



## 2019-nCoV Literature Situation Report (Lit Rep) February 19, 2020

### Key Takeaways

- 📄 **New efforts to predict how long the outbreak will last appear to disagree substantially, highlighting the importance of interpreting any such predictions with caution.**
- 📄 **The neutrophil-to-CD8+ T cell ratio may be a useful prognostic tool for early identification of severe COVID-19 cases.**
- 📄 **A new study suggests that oral swabs may not be as effective at identifying COVID-19 at later stages of disease progression.**
- 📄 **Shortage of essential personal protective equipment and other medical supplies in China is limiting epidemic prevention and control of COVID-19.**

### Transmission and Global Spread

- Using data for symptomatic COVID-19 cases occurring outside of China and in countries with 20+ cases, researchers estimated the case fatality risk for COVID-19 cases outside of China to be about 1.4% (95% CI: 0.57%-3.22%)  
*Wilson et al. (Feb 18, 2020). Estimating the Case Fatality Risk of COVID-19 using Cases from Outside China. Pre-print downloaded Feb 18 from <https://doi.org/10.1101/2020.02.15.20023499>*
- Using information from evacuees from Wuhan and domestic traffic, authors explore the early dynamics of the COVID-19 outbreak and the potential role of asymptomatic transmission. The study did not find strong evidence of asymptomatic transmission but does not rule it out. Additional model findings are described.  
*Zhou (Feb 18, 2020). Evaluating new evidence in the early dynamics of the novel coronavirus COVID-19 outbreak in Wuhan, China with real time domestic traffic and potential asymptomatic transmissions. Pre-print downloaded Feb 19 from <https://doi.org/10.1101/2020.02.15.20023440>*

### Modelling and Prediction

- Using public national data out of China, researchers attempted to predict the trajectory of the outbreak, estimating optimistically that the outbreak would be over by the end of February in Beijing and Shanghai and in the rest of mainland China by mid-march. The outbreak in Wuhan was estimated to end in early April. As always, papers that model the trajectory of an outbreak should be interpreted with caution.  
*Peng et al. (Feb 18, 2020). Epidemic analysis of COVID-19 in China by dynamical modeling. Pre-print downloaded Feb 19 from <https://doi.org/10.1101/2020.02.16.20023465>*

- Liu et al. estimate the temporal trends of the outbreak, focusing on peak windows in Hubei Province and other parts of China. Unlike Peng et al., this paper suggests that peak case counts will not be reached until March.

*Liu et al. (Feb 18, 2020). Assessing the Tendency of 2019-nCoV (COVID-19) Outbreak in China. Pre-print downloaded Feb 19 from <https://doi.org/10.1101/2020.02.09.20021444>*

## Clinical Characteristics and Health Care Setting

- This commentary offers considerations for the role that ECMO should play in treatment for severe cases of COVID-19.

*MacLaren et al. (Feb 19, 2020). Preparing for the Most Critically Ill Patients with COVID-19: The Potential Role of Extracorporeal Membrane Oxygenation. JAMA Viewpoint. <https://jamanetwork.com/journals/jama/fullarticle/2761778>*

- Peripheral blood samples were collected longitudinally from 40 confirmed COVID-19 cases and evaluated for lymphocyte subsets and cytokine profiles. Severe cases had more sustained lymphocyte depletion but increased neutrophil counts compared to mild cases. T cell counts were also decreased among severe cases. The neutrophil-to-CD8+ T cell ratio may be a useful prognostic tool for early identification of severe COVID-19 cases.

*Liu et al. (Feb 18, 2020). Longitudinal characteristics of lymphocyte responses and cytokine profiles in the peripheral blood of SARS-CoV-2 infected patients. Pre-print downloaded Feb 19 from <https://doi.org/10.1101/2020.02.16.20023671>*

- Biological samples taken from 15 COVID-19 patients in one Chinese hospital were tested for the presence of 2019-nCoV. Oral samples tested positive in only half of patients, 4 had positive anal swabs, 6 had positive blood samples, and 3 were also serum positive.
- A second analysis suggests that oral swabs tend to test positive more during early illness while anal swabs test positive more during later stages. The study highlights concerns around the reliability of oral swabs as the only sample drawn for testing.

*Zhang et al. (Feb 17, 2020). Molecular and serological investigation of 2019-nCoV infected patients: implication of multiple shedding routes. Emerging Microbes & Infections. <https://doi.org/10.1080/22221751.2020.1729071>*

- China CDC has published descriptive clinical information for 72,314 patients, including 44,672 confirmed, 16,186 suspected, and 10,567 clinically diagnosed, and 889 asymptomatic cases of COVID-19. 1,023 deaths occurred among confirmed cases (2.3%).
- The article includes descriptive information of cases and multiple epidemic curves, showing a peak in symptom onset in Hubei from Jan 23-26.

*China Center for Disease Control (Feb 17, 2020). The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) — China, 2020. CCDC Weekly. Vital Surveillances. <http://weekly.chinacdc.cn/en/article/id/e53946e2-c6c4-41e9-9a9b-fea8db1a8f51>*

- Hui and colleagues conducted a review of the literature on the use of Chinese medicine for the prevention and treatment of SARS and H1N1, including 7 studies overall. The most commonly used herbal treatments are described along with the results of these studies which generally indicated protective effects of these treatments. Recommendations for future testing on COVID-19 and considerations for high risk populations are provided.

*Hui et al. (Feb 17, 2020). Can Chinese Medicine Be Used for Prevention of Corona Virus*

*Disease 2019 (COVID-19)? A Review of Historical Classics, Research Evidence and Current Prevention Programs.* <https://doi.org/10.1007/s11655-020-3192-6>

- Fever clinics for triaging patients were an effective strategy during the 2003 SARS epidemic. The authors offer clinical strategies for operating adult fever clinics during the current COVID-19 outbreak.  
*Zhang et al. (Feb 13, 2020). Therapeutic and triage strategies for 2019 novel coronavirus disease in fever clinics. The Lancet.* [https://doi.org/10.1016/S2213-2600\(20\)30071-0](https://doi.org/10.1016/S2213-2600(20)30071-0)
- This brief letter provides clinical characteristics and outcomes for all 9 infants hospitalized in China with COVID-19.  
*Wei et al. (Feb 14, 2020). Novel Coronavirus Infection in Hospitalized Infants Under 1 Year of Age in China. JAMA.* <https://jamanetwork.com/journals/jama/fullarticle/2761659>

### Public Health Policy and Practice

- One of the major factors limiting epidemic prevention and control is shortage of essential personal protective equipment and other medical supplies in China, despite efforts to shore up capacity in the wake of the 2003 SARS outbreak. The authors call for further international cooperation and preparedness in developing stores of emergency reserve medical supplies.  
*Wang et al. (Feb 17, 2020). Challenges to the system of reserve medical supplies for public health emergencies: reflections on the outbreak of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic in China. Biosci Trends.* <https://doi.org/10.5582/bst.2020.01043>

### Other Resources

- Several public health scientists signed their names to a statement of solidarity with scientists and health professionals in China responding to the COVID-19 outbreak. This statement comes in response to a rise in misinformation and rumors around the origins of the virus. It calls for public health officials and scientists to promote scientific evidence and unity over misinformation and conjecture.  
*Calisher et al. (Feb 18, 2020). Statement in support of the scientists, public health professionals, and medical professionals of China combatting COVID-19. The Lancet.* [https://doi.org/10.1016/S0140-6736\(20\)30418-9](https://doi.org/10.1016/S0140-6736(20)30418-9)