemic H1N1 influenza vaccine may generate sufficient antibody response, but the relevance of this fact to public health decision making has yet to be clarified. The present study compares the risk of clinical attack (i.e. clinical attack rate) between one- and two-dose vaccination schemes. If the efficacies do not greatly vary between one- and two-dose schemes, one-dose vaccination may well be supported. Nevertheless, two-dose vaccination is shown to result in less morbidity if the vaccine efficacies are greatly diminished by reducing the dose. As long as the detailed efficacy estimates rest on theoretical assumptions, single-dose vaccination may only be sufficiently justified in a specific setting where the number of vaccines is extremely limited.

2) Pandemic influenza A(H1N1)v: Human to pig transmission in Norway? (M Hofshagen et al., November 12, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19406
Abstract:
In Norway there is an ongoing outbreak in pigs of infections with pandemic influenza A(H1N1)v virus. The first herd was confirmed positive on 10 October 2009. As of 26 October, a total of 23 herds have been diagnosed as positive. The majority of the herds seem to have been infected by humans. Sequence analysis of pig viruses from the index farm shows that they are identical or virtually identical to human viruses from the same geographical region.

3) Assessing the impact of the 2009 H1N1 influenza pandemic on reporting of other threats through the Early Warning and Response System (Cox, P Guglielmetti, D Coulombier, November 12, 2009)  
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19397

Abstract:
Since the start of 2009 H1N1 influenza pandemic, a notable surge in messages communicated through the Early Warning and Response System (EWRS) for the prevention and control of communicable diseases in the European Union has been recorded. In order to measure the impact of this increase on the reporting of other events, we compared the messages posted in the EWRS since April 2009 with those posted in the previous years (2004-2008). The analysis revealed that a ten-fold increase in messages was recorded during the pandemic period, from April to September 2009, and that the reporting of other threats dropped to a significantly low rate. These results suggest an important impact on the notification process of events in case of a situation requiring extensive mobilisation of public health resources. It emphasises the importance keeping an appropriate balancing of resources during sustained emergencies, in particular in view of a possible second wave of pandemic influenza cases, to ensure prompt detection and reporting of potential concomitant emerging threats.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (added this week)

1) Prone Positioning in Patients With Moderate and Severe Acute Respiratory Distress Syndrome: A Randomized Controlled Trial (Paolo Taccone et al., November 10, 2009)  
http://jama.ama-assn.org/cgi/content/full/302/18/1977

Abstract:
Post hoc analysis of a previous trial has suggested that prone positioning may improve survival in patients with severe hypoxemia and with acute respiratory distress syndrome (ARDS). Data from this study indicate that prone positioning does not provide significant survival benefit in patients with ARDS or in subgroups of patients with moderate and severe hypoxemia.

2) [Report on previous MMWR] Performance of Rapid Influenza Diagnostic Tests During Two School Outbreaks of 2009 Pandemic Influenza A (H1N1) Virus Infection-Connecticut, 2009  
http://jama.ama-assn.org/cgi/content/full/302/18/1962

Abstract:
This report summarizes the findings from the performance assessment, which indicated that, compared with rRT-PCR, the sensitivity of the RIDT for detecting infection in patients with 2009 pandemic influenza A (H1N1) was 47%, and the specificity was 86%.

http://jama.ama-assn.org/cgi/content/full/302/18/1964
CDC analyzed data from the Pregnancy Risk Assessment and Monitoring System (PRAMS) from Georgia and Rhode Island, the two states that collected this information on the PRAMS survey. This report summarizes the results, which showed that in Georgia, the prevalence of influenza vaccination during the woman's most recent pregnancy increased from 10.4% in 2004 to 15.5% in 2006. In Rhode Island, vaccination prevalence increased from 21.9% in 2004 to 33.4% in 2007.

**JOURNAL OF INFECTIOUS DISEASES**

1) Reassortment between Amantadine-resistant and -sensitive H1N1 influenza A viruses generated an Amantadine-sensitive virus during the 2007-2008 season (Yuki Furuse, et al., December 1, 2009)
http://www.journals.uchicago.edu/doi/pdf/10.1086/647989

Abstract:
Here, we show that cocirculation of amantadine-resistant and -sensitive strains led to the genesis of amantadine-sensitive reassortant virus during the 2007–2008 season. Thereafter, the reassortant virus predominated. This contrasts with the trend for the H3N2 virus, in which the amantadine-resistant reassortant virus became predominant. The results suggest that it is necessary to monitor genome dynamics to understand the evolution and mechanism of the emergence and spread of antiviral resistance among influenza A viruses.

2) Efficient transmission of swine-adapted but not wholly avian influenza viruses among pigs and from pigs to ferrets (Annabel de Vleeschauwer et al., December 1, 2009)
http://www.journals.uchicago.edu/doi/pdf/10.1086/648475

Abstract:
Pigs are considered to be intermediate hosts for the transmission of avian influenza viruses (AIVs) between birds and humans, but the transmissibility of AIVs among pigs and from pigs to other mammals remains largely unexplored. Our data indicate that swine-adapted influenza viruses spread readily among pigs and from pigs to other susceptible mammals and support the notion that AIVs undergo genetic adaptation to efficiently cross the species barrier. Our transmission models hold potential to study the factors that lead to the generation of pandemic influenza viruses.

**MORBIDITY AND MORTALITY REPORT (MMWR)**

1) Effectiveness of 2008-09 Trivalent Influenza Vaccine Against 2009 Pandemic Influenza A (H1N1) - United States, May-June 2009
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5844a5.htm?s_cid=mm5844a5_x

Abstract:
To complement the serologic studies and evaluate the effectiveness of 2008--09 trivalent seasonal influenza vaccine against laboratory-confirmed pandemic influenza A (H1N1) illness, CDC used available data to conduct a case-cohort analysis.

**NEW ENGLAND JOURNAL OF MEDICINE**

1) [Letter] Emergence of Oseltamivir-Resistant Pandemic H1N1 Virus during Prophylaxis (Mariana Baz et al., November 12, 2009)
http://content.nejm.org/cgi/content/full/NEJMc0910060v1
Our results indicate that the same neuraminidase mutation (H275Y) is associated with oseltamivir resistance not only in seasonal H1N1 and avian H5N1 viruses but now also in 2009 pandemic H1N1 strains. We hypothesize that the presence of subtherapeutic levels of oseltamivir at a time when viral replication had already begun was an important factor that led to the emergence of the resistant virus in the father of our index patient. Other oseltamivir-resistant strains of 2009 H1N1 virus detected during postexposure prophylaxis have been reported to the World Health Organization.

2) Critical Care Services and 2009 H1N1 Influenza in Australia and New Zealand (The ANZIC Influenza Investigators, November 12, 2009)
http://content.nejm.org/cgi/content/full/361/20/1925

Abstract:
The 2009 H1N1 virus had a substantial effect on ICUs during the winter in Australia and New Zealand. Our data can assist planning for the treatment of patients during the winter in the Northern Hemisphere.

3) Hospitalized Patients with 2009 H1N1 Influenza in the United States, April-June 2009 (Seema Jain et al., November 12, 2009)
http://content.nejm.org/cgi/content/full/361/20/1935

Abstract:
We describe the clinical characteristics of patients who were hospitalized with 2009 H1N1 influenza in the United States from April 2009 to mid-June 2009. During the evaluation period, 2009 H1N1 influenza caused severe illness requiring hospitalization, including pneumonia and death. Nearly three quarters of the patients had one or more underlying medical conditions. Few severe illnesses were reported among persons 65 years of age or older. Patients seemed to benefit from antiviral therapy.

4) Cross-Reactive Antibody Responses to the 2009 Pandemic H1N1 Influenza Virus (Kathy Hancock, et al., November 12, 2009)
http://content.nejm.org/cgi/content/full/361/20/1945

Abstract:
To assess the level of preexisting immunity in humans and to evaluate seasonal vaccine strategies, we measured the antibody response to the pandemic virus resulting from previous influenza infection or vaccination in different age groups. Vaccination with recent seasonal nonadjuvanted or adjuvanted influenza vaccines induced little or no cross-reactive antibody response to 2009 H1N1 in any age group. Persons under the age of 30 years had little evidence of cross-reactive antibodies to the pandemic virus. However, a proportion of older adults had preexisting cross-reactive antibodies.

5) Preparing for 2009 H1N1 Influenza (Richard P. Wenzel, M.D., and Michael B. Edmond, November 12, 2009)
http://content.nejm.org/cgi/content/full/361/20/1991

Abstract:
In this issue of the Journal, two studies shed light on the clinical characteristics of patients who have been hospitalized with 2009 H1N1 influenza and on the resources that have been needed in ICUs to manage the pandemic.
6) [Letter] Older Age and a Reduced Likelihood of 2009 H1N1 Virus Infection (D. Fisman, R. Savage, J. Gubbay, C. Achonu, H. Akwar, D. J. Farrell, N. S. Crowcroft, P. Jackson., November 12, 2009)
http://content.nejm.org/cgi/content/full/361/20/2000

Abstract:
Among persons who were at risk for infection with 2009 H1N1 virus, being born before 1957 was associated with a lower infection risk. The reduced number of infections was not simply a reflection of decreased testing in this group. The mechanism for this association is unclear but is compatible with the reported age-related increase in the prevalence of neutralizing antibody titers against the 2009 H1N1 virus and may reflect some immunity to infection as a result of exposure to similar viruses in early life. Maximally effective host immune responses to influenza may be generated by early-life infections. These findings are consistent with the high frequency of outbreaks of 2009 H1N1 influenza in schools and the decreased frequency of outbreaks in long-term care facilities that have been associated with this pandemic virus to date.

7) [Letter] Pathological Changes Associated with the 2009 H1N1 Virus (M. Virgilia Soto-Abraham et al., November 12, 2009)
http://content.nejm.org/cgi/content/full/361/20/2001

Abstract:
Between April 23, 2009, and May 15, 2009, we performed 15 autopsies on deceased patients in whom probable influenza had been diagnosed either clinically or macroscopically. … These observations may represent an early stage of an acute pulmonary lesion that had not yet transitioned from the exudative phase to the proliferative phase.

PLOs ONE

1) Incidence, seasonality and mortality associated with influenza pneumonia in Thailand: 2005-2008 (Simmerman, James Mark et al.)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007776

Abstract:
Data on the incidence, seasonality and mortality associated with influenza in subtropical low and middle income countries are limited. Prospective data from multiple years are needed to develop vaccine policy and treatment guidelines, and improve pandemic preparedness.

PLOs CURRENTS

1) [Knol] Optimizing tactics for use of the U.S. antiviral strategic national stockpile for pandemic (H1N1) influenza, 2009 (Dimitrox, Nedialko et al., November 7, 2009)
http://knol.google.com/k/optimizing-tactics-for-use-of-the-u-s-antiviral-strategic-national-stockpile?collectionId=28qm4w0q65e4w.1&position=2#

Abstract:
Public health agencies across the globe are working to mitigate the impact of the 2009 pandemic caused by swine-origin influenza A (H1N1) virus. Prior to the large-scale distribution of an effective vaccine, the primary modes of control have included careful surveillance, social distancing and hygiene measures, strategic school closures, other community measures, and the prudent use of antiviral medications to prevent infection (prophylaxis) or reduce the severity and duration of symptoms (treatment). Here, we use mathematical models to determine the optimal geo-temporal tactics for distributing the U.S. strategic national stockpile of antivirals for treatment of infected cases during the early stages of a pandemic, prior to the wide availability of vaccines.
2) [Knol] Public preparedness guidance for a severe influenza pandemic in different countries: a qualitative assessment and critical overview (Wladimir J. Alonzo & Cynthia Schuck Paim, November 10, 2009)
http://knol.google.com/k/public-preparedness-guidance-for-a-severe-influenza-pandemic-in-different?collectionid=28qm4w0q65e4w.1&position=1#

Abstract:
During a severe influenza pandemic individuals and families can, by following well-directed and scientifically-based measures, not only benefit themselves but also play an effective role in reducing transmission rates and the burden on public services. Such guidelines should be provided as clearly and comprehensively as possible by official sources. Here we examine the official recommendations issued by 10 countries to prepare their citizens for a severe pandemic. We have found the presence of hazardous guidelines – as the advice to personally visit a health center at the earliest symptoms – and shortage of practical advices for home isolation, business preparation and treatment to be widespread. Our review shows that, while many positive recommendations were provided, the set of recommendations issued by most countries was not comprehensive enough for severe influenza scenarios. This is a situation that needs revision.

SCIENCE

1) Sick of Swine Flu? Here Comes H3N2 (Jon Cohen With reporting by Martin Enserink., November 5, 2009)

Abstract:
The H3N2 strain is one of three in the seasonal influenza vaccines. But if the H3N2 strain in circulation differs substantially from the one used to make the vaccine, the vaccine may offer less protection, and more people will get sick than usual. "For the current H3N2, we don't have such studies, so I can't tell you right now the degree the current seasonal vaccine will protect against the H3N2 virus," Fukuda says. However, some early indicators from China suggest that the main H3N2 in circulation there may be a mismatch with the vaccine strain.
GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

November 20, 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 45 (November 8-14, 2009), influenza activity decreased slightly in the US, however the proportion of outpatient visits for ILI was above the national baseline.

H1N1: State, local, tribal and territorial health officials (November 19, 2009)
http://www.cdc.gov/h1n1flu/statelocal/

Updated Guidance for the Use of CSL™ 2009 H1N1 Monovalent Vaccine (November 19, 2009)
http://www.cdc.gov/H1N1flu/vaccination/csl Guidance.html

H1N1 influenza Vaccine- Dose spacing for children 6 months through 9 years of age (November 20, 2009)
http://www.cdc.gov/h1n1flu/vaccination/pdf/Dose_Spacing_for_Children_6_months_to_9_years_111909_v1_3.pdf

H1N1 influenza Vaccine- Administration with Seasonal Influenza and other Vaccines (November 20, 2009)
http://www.cdc.gov/h1n1flu/vaccination/pdf/Administration_with_Sea sonal_Influenza_and_Other_Vaccines_111909_v1.3.pdf

H1N1 influenza Vaccine- Dose spacing and administration with seasonal influenza and other vaccines (November, 20 2009)
http://www.cdc.gov/h1n1flu/vaccination/pdf/Dose_Spacing_Seasonal_and_Other_Vaccines_111909_v1_3.pdf

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 45 (November 8-14, 2009)
http://www.phac-aspc.gc.ca/fluwatch/09-10/w45_09/index-eng.php
Nationally, the activity level reported this week remained similar to the previous week. While the number of hospitalizations and deaths still increased, the proportion of positive influenza tests was comparable and the national ILI consultation rate and the number of influenza outbreaks reported decrease.
Deaths Associated with Influenza A (H1N1) as of November 19, 2009
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php

The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

Weekly Distribution of the H1N1 Vaccine (November 22, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/dist-eng.php

Recommended Safe Work Practices for Flight Catering Operators and their Staff (November 17, 2009)

Recommended disinfection procedures for conveyance (aircraft, passenger trains, ferries, buses and cruise ships) and Terminal (airport, cruise ship, bus, ferry and train) operators and their staff (November 17, 2009)

Public Health Guidance for the Prevention and Management of ILI including pH1N1 virus, related to Communal Living Settings (November 19, 2009)

Guidance on the Use of the H1N1 flu Vaccines (November 20, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/monovacc/index-eng.php

Ontario

Ontario Influenza Bulletin 2009-2010, Surveillance Week 45 (November 8-14, 2009)

Overall, influenza activity in Ontario is lower compared to the previous week. All of the measures indicate that influenza activity is lower in week 45 to week 44.

Frequently asked questions for health care providers (November 20, 2009)

H1N1 Flu Virus- Signage for Ambulatory Settings (November 16, 2009)

Ontarians have not been given any of batch A80CA0074 of H1N1 Flu vaccine (November 19, 2009)

**BC CENTER FOR DISEASE CONTROL (BC CDC):**

BC CDC: H1N1 flu virus update (November 17, 2009)
http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/2009HealthAlerts/H1N1FluVirusHumanSwineFlu.htm

Weekly BC Pandemic H1N1 Surveillance Update as of November 16, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

**WORLD HEALTH ORGANIZATION (WHO)**

Global Situation Update 75, November 20, 2009
The situation remains similar since the last update. In the northern hemisphere, the early arriving winter influenza season continues to intensify across parts of North America and much of Europe. However, there are early signs of a peak in disease activity in some areas of the northern hemisphere. In the United States, influenza transmission remains active and geographically widespread, although disease activity appears to have recently peaked in most areas except in the northeastern United States. In Canada, influenza transmission continues to intensify without a clear peak in activity; the ILI consultation rate, which has been highest among children aged 5-19, continues to significantly exceed mean rates observed over the past 12 influenza seasons.

Weekly Epidemiological Record on pandemic (H1N1) 2009 Ontario, Canada (November 20, 2009)

Public health significance of virus mutation detected in Norway (November 20, 2009)

Safety of Pandemic Vaccines (November 19, 2009)

**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)**

November 20, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

ECDC Weekly Influenza surveillance overview (November 20, 2009)

ECDC Protocols for case-control studies to measure influenza vaccine effectiveness in the EU and EEA Member States (November 17, 2009)

ECDC Protocols for cohort database studies to measure influenza vaccine effectiveness in the EU and EEA member states (November 2009)
HEALTH/SURVEILLANCE BULLETINS:

Australia
Australia Influenza Surveillance Summary Report, No. 27, 2009, reporting period: November 7-13 2009 (November 13, 2009)

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)
Clusters of resistant H1N1 cases reported in UK and US (November 20, 2009)

Study spotlights asthma risk in kids (November 19, 2009)
http://www.cmaj.ca/cgi/content/abstract/cmaj.091724v1

Analysis reveals two genetic clusters of H1N1 viruses (November 19, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19409

Novartis Vaccine may protect with half the dose (November 17, 2009)

Study: H1N1 doesn’t readily infect poultry (November 16, 2009)
http://www.cdc.gov/eid/content/15/12/pdfs/09-1060.pdf

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science
- Virology Journal (new this week)

AMERICAN JOURNAL OF PUBLIC HEALTH
- Nothing new on H1N1 this week
1) WHO recommends early antiviral treatment for at risk groups with suspected swine flu (John Zarocostas, November 13, 2009)

http://www.bmj.com/cgi/content/full/339/nov13_2/b4831?utm_source=feedburner&utm_

Abstract:
People in groups at high risk of complications—such as pregnant women, children under 2 years old, and people with underlying medical conditions—and who are suspected of having swine flu should be treated promptly with antiviral drugs, the World Health Organization said on 12 November. The updated clinical management guidelines were announced amid an upsurge in cases of pandemic flu in some countries in Europe and Asia. Previously, WHO guidance focused on how to treat severe cases and limited use of antivirals because of poor access to the drugs in some regions. But experience of the virus has taught doctors the importance of early treatment to prevent progression of severe diseases, said Nikki Shindo, a WHO specialist in the clinical aspects of flu.

2) Deaths from swine flu in UK rise, while cases fall / Andrew Cole (November 13, 2009)

http://www.bmj.com/cgi/content/full/339/nov13_2/b4832?utm_source=feedburner&utm_

Abstract:
Sir Liam Donaldson said that 28 people with swine flu died in the week to 9 November. The cumulative total of deaths across the UK is now 182: 124 in England, 33 in Scotland, 14 in Wales, and 11 in Northern Ireland. In contrast to the patterns seen with seasonal flu, 60% of the deaths from swine flu that have been fully investigated have been in people under the age of 45 and only 19% in people aged over 65.

