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SYNOPSIS

02/18/2020

Review of "Risk for transportation of 2019 novel coronavirus disease from Wuhan to other cities in China"

Article citation: Du Z, Wang L, Chauchemez S, Xu X, Wang X, Cowling BJ, et al**.** Risk for transportation of 2019 novel coronavirus disease from Wuhan to other cities in China**.** Emerg Infect Dis. 2020 Feb 13 [Epub ahead of print]. Available from: https://wwwnc.cdc.gov/eid/article/26/5/20-0146_article

One-Minute Summary

- The authors estimated the **probability of exportation** of COVID-2019 cases from Wuhan to **369 other cities in China prior to the quarantine** implemented on January 23, 2020.
  - In the three weeks prior to quarantine, they estimate that 130 cities (95% CI 89-190) had a ≥50% chance of having an imported case.
  - Of these, 107 cities reported cases by January 26, while 23 did not, including five cities with importation probabilities >99%, suggesting that cases may have been exported from Wuhan prior to the quarantine, but not detected.
- The authors assumed a 10-day lag period to account for incubation period and timing between symptom onset and case detection, estimating that for Wuhan:
  - **Epidemic doubling time** = 7.31 days (95% credibility interval: 6.26–9.66 days) by January 22, 2020
  - $\mathbf{R_0}$ = 1.90 (1.47–2.59)
- Due to low detection rates for cases and assuming a lag period between infection and case detection, newly infected people who left Wuhan before January 23 were likely undetected for days to weeks and may have seeded transmission throughout many parts of China.

Additional Information

- The 10-day lag was calculated based on an approximate incubation period of five to six days and a period from symptom onset to detection of four to five days; these estimates were based on published reports for COVID-19 and SARS.
- The authors used air, rail and road travel data, providing a more complete analysis than using air travel alone.
- Due to use of social media data to estimate mobility, the model might not be generalizable to all demographic groups in China.
- The authors expect that estimates for the doubling time and incidence of COVID-19 will improve as additional epidemiologic data become available.

PHO Reviewer's Comments

- None

Citation

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