2019 n-CoV Literature Situation Report (Lit Rep)
February 20, 2020

Key Takeaways

- **Two articles discuss the potential effectiveness of Chloroquine phosphate as a viable treatment option for COVID-19-associated pneumonia.**
- **More research is needed to assess the possibility of fecal-oral transmission.**
- **Sensitivity of RT-PCR as a diagnostic tool may be lower than chest CT for COVID-19 in early diagnosis of disease.**

Transmission and Global Spread

- Yeo et al. provide evidence from previous outbreaks to support fecal-oral transmission of SARS-CoV and MERS-CoV and that they can remain viable in different environmental conditions that could facilitate fecal-oral transmission. It is possible that 2019-nCoV could also be transmitted via this route. They advocate for research on the possibility of fecal-oral transmission of 2019-nCoV and environmental factors that favor survival and transmission.

  Yeo et al. (Feb 19, 2020). Enteric involvement of coronaviruses: is faecal–oral transmission of SARS-CoV-2 possible? Lancet Gastroenterol Hepatol (2020). https://doi.org/10.1016/S2468-1253(20)30048-0

- Dong et al. introduce a public, online interactive dashboard hosted by the Center for Systems science and Engineering (CSSE) at Johns Hopkins University to visualize and track reported cases of COVID-19. Data from China CDC and WHO for confirmed cases inside and outside China are included.

  Dong et al. (Feb 19, 2020). An interactive web-based dashboard to track COVID-19 in real time: Lancet Infect Dis. https://doi.org/10.1016/S1473-3099(20)30120-1

- Cheng and Shan provide COVID-19 outbreak overview, including reports from outbreak sites and laboratories supporting the investigation. The paper aggregates and consolidates the virology, epidemiology, clinical management strategies from both English and Chinese literature.
- From their single-term exponential model, they report that the infection is spreading at an exponential rate, with a doubling period of 1.8 days.

  Cheng and Shan (Feb 18th, 2020). 2019 Novel coronavirus: where we are and what we know. Infection. https://doi.org/10.1007/s15010-020-01401-y

- Pan et al. describe asymptomatic cases in a family cluster with SARS-CoV-2 infection. Such asymptomatic patients may not isolate themselves or seek treatment and may unknowingly transmit infection.

  Pan et al. (Feb 19, 2020). Asymptomatic cases in a family cluster with SARS-CoV-2 infection. Lancet Infect Dis. https://doi.org/10.1016/S1473-3099(20)30114-6

- This report for the week ending Feb 8, 2020 includes data on 15 Australian cases with reported travel history to mainland China.

  Walker (Feb 12, 2020). COVID-19, Australia: Epidemiology Report 2: Communicable Diseases Intelligence. https://doi.org/10.33321/cdi.2020.44.14

Clinical Characteristics and Health Care Setting

- Fang et al. investigated sensitivity of chest CT for COVID-19 in early diagnosis of disease. RT-PCR was used as gold standard and were conducted using throat swabs (45 patients) or sputum samples (6 patients) of 51 patients. Sensitivity of chest CT was greater than that of RT-PCR (98% vs 71%, respectively, p<.001). Limitation of RT-PCR as diagnostic tool is described.

  Fang et al. (Feb 19, 2020) Sensitivity of Chest CT for COVID-19: Comparison to RT-PCR. Radiology. https://doi.org/10.1148/radiol.2020200432

- Gao et al. report that Chloroquine phosphate (an antimalarial drug) has apparent efficacy in treatment of COVID-19 associated pneumonia in multicenter clinical trial studies in China. The drug is now recommended to be included in the next version of the Guidelines for the Prevention, Diagnosis, and Treatment of Pneumonia Caused by COVID-19 issued by the National Health Commission.

  Gao et al. (Feb 19, 2020). Breakthrough: Chloroquine phosphate has shown apparent efficacy in treatment of COVID-19 associated pneumonia in clinical studies. BioScience Trends. https://doi.org/10.5582/bst.2020.01047

- Liu et al. outline critical care response in a recent hospital outbreak of COVID-19 in Shenzhen, China.