3) The economy-wide impact of pandemic influenza on the UK: a computable general equilibrium modelling experiment (Richard D Smith et al., November 19, 2009)

http://www.bmj.com/cgi/content/full/339/nov19_1/b4571?utm_source=feedburner&utm_

Abstract:
A computable general equilibrium model of the UK economy was specified for various combinations of mortality and morbidity from pandemic influenza, vaccine efficacy, school closures, and prophylactic absenteeism using published data. The costs related to illness alone ranged between 0.5% and 1.0% of gross domestic product (£8.4bn to £16.8bn) for low fatality scenarios, 3.3% and 4.3% (£55.5bn to £72.3bn) for high fatality scenarios, and larger still for an extreme pandemic. School closure increases the economic impact, particularly for mild pandemics. If widespread behavioural change takes place and there is large scale prophylactic absence from work, the economic impact would be notably increased with few health benefits. Vaccination with a pre-pandemic vaccine could save 0.13% to 2.3% of gross domestic product (£2.2bn to £38.6bn); a single dose of a matched vaccine could save 0.3% to 4.3% (£5.0bn to £72.3bn); and two doses of a matched vaccine could limit the overall economic impact to about 1% of gross domestic product for all disease scenarios.

4) Andrew Rouse and Tom Marshall: Informed consent, the doctor and H1N1 immunisation (Juliet Walker, November 17, 2009)


Abstract:
How does a doctor obtain informed consent for H1N1 immunisation consistent with General Medical Council guidance? The Department of Health’s guidance does not provide sufficient information for this. This is our attempt to rectify this omission, providing information required for informed consent consistent with good professional practice. We outline the main principles of General Medical Council on the responsibilities of doctors in seeking informed consent into practical guidance.
**CANADIAN MEDICAL ASSOCIATION JOURNAL**

1) Alberta obtains standby ventilators from federal stockpile (Laura Eggertson, November 11, 2009)  

**Abstract:**
Canada’s provinces are starting to tap the federal stockpile of reserve ventilators as they struggle to cope with the strain being placed on intensive care units by pandemic (H1N1) 2009.

**CLINICAL INFECTIOUS DISEASES**

http://www.journals.uchicago.edu/doi/pdf/10.1086/648424

**Abstract:**
Influenza A virus subtype H1N1 with the H274Y mutation spread worldwide during the period 2008–2009. Fever lasted significantly longer after oseltamivir therapy than after zanamivir therapy for H1N1 during the period 2008–2009. The effectiveness of oseltamivir in treating H1N1 infection has reduced significantly.

2) Notes from the Field: Outbreak of 2009 Pandemic Influenza A (H1N1) Virus at a Large Public University in Delaware, April–May 2009 (A. Danielle Iuliano, et al., November 12, 2009)  
http://www.journals.uchicago.edu/doi/pdf/10.1086/649555

**Abstract:**
We investigated the first reported university outbreak of 2009 pandemic influenza A (pH1N1) virus infection. The health system was overwhelmed with a rapid increase in visits and 24 confirmed cases. Travel to Mexico and participation in “Greek Week” were associated with virus spread on campus.

http://www.journals.uchicago.edu/doi/pdf/10.1086/649013

**Abstract:**
Maternal influenza immunization is a cost-effective intervention against both seasonal and pandemic influenza. This finding justifies ongoing efforts to maximize maternal immunization among this vulnerable patient population.

4) Oseltamivir Resistance: What Does It Mean Clinically? (Stephen G. Baum, November 13, 2009)  
http://www.journals.uchicago.edu/doi/pdf/10.1086/648425

**Abstract:**
Resistance to oseltamivir has emerged in many countries during the past few years. In Japan, resistance rates have skyrocketed from 3% during the 2008–2009 influenza season to 98%–100% during the 2008–2009 season.

**EMERGING INFECTIOUS DISEASES**

1) Susceptibility of Poultry to Pandemic (H1N1) 2009 Virus (Swayne DE et al., November 16, 2009)  
http://www.cdc.gov/eid/content/15/12/pdfs/09-1060.pdf
Pandemic (H1N1) 2009 virus is unlikely to produce sustained outbreaks in poultry unless the virus mutates or reassorts with existing avian influenza viruses. Since the submission of this report, the virus has been detected in 2 turkey flocks in Chile (www.oie.int/wahis/public.php?page=single_report&pop=1&reportid=8404). Currently, only limited data are available, and it is unknown if pandemic (H1N1) 2009 has changed and acquired the ability to infect and transmit in turkeys or if the 2 cases are isolated events without epidemic potential in turkeys.

EUROSURVEILLANCE

1) Differentiation of two distinct clusters among currently circulating influenza A(H1N1)v viruses, March-September 2009 (S R Fereidouni et al., November 19, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19409

Abstract:
Analysis of all complete genome sequences of the pandemic influenza A(H1N1)v virus available as of 10 September 2009 revealed that two closely related but distinct clusters were circulating in most of the affected countries at the same time. The characteristic differences are located in genes encoding the two surface proteins - haemagglutinin and neuraminidase - and four internal proteins – the polymerase PB2 subunit, nucleoprotein, matrix protein M1 and the non-structural protein NS1. Phylogenetic inference was demonstrated by neighbour joining, maximum likelihood and Bayesian trees analyses of the involved genes and by tree construction of concatenated sequences.

2) Oseltamivir-resistant influenza A(H1N1) viruses detected in Europe during season 2007-8 had epidemiologic and clinical characteristics similar to co-circulating susceptible A(H1N1) viruses (B C Ciancio et al., November 19, 2009)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19412

Abstract:
During the 2007-08 influenza season, high levels of oseltamivir resistance were detected among influenza A(H1N1) viruses in a number of European countries. We used surveillance data to describe influenza A(H1N1) cases for whom antiviral resistance testing was performed. We pooled data from national studies to identify possible risk factors for infection with a resistant virus and to ascertain whether such infections led to influenza illness of different severity. Information on demographic and clinical variables was obtained from patients or their physicians. Odds ratios for infection with an oseltamivir resistant virus and relative risks for developing certain clinical outcomes were computed and adjusted through multivariable analysis. Overall, 727 (24.3%) of 2,992 tested influenza A(H1N1) viruses from 22 of 30 European countries were oseltamivir-resistant. Levels of resistance ranged from 1% in Italy to 67% in Norway. Five countries provided detailed case-based data on 373 oseltamivir resistant and 796 susceptible cases. By multivariable analysis, none of the analysed factors was significantly associated with an increased risk of infection with an oseltamivir-resistant virus. Similarly, infection with an oseltamivir-resistant virus was not significantly associated with a different risk of pneumonia, hospitalisation or any clinical complication. The large-scale emergence of oseltamivir-resistant viruses in Europe calls for a review of guidelines for influenza treatment.

JOURNAL OF INFECTIOUS DISEASES

-Nothing new on H1N1 this week

LANCET

-Nothing new on H1N1 this week
**MMWR**

- Nothing new on H1N1 this week

**NATURE**

- Nothing new on H1N1 this week

**NEW ENGLAND JOURNAL OF MEDICINE**

1) Rapid-Test Sensitivity for Novel Swine-Origin Influenza A (H1N1) Virus in Humans (Christopher C. Blyth, Jonathan R. Iredell, and Dominic E. Dwyer, November 18, 2009)

http://content.nejm.org/cgi/content/full/NEJMc0909049?query=TOC

Abstract:
We found that the antigen tests had poor sensitivity to the virus when used in a subgroup of 21 patients in the Australian intensive care cohort with severe 2009 influenza A (H1N1) virus infection and acute lung injury that required mechanical ventilation. In these patients, rapid antigen tests (QuickVue A+B, Quidel) were performed on swabs from the nose and throat, and influenza type-specific immunofluorescent antigen assays (Chemicon, Millipore) were performed on bronchoscopic specimens. In all 21 patients, RT-PCR testing (AusDiagnostics), performed on specimens from both the upper and lower respiratory tracts, had been used to confirm infection with the virus.

2) Antiviral Treatment for Patients Hospitalized with 2009 Pandemic Influenza A (H1N1) (Tim Uyeki, November 18, 2009)

http://h1n1.nejm.org/?p=1188&query=TOC

Abstract:
Controlled trials conducted among outpatients with uncomplicated seasonal influenza reported a reduction of approximately 1 day in the duration of illness and reduced severity when antiviral treatment was initiated within 48 hours of illness onset, as compared with placebo. However, evidence from observational studies supports the benefit of neuraminidase inhibitors (oseltamivir or zanamivir) in reducing complications, including deaths, among hospitalized patients with 2009 pandemic influenza A (H1N1).

**PLoS ONE**

1) Evolutionary Trends of A(H1N1) Influenza Virus Hemagglutinin Since 1918 (Jun Shen, Jianpeng Ma, Qinghua Wang, November 17, 2009)

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007789

Abstract:
As the primary immunity-eliciting antigen, hemagglutinin (HA) is the major agent for host-driven antigenic drift in A(H3N2) virus. However, whether and how the evolution of HA is influenced by existing immunity is poorly understood for A(H1N1). Here, by analyzing hundreds of A(H1N1) HA sequences since 1918, we show the first evidence that host selections are indeed present in A(H1N1) HAs. Among a subgroup of human A(H1N1) HAs between 1918~2008, we found strong diversifying (positive) selection at HA1 156 and 190. We also analyzed the evolutionary trends at HA1 190 and 225 that are critical determinants for receptor-binding specificity of A(H1N1) HA. Different A(H1N1) viruses appeared to favor one of these two sites in host-driven antigenic drift: epidemic A(H1N1) HAs favor HA1 190 while the 1918 pandemic and swine HAs favor HA1 225. Thus, our results highlight the urgency to understand the interplay between antigenic drift and receptor binding in HA evolution, and provide molecular signatures for monitoring future antigenically drifted 2009 pandemic and seasonal A(H1N1) influenza viruses.
PLoS Currents

1) Knol: The Early Transmission Dynamics of H1N1pdm Influenza in the United Kingdom (Asra Ghani et al., November 20, 2009)
http://knol.google.com/k/azra-ghani/the-early-transmission-dynamics-of/51duu

Abstract:
We analyzed data on all laboratory-confirmed cases of H1N1pdm influenza in the UK to 10th June 2009 to estimate epidemiological characteristics. We estimated a mean incubation period of 2.05 days and serial interval of 2.5 days with infectivity peaking close to onset of symptoms. Transmission was initially sporadic but increased from mid-May in England and from early June in Scotland. We estimated 37% of transmission occurred in schools, 24% in households, 28% through travel abroad and the remainder in the wider community. Children under 16 were more susceptible to infection in the household (adjusted OR 5.80, 95% CI 2.99-11.82). Treatment with oseltamivir plus widespread use of prophylaxis significantly reduced transmission (estimated reduction 16%). Households not receiving oseltamivir within 3 days of symptom onset in the index case had significantly increased secondary attack rates (adjusted OR 3.42, 95% CI 1.51-8.55).

2) Knol: Estimate of Novel Influenza A/H1N1 cases in Mexico at the early stage of the pandemic with a spatially structured epidemic model (Vittoria Colizza et al., November 18, 2009)

Abstract:
Reliable figures for the actual number of cases is the key to the estimate of parameters such as the mortality, morbidity or hospitalization rates that are on their turn crucial in the policy making process. A paramount example of this issue is provided by the worries caused by the early estimate of the fatality rate of the current H1N1 pandemic from the Mexican data. As it turned out later, this number was inflated because the confirmed cases of infections were grossly underestimated in Mexico.

Science
- Nothing new on H1N1 this week

Virology Journal (new this week)

http://www.virologyj.com/content/6/1/198

Abstract:
We hypothesize that the genomic strand of segment 8 of encodes a novel influenza A virus protein. The persistence and conservation of this genomic strand ORF for almost a century in human influenza A viruses provides strong evidence that it is translated into a polypeptide that enhances viral fitness in the human host. This has important consequences for the interpretation of experiments that utilize mutations in the NS1 and NEP genes of segment 8 and also for the consideration of events that may alter the spread and/or pathogenesis of swine and avian influenza A viruses in the human population.
**CENTRE FOR DISEASE CONTROL (CDC)**

November 27, 2009: CDC H1N1 Flu Surveillance Update.  
[http://www.cdc.gov/h1n1flu/update.htm](http://www.cdc.gov/h1n1flu/update.htm)


Map includes both seasonal flu and H1N1 flu activity. During week 45 (November 15-21, 2009), influenza activity decreased slightly in the US, however the proportion of outpatient visits for ILI was above the national baseline.

**CDC Guidance for Emergency Shelters for the 2009-2010 Flu Season (November 24, 09)  
[http://www.cdc.gov/h1n1flu/guidance/emergencyshelters.htm](http://www.cdc.gov/h1n1flu/guidance/emergencyshelters.htm)**

This document provides interim guidance specific for U.S.-based emergency shelters used by displaced persons during a natural or man-made disaster during the 2009-10 influenza (“flu”) season. This document provides guidance to reduce the risk of introducing and transmitting both seasonal and 2009 H1N1 flu in these settings. This document is intended for use by federal, state, local, and tribal jurisdictions in the United States. It should be used in conjunction with existing shelter operation and management plans, procedures, guidance, resources, and systems.

**PUBLIC HEALTH AGENCY OF CANADA (PHAC)**

**FluWatch Week 46 (November 15-21, 2009)**  

Nationally, the activity level reported this week decreased compared to the previous week. All influenza indicators declined during week 46. A possible epidemic peak has been reached by all provinces and territories. The Pandemic (H1N1) 2009 strain accounted for nearly 100% of the positive influenza A subtyped specimens this week.

**Deaths Associated with Influenza A (H1N1) as of November 26, 2009**  

The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

**Weekly Distribution of the H1N1 Vaccine (November 28, 2009)**  
Overall, influenza activity in Ontario is lower compared to the previous week. All of the measures indicate that influenza activity is lower in week 46 to week 45.

MOHLTC Guidance Document for Group Home Settings (November 26, 2009)


BC CENTER FOR DISEASE CONTROL (BC CDC):

BC CDC: H1N1 flu virus update (November 24, 2009)
http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/2009HealthAlerts/H1N1FluVirusHumanSwineFlu.htm

Weekly BC Pandemic H1N1 Surveillance Update as of November 23, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

WORLD HEALTH ORGANIZATION (WHO)

Global Situation Update 76, November 27, 2009
In temperate regions of the northern hemisphere, the early arriving winter influenza season continues to be intense across parts of North America and much of Europe. In North America, the Caribbean islands and a limited number of European countries there are signs that disease activity peaked. In the US and Canada, influenza transmission remains very active and geographically widespread. In the United States, disease activity appears to have peaked in all areas of the country. In Canada, influenza activity remains similar but number of hospitalizations and deaths is increasing. Most countries in the Caribbean haveILI and SARI levels coming down.

WHO- Travel Frequently Asked Questions (November 27, 2009)

WHO addresses mutation, antiviral resistance issues (Nov 26, 2009)
http://www.yomiuri.co.jp/dy/national/20091124TDY03303.htm

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

November 27, 2009: ECDC Daily Update, Pandemic (H1N1) 2009
Executive Summary of Pandemic Influenza (H1N1) (November 30, 2009)

Mass gatherings during H1N1 2009 pandemic- an example of Hajj event (November 25, 2009)

HEALTH/SURVEILLANCE BULLETINS:

AUSTRALIA

Australia Influenza Surveillance Summary Report, No. 27, 2009, reporting period: November 7-13 2009 (November 13, 2009)

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

CDC: Flu activity eases, but deaths still climb
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/nov3009national-br.html

CDC estimates case-fatality rate (CFR) for pandemic H1N1 flu so far is 0.018%
http://www.publichealthreports.org/interactive/webcast.cfm

Alaska finds ethnic differences in patients

CDC warns about rise in serious pneumococcal disease
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/nov2509pneumonia.html

Japan reports flu-related brain swelling
http://www.yomiuri.co.jp/dy/national/20091124TDY03303.htm

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
-Nothing new on H1N1 this week

BRITISH MEDICAL JOURNAL
-Nothing new on H1N1 this week

CANADIAN MEDICAL ASSOCIATION JOURNAL
1) Letter: Who is conflicted about handwashing? (Bonnie Henry et al., November 24, 2009)

Abstract:
Debate re: role of hand hygiene.

2) Letter: Pandemic flu buddy system (Thomas Ungar, November 24, 2009)

Abstract:
Physician coverage (2 step process) when ill with influenza.

CLINICAL INFECTIOUS DISEASES
-Nothing new on H1N1 this week

EMERGING INFECTIOUS DISEASES
1) Laboratory surge response to pandemic (H1N1) 2009 outbreak, New York City metropolitan area, USA (Crawford JM et al., November 25, 2009)
http://www.cdc.gov/eid/content/16/1/pdfs/09-1167.pdf

Abstract:
The influenza A pandemic (H1N1) 2009 outbreak began in this area on April 24, 2009, and within weeks respiratory virus testing increased 7.5×. In response, laboratory and client service workforces were increased, physical plant build-out was completed, testing paradigms were converted from routine screening tests and viral culture to a high-capacity molecular assay for respiratory viruses, laboratory information system interfaces were built, and same-day epidemiologic reports were produced. Daily review by leadership of data from emergency rooms, hospital facilities, and the Health System Laboratories enabled real-time management of unfolding events. The ability of System laboratories to rapidly increase to high-volume comprehensive diagnostics, including influenza A subtyping, provided key epidemiologic information for local and state public health departments.

2) Epidemiology of travel-associated pandemic (H1N1) 2009 infection in 116 patients, Singapore (Mukherjee P, et al., November 25, 2009)
http://www.cdc.gov/eid/content/16/1/pdfs/09-1376.pdf

Abstract:
To understand how travel patterns affected the initial outbreak, we examined epidemiologic and travel data for the first 116 case-patients admitted to Tan Tock Seng Hospital, Singapore, with travel-associated infection. Sixty-one percent and 54% of patients, respectively, met US Centers
for Disease Control and Prevention and World Health Organization temperature criteria for influenza-like illness. One fourth of the case-patients traveled after illness onset, and 15% became ill while traveling. Regions of exposure for imported infections changed rapidly; case-patients initially arrived from North America, followed by Australasia and Southeast Asia. Case-patients on longer flights were more likely to become ill before arrival; those with shorter flights tended to become ill after arrival. Thermal scanners detected fevers in 12% of the arriving case-patients, resulting in a shorter time to isolation.

**EUROSURVEILLANCE**

- Nothing new on H1N1 this week

**JOURNAL OF INFECTIOUS DISEASES**

-Nothing new on H1N1 this week

**LANCET**

-Nothing new on H1N1 this week.

**MMWR**

-Nothing new on H1N1 this week

**NATURE**

-Nothing new on H1N1 this week

**NEW ENGLAND JOURNAL OF MEDICINE**

1) Australia’s winter with the 2009 pandemic Influenza A (H1N1) virus (J.F. Bishop, Mary P. Murnane, and Rhonda Owen, November 26, 2009)

http://content.nejm.org/cgi/content/full/NEJMp0910445?query=TOC

**Abstract:**

Key lessons so far from this experience in an unprotected population suggest that important elements of the response were a national coordination of efforts and the use and modification of the national pandemic plan framework, focusing on persons who were most at risk. The spread of the epidemic occurred earlier in some geographic locations than in others, which created challenges (such as implementing the school closure policy) in terms of maintaining a coordinated national approach to the epidemic. This challenge was addressed in part by holding regular meetings of the cross-jurisdictional Australian Health Protection Committee. Public messages regarding the public health response used the names of the phases of the pandemic plan, including "Delay," "Contain," and "Protect," which may have helped the public to take appropriate personal action and reduce the impact of the virus on our population.

