Choose health!
Social Media Tech Talk- What’s Out There for Outbreaks Part 2

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Objectives

• Present real examples of how social media was used as a tool to identify outbreaks and assist in investigations

• Demonstrate how some current websites and apps have leveraged the ability to mine web based information to aid in surveillance and outbreak identification.
Identifying Outbreaks Using Social Media

1. 2012 outbreak of Strep in Minnesota
   - Highschool dance team attended a dance team banquet in March 2012
   - 18 out of 63 people became ill within 3 days of event with strep
   - A parent noticed numerous comments of dance team members being ill on the dance team’s facebook group
The parent contacted the State health department because of multiple posts of illness on Facebook. State health department conducted interviews and tests. Pasta dish prepared by a dance team member and parent who both had strep throat 3 weeks before the banquet was the most likely source.
2. 2011 Las Vegas Marathon

• 40,000 runners participated in the 2011 Las Vegas Marathon

• Two days following the race reports of enteric illness were reported to the Southern Nevada Health District and on the event’s Facebook page

• Southern Nevada Health District used Facebook and twitter to reach out to participants

• A fluid questionnaire was shared on Facebook site
• Social media allowed for the rapid dissemination of the survey directly to the running group.

• Comments posted to social media sites provided ongoing, real-time insight into the needs and concerns of the ill population, and provided a feel for the efficacy of health district investigation efforts.
3. 2011 Playboy Mansion Outbreak

- 715 attendees of the DominFest Global Conference attended the closing gala at the Playboy Mansion.

- Public health officials received a journalist’s inquiry about an outbreak of respiratory illness he heard about through posts on Facebook.
“Domainerflu count. Who else caught the disease at D.F.G?”
• LA county health authorities reviewed blogs, Twitter and Facebook
• Survey Monkey fluid survey sent to all 715 attendees from 30 countries to assess for symptoms, illness onset and exposures
• Environmental sampling found Legionella isolated from a whirlpool spa
• No cases were positive for Legionella but 2 were positive for influenza A pdm09.
• Conclusion was exposure to the Playboy mansion was associated with increased risk for illness

• Pro- “Social media helped identify this outbreak among geographically dispersed persons and facilitated rapid survey response”

• Con- “Unconfirmed social media rumors might have influenced recall among attendees and the public health investigation”
Forms of Web Based Information

- Social media sites: Facebook
- Blogs and Micro blogs: Twitter
- News feeds and News aggregators: Google News, Reddit
- Public Health Reporting
- Wiki
- etc
To see tweets related to Toronto, Ontario, select a point on the graph and the table below will be populated with content from Twitter.

Note that you can zoom into the graph by drawing a box around the area you would like to see.

Search:

<table>
<thead>
<tr>
<th>Timestamp</th>
<th>From</th>
<th>Text</th>
<th>Location Data</th>
<th>Condition Match</th>
<th>Qualifier Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-09-11T14:53:22Z</td>
<td>RichelleJoy</td>
<td>Someone just died over West Nile virus oh wwwww</td>
<td>Tweet Location:</td>
<td>West Nile virus</td>
<td>died</td>
</tr>
<tr>
<td>2013-09-11T14:54:55Z</td>
<td>Toronto_CP</td>
<td>Person infected with West Nile Virus dies: A person infected with West Nile Virus has died, the city’s public. <a href="http://ctv/c3Rz2wtr">http://ctv/c3Rz2wtr</a></td>
<td>Tweet Location:</td>
<td>West Nile Virus</td>
<td>anon</td>
</tr>
</tbody>
</table>
"If you think you have food poisoning in Chicago, please complete this form. The info will be sent to the Chicago Department of Public Health so they can take any necessary action.

Did we @reply you on Twitter? Here’s why.

We use computers & code to search Twitter for tweets related to food poisoning in Chicago. We do as much as we can to automatically zero-in on the tweets we think are really about a possible food poisoning case and really coming from Chicago. Then real humans review the tweets and @reply back to people with a link back to this page. More detail here.

Questions? We’ve got answers."
nEmesis

- Goal is to detect food borne outbreaks in real time
- Tracks twitter postings to flag restaurants where patrons are getting ill
- Restaurants are given a “Health Score”
- Twitter based scores correlated with official inspection data
So Can We Do This?

- Additional research and evaluation of programs
- Limitations need to be identified
- System to interpret social media data
- Data needs to be collected so as to filter information that is not relevant
- Adequate human resource capacity
- Development of a well thought out system
Just For Fun

http://www.cdc.gov/mobile/applications/cdcsimple/promos/cdcmobileapp.html

• CDC- Solve The Outbreak App
• Available for iPad
References


• Wilson K, Brownstein, J.S. Early detection of disease outbreaks using the Internet. CMAJ 2009; 180:829-831