  Liu et al. (Feb 19, 2020). Critical care response to a hospital outbreak of the 2019-nCoV infection in Shenzhen, China. Critical Care. https://doi.org/10.1186/s13054-020-2786-x

- The team at the hematology and clinical lab in Tongli Hospital China report significantly abnormal coagulation parameters that are associated with poor prognosis in patients with COVID-19 pneumonia.

  Tang et al. (Feb 19, 2020). Abnormal Coagulation parameters are associated with poor prognosis in patients with novel coronavirus pneumonia: Brief Report. Journal of Thrombosis and Haemostatis. https://doi.org/10.1111/jth.14768

- Xu et al. report on clinical findings in a group of COVID-19 patients outside of Wuhan, China. They report that as of Feb 2020, compared with patients initially infected in Wuhan, the symptoms of patients in Zhejiang province are relatively mild.

  Xu et al. (Feb 19, 2020). Clinical findings in a group of patients infected with the 2019 novel coronavirus (SARS-Cov-2) outside of Wuhan, China: retrospective case series. BMJ http://dx.doi.org/10.1136/bmj.m606

- This commentary describes initiation of a new infection control system for the COVID-19 outbreak in China in light of pneumonia of unknown origin.

  Chen et al. (Feb 18, 2020). Initiation of a new infection control system for the COVID-19 outbreak: The Lancet Infectious Diseases. https://doi.org/10.1016/S1473-3099(20)30110-9

- The author outlines the roles of a radiologist in clinical setting during the COVID-19 outbreak.

  Kim (Feb 18, 2020). Outbreak of novel coronavirus (COVID-19): What is the role of radiologists? European Radiology. https://doi.org/10.1007/s00330-020-06748-2

- Colson et al. recommend investigation into the potential antiviral properties of drugs which have been proven to be harmless and whose pharmacokinetics and optimal dosage are well-known, including chloroquine phosphate.

  Colson et al. (Feb 15, 2020). Chloroquine for the 2019 novel coronavirus. Int J of Antimicrobial Agents. https://doi.org/10.1016/j.ijantimicag.2020.105923

Public Health Policy and Practice

- Liem et al. describe an often neglected group of individuals during outbreaks: international migrant workers (IMW). There are currently about 150 million IMW worldwide, of which 95% reside in areas with confirmed COVID-19. The authors highlight barriers IMW encounter in accessing health services during outbreaks and call for IMW health needs to be made an urgent public health priority.

  Liem et al. (Feb 18, 2020) The Neglected Health of International Migrant Workers in the COVID-19 epidemic. The Lancet Psychiatry. https://doi.org/10.1016/S2215-0366(20)30076-6

Commentary

- Lipsitch et al. advocate for investigation of full spectrum of disease severity, transmissibility of the virus, including role of asymptomatic infected persons, and risk factors for severe illness or death. The authors provide types of supporting evidence needed for controlling an epidemic. They further recommend successful prior approaches used and lessons learned from outbreaks of MERS and Pandemic H1N1.

  Lipsitch et al. (Feb 19, 2020). Defining the Epidemiology of Covid-19 — Studies Needed: The New England Journal of Medicine. https://www.nejm.org/doi/full/10.1056/NEJMp2002125

- Chen et al. provide a commentary on the Chinese government's efforts to control the spread of COVID-19 during mass population movements around the lunar New Year.

  Chen et al. (Feb 20, 2020) COVID-19 control in China during mass population movements at New Year. The Lancet. https://doi.org/10.1016/S0140-6736(20)30421-9

- Jiang et al. discuss considerations for naming the new coronavirus.

  Jiang et al (Feb 18, 2020). A distinct name is needed for the new coronavirus. The Lancet. https://doi.org/10.1016/S0140-6736(20)30419-0

- Mahase notes that 2019-nCoV does not seem to be as "deadly as other coronaviruses including SARS and MERS," Currently more than 80% of patients with COVID-19 have mild disease and recover. However, despite low case fatality (2%), COVID-19 has already caused more deaths than SARS and MERS combined.