2) The emotional epidemiology of H1N1 Influenza vaccination (D. Ofri, November 26, 2009)

http://content.nejm.org/cgi/content/full/NEJMp0911047?query=TOC

**Abstract:**

The irony was painful. No matter how often I trotted out the statistics of 30,000 to 40,000 annual deaths from influenza, the patients would not be moved. So when they demanded the H1N1 vaccine last spring, I reminded them of their reluctance over the seasonal flu shot. "Oh, that's different," they said. Six months have passed. Flu season is now here. After repeated delays, H1N1 vaccine finally arrived in our clinic earlier this month to the uniform relief of the medical staff. But my formerly desperate patients were now leery. "It's not tested," they said. "Everyone
knows there are problems with the vaccine." "I'm not putting that in my body." I was unprepared for this response, but maybe I shouldn't have been. For weeks now, in the schoolyard of my children's elementary school, other parents had been sidling up to me, seemingly in need of validation. "You're not giving your kids that swine flu shot, are you?" they'd say, their tone nervous, if a bit derisive. How to explain this dramatic shift in 6 short months? It certainly isn't related to logic or facts, since few new medical data became available during this period. It seems to reflect a sort of psychological contagion of myth and suspicion.

3) When to consider the use of antibiotics in the treatment of 2009 H1N1 influenza-associated pneumonia (P.F. Wright, Kathryn B. Kirkland, and John F. Modlin, November 25, 2009)
http://h1n1.nejm.org/?p=1234&query=TOC

Abstract:
For outpatient treatment of most patients who have influenza–associated pneumonia with a suspected secondary bacterial infection, the bacterial component can be treated with appropriate oral antibiotics for age — amoxicillin–clavulanate or a second-generation cephalosporin for both children and adults. There is no evidence for synergistic coinfection of influenza with Mycoplasma pneumoniae or other agents of atypical pneumonia. We do not believe that initial coverage for MRSA is indicated in all patients who are thought to have secondary bacterial pneumonia. Moreover, given emerging epidemiologic and clinical data, we have a strong suspicion that much of the lower respiratory tract illness will turn out to be of viral origin and should not require antibacterial therapy.

PLoS One
1) Taipei’s use of a multi-channel mass risk communication program to rapidly reverse and epidemic of highly communicable disease (Muh-Yong Ye et al., November 23, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007962

Abstract:
The timely launch of this systematic, communication-based intervention proved effective at preventing a dangerous spike in AHC and was able to bring this high-risk disease under control. We recommend that public health officials incorporate similar methods into existing guidelines for preventing pandemic influenza and other emerging infectious diseases.

PLoS Currents
1) Knol: H1N1 vaccination and adults with underlying health conditions in the U.S. (Edward Goldstein and Marc Lipitsch, November 21, 2009)
http://knol.google.com/k/h1n1-vaccination-and-adults-with-underlying-health-conditions-in-the-us?collectionId=28qm4w0g65e4w.1&position=1#

Abstract:
65% of fatalities from pH1N1 infections in a large US case series occur in adults with underlying health conditions other than pregnancy, but it appears that only relatively few high-risk adults will get vaccinated during the fall wave of pH1N1 transmission. There are several reasons for this problem; the most important is vaccine shortage. High risk adults were not part of the initial, narrow priority cohort which included pregnant women and children ages 0.5-4; this is despite the fact that some of those high risk groups, such as immunosuppressed adults and possibly individuals with neurological disorders, have a relative risk for fatality (per capita) higher than pregnant women, and over 28-fold higher than healthy children under the age of 4. With more vaccine becoming available than needed in the initial priority cohort, a broader group which includes high risk adults and individuals under 24 becomes eligible for vaccine in many locations. Nonetheless, due to continuing high demand, high-risk adults face competition for vaccine from
healthy individuals under 24; additionally, some locations specifically prioritize school students over high-risk adults. Finally, there is an issue of awareness and a shortage of specific channels that target high risk adults other than pregnant women and facilitate vaccine distribution among them in the United States.

**SCIENCE**

- Nothing new on H1N1 this week.
GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

December 4, 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 47 (November 22-28, 2009), influenza activity decreased slightly in the US, however the proportion of outpatient visits for ILI was above the national baseline.

CDC Caring for someone sick at home (December 5, 2009)
http://www.cdc.gov/h1n1flu/homecare/
This flu season could be worse than most flu seasons with more people than usual getting sick. Hospitals and clinics may be much busier than normal. The good news is that most people with flu will be able to be cared for at home and will feel better in about a week. Learn what you can do to help your family this flu season.

Q&A: 2009m H1N1 Flu in the News (December 4, 2009)
http://www.cdc.gov/h1n1flu/in_the_news/antiviral_drugs.htm

CDC 2009 H1N1 and People with HIV/AIDS (December 1, 2009)
http://www.cdc.gov/h1n1flu/People_with_HIVAIDS.htm
People living with HIV infection, especially if they have AIDS or have low CD4 cell counts, can develop severe complications from influenza. They are one of the initial target group for the H1N1 flu vaccine and should be vaccinated with the inactivated form of the vaccine. They should also be vaccinated against seasonal flu with the seasonal flu shot. People with HIV infection who develop flu-like symptoms should consult their health care provider right away to determine if they need treatment.

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 47 (November 22-28, 2009)
Nationally, the activity levels reported this week continued to decrease compared to the previous week. All FluWatch influenza indicators declined during week 47. The pH1N1 2009 strain accounted for nearly 100% of the positive influenza A subtyped specimens this week.
Deaths Associated with Influenza A (H1N1) as of December 3, 2009
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php

The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

Weekly Distribution of the H1N1 Vaccine (December 6, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/dist-eng.php

Vaccine Surveillance Report (December 4, 2009)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/addeve-eng.php

ONTARIO

Ontario Influenza Bulletin 2009-2010, Surveillance Week 47 (November 22-28, 2009)
Overall, influenza activity in Ontario is lower compared to the previous week. All of the measures indicate that influenza activity is lower in week 47 to week 46. Starting in week 45 (Nov.8-14) influenza activity in Ontario has declined each week.

MOHLTC Guidance Document for Faith-Based Groups (December 1, 2009)

MOHLTC Planning for Extra-Curricular Activities for School-Aged Children (December 1, 2009)

BC CENTER FOR DISEASE CONTROL (BC CDC):

BC CDC: H1N1 flu virus update (December 1, 2009)
http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/2009HealthAlerts/H1N1FluVirusHumanSwineFlu.htm

Weekly BC Pandemic H1N1 Surveillance Update as of November 28, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

WORLD HEALTH ORGANIZATION (WHO)

Global Situation Update 77, December 4, 2009

In the northern hemisphere, the early arriving winter influenza season continues to intensify across central Europe and in parts of central, eastern, and southern Asia. Disease activity has peaked and is declining in North America and has either recently peaked or is currently peaking in much of western and northern Europe. In both Canada and the US, influenza virus circulation remains active and geographically widespread, however, disease activity appears to have peaked in past 3 to 4 weeks. In the United States, deaths due to pneumonia and influenza continued to increase past the epidemic threshold for the past 8 weeks and cumulative rates of hospitalizations for the current influenza season have exceeded rates seen in recent seasons among all age groups except those aged ≥ 65.
Oseltamivir resistance in immunocompromised hospital patients (December 2, 2009)
WHO has been informed of two recent clusters of patients infected with oseltamivir-resistant H1N1 viruses. Transmission of resistant virus from one patient to another is suspected in both outbreaks.

WHO use of advisory bodies in responding to the influenza pandemic (December 3, 2009)

Weekly Epidemiological Record on pandemic (H1N1) 2009 (December 4, 2009)

**EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)**

December 4, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

Protocol for cluster investigations to measure influenza vaccine effectiveness in the EU/EEA (December 7, 2009)

European Medicines Agency publishes first weekly pandemic pharmacovigilance update (December 3, 2009)

**HEALTH/SURVEILLANCE BULLETINS:**

Australia


Center for Infectious Disease Research and Policy (CIDRAP)

CDC heartened by initial safety reports on H1N1 vaccine (December 4, 2009)
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/dec0409safety.html
Preliminary studies indicate that the pandemic H1N1 vaccine is just as safe as seasonal flu vaccines and is very unlikely to increase the risk of the paralytic condition that derailed the 1976 swine flu vaccination campaign.

John Hopkins finds resistant strain in 2 patients (December 3, 2009)
http://www.baltimoresun.com/health/swine-flu/bal-md hs.flu03dec03,0,2277805.story

Good results reported for VLP H1N1 vaccine (December 2, 2009)
**JOURNALS SCANNED:**

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal
- Clinical Infectious Diseases
- Eurosurveillance
- JAMA
- Journal of Clinical Microbiology (added this week)
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science

***Please note that the hypertext links appended to the citations below may not be available in your institution – contact your library for details on access to the journals.***

**AMERICAN JOURNAL OF PUBLIC HEALTH**
- Nothing new on H1N1 this week

**BRITISH MEDICAL JOURNAL**

1) GPs are told to vaccinate all priority groups against swine flu before Christmas (Mark Pownall, November 30, 2009)

http://www.bmj.com/cgi/content/full/339/nov30_1/b5110?utm_source=feedburner&utm__

Abstract:
A further nine million doses are with GPs, primary care trusts, and acute trusts ready for use for people in the priority groups and to protect healthcare workers. And another four million doses had been delivered to the UK and were in manufacturers’ warehouses awaiting distribution. Professor Salisbury said he expected the vaccination programme to accelerate rapidly as more supplies of vaccine became available. “I would like to see the priority groups vaccinated well before Christmas, so that GPs can move onto the next group: children under 5,” he said.

2) Tracey Koehlmoos on fear and swine flu in Bangladesh (Tracey Koehlmoos, November 30, 2009)


Abstract:
Bangladesh, we learnt recently, will receive a small amount of vaccine in early 2010. It will not be enough to immunize everyone at risk. How can we get the vaccine to those who need it most? We prepared a policy brief and newspaper articles in English and Bangla to provide the best evidence from global sources such as the CDC, the WHO, and the NHS discussing which groups should have priority. Because of the low ratio of provider to population the first priority group is
front-line healthcare workers followed by pregnant women, children 6 months to 5 years, adolescents, and lastly adults with high risk conditions such as COPD, asthma, diabetes, liver diseases, etc.

**CANADIAN MEDICAL ASSOCIATION JOURNAL**

1) Estimated epidemiologic parameters and morbidity associated with pandemic H1N1 influenza (Ashleigh R Tuite, December 3, 2009)

http://www.cmaj.ca/cgi/rapidpdf/cmaj.091807v1

Abstract:
We obtained data on laboratory-confirmed cases of pandemic H1N1 influenza reported in the province of Ontario, Canada, with dates of symptom onset between Apr. 13 and June 20, 2009. Incubation periods and duration of symptoms were estimated and fit to parametric distributions. We used competing-risk models to estimate risk of hospital admission and case-fatality rates. From these values we estimated a serial interval (the average time from onset of infectiousness in a case to the onset of infectiousness in a person infected by that case) of 4–5 days. The low estimates for $R_0$ indicate that effective mitigation strategies may reduce the final epidemic impact of pandemic H1N1 influenza.

2) Rash associated with H1N1 influenza (Morgan Rosenberg, November 30, 2009)

http://www.cmaj.ca/cgi/rapidpdf/cmaj.091678v1?ijkey=b897311d630b1d39f0253aa2961

Abstract:
On the fourth day of the patient’s illness, he began to cough up yellow sputum, and a pink maculopapular rash appeared over his abdomen. The rash became confluent and spread to most of his body, sparing only his face, palms and soles. Within 48 hours, the rash had resolved completely.

**CLINICAL INFECTIOUS DISEASES**

- Nothing new on H1N1 this week

**EUROSURVEILLANCE**

- Nothing new on H1N1 this week

**JAMA**

- Nothing new on H1N1 this week

**JOURNAL OF CLINICAL MICROBIOLOGY** (added this week)

1) Switching Gears for an Influenza Pandemic: Validation of a Duplex Reverse Transcriptase PCR Assay for Simultaneous Detection and Confirmatory Identification of Pandemic (H1N1) 2009 Influenza Virus (Jason J. LeBlanc, et al., December 1, 2009)

http://jcm.asm.org/cgi/content/full/47/12/3805

Abstract:
Rapid methods for the detection and confirmatory identification of pandemic influenza A virus (also known as pandemic [H1N1] 2009) are of utmost importance. In this study, a conventional reverse transcriptase PCR (RT-PCR) assay for the detection of influenza A virus and the hemagglutinin of swine lineage H1 (swH1) was designed, optimized, and validated. Nucleic acids were extracted from 198 consecutive nasopharyngeal, nasal, or throat swab specimens collected early in the outbreak (127 negative specimens, 66 specimens with pandemic [H1N1] 2009
influenza virus, 3 specimens with seasonal [H1N1] influenza A virus, and 2 specimens with seasonal [H3N2] influenza A virus. The performance characteristics of the duplex RT-PCR assay were assessed and compared to those of various detection methods: a monoplex RT-PCR assay ...

More.

2) Seasonal Influenza Virus Species in Patient Swab Samples Analyzed for the Presence of the Pandemic (H1N1) 2009 Influenza Virus (Jens Verheyen, et al.)

http://jcm.asm.org/cgi/content/full/47/12/4187

Abstract:
The diagnosis of viral respiratory infections attracts more and more attention either to provide specific antiviral treatment (influenza) or to exclude bacterial infections in order to avoid antibiotic therapies (1). The analysis of a large number of people for influenza virus infections because of the pandemic (H1N1) 2009 influenza virus repeatedly revealed the presence of seasonal influenza viruses beyond the influenza season in Germany. These results are in line with previous findings reporting limited influenza epidemics during the summer (5, 7). Therefore, despite overwhelming interest in the pandemic (H1N1) 2009 influenza virus, seasonal influenza virus should not be neglected in the diagnosis of patients with influenza-like symptoms.

JOURNAL OF INFECTIOUS DISEASES
-Nothing new on H1N1 this week

LANCET
-Nothing new on H1N1 this week

MMWR
-Nothing new on H1N1 this week

NATURE
- Nothing new on H1N1

NEW ENGLAND JOURNAL OF MEDICINE

1) The Emergency Use Authorization of Peramivir for Treatment of 2009 H1N1 Influenza (D. Birnkrant and E. Cox, December 3, 2009))

http://click2.nejm.org/cts/click?q=137%3B67321132%3BsDyBh1c%2FvHMFXNrhSbu8

Abstract:
-No abstract available

2) Emergence of Oseltamivir-Resistant Pandemic H1N1 Virus during Prophylaxis (December 3, 2009)

http://content.nejm.org/cgi/content/full/361/23/2296?query=TOC

Abstract:
-No abstract available

PLOS ONE

1) Characterization of the Influenza A H5N1 Viruses of the 2008-09 Outbreaks in India Reveals a Third Introduction and Possible Endemicity (Alok K. Chakrabarti, et al., December 1, 2009)

http://www.plosone.org/article/info:doi/10.1371/journal.pone.0007846
Abstract:
Widespread infection of highly pathogenic avian influenza A H5N1 was reported from backyard and commercial poultry in West Bengal (WB), an eastern state of India in early 2008. Infection gradually spread to Tripura, Assam and Sikkim, the northeastern states, with 70 outbreaks reported between January 2008 and May 2009. Whole genome sequence analysis of three isolates from WB, one isolate from Tripura along with the analysis of hemagglutinin (HA) and neuraminidase (NA) genes of 17 other isolates was performed during this study. In the HA gene phylogenetic tree, all the 2008-09 Indian isolates belonged to EMA3 sublineage of clade 2.2. The closest phylogenetic relationship was found to be with the 2007-09 isolates from Bangladesh and not with the earlier 2006 and 2007 Indian isolates implying a third introduction into the country. The receptor-binding pocket of HA1 of two isolates from WB showed S221P mutation, one of the markers predicted to be associated with human receptor specificity. Two substitutions E119A (2 isolates of WB) and N294S (2 other isolates of WB) known to confer resistance to NA inhibitors were observed in the active site of neuraminidase. Several additional mutations were observed within the 2008-09 Indian isolates indicating genetic diversification. Overall, the study is indicative of a possible endemicity in the eastern and northeastern parts of the country, demanding active surveillance specifically in view of the critical mutations that have been observed in the influenza A H5N1 viruses.

2) Influenza Morbidity and Mortality in Elderly Patients Receiving Statins: A Cohort Study (Jeffrey C. Kwong, Ping Li, Donald A. Redelmeier, December 1, 2009)
http://www.plosone.org/article/info:doi/10.1371/journal.pone.0008087;jsessionid=706FF559146B1B053A0D3998E0AB51E4

Abstract:
Statins possess immunomodulatory properties and have been proposed for reducing morbidity during an influenza pandemic. We sought to evaluate the effect of statins on hospitalizations and deaths related to seasonal influenza outbreaks.

3) Influenza excess mortality from 1950-2000 in tropical Singapore (Vernon J. Lee, et al., December 1, 2009)
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008096

Abstract:
The influenza pandemics of 1957 and 1968 resulted in substantial mortality. In addition, there were 20 other time points with significant excess mortality. Of the 12 periods with significant excess mortality post-1972, only one point (1988) did not correspond to a recorded influenza activity. For the 8 periods with significant excess mortality periods before 1972 excluding the pandemic years, 2 years (1951 and 1953) had newspaper reports of increased pneumonia deaths. Excess mortality could be observed in almost all periods with recorded influenza outbreaks but did not always exceed the 95% confidence limits of the baseline mortality rate.

PLOS CURRENTS

-Nothing new on H1N1 this week

SCIENCE

-Nothing new on H1N1 this week
**CENTRE FOR DISEASE CONTROL (CDC)**

December 11 2009: CDC H1N1 Flu Surveillance Update.  
[http://www.cdc.gov/h1n1flu/update.htm](http://www.cdc.gov/h1n1flu/update.htm)

Map includes both seasonal flu and H1N1 flu activity. During week 48 (November 29-December 5, 2009), influenza activity decreased slightly in the US, however the proportion of outpatient visits for ILI was above the national baseline.

CDC Updated Interim Recommendations for the Use of Antiviral Medications in the Treatment and Prevention of Influenza (December 7, 2009)  
[http://www.cdc.gov/h1n1flu/recommendations.htm](http://www.cdc.gov/h1n1flu/recommendations.htm)  
The objective of this document is to provide updated recommendations on the use of antiviral agents for treatment and prophylaxis of influenza during the 2009-2010 influenza season.

Interim Guidance for Clinicians on the Prevention and Treatment of 2009 H1N1 Influenza Infections in Infants and Children (December 9, 2009)  
[http://www.cdc.gov/h1n1flu/recommendations_pediatric_supplement.htm](http://www.cdc.gov/h1n1flu/recommendations_pediatric_supplement.htm)

Questions and Answers Regarding Respiratory Protection for Preventing 2009 H1N1 Influenza Among Healthcare Personnel (December 9, 2009)  
[http://www.cdc.gov/h1n1flu/guidelines_infection_control_qa.htm](http://www.cdc.gov/h1n1flu/guidelines_infection_control_qa.htm)  
CDC has released updated interim guidance on infection control measures to help prevent transmission of 2009 H1N1 influenza in healthcare facilities. As a supplement to that guidance document, these questions and answers provide additional information intended to assist healthcare facilities in optimizing implementation of recommended respiratory protection practices in the context of shortages of respiratory protection equipment.

