



2019-nCoV Literature Situation Report (Lit Rep) February 24, 2020

Key Takeaways

- ▣ **Mounting evidence from small family cluster and larger population studies suggests not only a strong likelihood of asymptomatic transmission of SARS-CoV-2 but also that cases resulting from asymptomatic transmission can develop severe illness.**
- ▣ **Healthcare workers in China, particularly those working in isolation units, are reporting symptoms of anxiety, depression, and stress. Meanwhile, public fear and psychological distress in China and other countries may be associated with several factors including thinking about COVID-19 for 3+ hours daily, distrust of official communications about the outbreak, and xenophobia.**

Transmission and Global Spread

- A new study estimates the case fatality risk in Wuhan to be 8.71% (95% CI: 79.5%-9.64%) compared to 1.21% (95% CI: 1.07%-1.40%) in other areas of China.
Wang et al. (Feb 22, 2020). Estimating the case fatality ratio of the COVID-19 epidemic in China. Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2020.02.17.20023630>

ASYMPTOMATIC TRANSMISSION

- Researchers estimated that 34.6% (95% CI: 24.9%-39.8%) of COVID-19 cases on the Princess Cruises Ship docked off the coast of Yokohama, Japan, were asymptomatic, with most infections occurring prior to the start of the 2-week on-board quarantine.
Mizumoto et al. (Feb 23, 2020). Estimating the Asymptomatic Ratio of 2019 Novel Coronavirus onboard the Princess Cruises Ship, 2020. Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2020.02.20.20025866>
- Estimates of the serial interval (time between symptom onset in index case and symptom onset in secondary case) for COVID-19 in China suggest possible pre-symptomatic transmission.
Du et al. (Feb 23, 2020). The serial interval of COVID-19 from publicly reported confirmed cases. Pre-print downloaded Feb 24 from <https://doi.org/10.1101/2020.02.19.20025452>
- 24 asymptomatic, laboratory-confirmed COVID-19 cases were identified via contact investigation in Nanjing. Five developed symptoms, twelve had abnormal CT, and seven had no symptoms and no abnormal CT during hospitalization. The seven cases were younger (med age 14 years). The median communicable period of all cases was 9.5 days but extended to up to 21. There is evidence of asymptomatic transmission resulting in secondary cases with severe illness.
Hu et al. (Feb 23, 2020). Clinical Characteristics of 24 Asymptomatic Infections with COVID-19 Screened among Close Contacts in Nanjing, China. Pre-print downloaded Feb 24 from <https://doi.org/10.1101/2020.02.20.20025619>

- A familial cluster of five COVID-19 patients appears to have contracted the disease after asymptomatic transmission from a family member who travelled to Wuhan.
Bai et al. (Feb 21, 2020). Presumed Asymptomatic Carrier Transmission of COVID-19. JAMA. <https://jamanetwork.com/journals/jama/fullarticle/2762028?resultClick=1>
- Transmission patterns within a small family cluster of COVID-19 cases suggest probably asymptomatic transmission from one person who travelled to Wuhan to other family members.
Wang et al. (Feb 21, 2020). Notes from the Field: Investigation of a Cluster of 2019 Novel Coronavirus Disease (COVID-19) with Possible Transmission During the Incubation Period — Shenyang City, China, 2020. China CDC Weekly. <http://weekly.chinacdc.cn/en/article/id/78001560-6f5f-4bd3-a9ad-149f7c453923>

Clinical Characteristics and Health Care Setting

- Clinical information for 102 hospitalized COVID-19 patients are provided and authors provide recommendations for a three-week quarantine period. They also suggest that for the best testing sensitivity, diagnosis should include three real-time RTP-PCR tests and two CT scans, though they do not comment on resource constraints.
Ai et al. (Feb 23, 2020). The cross-sectional study of hospitalized coronavirus disease 2019 patients in Xiangyang, Hubei province. Pre-print downloaded Feb 24 from <https://doi.org/10.1101/2020.02.19.20025023>
- Authors conducted a meta-analysis of five RCTs in which convalescent plasma was used to treat severe influenza. The mixed results suggest further study is needed to determine if administration of convalescent plasma may be an effective treatment regimen for COVID-19.
Xu et al. (Feb 23, 2020). The efficacy of convalescent plasma for the treatment of severe influenza. Pre-print downloaded Feb 24 from <https://doi.org/10.1101/2020.02.20.20025593>
- In contrast to recent papers citing elevated incidence of renal abnormalities among COVID-19 patients, this hospital-based study of 116 patients did not find evidence that COVID-19 is associated with acute renal injury or aggravated chronic renal failure.
Wang et al. (Feb 23, 2020). SARS-CoV-2 infection does not significantly cause acute renal injury: an analysis of 116 hospitalized patients with COVID-19 in a single hospital, Wuhan, China. Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2020.02.19.20025288>
- This commentary describes the potential role of telemedicine in COVID-19 response efforts.
Zhai et al. (Feb 23, 2020). From Isolation to Coordination: How Can Telemedicine Help Combat the COVID-19 Outbreak? Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2020.02.20.20025957>
- Authors offer COVID-19 safety considerations for the practice of dentistry.
Sabino-Silva et al. (Feb 20, 2020). Coronavirus COVID-19 impacts to dentistry and potential salivary diagnosis. Clinical Oral Investigations. <https://doi.org/10.1007/s00784-020-03248-x>
- Sputum specimens appear to be more sensitive than throat swabs in detecting COVID-19, though authors do not provide estimates of positive predictive value.