  Mahase (Feb 18, 2020). Coronavirus: covid-19 has killed more people than SARS and MERS combined, despite lower case fatality rate. BMJ. https://doi.org/10.1136/bmj.m641

- Despite decades of research, there is no vaccine yet to protect against coronavirus infections. This is due in part to continuously shifting diversity in the virus spike glycoprotein, a major immunogenic target and vaccine candidate for animal and human infections. There is also need to study other comorbidities and coinfections.

  Ng and Hiscox (Feb 19, 2020). Coronaviruses in animals and humans: Controlling outbreaks will require detailed knowledge of their biology and behavior. BMJ. https://doi.org/10.1136/bmj.m634

Other Resources

- University of Oxford has built a centralized repository of individual-level information on patients with laboratory-confirmed COVID-19 including their travel history, location, symptoms, and reported onset dates, as well as confirmation dates and basic demographics: https://tinyurl.com/s6gsq5y

Xu and Kraemer (Feb 19, 2020) Open access epidemiological data from the COVID-19 outbreak. Lancet Infect Dis. https://doi.org/10.1016/S1473-3099(20)30119-5

Mental Health and Personal Impacts

- Atlani-Duault et al. report that the COVID-19 outbreak is giving rise to worldwide anxieties, rumors, and online misinformation. They advocate gathering data on local perceptions to help public authorities mount a more robust response and better targeted health communication strategies to identify and counter attempts to blame, scapegoat, and spread misinformation

  Atlani-Duault et al. (Feb 18, 2020). Tracking online heroisation and blame in epidemics. The Lancet. https://doi.org/10.1016/S2468-2667(20)30033-5

- Health care providers and the National Health Commission of China have noted increased stress among providers and the public due to COVID-19.
- Early in the outbreak, China began publishing guidelines for crisis interventions. In contrast to the SARS outbreak, current resources include smartphones and online interventions such as chat groups.
- A Feb 2020 survey reveals significant levels of depression, anxiety, and insomnia. In response, people have been offered online counseling by professional mental health providers, and online self-help using Cognitive Behavioral Therapies. Artificial Intelligence programs are also able to recognize and identify suicidal risks. These strategies may improve the efficacy of emergency response efforts going forward.

  Liu et al. (Feb 18, 2020). Online mental health services in China during the COVID-19 outbreak. The Lancet. https://doi.org/10.1016/S2215-0366(20)30077-8

- Yang et al. describe the critical support needs for 30 million citizens in China who are older than 80, and the 40 million citizens who have long-term disabilities. Both of these criteria are related to much higher COVID-19 morbidity and mortality, which worsens the mental health issues already common in this population.
- Online mental health services are available, but older individuals have limited access and knowledge to take advantage of these resources. The authors also note very long wait times for these patients to access direct mental health care. They encourage more attention to be paid to these vulnerable members of the society.

  Yang et al. (Feb 18, 2020). Mental health services for older adults in China during the COVID-19 outbreak. The Lancet. https://doi.org/10.1016/S2215-0366(20)30079-1

- Mental health services for healthcare workers were quickly established for 5 large healthcare organizations in China. These included psychologist teams and online support. However, medical staff refused to participate in the psychological resources offered, explaining that they did not meet their actual needs. These included feeling more exhausted than worried, not wanting families to worry, stress over a lack of knowledge on how to deal with uncooperative patients, and worry about lack of PPE.
  - The healthcare organizations adapted to meet these needs, offering: a quiet and removed area where staff could get away and rest, additional PPE and training in how to use PPE, security staff to deal with uncooperative patients, leisure activities, teaching relaxation tools, having counselors available as needed

  Chen et al. (Feb 18, 2020). Mental health care for medical staff in China during the COVID-19 outbreak. The Lancet. https://doi.org/10.1016/S2215-0366(20)30078-X