**PUBLIC HEALTH AGENCY OF CANADA (PHAC)**

FluWatch Week 47 (November 29-December 5, 2009)  
Nationally, the activity levels reported this week continued to decrease compared to the previous week. All FluWatch influenza indicators declined for at least the third consecutive week. The
pH1N1 2009 strain accounted for nearly 100% of the positive influenza A subtyped specimens this week.

**Deaths Associated with Influenza A (H1N1) as of December 10, 2009**
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php

The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

**Weekly Distribution of the H1N1 Vaccine (December 6, 2009)**
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/dist-eng.php

**Vaccine Surveillance Report- AEFI (December 9, 2009)**
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/addeve-eng.php

**Guidance for Remote and Isolated (RI) Communities in the context of the pandemic (H1N1) 2009 outbreak (December 9, 2009)**

The Guidance document is intended to identify the unique challenges of remote and isolated communities in relation to public health planning, response and health service delivery during a pandemic. As a result of the challenges faced, guidelines and strategies are identified for the purposes of planning and responding to pandemic (H1N1) 2009.

**Ontario**


Overall, influenza activity in Ontario is lower compared to the previous week. All of the measures indicate that influenza activity is lower in week 48 to week 47. Starting in week 45 (Nov.8-14) influenza activity in Ontario has declined each week.

**BC Center for Disease Control (BC CDC):**

**BC CDC: H1N1 flu virus update (December 08, 2009)**
http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/2009HealthAlerts/H1N1FluVirusHumanSwineFlu.htm

**Weekly BC Pandemic H1N1 Surveillance Update as of December 07, 2009:**
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

**World Health Organization (WHO)**

**Global Situation Update 78, December 11, 2009**

In US and Canada, active influenza virus transmission persists but overall ILI activity continues to decline for the 5th and 3rd consecutive weeks, respectively. In the US, after 8 weeks of
increases, proportional mortality due to pneumonia and influenza mortality has begun to
decrease but remains elevated above the epidemic threshold; weekly numbers of lab-confirmed
hospitalizations and deaths have also recently begun to decline…

Pandemic influenza checklist for hospitals published (December 11, 2009)

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

December 11, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

Clinical management and mitigation strategies during A (H1N1) 2009 influenza pandemic (Dec 08, 2009)

HEALTH/SURVEILLANCE BULLETINS:

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

New Vaccine technologies on horizon but face roadblocks (December 11, 2009)
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/dec1109vaccine.html
New ways of producing influenza vaccine that would free the process from long-standing problems
are on the horizon, federal officials said today, but they added that scientific and regulatory hurdles
will slow the products' movement past licensure and into the market.

UK reports death rate similar to US's (December 10, 2009)
http://news.yahoo.com/s/nm/20091210/hl_nm/us_flu_britain
Pandemic H1N1 flu has killed fairly low numbers in the United Kingdom, British officials determined
in a study published yesterday, but public health officials should stay vigilant and vaccination
campaigns continue. The comprehensive analysis of data through Nov 8 revealed 26 H1N1 deaths
in every 100,000 cases—a case-fatality rate (CFR) of 0.026%. Yesterday the CDC released figures
indicating a US CFR of 0.021%.

Aggressive steps may have worked for Japan (December 11, 2009)
Aggressive pandemic control steps such as hygiene measures, social etiquette, and quick testing
and antiviral prescribing have helped Japan curb H1N1 better than other nations, according to a
Bloomberg News story today that cites a Nov 13 WHO report. The report found a Japanese rate of
2 deaths per 100,000 H1N1 cases, considerably lower than other countries' published rates.
Japanese doctors are advised to administer antivirals to anyone suspected of having flu, even if a
rapid test is negative.

CDC sharply raises H1N1 case estimates; kids hit hard (December 10, 2009)
Another month’s worth of data on H1N1 influenza has led federal officials to more than double their estimates of total cases, hospitalizations, and deaths and to assert that the impact on children and younger adults has been far greater than that of a typical flu season.

Researchers estimate relatively low H1N1 fatality rate (December 8, 2009)
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/dec0809cfr.html
Researchers who analyzed H1N1 influenza hospitalization and death data from the early months of the pandemic say the fall-winter phase of the contagion may bring fewer deaths than an average flu season, barring any changes that would make the virus more virulent, but the deaths are likely to be in younger age-groups.

Complications threaten kids who have sickle cell (December 7, 2009)
Children with sickle cell disease are more likely to develop serious complication from pandemic H1N1 influenza than for seasonal flu, researchers from Johns Hopkins reported today at the American Society of Hematology meeting in New Orleans. Their review of 118 children with sickle cell who were treated for flu since Sep 1993 found that those who had the pandemic strain were more likely, for example, to develop acute chest syndrome and require a ventilator and blood transfusion.

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- JAMA
- Journal of Infectious Diseases
- Journal of Virology (added this week)
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- PLoS Medicine (added this week)
- Science

****Please note that the hypertext links appended to the citations may not be available in your institution – contact your library for details on access to the journals.

AMERICAN JOURNAL OF PUBLIC HEALTH

-Nothing new on H1N1 this week
1) Fall in swine flu cases may not signal an end of the epidemic, warns Professor Donaldson (Ona Mashta December 7, 2009);
http://www.bmj.com/cgi/content/full/339/dec07_1/b5329?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+bmj%2Fpandemicflu+%28Pandemic+flu+updates+from+BMJ+Group%29&utm_content=Google+Reader

Abstract:
England’s chief medical officer has said it is too early to know whether the "striking reduction" in numbers of new swine flu cases would continue in weeks ahead, and warned there may be a rise of infections among older people after Christmas.

2) Neuraminidase inhibitors for preventing and treating influenza in healthy adults: systematic review and meta-analysis (Tom Jefferson, Mark Jones, Peter Doshi, Chris Del Mar, December 8, 2009)
http://www.bmj.com/cgi/content/full/339/dec07_2/b5106?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+bmj%2Fpandemicflu+%28Pandemic+flu+updates+from+BMJ+Group%29&utm_content=Google+Reader

Abstract:
Neuraminidase inhibitors have modest effectiveness against the symptoms of influenza in otherwise healthy adults. The drugs are effective postexposure against laboratory confirmed influenza, but this is a small component of influenza-like illness, so for this outcome neuraminidase inhibitors are not effective. Neuraminidase inhibitors might be regarded as optional for reducing the symptoms of seasonal influenza. Paucity of good data has undermined previous findings for oseltamivir’s prevention of complications from influenza. Independent randomised trials to resolve these uncertainties are needed.

3) Complications: tracking down the data on oseltamivir (Deborah Cohen, December 8, 2009);
http://www.bmj.com/cgi/content/full/339/dec08_3/b5387?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+bmj%2Fpandemicflu+%28Pandemic+flu+updates+from+BMJ+Group%29&utm_content=Google+Reader

Abstract:
A Cochrane group’s attempt to reproduce an analysis underpinning the use of oseltamivir in pandemic influenza hit a brick wall. Deborah Cohen retraces its steps

4) Neuraminidase inhibitors—the story behind the Cochrane review (Peter Doshi, December 8, 2009);
http://www.bmj.com/cgi/content/full/339/dec07_2/b5164?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+bmj%2Fpandemicflu+%28Pandemic+flu+updates+from+BMJ+Group%29&utm_content=Google+Reader

Abstract:
Although billions have been spent on oseltamivir in the face of pandemic influenza, the team updating the Cochrane review of neuraminidase inhibitors in healthy adults found that the public evidence base for this global public health drug was fragmented and inconsistent.

What can we learn from observational studies of oseltamivir to treat influenza in healthy adults? (Nick Freemantle, Mel Calvert, December 8, 2009);
http://www.bmj.com/cgi/content/full/339/dec07_2/b5248?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+bmj%2Fpandemicflu+%28Pandemic+flu+updates+from+BMJ+Group%29&utm_content=Google+Reader
Abstract:
Post-marketing studies can provide important information about safety and efficacy in real practice. However, the authors found studies of oseltamivir identified by Roche were of limited value.

5) Why don't we have all the evidence on oseltamivir? (Editorial, December 8, 2009);
http://www.bmj.com/cgi/content/full/339/dec08_3/b5351?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+bmj%2Fpandemicflu+%28Pandemic+flu+updates+from+BMJ+Group%29&utm_content=Google+Reader

Abstract:
This week the BMJ publishes an updated Cochrane review on neuraminidase inhibitors in adults with influenza. The review and a linked investigation undertaken jointly by the BMJ and Channel 4 News cast doubt not only on the effectiveness and safety of Oseltamivir (Tamiflu) but on the system by which drugs are evaluated, regulated, and promoted.

6) Roche replies to the authors of the Cochrane Review on Oseltamivir (Letter from Roche, December 8, 2009);
http://www.bmj.com/cgi/content/full/339/dec08_3/b5364?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+bmj%2Fpandemicflu+%28Pandemic+flu+updates+from+BMJ+Group%29&utm_content=Google+Reader

Abstract:
A key question that was raised concerned several unpublished final study reports for certain randomised clinical studies.

7) Point-by-point response from Roche to BMJ questions (Letter, December 8, 2009);
http://www.bmj.com/cgi/content/full/339/dec08_3/b5374?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+bmj%2Fpandemicflu+%28Pandemic+flu+updates+from+BMJ+Group%29&utm_content=Google+Reader

Abstract:
James Smith responds on behalf of Roche to some of the issues raised with regard to the Cochrane Review on oseltamivir published in the BMJ.

CANDIAN MEDICAL ASSOCIATION JOURNAL

1) H1N1 and remote locations (Subhash C. Arya and Nirmala Agarwal, December 8, 2009);
http://www.cmaj.ca/cgi/reprint/181/12/928-a

Abstract:
The scenario in remote and underserved locations in Canada regarding specific diagnosis and antiviral therapeutic response seems to mimic the picture in developing countries.

CLINICAL INFECTIOUS DISEASES

- Nothing new on H1N1 this week.

EMERGING INFECTIOUS DISEASES

http://www.cdc.gov/eid/content/16/1/pdfs/09-0941.pdf
Patients admitted to a general hospital in San Luis Potosí, Mexico, from April 10 through May 11, 2009, suspected to have influenza virus–associated pneumonia were evaluated. We identified 50 patients with suspected influenza pneumonia; the presence of influenza virus was confirmed in 18: 11 with pandemic (H1N1) 2009 virus, 5 with unsubtypeable influenza A virus, 1 with seasonal influenza A (H3N2) virus, and 1 in whom assay results for seasonal and pandemic (H1N1) 2009 viruses were positive. Eighteen patients were treated in the intensive care unit, and 10 died. During the pandemic (H1N1) 2009 outbreak, severe pneumonia developed in young adults who had no identifiable risk factors; early diagnosis and treatment of influenza virus infections may have a determinant role in outcome.

Abstract:


Abstract:

We report pneumonia associated with pandemic (H1N1) 2009, which resulted in respiratory and renal failure and death, in a 39-year-old HIV-positive woman. She had type 1 diabetes and a diagnosis of AIDS 7 years ago and had received highly active antiretroviral therapy. She also had an ill child at home with an influenza-like illness.

3) Oseltamivir- and amantadine-resistant influenza virus A (H1N1) (Cheng PKC, To APC, Leung TWC, Leung PCK, Lee CWC, Lim WWL., January 2010); http://www.cdc.gov/eid/content/16/1/pdfs/09-1304.pdf

Abstract:

Along with pandemic (H1N1) 2009, seasonal influenza viruses continue to circulate in Hong Kong. An alarming proportion of the circulating seasonal influenza virus A (H1N1) became resistant to both oseltamivir and amantadine in a short span of 1 month.

EUROSURVEILLANCE

- Nothing new on H1N1 this week.

JAMA

- Nothing new on H1N1 this week.

JOURNAL OF INFECTIOUS DISEASES

1) Evidence of Bias in Studies of Influenza Vaccine Effectiveness in Elderly Patients (Roger Baxter, Janelle Lee, and Bruce Fireman, December 8, 2009); http://www.journals.uchicago.edu/doi/pdf/10.1086/649568

Abstract:

Although studies have shown influenza vaccines to be effective in preventing death in the elderly population, these findings may be the result of selection bias. We examined the relationship between vaccination, age, underlying morbidity, and probability of death in the upcoming year. Vaccination coverage varied in a curvilinear fashion with age, morbidity, and risk of death. Forgoing vaccination predicted death in those who had received vaccinations in the previous 5 years, but it predicted survival in patients who had never before received a vaccination. We conclude that bias is inherent in studies of influenza vaccination and death among elderly patients.
1) Transmission of Pandemic H1N1 Influenza Virus and Impact of Prior Exposure to Seasonal Strains or Interferon Treatment (John Steel, et al., January 2010); http://jvi.asm.org/cgi/content/abstract/84/1/21

Abstract:
Despite the fact that they are of the same antigenic subtype as seasonal influenza viruses circulating in humans since 1977, these viruses continue to spread and have caused the first influenza pandemic since 1968. Here we show that a pandemic H1N1 strain replicates in and transmits among guinea pigs with similar efficiency to that of a seasonal H3N2 influenza virus. This transmission was, however, partially disrupted when guinea pigs had preexisting immunity to recent human isolates of either the H1N1 or H3N2 subtype and was fully blocked through daily intranasal administration of interferon to either inoculated or exposed animals. Our results suggest that partial immunity resulting from prior exposure to conventional human strains may blunt the impact of pandemic H1N1 viruses in the human population. In addition, the use of interferon as an antiviral prophylaxis may be an effective way to limit spread in at-risk populations.

2) Generation of Live Attenuated Novel Influenza Virus A/California/7/09 (H1N1) Vaccines with High Yield in Embryonated Chicken Eggs (Zhongying Chen, et al., January 2010); http://jvi.asm.org/cgi/content/abstract/84/1/44

Abstract:
Several live attenuated influenza virus A/California/7/09 (H1N1) (CA09) candidate vaccine variants that possess the hemagglutinin (HA) and neuraminidase (NA) gene segments from the CA09 virus and six internal protein gene segments from the cold-adapted influenza virus A/Ann Arbor/6/60 (H2N2) virus were generated by reverse genetics. The reassortant viruses replicated relatively poorly in embryonated chicken eggs. To improve virus growth in eggs, reassortants expressing the HA and NA of CA09 were passaged in MDCK cells and variants exhibiting large-plaque morphology were isolated.

3) Nanodisc-Incorporated Hemagglutinin Provides Protective Immunity against Influenza Virus (Infection / Palash Bhattacharya, et al., January 2010); http://jvi.asm.org/cgi/content/abstract/84/1/361

Abstract:
Although egg-based inactivated viral vaccines are available, their effectiveness depends on the correct prediction of the circulating viral strains and is limited by the time constraint of the manufacturing process. Recombinant subunit vaccines are easier to manufacture with a relatively short lead time but are limited in their efficacy partly because the purified recombinant membrane proteins in the soluble form most likely do not retain their native membrane-bound structure. Nanodisc (ND) particles are soluble, stable, and reproducibly prepared discoid shaped nanoscale structures that contain a discrete lipid bilayer bound by two amphipathic scaffold proteins. Because ND particles permit the functional reconstitution of membrane/envelope proteins, we incorporated recombinant hemagglutinin (HA) from influenza virus strain A/New Caledonia/20/99 (H1N1) into NDs and investigated their potential to elicit an immune response to HA and confer immunity to influenza virus challenge relative to the commercial vaccines Fluzone and FluMist.

LANCET
-Nothing new on H1N1 this week.
-Nothing new on H1N1 this week.

**NEW ENGLAND JOURNAL OF MEDICINE**

1) When to Consider the Use of Antibiotics in the Treatment of 2009 H1N1 Influenza–Associated Pneumonia (letter, December 9, 2009); [http://content.nejm.org/cgi/content/short/361/24/e112?rss=1&query=current](http://content.nejm.org/cgi/content/short/361/24/e112?rss=1&query=current)

Abstract:
We are now facing a pandemic caused by an epidemiologically distinct, novel virus, the 2009 pandemic influenza A (H1N1) virus (swine flu), against which few persons born since 1970 have antibodies. The severity of illness in the individual varies, and our understanding of the role of bacterial infection in novel 2009 H1N1 infection is still evolving. A current summary of bacterial isolates from 53 fatal pediatric cases of novel H1N1 with adequate sampling of normally sterile sites showed that 17 (32%) had bacterial pathogens of which 8 were *Staphylococcus aureus*, and of these, 6 were methicillin-resistant *S. aureus* (MRSA) …

2) Clinical Features of the Initial Cases of 2009 Pandemic Influenza A (H1N1) Virus Infection in China (Bin Cao et al., December 9, 2009); [http://content.nejm.org/cgi/content/short/NEJMoa0906612v1?rss=1&query=current](http://content.nejm.org/cgi/content/short/NEJMoa0906612v1?rss=1&query=current)

Abstract:
Surveillance of the 2009 H1N1 virus in China shows that the majority of those infected have a mild illness. The typical period during which the virus can be detected with the use of real-time RT-PCR is 6 days (whether or not fever is present). The duration of infection may be shortened if oseltamivir is administered.

3) A Community Cluster of Oseltamivir-Resistant Cases of 2009 H1N1 Influenza (Letter, December 9, 2009); [http://content.nejm.org/cgi/content/short/NEJMc0910448v1?rss=1&query=current](http://content.nejm.org/cgi/content/short/NEJMc0910448v1?rss=1&query=current)

Abstract:
Oseltamivir-resistant infection with the 2009 pandemic influenza A (H1N1) virus has so far been described only rarely and is conferred by the H275Y substitution in the neuraminidase enzyme.1 Only 3 of the 32 patients with oseltamivir-resistant infection reported on as of this writing were not receiving oseltamivir when the resistant viruses were detected, and ongoing community transmission has not yet been shown.1 However, the emergence of oseltamivir-resistant 2009 H1N1 influenza remains a grave concern, since widespread oseltamivir resistance has been observed in seasonal H1N1.

**PLoS ONE**

-Nothing new on H1N1 this week.

**PLoS CURRENTS**

1) Modeling the critical care demand and antibiotics resources needed during the Fall 2009 wave of influenza A(H1N1) pandemic (Duygu Balcan, Vittoria Colizza, Andrew Singer., December 9, 2009);
While the H1N1 pandemic is reaching high levels of influenza activity in the Northern Hemisphere, the attention focuses on the ability of national health systems to respond to the expected massive influx of additional patients. Given the limited capacity of health care providers and hospitals and the limited supplies of antibiotics, it is important to predict the potential demand on critical care to assist planning for the management of resources and plan for additional stockpiling. We develop a disease model that considers the development of influenza-associated complications and incorporate it into a global epidemic model to assess the expected surge in critical care demands due to viral and bacterial pneumonia. Based on the most recent estimates of complication rates, we predict the expected peak number of intensive care unit beds and the stockpile of antibiotic courses needed for the current pandemic wave. The effects of dynamic vaccination campaigns, and of variations of the relative proportion of bacterial co-infection in complications and different length of staying in the intensive care unit are explored.