Lin et al. (Feb 23, 2020). Comparison of throat swabs and sputum specimens for viral nucleic acid detection in 52 cases of novel coronavirus (SARS-Cov-2) infected pneumonia (COVID-19). Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2020.02.21.20026187>

Public Health Policy and Practice

- This Mayo Clinic commentary emphasizes the importance of collaboration across public health agencies, laboratories, and industry to increase preparedness and response capacity and to ensure rapid development, dissemination, and implementation of diagnostic tests.
Binnicker (Feb 20, 2020). Emergence of a Novel Coronavirus Disease (COVID-19) and the Importance of Diagnostic Testing: Why Partnership between Clinical Laboratories, Public Health Agencies, and Industry Is Essential to Control the Outbreak. Clinical Chemistry.
<https://doi.org/10.1093/clinchem/hvaa071>
- Symptom-based mass screening and testing interventions (MSTI) can be effective at preventing or reducing disease transmission if implemented correctly. The authors discuss pitfalls of MSTI approaches and strategies to improve effectiveness.
Ge et al. (Feb 23, 2020). Assessing the impact of a symptom-based mass screening and testing intervention during a novel infectious disease outbreak: The case of COVID-19. Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2020.02.20.20025973>
- Authors describe the construction and testing of a mortality index to evaluate mortality risk for confirmed and suspected COVID-19 cases.
Lu et al. (Feb 23, 2020). ACP risk grade: a simple mortality index for patients with confirmed or suspected severe acute respiratory syndrome coronavirus 2 disease (COVID-19) during the early stage of outbreak in Wuhan, China. Pre-print downloaded Feb 23 from <https://doi.org/10.1101/2020.02.20.20025510>

Mental Health and Personal Impact

- 603 Chinese individuals of various professions were surveyed about anxiety, depression, insomnia, and knowledge of COVID-19. Depressive and anxious symptoms were reported significantly more in younger respondents <35. Anxiety was greatest among those reporting reading or focusing on COVID-10 for 3+ hours daily. Poorest sleep was reported among healthcare providers, likely linked to general exhaustion, job-related chronic stress, and psychological distress. Recommendations for improving mental health are provided.
Huang and Zhao (Feb, 23, 2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: a web-based cross-sectional survey. Pre-print downloaded Feb 24 from <https://doi.org/10.1101/2020.02.19.20025395>
- Over 5000 healthcare workers were surveyed in Wuhan to assess level and severity of psychological issues associated COVID-19 outbreak response. The authors also assessed the effects of psychological protective measures for healthcare workers at a government-identified “specific hospital” for the treatment of COVID-19.
- Depression, anxiety, and stress varied by sociodemographic characteristics. Nurses and technicians also presented higher rates of psychological stress than doctors, probably because they often have more and closer contact with patients. Workers in isolation units had more stress, as did those who had children and additional family responsibilities. Psychological protective factors were exercise,

having sufficient PPE, and reduced rate of nosocomial infection, reasonable shifts, and comfortable accommodations for staff.

Zhu et al. (Feb 23, 2020). COVID-19 in Wuhan: Immediate Psychological Impact on 5062 Health Workers. Pre-print downloaded Feb 24 from <https://doi.org/10.1101/2020.02.20.20025338>

- The authors hypothesize that psychological vulnerability to anxiety about COVID-19 may play a role in public anxiety about the outbreak. They also call out xenophobia and intolerance of uncertainty as possible factors and express concern about how healthcare systems will handle “worried well”.

Asmundson and Taylor (March, 2020). Coronaphobia: Fear and the 2019-nCoV outbreak. Journal of Anxiety Disorders. <https://doi.org/10.1016/j.janxdis.2020.102196>

Other Resources

- Tom Frieden, former US CDC Director, [wrote a commentary](#) on the US and Chinese public health systems in the China CDC Weekly.
- The New Zealand Medical Journal published [an editorial](#) describing what we know about COVID-19 illness, phylogenetic features of SARS-CoV-2, and thoughts on next steps.