Review of “The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: estimation and application”


One-Minute Summary

- The authors estimate the incubation period for coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases and describe its public health implications.
- Case data was collected from reports of COVID-19 (N=181) detected outside of Hubei province, China in 50 provinces, regions and countries (January 4 to February 24, 2020); most cases (n = 161) had a known recent history of travel to or residence in Wuhan.
- The estimated **median incubation period was 5.1 days** (95% confidence interval [CI]: 4.5–5.8), with estimates of:
  - Fewer than 2.5% of individuals displaying symptoms within 2.2 days (95% CI: 1.8–2.9) of exposure; and
  - 97.5% of individuals displaying symptoms within 11.5 days (95% CI: 8.2–15.6) of exposure.
- The study estimated a small proportion of cases (101 out of 10,000; 99th percentile: 482) will develop symptoms after 14 days of active monitoring or quarantine, **supporting current recommendations using a 14-day active monitoring or quarantine for those potentially exposed to COVID-19**.
- The authors state that longer active monitoring or quarantine periods may be justified in high-risk scenarios; e.g., a health care worker that cared for a COVID-19 patient without personal protective equipment.

Additional Information

- The authors used a parametric accelerated failure time model to estimate incubation period (assuming COVID-19 incubation period followed a log-normal distribution).
- The estimated incubation period did not change after additional sensitivity analyses:
  - Cases with known time of fever onset (n=99): 5.7 days (95% CI: 4.9–6.8); 97.5% within 12.5 days (95% CI: 8.2–17.7)
- Cases detected outside mainland China (n=108): 5.5 days (95% CI: 4.4–7.0); 97.5% within 14.7 days (95% CI: 7.4–22.6)
- Cases detected within mainland China (n=73): 4.8 days (95% CI: 4.2–5.6); 97.5% within 9.2 days (95% CI: 6.4–12.5)

**PHO Reviewer’s Comments**

- The authors used publicly available data for confirmed COVID-19 cases, among which a disproportionate number may represent hospitalized and more severe infections. Therefore, the estimated incubation period may differ for mild infections.

**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, frontline health workers and researchers to the best scientific intelligence and knowledge from around the world.

For more information about PHO, visit publichealthontario.ca.