**PLoS Medicine** *(added this week)*


**Abstract:**
Marc Lipsitch and colleagues use complementary data from two US cities, Milwaukee and New York City, to assess the severity of pandemic (H1N1) 2009 influenza in the United States.

**Science**

-Nothing new on H1N1 this week.
WEEKLY SYNTHESIS OF SURVEILLANCE INFORMATION, LITERATURE & GOVERNMENT UPDATES

(WEEK ENDING DECEMBER 18, 2009)

PLEASE NOTE THE NEXT EDITION WILL BE JANUARY 12, 2009

GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

December 11 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 49 (December 6-12, 2009), influenza activity decreased slightly in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Updated Interim Recommendations: Special Considerations for Clinicians Regarding 2009 H1N1 Influenza in Severely Immunosuppressed Patients (December 16, 2009)
http://www.cdc.gov/h1n1flu/immunosuppression/index.htm

Non-Safety-Related Voluntary Recall of Certain Lots of Sanofi Pasteur H1N1 Pediatric Vaccine (December 15, 2009)
http://www.cdc.gov/h1n1flu/vaccination/syringes_qa.htm

Q & A for parents: recall of some batches of children’s H1N1 flu vaccine (December 18)
http://www.cdc.gov/h1n1flu/vaccination/sanofi_parents_qa.htm

H1N1 Flu: Resources for Obstetric Health Care Providers (December 14, 2009)
http://www.cdc.gov/h1n1flu/clinician_pregnant.htm

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 49 (December 6-12, 2009)
On week 49, the overall influenza activity continued to decline for the fourth consecutive week in Canada. The ILI consultation rate was below the expected range for this time of the year and only 6.6% of the specimens tested were positive for influenza. The Pandemic (H1N1) 2009 strain still accounted for nearly 100% of the positive influenza A subtyped specimens this week.

Deaths Associated with Influenza A (H1N1) as of December 17, 2009
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue
national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

**Weekly Distribution of the H1N1 Vaccine (December 12, 2009)**
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/dist-eng.php

**Vaccine Surveillance Report- AEFI (December 09, 2009)**
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/addeve-eng.php

This guidance document has been developed to provide guidance for the occupational health (OH) and infection prevention and control (IPC) management of health care workers (HCWs) and other staff to prevent the transmission of Pandemic (H1N1) 2009 Flu Virus in all settings where health care is provided.

**ONTARIO**

**Ontario Influenza Bulletin 2009-2010, Surveillance Week 49 (Dec 06-11, 2009)**
Overall, influenza activity in Ontario is lower compared to the previous week. All of the measures indicate that influenza activity is lower in week 49 to week 48. Starting in week 45 (Nov.8-14) influenza activity in Ontario has declined each week.

**BC CENTER FOR DISEASE CONTROL (BC CDC):**

**BC CDC: H1N1 flu virus update (December 15, 2009)**
http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/2009HealthAlerts/H1N1FluVirusHumanSwineFlu.htm

**Weekly BC Pandemic H1N1 Surveillance Update as of December 14, 2009:**
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

**WORLD HEALTH ORGANIZATION (WHO)**

**Global Situation Update78, December 18, 2009**
In United States and Canada, active influenza transmission persists but overall levels of ILI have declined substantially to near seasonal baselines. In the US, proportional mortality due to pneumonia and influenza mortality has remained consistently elevated above the epidemic threshold for the past 10 weeks; however, weekly numbers of lab-confirmed hospitalizations and deaths continue to decline over the past month.

**Pandemic (H1N1) 2009 influenza vaccine deployment update (December 17, 2009)**
http://www.who.int/csr/disease/swineflu/vaccines/h1n1_vaccination_deployment_update_20091217.pdf
EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

December 18, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

HEALTH/SURVEILLANCE BULLETINS:

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

WHO finds no change in pandemic severity pattern (Dec 18, 2009)

Some countries eye returning surplus pandemic vaccine (December 18, 2009)
http://www.reuters.com/article/idUSLDE5BH0X320091218

Modelers list H1N1 research needs to help form policy (December 17, 2009)
http://knol.google.com/k/maria-van-kerkhove/studies-needed-to-address-public-health/agr0htar1u6r/18#

India suspects placental transmission of flu (December 17, 2009)

Surveillance, research needed on flu in Africa (December 15, 2009)
http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.1000182

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal (added this week)
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- JAMA
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science
- Vaccine (added this week)
-Nothing new on H1N1 this week

**AMERICAN JOURNAL OF PUBLIC HEALTH**

**BRITISH MEDICAL JOURNAL**

1) The Spanish influenza pandemic seen through the BMJ’s eyes: observations and unanswered questions (Tom Jefferson, Eliana Ferroni, December 16, 2009); [http://www.bmj.com/cgi/content/extract/339/dec16_3/b5313](http://www.bmj.com/cgi/content/extract/339/dec16_3/b5313)

Abstract:
We exploited the opportunity to consult the newly digitised BMJ archives to carry out a review of what was published at the time. We tried to look at the pandemic through the eyes of contemporary BMJ contributors and readers and give them their voice back. We chose the Spanish influenza pandemic because we believed some of the observations and issues raised at the time may still be relevant to the events of today, although some have been forgotten.

**CANADIAN MEDICAL ASSOCIATION JOURNAL** CMAJ *(added this week)*

1) Physicians’ legal duty of care and legal right to refuse to work during a pandemic (Cara E. Davies, Randi Zlotnik Shaul, December 14, 2009); [http://www.cmaj.ca/cgi/rapidpdf/cmaj.091628v1?ijkey=d8b98db294b3cdb18637dd02bc321fc2b307390d&keytype2=tf_ipsecsha](http://www.cmaj.ca/cgi/rapidpdf/cmaj.091628v1?ijkey=d8b98db294b3cdb18637dd02bc321fc2b307390d&keytype2=tf_ipsecsha)

Abstract:
Physicians in Canada owe a legal duty of care to their existing patients and, in certain circumstances, to those who are not their patients. Some physicians have a legal right to refuse to work if they can satisfy the four criteria defined by labour boards in Canada. Ethical, professional and legal collaboration is needed to address the tensions between physicians’ legal rights and duties and their ethical responsibilities.

**CLINICAL INFECTIOUS DISEASES**


Abstract:
We analyzed the association between influenza circulation and invasive pneumococcal pneumonia rates in United States surveillance data from the period 1995–2006 and estimated that 11%–14% of pneumococcal pneumonia during periods of influenza circulation and 5%–6% year-round may have been influenza-associated.

**EMERGING INFECTIOUS DISEASES**

1) Serologic cross-reactivity with pandemic (H1N1) 2009 virus in pigs, Europe (Constantinos S. Kyriakis, et al., January 2010); [http://www.cdc.gov/eid/content/16/1/pdfs/09-1190.pdf](http://www.cdc.gov/eid/content/16/1/pdfs/09-1190.pdf)
Abstract:
We tested serum samples from pigs infected or vaccinated with European swine influenza viruses (SIVs) in hemagglutination-inhibition assays against pandemic (H1N1) 2009 virus and related North American SIVs. We found more serologic cross-reaction than expected. Data suggest pigs in Europe may have partial immunity to pandemic (H1N1) 2009 virus.

2) Hospitalizations for pandemic (H1N1) 2009 among Maori and Pacific Islanders, New Zealand (Ayesha Verrall, et al., January 2010); http://www.cdc.gov/eid/content/16/1/pdfs/09-0994.pdf

Abstract:
Community transmission of influenza A pandemic (H1N1) 2009 was followed by high rates of hospital admissions in the Wellington region of New Zealand, particularly among Maori and Pacific Islanders. These findings may help health authorities anticipate the effects of pandemic (H1N1) 2009 in other communities.

3) Pandemic (H1N1) 2009 surveillance and prevalence of seasonal influenza, Singapore (Yee-Sin Leo, et al., January 2010); http://www.cdc.gov/eid/content/16/1/pdfs/09-1164.pdf

Abstract:
On April 25, 2009, Singapore implemented strict containment measures for pandemic (H1N1) 2009 with enhanced surveillance and hospital isolation. In the first month, seasonal influenza, predominantly virus subtype H3N2, was diagnosed for 32% of patients with acute febrile respiratory illness. Our findings underscore the high prevalence of seasonal influenza in Singapore.

EUROSURVEILLANCE


Abstract:
An increased relative risk of infection with the 2009 pandemic H1N1 influenza virus associated with pregnancy and Indigenous status has been a common finding in many countries. Using publicly available data from May to October 2009 in Australia, we estimated the relative risk of hospitalisation, admission to intensive care unit and death as 5.2, 6.5 and 1.4 respectively for pregnant women, and as 6.6, 6.2 and 5.2, respectively for Indigenous Australians. Pregnancy and Indigenous status were associated with severe influenza. More complete analyses of risks in these groups are required to understand and prevent influenza morbidity and mortality.

JAMA

-Nothing new on H1N1 this week.

JOURNAL OF INFECTIOUS DISEASES

1) Enhanced Memory Responses to Seasonal H1N1 Influenza Vaccination of the Skin with the Use of Vaccine-Coated Microneedles (Yeu-Chun Kim et al., December 17, 2009) http://www.journals.uchicago.edu/doi/pdf/10.1086/649228

Abstract:
To develop a novel skin delivery method that is simple and allows for easy self-administration, we prepared microneedle patches with stabilized influenza vaccine and investigated their protective
immune responses. The findings suggest that vaccination of the skin using a microneedle patch can improve protective efficacy and induce long-term sustained immunogenicity and may also provide a simple method of administration to improve influenza vaccination coverage.

**LANCET**

1) [Comment] Infection and death from influenza A H1N1 virus in Mexico (V Alberto Laguna-Torres, Jorge Gomez Benavides, December 19, 2009); http://www.thelancet.com/journals/lancet/article/PIIS0140673609619164/fulltext?rss=yes

Abstract:
A characteristic of the H1N1 pandemic is how fast knowledge evolved, with medical groups confirming or declaring as controversial what had been stated weeks after the first outbreaks. This rapid evolution allowed other groups to establish better capabilities to face the pandemic.


Abstract:
In April, 2009, the first cases of influenza A H1N1 were registered in Mexico and associated with an unexpected number of deaths. We report the timing and spread of H1N1 in cases, and explore protective and risk factors for infection, severe disease, and death. By July 31, 63 479 cases of influenza-like illness were reported; 6945 (11%) cases of H1N1 were confirmed, 6407 (92%) were outpatients, 475 (7%) were admitted and survived, and 63 (<1%) died. Those aged 10—39 years were most affected (3922 [56%]). Mortality rates showed a J-shaped curve, with greatest risk in those aged 70 years and older (10·3%). Risk of infection was lowered in those who had been vaccinated for seasonal influenza (OR 0·65 [95% CI 0·55—0·77]). Delayed admission (1·19 [1·11—1·28] per day) and presence of chronic diseases (6·1 [2·37—15·99]) were associated with increased risk of dying. Risk communication and hospital preparedness are key factors to reduce mortality from H1N1 infection. Protective effects of seasonal influenza vaccination for the virus need to be investigated.

3) Importance of background rates of disease in assessment of vaccine safety during mass immunisation with pandemic H1N1 influenza vaccines (Steven Black et al., December 18, 2009); http://www.thelancet.com/journals/lancet/article/PIIS0140673609618778/abstract?rss=yes

Abstract:
Awareness of the background rates of possible adverse events will be a crucial part of assessment of possible vaccine safety concerns and will help to separate legitimate safety concerns from events that are temporally associated with but not caused by vaccination. We identified background rates of selected medical events for several countries. Rates of disease events varied by age, sex, method of ascertainment, and geography. Highly visible health conditions, such as Guillain-Barré syndrome, spontaneous abortion, or even death, will occur in coincident temporal association with novel influenza vaccination. On the basis of the reviewed data, if a cohort of 10 million individuals was vaccinated in the UK, 21·5 cases of Guillain-Barré syndrome and 5·75 cases of sudden death would be expected to occur within 6 weeks of vaccination as coincident background cases. In female vaccinees in the USA, 86·3 cases of optic neuritis per 10 million population would be expected within 6 weeks of vaccination. 397 per 1 million vaccinated pregnant women would be predicted to have a spontaneous abortion within 1 day of vaccination.
4) Immune response after a single vaccination against 2009 influenza A H1N1 in USA: a preliminary report of two randomised controlled phase 2 trials (Eric Plennevaux et al., December 16, 2009); http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62026-2/fulltext#article_upsell

Abstract:
Data are needed from large clinical trials of paediatric, adult, and elderly people to find the appropriate antigen dose and vaccination schedule for the 2009 pandemic influenza A H1N1. We therefore report preliminary safety and immunogenicity results after one injection of a licensed monovalent pandemic H1N1 vaccine in the USA. One dose of vaccine was highly immunogenic in adults, suggesting that it afforded sufficient protection against this pandemic influenza A H1N1 virus. Two doses of vaccine will probably be needed in children younger than 9 years. Safety and reactogenicity of the vaccine were acceptable and similar to those of seasonal vaccine.

5) Safety and immunogenicity of a 2009 pandemic influenza A H1N1 vaccine when administered alone or simultaneously with the seasonal influenza vaccine for the 2009—10 influenza season: a multicentre, randomised controlled trial (Zoltan Vajo et al., December 16, 2009); http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62039-0/fulltext

Abstract:
With the ongoing 2009 pandemic of influenza A H1N1, development of pandemic influenza vaccines has generated much interest. We investigated the safety and immunogenicity of a whole-virion, inactivated, adjuvanted pandemic H1N1 vaccine in adult and elderly volunteers, given without or simultaneously with the 2009—10 seasonal trivalent influenza vaccine. The present pandemic vaccine is safe and immunogenic in healthy adult and elderly patients, and needs low doses and only one injection to trigger immune responses to comply with licensing criteria. It can be safely co-administered with the 2009—10 seasonal influenza vaccine.

6) Safety and immunogenicity of 2009 pandemic influenza A H1N1 vaccines in China: a multicentre, double-blind, randomised placebo-controlled trial (Xiao-Feng Liang et al., December 16, 2009); http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62003-1/fulltext

Abstract:
The current influenza pandemic calls for a safe and effective vaccine. We assessed the safety and immunogenicity of eight formulations of 2009 pandemic influenza A H1N1 vaccine produced by ten Chinese manufacturers. One dose of non-adjuvant split-virion vaccine containing 7.5 μg haemagglutinin could be promoted as the formulation of choice against 2009 pandemic influenza A H1N1 for people aged 12 years or older. In children (aged <12 years), two 7.5 μg doses might be needed.

7) Large trials confirm immunogenicity of H1N1 vaccines (Heath Kelly, Ian Barr, December 16, 2009); http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62132-2/fulltext

Abstract:
Since the recognition of a novel influenza A H1N1 virus, in March, 2009, the virus has spread throughout the world to cause the first influenza pandemic of this century, resulting in a cumulative incidence of death of 5—14 per million in populous southern hemisphere countries. In view of the high likelihood that pandemic H1N1 will circulate as a dominant strain for several years, a vaccine will be the most effective long-term mitigation measure.
8) Defining the safety profile of pandemic influenza vaccines (Dina Pfeifer, Claudio Alfonso, David Wood, December 16, 2009); http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62133-4/fulltext

Abstract:
Vaccines have side-effects. When making decisions about regulatory approval and public health use of vaccines, authorities need to be convinced that the benefits of reduced disease outweigh actual and potential risks of vaccination. The side-effect profiles of influenza vaccines are well known due to more than 50 years of large-scale use. However, influenza vaccines uniquely undergo changes in their strain composition virtually every year.

MMWR

1) Deaths related to 2009 pandemic Influenza A (H1N1) among American Indian / Alaska natives – 12 states, 2009 (L. Castrodale et al., December 11, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5848a1.htm?s_cid=mm5848a1_x

Abstract:
In all age groups, the AI/AN death rate was higher than the rate for all other racial/ethnic populations combined.

NATURE

Nothing new on H1N1 this week.

NEW ENGLAND JOURNAL OF MEDICINE

1) Pandemic Influenza Vaccine Policy — Considering the Early Evidence (Kathleen M. Neuzil, December 16, 2009)
http://content.nejm.org/cgi/content/short/361/25/e59?rss=1&query=current

Abstract:
This editorial discusses the preliminary reports by Greenberg et al. and Clark et al. published on September 10, 2009. The final reports appear in this issue of the Journal.

2) Response to a Monovalent 2009 Influenza A (H1N1) Vaccine (Michael E. Greenberg, et al., December 17, 2009); http://content.nejm.org/cgi/content/short/361/25/2405?rss=1&query=current

Abstract:
A randomized, observer-blind, parallel-group trial evaluating two doses of an inactivated, split-virus 2009 H1N1 vaccine in healthy adults between the ages of 18 and 64 years is ongoing at a single site in Australia. A single 15-µg dose of 2009 H1N1 vaccine was immunogenic in adults, with mild-to-moderate vaccine-associated reactions. (ClinicalTrials.gov number, NCT00938639 [ClinicalTrials.gov].)

3) A Novel Influenza A (H1N1) Vaccine in Various Age Groups (Feng-Cai Zhu, et al., December 9, 2009) http://content.nejm.org/cgi/content/short/361/25/2414?rss=1&query=current

Abstract:
A split-virus, inactivated candidate vaccine against the 2009 H1N1 virus was manufactured, and we evaluated its safety and immunogenicity in a randomized clinical trial. These data suggest that a single dose of 15 µg of hemagglutinin antigen without alum adjuvant induces a typically
protective immune response in the majority of subjects between 12 and 60 years of age. Lesser immune responses were seen after a single dose of vaccine in younger and older subjects. (ClinicalTrials.gov number, NCT00975572 [ClinicalTrials.gov].)

4) Trial of 2009 Influenza A (H1N1) Monovalent MF59-Adjuvanted Vaccine (Tristan W. Clark, et al., December 9, 2009); http://content.nejm.org/cgi/content/short/361/25/2424?rss=1&query=current

Abstract:
Monovalent 2009 influenza A (H1N1) MF59-adjuvanted vaccine generates antibody responses likely to be associated with protection after a single dose is administered. (ClinicalTrials.gov number, NCT00943358 [ClinicalTrials.gov].)

5) Letter: Rapid-Test Sensitivity for Novel Swine-Origin Influenza A (H1N1) Virus in Humans (December 17, 2009); http://content.nejm.org/cgi/content/short/361/25/2493?rss=1&query=current

Abstract:
We found that the antigen tests had poor sensitivity to the virus when used in a subgroup of 21 patients in the Australian intensive care cohort with severe 2009 influenza A (H1N1) virus infection and acute lung injury that required mechanical ventilation.

6) Letter: Diagnostic Testing for 2009 Pandemic Influenza A (H1N1) Virus Infection in Hospitalized Patients (December 17, 2009); http://content.nejm.org/cgi/content/short/361/25/e114?rss=1&query=current

Abstract:
Establishing a diagnosis of 2009 pandemic influenza A (H1N1) virus infection in hospitalized patients can be challenging, especially in patients presenting late in their clinical course. Although real-time reverse-transcriptase polymerase chain reaction (RT-PCR) is the most sensitive testing method to detect 2009 H1N1 virus in respiratory specimens, results are not accessible right away.

