Synopsis

01/31/2020

Review of “Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia”


One-minute summary


- Median age of cases was 59 years: Age range was 15-89 years; 56% were male.

- Compared cases identified in three time periods: period 1 - before January 1, 2020 (before the Huanan Seafood Market closed) (N=47); period 2 - January 1- 11, 2020 (N=248); and period 3 - January 12- 22, 2020 (N=130).

- The proportion of cases in healthcare workers increased across the time periods: 
  - 0% in period 1; 3% in period 2; and 7% in period 3.

- Cases in period 1 were more likely than in period 3 to:
  - be male (66% vs. 48%, respectively)
  - be less than 65 years of age (77% vs. 63%, respectively)
  - have had exposure to the Huanan Seafood Market (55% vs 6%, respectively)

- In periods 2 and 3, 72% and 73% of cases, respectively, had no exposures to either markets or people with known respiratory symptoms.

- Mean duration from illness onset to first medical visit decreased from 5.8 days in period 1 to 4.6 days in period 2.

- Mean duration from illness onset to hospital admission decreased from 12.5 days in period 1 to 9.1 days in period 2.

- The mean incubation period was estimated to be 5.2 days (95% confidence interval (CI): 4.1-7.0), with 95th percentile of the distribution at 12.5 days, based on information from 10 cases.
• The mean **serial interval** (time from illness onset in the first case to illness onset in a secondary case) was estimated as **7.5 days**± 3.4 days standard deviation (95% CI: 5.3-19 days) based on six pairs of cases

• The **basic reproductive number** ($R_0$) was estimated to be **2.2** (95% CI: 1.4-3.9) based on cases before January 4, 2020 when awareness about the outbreak increased

**Additional information**

• Laboratory confirmation was based on testing upper and/or lower respiratory specimens; testing methods were reverse transcriptase polymerase chain reaction (RT-PCR), genome sequencing and/or viral isolation

• The **lack of infected children** is notable, indicating that children are either less likely to be infected or more likely to only show mild symptoms and not seek health care

• **Fewer health care workers** were infected with 2019-nCoV relative to the SARS or MERS outbreaks. Transmission of MERS and SARS were associated with superspreading events, which have not yet been identified with 2019-nCoV.

• Time to first medical visit was shorter than time to hospitalization emphasizing the importance of proactive case finding in outpatient clinics and emergency departments

• Although no clinical information is provided, the case definition for most of the study period focused on pneumonia. Mild cases were therefore less likely to be detected.

**PHO reviewer’s comment**

This is the largest case series of 2019-nCoV published to-date, however represents cases which occurred in one province in China relatively early in the outbreak.
Citation

Disclaimer
This document was developed by Public Health Ontario (PHO). PHO provides scientific and technical advice to Ontario’s government, public health organizations and health care providers. PHO’s work is guided by the current best available evidence at the time of publication.

The application and use of this document is the responsibility of the user. PHO assumes no liability resulting from any such application or use.

This document may be reproduced without permission for non-commercial purposes only and provided that appropriate credit is given to PHO. No changes and/or modifications may be made to this document without express written permission from PHO.

Public Health Ontario
Public Health Ontario is a Crown corporation dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. Public Health Ontario links public health practitioners, front-line health workers and researchers to the best scientific intelligence and knowledge from around the world. For more information about PHO, visit publichealthontario.ca.