

## SYNOPSIS

02/25/2020

# Review of “Presumed asymptomatic carrier transmission of COVID-19”

**Article citation:** Bai Y, Yao L, Wei T, Tian F, Jin D, Chen L, et al. Presumed asymptomatic carrier transmission of COVID-19. JAMA. 2020 Feb 21 [Epub ahead of print]. Available from: <https://jamanetwork.com/journals/jama/fullarticle/2762028>

## One-Minute Summary

- The authors describe a **familial cluster (N=6)** of coronavirus disease 2019 (COVID-19) in Anyang, China. Five of these patients had fever and respiratory symptoms and one, who is hypothesized to have **transmitted the disease, was asymptomatic**.
- Patient 1 (presumed asymptomatic carrier): 20-year-old female who lives in Wuhan and traveled to Anyang on January 10, 2020, meeting with Patients 2 and 3 on the same day. On January 13, she accompanied Patients 2-6 to visit another relative in a hospital, which at the time is described to have had no reported cases.
  - Patient 1 was isolated after development of COVID-19 in her relatives. As of February 11 (32 days after leaving Wuhan), she had **no respiratory or gastrointestinal symptoms or fever**. Her C-reactive protein level, lymphocyte count and **chest CT images were normal**. Her reverse transcriptase-PCR results were negative on January 26, February 5 and 8, but **positive on January 28**.
- Patients 2-6 developed COVID-19 and were hospitalized.
  - Four were female; age range: 42-57 years.
  - None had any travel history to Wuhan or contact with people with travel history to Wuhan other than Patient 1.
  - All had multifocal ground-glass opacities on chest CT, increased C-reactive protein levels and reduced lymphocyte counts.
  - Two developed severe pneumonia.

## Additional Information

- The authors suggest that, since Patients 2-6 reported no travel history to Wuhan, no contact with people from Wuhan apart from Patient 1 and there were no COVID-19 cases at the hospital in Anyang at the time, Patients 2-6 could potentially have been infected through asymptomatic transmission from Patient 1.
- The authors estimate the incubation period for Patient 1 to be 19 days, with the rationale that this patient travelled from Wuhan on January 10 and following a negative test on January 26, 2020 had a positive test on January 28, 2020.
- The authors cite a [previous study](#) that reported asymptomatic infection leading to person-to-person transmission; however, the individual had abnormalities on chest CT, whereas Patient 1 in this study did not.

## PHO Reviewer's Comments

- Chest CT imaging for Patient 1 was carried out on January 27 and 31; further imaging was not reported.
- It is difficult to critically appraise the authors' assertion that the Patient 1's incubation period was 19 days. The authors state that false negatives have been observed with the RT-PCR test, due to the quality of the sampling kit and specimen collection technique. This could explain why the first test administered to Patient 1 was negative. Since Patient 1 was not tested earlier than 16 days after exposure in Wuhan, it is possible that an earlier test would have been positive.
- On February 1, 2020, the World Health Organization reported that Henan province, in which the city of Anyang is located, had 422 cases of COVID-19. This raises the possibility of unrecognized exposure to COVID-19 during the visit to the hospitalized relative.

## Citation

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