PLoS

1) Optimizing allocation for a delayed influenza vaccination campaign (Jan Medlock, Lauren Ancel Meyers, December 13, 2009); http://knol.google.com/k/optimizing-allocation-for-a-delayed-influenza-vaccination-campaign?collectionId=28qm4w0q65e4w.1&position=1#

Abstract:
During unexpected infectious disease outbreaks, public health agencies must make effective use of limited resources. Vaccine distribution may be delayed and staggered through time, as underscored by the 2009 H1N1 influenza pandemic. Using a mathematical model parametrized with data from the 2009 H1N1 pandemic, we found that optimal allocations of vaccine among people in different age groups and people with high-risk conditions depends on the schedule of vaccine availability relative to the progress of the epidemic. For the projected schedule of H1N1 vaccine availability, the optimal strategy to reduce influenza-related deaths is to initial target high-risk people, followed by school-aged children (5â€“17) and then young adults (18â€“44). The optimal strategy to minimize hospitalizations, however, is to target ages 5â€“44 throughout the vaccination campaign, with only a tiny amount of vaccine used on high-risk people. We find that optimizing at each vaccine release time independently does not give the overall optimal strategy. In this manuscript, we derive policy recommendations for 2009 H1N1 vaccine allocation using a
mathematical model. In addition, our optimization procedures, which consider staggered releases over the entire epidemic altogether, are applicable to other outbreaks where not all supplies are available initially.

**PLoS Medicine**

1) Influenza in Africa *(Maria Yazdanbakhsh, Peter G. Kremsner)*

http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000182

**Abstract:**
Authors argue that there needs to be better awareness, surveillance, and clinical management of common febrile diseases in Africa, especially influenza.

**PLoS ONE**

1) Systems-level comparison of host-responses elicited by avian H5N1 and seasonal H1N1 influenza viruses in primary human macrophages *(Suki M.Y.Lee et al.)*

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008072

**Abstract:**
The key target cells for the virus in the lung are the alveolar epithelium and alveolar macrophages, and we have shown that, compared to seasonal human influenza viruses, equivalent infecting doses of H5N1 viruses markedly up-regulate pro-inflammatory cytokines in both primary cell types in vitro. Whether this H5N1-induced dysregulation of host responses is driven by qualitative (i.e. activation of unique host pathways in response to H5N1) or quantitative differences between seasonal influenza viruses is unclear. Here we used microarrays to analyze and compare the gene expression profiles in primary human macrophages at 1, 3, and 6 h after infection with H5N1 virus or low-pathogenic seasonal influenza A (H1N1) virus. We found that host responses to both viruses are qualitatively similar with the activation of nearly identical biological processes and pathways. However, in comparison to seasonal H1N1 virus, H5N1 infection elicits a quantitatively stronger host inflammatory response including type I interferon (IFN) and tumor necrosis factor (TNF)-α genes. A network-based analysis suggests that the synergy between IFN-β and TNF-α results in an enhanced and sustained IFN and pro-inflammatory cytokine response at the early stage of viral infection that may contribute to the viral pathogenesis and this is of relevance to the design of novel therapeutic strategies for H5N1 induced respiratory disease.

**PLoS CURRENTS**

1) Is a Mass Immunization Program for Pandemic (H1N1) 2009 Good Value for Money? Early Evidence from the Canadian Experience *(Beata Sander, Chris Bauch, David Fisman, December 17, 2009)*

http://knol.google.com/k/beat-sander/is-a-mass-immunization-program-for/39gzqilkz43q8/1?collectionId=28qm4w0q65e4w.1&position=1#

**Abstract:**
This work contributes informed estimates to the current debate about the pandemic (H1N1) 2009 mass immunization program’s economic merits. We performed a cost-utility analysis of the (H1N1) 2009 mass immunization program in Ontario, Canada’s most populous province. The analysis is based on a simulation model of a pandemic (H1N1) 2009 outbreak, surveillance data, and administrative data. We consider no immunization versus mass immunization reaching 30% of the population. Immunization program costs are expected to be $118 million in Ontario. Our analysis indicates this program will reduce influenza cases by 50%, preventing 35 deaths, and
cutting treatment costs in half. A pandemic (H1N1) 2009 immunization program is likely to be highly cost-effective.

2) Studies needed to address public health challenges of the 2009 H1N1 influenza pandemic: insights from modeling needs (Maria van Kerkhove, Neil Ferguson, Steven Riley, December 17, 2009); http://knol.google.com/k/maria-van-kerkhove/studies-needed-to-address-public-health/agr0htar1u6r/18?collectionId=28qm4w0q65e4w.1&position=2#

Abstract:
The 2009 influenza pandemic (H1N1pdm) has completed its first wave in many northern and southern hemisphere populations and many northern hemisphere populations are reporting substantial activity indicating the start of a second wave this autumn. As the global epidemiology of this novel strain unfolds, substantial policy challenges will continue to present themselves for the next 12 to 18 months. Here, we anticipate six public health challenges and identify data that are required for public health decision making. In particular, we suggest studies that will generate data not otherwise available from routine surveillance. Representative serological surveys stand out as a critical source of data with which to reduce uncertainty around policy choices for both pharmaceutical and non-pharmaceutical interventions after the initial wave has passed. Also, monitoring the time course of incidence of severe H1N1pdm cases will give a clear picture of variability in underlying transmissibility of the virus during population wide changes in behavior such as school vacations and other non-pharmaceutical interventions. In addition, we address low resource settings where routine surveillance for influenza has not been established and suggest alternative ways to collect data for the 2009 (and beyond) influenza H1N1 pandemic.

SCIENCE

1) VIRUS OF THE YEAR: The Novel H1N1 Influenza (Martin Enserink and Jon Cohen, December 18, 2009); http://www.sciencemag.org/cgi/content/summary/326/5960/1607?rss=1

Abstract:
For years, scientists have been warning about the potential for an influenza pandemic on the order of the 1918 Spanish flu. They imagined the culprit would surface in Asia—and, since 2003, have worried that the avian influenza strain H5N1 might be it. Health officials worldwide drafted one preparedness plan after another. But the pandemic that erupted last spring looks nothing like the one in the plans. Not only did it begin in North America, but the swine virus behind it is a novel form of an H1N1 strain already circulating in humans. And although the new H1N1 is unusually dangerous for the young and for pregnant women, in most otherwise healthy people it causes a disease no more severe than seasonal flu. Scientists have repeatedly warned that this relatively mild virus could mutate or swap genes with cousins and become deadlier. But for now, it looks as if this H1N1 will go down in history more for causing confusion than catastrophe.

VACCINE

1) Systematic review of interventions to increase influenza vaccination rates of those 60 years and older (Roger E. Thomas, Margaret L. Russell and Diane L. Lorenzetti, N.B. article in press – uncorrected proof); http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TD4-4XXNSNS-3&_user=7149360&_coverDate=12%2F14%2F2009&_rdoc=1&_fmt=high&_orig=browse&_srch=docinfo%23toc%2325188%239999%2399999999%23999999999%2399999999%23FA%23display%23Articles)&_cdi=5188&_sort=d&_docanchor=&_ct=141&_acct=C000071090&_version=1&_urlVersion=0&_userid=7149360&md5=66af01337986623a7b07d314d04e93f
Abstract:
A systematic literature review identified 44 RCTs testing interventions to increase influenza vaccination rates among seniors ≥60. Case–control and cohort studies were excluded after review because of problems identifying secular trends and unknown confounders. Because of heterogeneity and unique interventions tested by a single or a few RCTs few studies could be pooled in meta-analysis. Using the CDC classification of interventions: (1) Increasing community demand: there is evidence of low quality that reminders increase influenza vaccination rates; (2) Increasing access: there is evidence of moderate quality that home visits to those ≥60 promoting influenza vaccination increase rates, and (3) Provider- and system-based interventions: there is evidence of moderate quality that facilitators working to improve preventive interventions in practices increase rates.

***Please note that the hypertext links appended to the citations below may not be available in your institution – contact your library for details on access to the journals.
GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

January 08, 2010: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 52 (December 27-Jan 2, 2010), influenza activity decreased slightly in the US, however the proportion of outpatient visits for ILI was above the national baseline.

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 50 (December 20 - January 2, 2010)
During weeks 51 and 52, influenza activity in Canada remained low with most of the influenza surveillance regions reporting either sporadic or no activity. Only 1.6% of the specimens tested were positive for influenza during the two-week period while the ILI consultations rate were below or within the expected range for these weeks.

Deaths Associated with Influenza A (H1N1) as of January 07, 2010
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php
The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

Vaccine Surveillance Report- AEFI (January 06, 2010)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/addeve-eng.php

Helping children cope with H1N1 flu virus (January 04, 2010)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/hcch-aevgh-eng.php

Helping teens cope with the H1N1 flu virus (January 04, 2010)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/htch-aavgh-eng.php

Helping caregivers cope with the H1N1 flu virus (January 04, 2010)
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/hcch-aivgh-eng.php
Taking care of ourselves and our families during the H1N1 flu virus
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/tcof-pssf-eng.php

Canada to bridge Mexico’s H1N1 flu vaccine requirements

ONTARIO

Overall, influenza activity in Ontario is lower compared to the previous week. Overall the indicators show that influenza activity was lower in weeks 51 & 52 compared to week 50. Starting in week 45 (November 8-14), influenza activity in Ontario has declined each week.

BC CENTER FOR DISEASE CONTROL (BC CDC):

BC CDC: H1N1 flu virus update (January 05, 2010)
http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/2009HealthAlerts/H1N1FluVirusHumanSwineFlu.htm

Weekly BC Pandemic H1N1 Surveillance Update as of January 04, 2010:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

WORLD HEALTH ORGANIZATION (WHO)

Global Situation Update 82, January 03, 2010
The most active areas of pandemic influenza transmission currently are in parts of central, eastern and southeastern Europe, North Africa, and South Asia. In Europe, pH1N1 transmission remains geographically widespread throughout the continent and there continues to be intense virus circulation in several countries of central, eastern, and southeastern Europe - particularly in Poland, Serbia, Ukraine, Georgia - where a high intensity of respiratory diseases activity has been recently reported. Among countries testing more than 20 clinical specimens from sentinel sites in the past week, the greatest proportions of samples testing positive for influenza were observed in Greece (72%), Georgia (54%), Switzerland (49%), Portugal (48%), Germany (48%), Luxembourg (40%), Romania (30%), Poland (25%), and Albania (23%).... (see link)

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

January 08, 2010: ECDC Daily Update, Pandemic (H1N1) 2009

HEALTH/SURVEILLANCE BULLETINS:

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

Minority groups hit hard by H1N1 (January 7, 2010)
http://www.jsonline.com/features/health/80971802.html
UK considering unloading surplus vaccine (January 08, 2010)
http://news.bbc.co.uk/2/hi/health/8448080.stm

CDC hopes to prevent repeat of 1958 flu mortality surge (January 07, 2010)
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/jan0710cdc.html

Public health officials share school-based vaccination strategies (January 06, 2010)
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/jan0610schools.html

Indian doctors request more ventilators for hard-hit city (January 05, 2010)
http://timesofindia.indiatimes.com/city/ludhiana/H1N1-Request-for-50-ventilators/articleshow/5414044.cms

**JOURNALS SCANNED:**

- American Journal of Public Health
- Antimicrobial Agents and Chemotherapy (added this week)
- BMC Medicine (added this week)
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- JAMA
- Journal of Clinical Microbiology (added this week)
- Journal of Clinical Virology (added this week)
- Journal of Infectious Diseases
- Lancet Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS
- PLoS One
- PLoS Currents
- PLoS Pathogens
- Science
- Vaccine (added this week)

***Please note that the hypertext links appended to the citations below may not be available in your institution – contact your library for details on access to the journals.***

AMERICAN JOURNAL OF PUBLIC HEALTH

- Nothing new on H1N1 this week
1) Effects of the Combination of Favipiravir (T-705) and Oseltamivir on Influenza A Virus Infections in Mice (Donald F. Smee, et al., December 20, 2009); http://aac.asm.org/cgi/content/abstract/54/1/126

Abstract:
Favipiravir (T-705 [6-fluoro-3-hydroxy-2-pyrazinecarboxamide]) and oseltamivir were combined to treat influenza virus A/NWS/33 (H1N1), A/Victoria/3/75 (H3N2), and A/Duck/MN/1525/81 (H5N1) infections. The combination of inhibitors (25 mg/kg/day each) increased survival to 90%. Combining ineffective doses (20 mg/kg/day of T-705 and 10 to 40 mg/kg/day of oseltamivir) afforded 60 to 80% protection and improved body weights during infection. Thus, synergistic responses were achieved with low doses of T-705 combined with oseltamivir. These compounds may be viable candidates for combination treatment of human influenza infections.

BMC Medicine (added this week)

1) Calculating the potential for within-flight transmission of influenza A (H1N1) (Bradley G Wagner, Brian J Coburn and Sally Blower, December 24, 2009); http://www.biomedcentral.com/1741-7015/7/81

Abstract:
Clearly air travel, by transporting infectious individuals from one geographic location to another, significantly affects the rate of spread of influenza A (H1N1). However, the possibility of within-flight transmission of H1N1 has not been evaluated; although it is known that smallpox, measles, tuberculosis, SARS and seasonal influenza can be transmitted during commercial flights. Here we present the first quantitative risk assessment to assess the potential for within-flight transmission of H1N1.

British Medical Journal

1) Too early to declare H1N1 swine flu pandemic over, says WHO chief (John Zarocostas, December 31, 2009); http://www.bmj.com/cgi/content/full/339/dec31_2/b5681

Abstract:
Many countries in the northern hemisphere—such as the US, Canada, the United Kingdom, and some parts of continental Europe—"have passed the peak of their second wave," Dr Margaret Chan, director general of the WHO, told reporters on Tuesday. But there is still intense pandemic influenza activity in countries such as India and Egypt, she said. "I think it is too premature and too early for us to say we have come to an end of the pandemic influenza worldwide. It would be prudent, and appropriate . . . to continue to monitor the evolution of this pandemic for the next six to 12 months," she said, adding: "One thing we need to guard against is a sense of complacency."

Clinical Infectious Diseases

The elderly have been listed as a high-risk group for seasonal influenza and for this pandemic H1N1. However, people aged 65 years have the lowest incidence of infection thus far, so the elderly are not listed as an initial targeted group for the monovalent 2009 H1N1 vaccination. The antibody response to the 2009 H1N1 virus among the elderly is of particular interest. In Beijing, China, we used hemagglutination inhibition (HI) assay to detect antibody responses to the 2009 H1N1 virus. None of the subjects involved has been clinically confirmed to have the 2009 H1N1 influenza, so this substantial increase (from 9.4% to 42.5%) in antibody response to the 2009 H1N1 virus suggests that a substantial proportion of the population has been infected with the 2009 H1N1 virus but shows no clinical symptoms.

Abstract:
2) Preferential Lower Respiratory Tract Infection in Swine-Origin 2009 A(H1N1) Influenza (Ellen Yeh et al., January 4, 2010); http://www.journals.uchicago.edu/doi/full/10.1086/649875

We report a case of 2009 influenza A(H1N1) virus infection in which virus was detected predominantly in specimens from the lower respiratory tract but was absent or at very low levels in nasopharyngeal swab samples. This presentation suggests that, in certain hosts or for particular variants of 2009 A(H1N1) virus, the lower respiratory tract may be the preferred site of infection.

EMERGING INFECTIOUS DISEASES

1) Household Responses to Pandemic (H1N1) 2009–related School Closures, Perth, Western Australia (Paul V. Effler, et al., February 2010); http://www.cdc.gov/eid/content/16/2/pdfs/09-1372.pdf

Abstract:
School closure is often purported to reduce influenza transmission, but little is known about its effect on families. We surveyed families affected by pandemic (H1N1) 2009–related school closures in Perth, Western Australia, Australia. Surveys were returned for 233 (58%) of 402 students. School closure was deemed appropriate by 110 parents (47%); however, 91 (45%) parents of 202 asymptomatic students reported taking >1 day off work to care for their child, and 71 (35%) had to make childcare arrangements because of the class closures. During the week, 172 (74%) students participated in activities outside the home on >1 occasion, resulting in an average of 3.7 out-of-home activities for each student. In our survey, activities outside the home were commonly reported by students affected by school closure, the effect on families was substantial, and parental opinion regarding school closures as a means to mitigate the outbreak of pandemic (H1N1) 2009 was divided.

2) Employment and Compliance with Pandemic Influenza Mitigation Recommendations (Kelly D. Blake, Robert J. Blendon, and Kasisomayajula Viswanath, February 2010); http://www.cdc.gov/eid/content/16/2/pdfs/09-0638.pdf

Abstract:
In the event of a serious pandemic influenza outbreak, businesses must play a key role in protecting employees' health and safety. With regard to pandemic influenza mitigation recommendations requiring social distancing, we examined whether some US employees would disproportionately fail to comply because of job insecurity and financial problems associated with missing work. We used the 2006 Harvard School of Public Health Pandemic Influenza Survey and multivariable logistic regression to determine whether employment characteristics such as
inability to work from home, lack of pay when absent from work, and self-employment would be associated with less ability to comply with recommendations. We found that inability to work from home, lack of paid sick leave, and income are associated with working adults’ ability to comply and should be major targets for workplace interventions in the event of a serious outbreak.

3) Statewide School-located Influenza Vaccination Program for Children 5–13 Years of Age, Hawaii, USA (Effler et al., January 4, 2010);
http://www.cdc.gov/eid/content/16/2/pdfs/09-1375.pdf

Abstract:
New guidance recommends annual influenza vaccination for all children 5–18 years of age in the United States. During 2007–2008, Hawaii offered inactivated and live attenuated influenza vaccine at school-located clinics for grades kindergarten through eight. Most (90%) public and private schools participated, and 622 clinics were conducted at 340 schools. Of 132,775 children 5–13 years of age, 60,760 (46%) were vaccinated. The proportion vaccinated peaked at 54% for those 6 years of age and declined for older cohorts. More than 90% of schoolchildren transited the clinic in <10 minutes. A total of 15,835 staff-hours were expended; estimated cost per dose administered was $27 and included vaccine purchase and administration, health staffing resources, printing costs, data management, and promotion. This program demonstrates the feasibility of conducting mass school-located influenza vaccination programs in public and private schools statewide, as might be indicated to respond to pandemic influenza.

EUROSURVEILLANCE

1) A nosocomial outbreak of 2009 pandemic influenza A (H1N1) in a paediatric oncology ward in Italy, October – November 2009 (M Chironna, et al., January 7, 2010);
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19454

Abstract:
A nosocomial outbreak of 2009 pandemic influenza A(H1N1), with eight confirmed cases, occurred in a paediatric oncology ward in Italy, in October/November 2009. The fact that one case was infected despite being isolated and without contact to a symptomatic patient, hints towards potential transmission through a health care worker (HCW) and underlines the importance of vaccination of HCW who are involved in the care of critically ill patients.

2) When should we intervene to control the 2009 influenza A(H1N1) pandemic? (H Sato et al., January 7, 2010);
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19455

Abstract:
We simulated the early phase of the 2009 influenza A(H1N1) pandemic and assessed the effectiveness of public health interventions in Japan. We show that the detection rate of border quarantine was low and the timing of the intervention was the most important factor involved in the control of the pandemic, with the maximum reduction in daily cases obtained after interventions started on day 6 or 11. Early interventions were not always effective.

