

## SYNOPSIS

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

**Article citation:** Lauer SA, Grantz KH, Bi Q, Jones FK, Zheng Q, Meredith HR, et al. The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: estimation and application. *Ann Intern Med.* 2020 Mar 10 [Epub ahead of print]. Available from: <https://dx.doi.org/10.7326/m20-0504>

## 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; 99<sup>th</sup> 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

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Review of “The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: estimation and application”. Toronto, ON: Queen’s Printer for Ontario; 2020.

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