

SYNOPSIS

02/19/2020

Review of “A familial cluster of infection associated with the 2019 novel coronavirus indicating potential person-to-person transmission during the incubation period”

Article citation: Yu P, Zhu J, Zhang Z, Han Y, Huang L. A familial cluster of infection associated with the 2019 novel coronavirus indicating potential person-to-person transmission during the incubation period. *J Infect Dis.* 2020 Feb 18 [Epub ahead of print]. Available from: <https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiaa077/5739751>

One-Minute Summary

- The authors describe a **familial cluster (n=4)** of coronavirus disease 2019 (COVID-19) cases in Shanghai, China in January 2020 and **suggest one case may have been the result of asymptomatic transmission.**
 - **Case 1:** 88-year-old male who lived in Shanghai with case 4 (his partner). He had limited mobility, hypertension, heart disease and COPD. Symptom onset on January 20, 2020.
 - **Case 2:** 65-year-old female who lives in Wuhan and was visiting and staying with case 1 (her sister’s partner) and case 4 (her sister) in their Shanghai apartment. She arrived in Shanghai with case 3 on January 15, 2020 with symptom onset on January 20, 2020.
 - **Case 3:** 69-year-old male from Wuhan who was visiting Shanghai with case 2 (his partner), staying with case 1 and 4 (his partner’s sister and her husband) in their apartment. He arrived on January 15, 2020 with symptom onset on January 23, 2020.
 - **Case 4:** 75-year-old female who lives in Shanghai with case 1 (her partner). Case 4 is the sister of case 2. Symptom onset on January 23, 2020.
- Case 1 was housebound in the two weeks prior to symptom onset, had no contact with wild animals and was not in contact with symptomatic individuals (as **cases 2 and 3 did not become symptomatic until AFTER case 1**).
- Cases 2 and 3 were assumed to be exposed in Wuhan before their arrival in Shanghai.
- Since case 1 was infected **during the incubation period of case 2 and 3**, the authors suggest that this scenario may reflect **asymptomatic transmission** (i.e., transmission during the incubation period) of COVID-19 from case 2 or 3 to case 1.

Additional Information

- All cases had fever. Case 1 also had poor appetite, dry cough and bilateral pneumonia and died on January 25, 2020.
- All four patients tested negative for influenza A and B.

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- The authors note that an alternative scenario to case 2 or 3 infecting case 1 could be that case 2 or 3 may have first infected case 4, who then infected case 1 (her partner) during the incubation period.

PHO Reviewer's Comments

- Case 2 and 3's lack of recall of having contact with anyone with fever or pneumonia was subjective and may not reliably exclude such contact, particularly since Chinese health officials did not implement the Wuhan quarantine until January 23, eight days after their arrival in Shanghai.
- There is a possibility that cases 2 and 3 were exposed and their clothing and other belongings contaminated during travel from Wuhan to Shanghai on January 15. Transmission of COVID-19 via indirect contact with contaminated fomites is another possible mode of exposure, but was not considered by the authors.
- The role of asymptomatic transmission (i.e., during the incubation period and before symptom onset in cases) in the transmission dynamics of COVID-19 requires further investigation.

Citation

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