3) Outbreak of 2009 pandemic influenza A(H1N1), Los Lagos, Chile, April-June 2009 (Chilean Task Force for study of Pandemic Influenza A (H1N1), January 7, 2010);
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19456
Abstract:
On 6 June 2009, Chile reported 500 confirmed cases, seven severe and two fatal. Because six of the severe cases and the two deaths occurred in the region of Los Lagos in southern Chile, a retrospective study was conducted using data on emergency room visits as well as laboratory viral surveillance, during the period from 1 April to 31 May, in order to establish the date of the beginning of the outbreak. From 1 to 27 June, data were collected in real time, to establish the real magnitude of the outbreak, describe its transmission, clinical severity and secondary attack rates. Confirmed cases, their household contacts and healthcare workers were interviewed. This analysis showed that the outbreak in Los Lagos started on 28 April. By 27 June, a total of 14,559 clinical cases were identified, affecting mostly 5-19 year-olds. The effective reproduction number during the initial phase (20 days) was 1.8 (1.6–2.0). Of the 190 confirmed cases with severe acute respiratory infection, 71 (37.4%) presented a risk condition or underlying illness.

JAMA

1) Preliminary Communication: Immunogenicity of a Monovalent 2009 Influenza A(H1N1) Vaccine in Infants and Children. A Randomized Trial (Terry Nolan, et al., January 2010); http://jama.ama-assn.org/cgi/content/full/2009.1911v1

Abstract:
Following the first dose of vaccine, antibody titers of 1:40 or greater were observed in 161 of 174 infants and children in the 15-µg group and in 168 of 172 infants and children in the 30-µg group. Corresponding seroconversion rates were 86.8% and 94.2%, and factor increases in geometric mean titer were 13.6 and 18.3. All participants demonstrated antibody titers of 1:40 or greater after the second vaccine dose. Immune responses were robust regardless of age, baseline serostatus, or seasonal influenza vaccination status. The majority of adverse events were mild to moderate in severity. One 15-µg dose of vaccine was immunogenic in infants and children starting at 6 months of age and vaccine-associated reactions were mild to moderate in severity.

2) 2009 Influenza A(H1N1) Monovalent Vaccines for Children (Anthony E. Fiore, Kathleen M. Neuzil, December 21, 2009); http://jama.ama-assn.org/cgi/content/short/303/1/73?rss=1

Abstract:
The report by Nolan and colleagues in this issue of JAMA indicates that a single 15-µg dose of an unadjuvanted inactivated influenza A(H1N1) vaccine can elicit significant increases in influenza-specific antibody in more than 90% of healthy infants and young children. A second dose given 21 days later yielded significantly higher antibody levels. Data indicating that influenza A(H1N1) vaccines are immunogenic at licensed doses and schedules is excellent news for children, parents, health care professionals, and public health workers who have participated in pediatric immunization programs. Also reassuring are the findings from the safety analyses reported by Nolan et al, which indicate that this unadjuvanated vaccine is well tolerated with a safety profile similar to the seasonal influenza vaccine—an expected result given that the pandemic vaccine manufacturing process is identical to that used for seasonal vaccines.

JOURNAL OF CLINICAL MICROBIOLOGY (added this week)

1) Role of Rapid Immunochromatographic Antigen Testing in Diagnosis of Influenza A Virus 2009 H1N1 Infection (David F. Welch and Christine C. Ginocchio, January 2010); http://jcm.asm.org/cgi/content/abstract/48/1/22
Abstract:
Rapid antigen testing using immunochromatographic devices has become a diagnostic mainstay for detection of influenza virus and respiratory syncytial virus, the two major viruses infecting the respiratory tract. Recent studies have indicated that poor performance in the detection of the novel influenza A virus 2009 H1N1 should preclude their use. A survey of influenza diagnostic methods available on ClinMicroNet and Division C, the two ASM list servers, revealed that, despite this reported poor performance, a majority of the laboratories surveyed intend to continue to offer this testing during the current influenza season. Our two experts have been asked to consider the following question: what is the role of rapid immunochromatographic antigen testing in the laboratory diagnosis of influenza A virus infection during the current 2009 H1N1 pandemic?

2) Rapid and Specific Detection of Amantadine-Resistant Influenza A Viruses with a Ser31Asn Mutation by the Cycling Probe Method (Yasushi Suzuki, et al., January 2010); http://jcm.asm.org/cgi/content/abstract/48/1/57

Abstract:
We developed a novel method to detect amantadine-resistant strains harboring the Ser31Asn mutation in the M2 gene based on the cycling probe method and real-time PCR. We also studied the rate of amantadine resistance in the 2007-2008 influenza season in Japan. Two different primer and cycling probe sets were designed for A/H1N1 and A/H3N2 each to detect a single nucleotide polymorphism corresponding to Ser/Asn at residue 31 of the M2 protein. By using nasopharyngeal swabs from patients with influenza-like and other respiratory illnesses and virus isolates, the specificity and the sensitivity of the cycling probe method were evaluated. High frequencies of amantadine resistance were detected among the A/H1N1 (411/663, 62%) and A/H3N2 (56/56, 100%) virus isolates collected from six prefectures in Japan in the 2007-2008 influenza season. We confirmed that the cycling probe method is suitable for the screening of both nasopharyngeal swabs and influenza virus isolates for amantadine-resistant strains and showed that the incidence of amantadine resistance among both A/H1N1 and A/H3N2 viruses remained high in Japan during the 2007-2008 season.

3) Comparison of a Rapid Antigen Test with Nucleic Acid Testing during Cocirculation of Pandemic Influenza A/H1N1 2009 and Seasonal Influenza A/H3N2 (Jen Kok, et al., January 2010); http://jcm.asm.org/cgi/content/abstract/48/1/290

Abstract:
The rapid diagnosis of influenza is critical in optimizing clinical management. Rapid antigen tests have decreased sensitivity in detecting pandemic influenza A/H1N1 2009 virus compared to seasonal influenza A subtypes (53.4% versus 74.2%, P < 0.001). Nucleic acid tests should be used to detect pandemic influenza virus when rapid antigen tests are negative.

4) Evidence for Persistence of and Antiviral Resistance and Reassortment Events in Seasonal Influenza Virus Strains Circulating in Cambodia (Mathieu Fourment, et al., January 2010); http://jcm.asm.org/cgi/content/abstract/48/1/295

Abstract:
The analysis of A/H1N1 and A/H3N2 influenza viruses collected between 2005 and 2008 in Cambodia detected strains resistant to oseltamivir and confirmed widespread resistance to adamantanes. Phylogenetic analyses revealed intrasubtype reassortment, probable reemergence of A/H3N2 viruses in two consecutive seasons, and cocirculation of different lineages in each subtype.
5) Comparison of Becton Dickinson Directigen EZ Flu A+B Test against the CDC Real-Time PCR Assay for Detection of 2009 Pandemic Influenza A/H1N1 Virus (Tess Karre, et al., January 2010); http://jcm.asm.org/cgi/content/full/48/1/343

Abstract:
Although performance characteristics of several commercial rapid immunodiagnostic tests (RIDT) for the detection of seasonal influenza viruses are known, only limited data have been published regarding the ability of RIDT to detect pandemic influenza A/H1N1 2009 virus. Of these comparisons, two included an evaluation of the Directigen EZ Flu A+B immunoassay (Becton Dickinson, Sparks, MD). In these two reports, the reported sensitivities were 46.7 and 49%. To date, there are no reported data comparing the Directigen EZ Flu A+B immunoassay with the real-time PCR (RT-PCR) assay developed by the Centers for Disease Control and Prevention (CDC) to detect pandemic influenza A/H1N1 2009 virus. This communication is a report of such a comparison using fresh, clinical nasopharyngeal wash (NPW) specimens.

JOURNAL OF CLINICAL VIROLOGY (added this week)

1) Performance of laboratory diagnostics for the detection of influenza A(H1N1)v virus as correlated with the time after symptom onset and viral load (PK Cheng et al, December 16, 2009); http://www.sciencedirect.com/science? ob=ArticleURL& _udi=B6VJV-4XYB47D-3& user=7390936& rdoc=1& fmt=& orig=search& sort=d& docanchor=& view=c& acct=C0000 71363& version=1& urlVersion=0& userid=7390936&md5=af9ad0f69b61128deed5a8e1153a85 11

Abstract:
Comparison of the performance of rapid antigen test (RAT), viral culture and RT-PCR for the detection of influenza A(H1N1)v virus and to correlate their performance with the time after symptom onset and viral load. Using respiratory samples from 587 patients diagnosed with influenza A(H1N1)v infection, comparison of laboratory diagnostics showed viral culture and RT-PCR gave comparable results with overall sensitivity of 93.9% and 98.1%, respectively. For RAT, when testing a subset of 60 samples collected ≤3 days following symptom onset, the sensitivity was 62%. Although viral shedding is prolonged and of higher titre in influenza A(H1N1)v infection, RAT showed a low sensitivity of 62% among patients presenting ≤3 days after symptom onset. Viral culture showed comparable performance with RT-PCR and with sensitivity better than that documented for seasonal influenza.

JOURNAL OF INFECTIOUS DISEASES

1) A Novel Type of Influenza Vaccine: Safety and Immunogenicity of Replication-Deficient Influenza Virus Created by Deletion of the Interferon Antagonist NS1 (Volker Wacheck et al., December 29, 2009); http://www.journals.uchicago.edu/doi/full/10.1086/649428

Abstract:
The nonstructural protein NS1 of influenza virus counteracts the interferon-mediated immune response of the host. By deleting the open reading frame of NS1, we have generated a novel type of influenza vaccine. We studied the safety and immunogenicity of an influenza strain lacking the NS1 gene (ΔNS1-H1N1) in healthy volunteers. We show that vaccination with an influenza virus strain lacking the viral interferon antagonist NS1 induces statistically significant levels of strain-specific and cross-neutralizing antibodies despite the highly attenuated replication-deficient phenotype. Further studies are warranted to determine whether these results translate into protection from influenza virus infection.
2) Cytokine Profiles Induced by the Novel Swine-Origin Influenza A/H1N1 Virus: Implications for Treatment Strategies (Patrick C. Y. Woo, December 23, 2009); http://www.journals.uchicago.edu/doi/full/10.1086/649785

Abstract:
Given the apparent high mortality associated with the novel swine-origin influenza A/H1N1 virus (S-OIV) in Mexico, we aimed to study the cytokine profiles induced by S-OIV and the effect of immunomodulators. No major cytokine storm, as seen in H5N1 infection, is associated with S-OIV infection of cell lines. The mainstay of treatment for uncomplicated S-OIV infections should be antiviral agents without immunomodulators. For individual S-OIV–infected patients with severe primary viral pneumonia, severe sepsis, and multiorgan failure, immunomodulators may be considered as an adjunctive therapy in clinical trials.

Lancet Infectious Diseases

1) [Comment] Defining the safety profile of pandemic influenza vaccines (Dina Pfeifer, Claudia Alfonso and David Wood December 15, 2009); http://download.thelancet.com/flatcontentassets/H1N1-flu/vaccination/vaccination-82.pdf

Abstract:
Although the current pandemic is considered moderate in terms of overall severity, the influenza A H1N1 2009 virus causes an average 6–14 deaths per 1 000 000 population. Moreover, certain severe disease patterns of the influenza A H1N1 2009 virus are distinct from seasonal influenza viruses. The ongoing worldwide safety evaluation of pandemic H1N1 vaccines is unprecedented and will provide the most documented safety profile of any vaccine in history. The available data show that pandemic H1N1 vaccines are immunogenic and have an acceptable safety profile. They provide an important public health tool to minimise further harm from the virus.

2) InFACT: a global critical care research response to H1N1 (The Global H1N1 Collaboration, January 4, 2010); http://www.thelancet.com/journals/lancet/article/PIIS014067360961792X/fulltext?rss=yes

Abstract:
The H1N1 pandemic presents acute care researchers with an extraordinary challenge and an unprecedented opportunity. By early October, 2009, there had been more than 340 000 reported cases of H1N1 infection in 191 countries, with more than 4100 deaths. WHO initially projected that up to 2 billion people could become infected with the virus over the next 2 years.

Lancet

1) H1N1 vaccination struggles against resistance and supply (Priya Shetty, January 2010); http://www.thelancet.com/journals/laninf/article/PIIS1473309909703391/fulltext?rss=yes

Abstract:
Pandemic influenza H1N1 vaccination campaigns are at last underway across the world. Public health officials are finding, however, that a major barrier to vaccination is not the availability of the vaccine but a lack of enthusiasm from the general public and some health professionals. Meanwhile, developing countries do not even have the vaccine yet, since promises made by some rich countries to provide the vaccine to poor nations have yet to be fulfilled.

2) Mandatory influenza immunisation of health-care workers (Gwendolyn L Gilbert, Ian Kerridge, Paul Cheung, January 2010); http://www.thelancet.com/journals/laninf/article/PIIS1473309909703342/fulltext?rss=yes
Abstract:
Seasonal influenza imposes an enormous but poorly defined burden of excess deaths, hospital admissions, and health-care costs, and often spreads within health-care facilities. Hospital patients with influenza are a potential source of infection for health-care workers that are not immunised, with attack rates among health-care workers of 18—24%. Unfortunately, health-care workers infected with influenza often continue to work, despite symptoms.

**MMWR**

1) Intent to Receive Influenza A (H1N1) 2009 Monovalent and Seasonal Influenza Vaccines --- Two Counties, North Carolina, August 2009 *(December 25, 2009)*; [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5850a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5850a1.htm)

**Abstract:**
To measure intent to receive H1N1 and seasonal influenza vaccines among children and adults, during August 28–29, 2009, the North Carolina Center for Public Health Preparedness, with state and local public health officials, conducted a community assessment in two counties. This report summarizes the results of that assessment, which determined that 64% of adults reported intent to receive H1N1 vaccine. In addition, 65% of parents reported intent to have all their children (aged 6 months to <18 years) vaccinated with H1N1 vaccine, and 51% said they would have all their children vaccinated with both H1N1 and seasonal influenza vaccines. The most commonly reported reasons for not intending to receive H1N1 vaccine were belief in a low likelihood of infection (18%) and concern over vaccine side effects (14%); 85% of participants said they received their H1N1 information from television. To increase coverage with H1N1 and seasonal influenza vaccines, public health departments should use television to focus public health messages on the risks for infection and severe illness and the safety profile of the vaccine.

2) Impact of Seasonal Influenza-Related School Closures on Families --- Southeastern Kentucky, February 2008 *(December 25, 2009)*; [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5850a2.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5850a2.htm)

**Abstract:**
To assess the impact of school closings on families, the Kentucky Department for Public Health (KDPH) conducted a telephone survey of randomly sampled households whose children attended schools in two adjacent school districts that had been closed because of high absenteeism during an outbreak of seasonal influenza in the community in February 2008. This report summarizes the results of that survey, which indicated that 97.0% of respondents agreed with the decision to close schools. In 29.1% of households, an adult had to miss work to provide child care, and in 15.7% of households, at least one adult lost pay because of missed work. Although the schools closed because of high absenteeism affecting school operations and funding, this was not fully communicated to families; 64.4% of respondents believed the closures would "keep people from getting ill," and 90.8% thought it was "extremely or very important" to disinfect schools while closed to reduce community spread of influenza. School districts and health departments should provide families with specific information about the reason for school closings and provide recommendations for reducing the spread of influenza while students are dismissed from school.

3) Patients Hospitalized with 2009 Pandemic Influenza A (H1N1) - New York City, May 2009 *(January 8, 2010)*; [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5851a2.htm?s_cid=mm5851a2_x](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5851a2.htm?s_cid=mm5851a2_x)
Abstract:
To rapidly assess the severity of influenza illness and identify persons at highest risk for severe infection, the New York City (NYC) Department of Health and Mental Hygiene (DOHMH) reviewed the medical charts of the first 99 patients with laboratory confirmed H1N1 admitted to any NYC hospital. The purpose of the review was to characterize the demographics of the first hospitalized patients, identify associated underlying medical conditions, describe the course and severity of disease, and examine the use of antiviral medications. This report summarizes the findings of this analysis.

4) Outbreak of 2009 Pandemic Influenza A (H1N1) at a School - Hawaii, May 2009 (January 8, 2010);
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5851a3.htm?s_cid=mm5851a3_x

Abstract:
One case was in an 8th-grade student and the other in a 3rd-grade teacher. HDOH initiated an investigation to determine the extent of transmission at the school and among household contacts, and to help establish appropriate control strategies. This report summarizes the results of the investigation, which detected an outbreak of pandemic H1N1 cases at the school over the ensuing 3 weeks.

NATURE

1) Letter: Human host factors required for influenza virus replication near-final version (Renate König et al., December 21, 2009);
http://www.nature.com/nature/journal/vnfv/ncurrent/abs/nature08699.html

Abstract:
An integrative systems approach, based on genome-wide RNA interference screening, to identify 295 cellular cofactors required for early-stage influenza virus replication. Within this group, those involved in kinase-regulated signalling, ubiquitination and phosphatase activity are the most highly enriched, and 181 factors assemble into a highly significant host–pathogen interaction network. Notably, growth of swine-origin H1N1 influenza virus is also dependent on the identified host factors, and we show that small molecule inhibitors of several factors, including vATPase and CAMK2B, antagonize influenza virus replication.

2) Blog: China frets over swine flu (Daniel Cressey, January 4, 2010);
http://blogs.nature.com/news/thegreatbeyond/swine_flu/

Abstract:
China has confirmed that there have been 659 deaths from H1N1 in the country as of 2 January. In total, 120,940 cases of swine flu have been recorded.

NEW ENGLAND JOURNAL OF MEDICINE

1) Severe 2009 H1N1 Influenza in Pregnant and Postpartum Women in California (Janice K. Louie, Meileen Acosta, Denise J. Jamieson, Margaret A. Honein, January 7, 2010);
http://content.nejm.org/cgi/content/full/362/1/27?query=TOC
Abstract:
2009 H1N1 influenza can cause severe illness and death in pregnant and postpartum women; regardless of the results of rapid antigen testing, prompt evaluation and antiviral treatment of influenza-like illness should be considered in such women. The high cause-specific maternal mortality rate suggests that 2009 H1N1 influenza may increase the 2009 maternal mortality ratio in the United States.

2) Correspondence: A Community Cluster of Oseltamivir-Resistant Cases of 2009 H1N1 Influenza (Le Quynh Mai et al., January 7, 2010);
http://content.nejm.org/cgi/content/full/362/1/86-a?query=TOC

Abstract:
In this cluster, infection developed in at least 6 of the 10 people who were probably exposed to the index patient; this shows that resistant 2009 H1N1 viruses are transmissible and can replicate and cause illness in healthy people in the absence of selective drug pressure. Ongoing transmission from the cluster was not detected, but the tracing of all contacts was not possible, so ongoing transmission cannot be ruled out. However, only three other resistant cases have been detected in Vietnam as of this writing, and all were due to selection of resistant viruses during treatment rather than person-to-person transmission. Although data are limited, it is likely that the detected levels of oseltamivir resistance are clinically relevant. The loss of oseltamivir as a treatment option for severe 2009 H1N1 infection could have profound consequences. To minimize this risk, the use of oseltamivir should be restricted to prophylaxis and treatment in high-risk persons or the treatment of people with severe or deteriorating illness, antiviral stockpiles should be diversified, and optimal dosages and combination therapies should be urgently studied. Close monitoring and reporting of resistance to neuraminidase inhibitors are essential.

3) Household Transmission of 2009 Pandemic Influenza A (H1N1) Virus in the United States (Simon Cauchemez et al., December 31, 2009);
http://content.nejm.org/cgi/content/full/361/27/2619?query=TOC

Abstract:
Characterization of the risk factors and describe the transmission of the virus within households. An acute respiratory illness developed in 78 of 600 household contacts (13%). In 156 households (72% of the 216 households), an acute respiratory illness developed in none of the household contacts; in 46 households (21%), illness developed in one contact; and in 14 households (6%), illness developed in more than one contact. The proportion of household contacts in whom acute respiratory illness developed decreased with the size of the household, from 28% in two-member households to 9% in six-member households. Household contacts 18 years of age or younger were twice as susceptible as those 19 to 50 years of age (relative susceptibility, 1.96; Bayesian 95% credibile interval, 1.05 to 3.78; P=0.005), and household contacts older than 50 years of age were less susceptible than those who were 19 to 50 years of age (relative susceptibility, 0.17; 95% credibile interval, 0.02 to 0.92; P=0.03). Infectivity did not vary with age. The mean time between the onset of symptoms in a case patient and the onset of symptoms in the household contacts infected by that patient was 2.6 days (95% credible interval, 2.2 to 3.5). The transmissibility of the 2009 H1N1 influenza virus in households is lower than that seen in past pandemics. Most transmissions occur soon before or after the onset of symptoms in a case patient.

4) Outbreak of 2009 pandemic influenza A(H1N1) at a New York City school (J. Lessler et al., December 31, 2009);
http://content.nejm.org/cgi/content/full/361/27/2628?query=TOC
Abstract:
The findings from this investigation suggest that 2009 H1N1 influenza in the high school was widespread but did not cause severe illness. The reasons for the rapid and extensive spread of influenza-like illnesses are unknown. The natural history and transmission of the 2009 H1N1 influenza virus appear to be similar to those of previously observed circulating pandemic and interpandemic influenza viruses.

5) [Correspondence] Responses to 2009 H1N1 vaccine in children 3 to 17 years of age (Adriano Arguedas, Carolina Soley, and Kelly Lindert, December 31, 2009);
http://content.nejm.org/cgi/content/full/NEJMc0909988?query=TOC

Abstract:
These preliminary data support the use of one 15-µg dose of 2009 H1N1 vaccine without adjuvant in children between the ages of 9 and 17 years. However, in children 3 to 8 years of age, only the 7.5-µg dose of 2009 H1N1 vaccine with adjuvant met both the immunogenicity criteria after one dose, and the criterion for the HI antibody titer was not met by either one or two 15-µg doses without adjuvant. The use of adjuvant may provide a rapid immune response at a lower hemagglutinin dose than that required in vaccine without adjuvant. This may increase the availability of vaccine for rapid immunization in young children, an age group that is at substantial risk for hospitalization associated with influenza.

6) Correspondence: Bacterial pathogens and death during the 1918 Influenza Pandemic (Yu-Wen Chien, Keith P. Klugman and David M. Morens, December 24, 2009);
http://content.nejm.org/cgi/content/full/361/26/2582?query=TOC

Abstract:
Although viral pneumonitis alone has caused deaths, a recent report from the Centers for Disease Control and Prevention showed that 29% of the patients who died from infection with the 2009 pandemic influenza A (H1N1) virus had evidence of bacterial infection with pneumococci predominantly of types not present in the conjugate vaccine. The currently increased incidence of staphylococcal infections may reflect the resistance of staphylococci to community antibiotic use and a higher probability of culture being performed, either after death or after the initiation of antibiotic therapy. The burden of death from pneumonia-related infection with the 2009 pandemic influenza A (H1N1) virus could be greater in developing countries with high rates of carriage of pneumococcal bacteria among both adults and children and limited availability of pneumococcal conjugate vaccine and antibiotics. The historical data suggest that administration of pneumococcal vaccine and antibiotic therapy may be important to reduce mortality from influenza-associated pneumonia.

7) Correspondence: Intravenous Zanamivir for Oseltamivir-resistant 2009 H1N1 influenza (Aditya H. Gaur et al., December 23, 2009);
http://content.nejm.org/cgi/content/full/NEJMc0910893?query=TOC

Abstract:
In the absence of real-time access to testing for oseltamivir resistance, clinicians who are treating immunocompromised patients with suspected or proven 2009 H1N1 influenza who have persistent respiratory symptoms should have a high index of suspicion for drug resistance and consider zanamivir for treatment. For critically ill patients, the choice is limited, since aerosolized zanamivir that is delivered through the ventilatory circuit is not recommended and the intravenous preparation is not commercially available.
8) Editorial: The Need for Science in the Practice of Public Health; (Nicole Lurie, December 24, 2009); http://content.nejm.org/cgi/content/full/361/26/2571?query=TOC

Abstract:
We will all have the opportunity to learn lessons from the 2009 pandemic H1N1 virus. Although we would like to believe that pandemics occur rarely and that we have plenty of time until the next one, new infectious diseases, as well as other kinds of threats, can emerge at any time. One challenge will be to continue to invest in science — whether that means basic virology; surveillance; mitigation measures; vaccine development, manufacture, and distribution; operations and logistics; or communication — so that when the next pandemic or other emerging infectious disease appears, we will have the data we need to make informed decisions about how to confront it. A second challenge will be to strengthen the nation's public health infrastructure so that we can rapidly turn scientific knowledge into action.


Abstract:
Unfortunately, worsening hypotension, hypoxemia, and acidosis developed. Antimicrobial therapy was broadened to include metronidazole and micafungin. Hypotension and acidosis persisted despite maximum doses of pressors, and the patient died on the ninth hospital day. Permission for an autopsy was denied. The majority of patients in intensive care units (ICUs) who have 2009 H1N1 influenza have been nonelderly persons with coexisting conditions, including obesity, and pregnant women. However, in case series of patients with 2009 H1N1 influenza in the United States 27 to 36% of hospitalized patients and 33 to 38% of patients admitted to ICUs have been previously healthy, nonobese children and young adults, such as this patient.

10) Images in Clinical Medicine: Coughing and Masks (J.W.-T. Tang and G. Settles, December 24, 2009); http://content.nejm.org/cgi/content/full/361/26/e62?query=TOC

Abstract:
Includes videolinks of mask performance.

11) Pediatric Hospitalizations Associated with 2009 Pandemic Influenza A (H1N1) in Argentina (Romina Libster, et al., January 7, 2010); http://content.nejm.org/cgi/content/full/NEJMo0907673?query=TOC

Abstract:
Between May and July 2009, a total of 251 children were hospitalized with 2009 H1N1 influenza. Rates of hospitalization were double those for seasonal influenza in 2008. Of the children who were hospitalized, 47 (19%) were admitted to an intensive care unit, 42 (17%) required mechanical ventilation, and 13 (5%) died. The overall rate of death was 1.1 per 100,000 children, as compared with 0.1 per 100,000 children for seasonal influenza in 2007. (No pediatric deaths associated with seasonal influenza were reported in 2008.) Most deaths were caused by refractory hypoxemia in infants under 1 year of age (death rate, 7.6 per 100,000). Pandemic 2009 H1N1 influenza was associated with pediatric death rates that were 10 times the rates for seasonal influenza in previous years.
12) Clinical Features of the Initial Cases of 2009 Pandemic Influenza A (H1N1) Virus Infection in China (B. Cao et al., December 24, 2009);
http://content.nejm.org/cgi/content/full/361/26/2507?query=TOC

Abstract:
Surveillance of the 2009 H1N1 virus in China shows that the majority of those infected have a mild illness. The typical period during which the virus can be detected with the use of real-time RT-PCR is 6 days (whether or not fever is present). The duration of infection may be shortened if oseltamivir is administered.

PLoS

- Nothing new on H1N1 this week

PLoS ONE

1) Effect of the Novel Influenza A (H1N1) Virus in the Human Immune System (Evangelos J. Giamarellos-Bourboulis et al., December 23, 2009);
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008393

Abstract:
Infection by the H1N1 virus is accompanied by a characteristic impairment of the innate immune responses characterized by defective cytokine responses to S.pneumoniae. Alterations of the adaptive immune responses are predominated by increase of Tregs. These findings signify a predisposition for pneumococcal infections after infection by H1N1 influenza.

2) Breaking the Waves: Modelling the Potential Impact of Public Health Measures to Defer the Epidemic Peak of Novel Influenza A/H1N1 (Matthias an der Heiden et al., December 21, 2009);
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008356

Abstract:
Control strategies that reduce the spread of the disease during the early phase of a pandemic wave may lead to a substantial delay of the epidemic. Since prophylactic treatment is only offered to the contacts of the first 10,000 cases, the amount of antivirals needed is still very limited.

3) Evaluation of the Efficacy and Cross-Protectivity of Recent Human and Swine Vaccines against the Pandemic (H1N1) 2009 Virus Infection (Philippe Noriel O. Pascua et al, December 23, 2009);
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008431

Abstract:
To investigate whether recent seasonal human or swine H1N1 vaccines could induce cross-reactive immune responses against infection with the pandemic (H1N1) 2009 virus, mice, ferrets or mini-pigs were administered with various regimens (once or twice) and antigen content (1.77, 3.5 or 7.5 µg HA) of a-Brsibane/59/07, a-CAN01/04 or RgCA/04/09xPR8 vaccine. … These results suggest that neither recent human nor animal H1N1 vaccine could provide complete protectivity in all animal models. Thus, this study warrants the need for strain-specific vaccines that could yield the optimal protection desired for humans and/or animals.

4) Enhancement of the Influenza A Hemagglutinin (HA)-Mediated Cell-Cell Fusion and Virus Entry by the Viral Neuraminidase (NA) (Bin Su et al, December 30, 2009);
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008495
Abstract:
The NA protein of influenza A virus is not only required for virion release and spread but also plays a critical role in virion infectivity and HA-mediated membrane fusion.

5) Improving the Clinical Diagnosis of Influenza—a Comparative Analysis of New Influenza A (H1N1) Cases (Adrian K. Ong et al., December 29, 2009); http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008453

Abstract:
The clinical presentation of H1N1(2009) infection is largely indistinguishable from that of seasonal influenza. Among patients with acute respiratory illness, features such as a temperature greater than 38°C, rhinorrhea, a normal chest radiograph, and the absence of leukocytosis or significant gastrointestinal symptoms were all positively associated with H1N1(2009) and seasonal influenza infection. An enhanced ILI criteria that combines both a symptom complex with the absence of leukocytosis on testing can improve the accuracy of predicting both seasonal and H1N1-2009 influenza infection.

6) Intraseasonal Dynamics and Dominant Sequences in H3N2 Influenza (Nicole Creanza, Jason S. Schwarz, Joel E. Cohen, January 1, 2010); http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008544

Abstract:
H3N2 influenza genomes sampled from New York State over ten years indicated intraseasonal changes in evolutionary dynamics. Using the mean Hamming distance of a set of amino acid or nucleotide sequences as an indicator of its diversity, we found that influenza sequence diversity was significantly higher during the early epidemic period than later in the influenza season.

7) Streptococcus pneumoniae Coinfection Is Correlated with the Severity of H1N1 Pandemic Influenza (Gustavo Palacios et al., December 31, 2009); http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008540

Abstract:
The association of S. pneumoniae with morbidity and mortality is established in the current and previous influenza pandemics. However, this study is the first to demonstrate the prognostic significance of non-invasive antemortem diagnosis of S. pneumoniae infection and may provide insights into clinical management.

8) Predicting the Antigenic Structure of the Pandemic (H1N1) 2009 Influenza Virus Hemagglutinin (Manabu Igarashi et al, January 1, 2010); http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008553

Abstract:
The present study suggests that antibodies elicited by natural infection with the 1918 pandemic or its early descendant viruses play a role in specific immunity against 2009 H1N1, and provides an insight into future likely antigenic changes in the evolutionary process of 2009 H1N1 in the human population.

**PLoS CURRENTS**

1) Optimal pandemic influenza vaccine allocation strategies for the Canadian population (Ashleigh Tuite, David N. Fisman, Jeffrey C. Kwong, Amy Greer, January 7, 2010);
Abstract:
Our model simulations suggest that vaccine should be allocated to high-risk groups, regardless of age, followed by age groups at increased risk of severe outcomes. Vaccination may significantly reduce influenza-attributable morbidity and mortality, but the benefits are dependent on epidemic dynamics, time for program roll-out, and vaccine uptake.

2) Seasonal influenza vaccine allocation in the Canadian population during a pandemic (Ashleigh Tuite, David N. Fisman, Jeffrey C. Kwong, Amy Greer, January 7, 2010); http://knol.google.com/k/ashleigh-tuite/seasonal-influenza-vaccine-allocation/66mlsbkkz358/1#

Abstract:
In the presence of uncertainty surrounding enhanced risk of pH1N1 acquisition with seasonal vaccine receipt, delaying seasonal vaccine delivery or restricting vaccine to individuals aged > 65 may reduce overall influenza-attributable mortality in the Canadian population.

3) Efficient simulation of the spatial transmission dynamics of influenza (Meng-Tsung Tsai et al. January 5, 2010); http://knol.google.com/k/meng-tsung-tsai/efficient-simulation-of-the-spatial/3d7dm4m68r6wb/1#

Abstract:
Early data from the 2009 H1N1 pandemic (H1N1pdm) suggest that previous studies over-estimated the within-country rate of spatial spread of pandemic influenza. As large spatially-resolved data sets are constructed, the need for efficient simulation code with which to investigate the spatial patterns of the pandemic becomes clear. Here, we describe a significant improvement in the efficiency of an individual-based stochastic disease simulation framework that has been used for multiple previous studies. We quantify the efficiency of the revised algorithm and present an alternative parameterization of the model in terms of the basic reproductive number. We apply the model to the population of Taiwan and demonstrate how the location of the initial seed can influence spatial incidence profiles and the overall spread of the epidemic. Differences in incidence are driven by the relative connectivity of alternate seed locations.

4) Symptomatic infections less frequent with H1N1pdm than with seasonal strains (Antoine Flahault et al., December 28, 2009); http://knol.google.com/k/antoine-flahault/symptomatic-infections-less-frequent/2nsp4xxomyqub/2#

Abstract:
A serosurvey conducted in a sample of first quarter pregnant women in France at week 48-49 of 2009 exhibit a seroprevalence level of 10.6%. It has been extrapolated in male and female population living in France mainland, aged 20-39 yr, that 1,712,000, 95%CI (1,112,700 – 2,311,300) people were recently infected by H1N1pdm (recently vaccinated women were excluded from analysis). From week 36 to 46-47 of 2009, 336,288, 95%CI (207,303-421,299) patients visited their general practitioners with clinical influenza in France, mainland. We then extrapolated the proportion of symptomatic H1N1pdm influenza in both males and females aged 20-39 yr who visited their GP to be 19.6%.
1) Identification of Amino Acids in HA and PB2 Critical for the Transmission of H5N1 Avian Influenza Viruses in a Mammalian Host (Yuwei Gao et al., December 24, 2009);
http://www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1000709

Abstract:
H5N1 influenza viruses have caused over 400 human infections in 15 countries and continue to circulate in poultry and wild birds. Most human infections resulted from direct contact with virus-contaminated poultry or poultry products. It would be disastrous if H5N1 viruses acquired the ability to efficiently transmit among humans, because the mortality rate may exceed 60%. However, the genetic basis for transmission of H5N1 influenza viruses is largely unknown. Here, we demonstrate that the amino acid residue at 701 of PB2 is a prerequisite for transmission of H5N1 viruses in a mammalian guinea pig model. Interestingly, we found that the absence of glycosylation at residues 158–160 of the HA gene is pivotal for the H5N1 virus to bind to human-like receptors and to transmit in a mammal host. These findings are important for assessing the pandemic potential of H5N1 field isolates.

VACCINE

1) Immunogenicity and safety in adults of one dose of influenza A H1N1v 2009 vaccine formulated with and without AS03A-adjuvant: preliminary report of an observer-blind randomized trial (Francois Romand et al., December 22, 2009);
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TD4-4Y0DF9F-2&_user=7149360&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_acct=C000071090&_version=1&_urlVersion=0&_userid=7149360&md5=70fc43d91bf18b1611897576426e8f49

Abstract:
We evaluated two inactivated split-virion A/California/7/2009 H1N1v pandemic vaccines formulated with/without AS03A, an oil-in-water emulsion adjuvant system containing tocopherol. These preliminary data suggest that one dose of either AS03A-adjuvanted H1N1v vaccine at a reduced HA dose or non-adjuvanted H1N1v vaccine at a fourfold higher dose is sufficient to immunize healthy adults. The strong immune response is consistent with prevalent immunological priming but as this and the ability to mount immune response after vaccination may be modulated by age, further investigations in children and in the elderly as well as on the persistence of the immune response are warranted.

2) A high dosage influenza vaccine induced significantly more neuraminidase antibody than standard vaccine among elderly subjects (Thomas R. Cate et al., December 4, 2009);
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TD4-4Y1VXG4-G&_user=7149360&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_acct=C000071090&_version=1&_urlVersion=0&_userid=7149360&md5=42dc5823156ef8b3e5dd5c96d6ddd2ff

Abstract:
Antibody to the neuraminidase (NA) antigen of influenza viruses has been shown to correlate with immunity to influenza in humans and animal models. In a previous report, we showed that an
inactivated influenza vaccine containing 60 μg of the hemagglutinin (HA) of each strain induced significantly more serum anti-HA antibody among elderly persons than did the standard vaccine containing 15 μg of the HA of each component. We developed a lectin-based assay for anti-NA antibody and used it to measure anti-NA antibody responses among subjects who had participated in that study. The high dosage vaccine contained eight times as much NA activity as the standard vaccine and induced a significantly higher frequency of antibody responses and higher mean postvaccination anti-NA titers to the N1 and N2 of the A/H1N1 and A/H3N2 viruses in the vaccines than did the standard vaccine. Ensuring an increased antibody response to the NA antigen in inactivated influenza virus vaccines should increase the protection against influenza. An increased quantity of the NA antigen in the vaccine will ensure an increased response.

3) Letter: Expected and unexpected adverse effects H1N1 vaccination for health care workers in a university hospital (Aurelien Dinh et al., December 3, 2009);
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TD4-4Y1VXG4-9&_user=7149360&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_acct=C000071090&_version=1&_userid=7149360&md5=7c87cb546d795216f9d75c56fb77c81b

Abstract:
During the first week of vaccination, the vaccination team worked 22 h in 8 target units around 10 sessions including night shift. The Pandemrix® vaccine was used (Influenza A H1N1 2009 Monovalent AS03-Adjuvanted Vaccine, GSK). Only 129 HCW were vaccinated this first week among 1870 HCW of the target population (6.9%). A self-administered questionnaire was filled out by this population about the vaccine adverse effects. We received 95 answers (73.6%). We observed an important local reaction (redness or important pain) in 50 cases (52.6%), 25 systemic reactions without fever (muscle or joint aches, 26.3%) and 6 with fever (>38 °C, 6.3%). No severe allergic reaction has been observed. The mean and median was at 2 days. Even though we observed more often adverse effects than the usual flu vaccine especially for systemic reaction and, reactions were short and not severe. We also observed unexpected side effects among our vaccination team. Vaccination team had to face with suspicious HCW whom felt reticent about it. HCW not only feared long-term side effects of a ‘new vaccine’, but also expressed doubt and irrational fear of long-term effects. However, taking into account the personal accomplishment associated with the importance of task, the consequence in our team was minimal (evaluate with a Malasch Burn out Inventory, adapted for vaccination).