



2019-nCoV Literature Situation Report (Lit Rep) February 11, 2020

Key Takeaways

- ❑ **The possibility of asymptomatic transmission remains an open question.**
- ❑ **Modeling of influenza and comparisons to other recently emergent coronavirus epidemics indicate that the US must prepare for the implications of sustained transmission of a highly transmissible and relatively severe new virus.**
- ❑ **The Substance Abuse and Mental Health Services Administration has helpful, web-based resources related to mental health during infectious disease outbreaks.**

Transmission and Global Spread

- Rothe, *et al.* have provided supplementary information regarding their NEJM Correspondence from 31 January, 2020 that reported asymptomatic transmission between a Chinese business traveler and colleagues in Germany. This supplement follows news reports that Bavarian officials found the index case to be potentially symptomatic during her time in Germany. The supplement provides new detail on the Chinese index case's symptom timeline, based on a 5 February, 2020 interview with the case.
- The index patient from China visited Germany and attended business meeting from 19-22 January, 2020. Per the original paper, "During her stay, she had been well with no signs or symptoms of infection but had become ill on her flight back to China..." The added information includes, among other updates, that:
 - Around midnight on 20 January, after awakening feeling "warm" but not "febrile," the index case took an acetaminophen-containing medication
 - Around 3 pm on 21 January, she felt fatigue – which she attributed to jet lag – and "...noticed ...minor pain 'in some muscles and the bones of her chest' when [touching] trigger points"
 - After her arrival in Shanghai, on 23 January, was the first time she reported feeling sick.
- Roth, *et al.* make no further comment on the original paper, supplying only the added timeline.
Supplement to: Rothe C, Schunk M, Sothmann P, et al. Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. N Engl J Med. Available from:
https://www.nejm.org/doi/suppl/10.1056/NEJMc2001468/suppl_file/nejmc2001468_appendix.pdf
- Bastola, *et al.* provide a case report of the first confirmed 2019-nCoV case in Nepal. The case was a student in Wuhan returning to Nepal six days after symptom onset on 3 January, 2020. [Note: Potential inconsistency, implies that case left China on 9 Jan (by air) and arrived in Nepal on 13 Jan.]
- Case presentation and resolution are consistent with spectrum of disease in hospitalized patients described elsewhere, noting he was on the mild end of this spectrum compared to others from early to mid-January. Follow-up RT-PCR on throat swabs were negative by 29 and 30 January.

Bastola, et al. (Feb 10, 2020) *The first 2019 novel coronavirus case in Nepal. Lancet Infect Dis.*
Published online, [https://doi.org/10.1016/S1473-3099\(20\)30067-0](https://doi.org/10.1016/S1473-3099(20)30067-0)

- Updating a previously-posted pre-print, Zhang, et al. describe their analysis comparing 2019-nCoV pneumonia (NCIP) to 2003-SARS cases to guide prevention and control of the former. Data included public information on Chinese NCIP cases (n=287; age 9-90 years old; male:female ratio, 1.35:1). Compared to SARS, NCIP has a lower case fatality rate and a higher “cure rate”. Fatality rates were higher in Wuhan compared to elsewhere in China (1.5 to 6.6% and 0 to 2.6%, respectively).

Zhang, et al. (Feb 10, 2020) *Transmission and epidemiological characteristics of Novel Coronavirus (2019-nCoV)-Infected Pneumonia (NCIP):preliminary evidence obtained in comparison with 2003-SARS. Pre-print downloaded 10 February from*
<https://www.medrxiv.org/content/10.1101/2020.01.30.20019836v2>

Modelling and Prediction

- Swerdlow and Finelli review information from modeling studies of earlier epidemics and pandemics to assess global preparedness for sustained transmission of an emerging viral disease with high transmissibility and severity. Examples cited were H1N1, SARS-CoV, and MERS-CoV.
- Models suggest that:
 - Assuming no intervention in a US population, a model mixing a range of influenza transmission and severity parameters indicated that clinical attack rates of 20-30% (per H1N1pdm09) could lead to 669,000-4,300,000 hospitalizations and 54,000-538,000 deaths, depending on severity.
 - Without a vaccine, school closures would be unlikely to affect spread.
 - 35,000-60,000 ventilators would be needed, as would ~7.3 billion surgical masks/respirators
 - Vaccine development *before* introduction of the new pathogen would be required to avoid a significant number of hospitalizations and deaths.
- It is too early in the 2019-nCoV epidemic to determine the combination of transmissibility and severity posed by this virus. However, influenza mitigation plans would be useful to enact should the US see sustained 2019-nCoV transmission.

Swerdlow DL and Finelli L (Feb 11, 2020) *Preparation for Possible Sustained Transmission of 2019 Novel Coronavirus: Lessons From Previous Epidemics. JAMA.*

<https://jamanetwork.com/journals/jama/fullarticle/2761285>

Testing and Treatment

- A case series of four 2019-nCoV pneumonia patients admitted to the Shanghai Public Health Clinical Center is presented. Patient recruitment was 21-24 Jan, and data collection occurred through 4 Feb, 2020.
 - All patients had mild to severe pneumonia with fever. Older patients were hospitalized for longer. Other symptoms, laboratory findings, and treatment regimens are summarized.
 - All four patients were given supplemental oxygen and were treated with allopathic medicine antivirals (combined lopinavir/ritonavir, arbidol); a Chinese traditional medicine, Shufeng Jiedu Capsule (SFJDC); and antibiotics (not specified).
 - The most severe case (63 year old female) was placed on mechanical ventilation and received human seroalbumin and gamma-immunoglobulin.

Wang, et al. (Feb 6, 2020). *Clinical characteristics and therapeutic procedure for four cases with 2019 novel coronavirus pneumonia receiving combined Chinese and Western medicine treatment. BioScience Trends.* <https://doi.org/10.5582/bst.2020.01030>

Policy and Prevention

- In a qualitative evaluation of general zoonotic transmission risk factors in rural China, Li, *et al.* present information from predominantly agrarian communities. Interesting findings include:
 - Dogs or cats kept for companionship, home protection or preventing rat infestations
 - Poultry, pigs and cattle raised for meat consumption; animal waste sometimes used as crop fertilizer; seeking medical treatment for bites and scratches was uncommon
 - Vaccination coverage of domestic animals was low. Participants were informed about rabies but rarely other zoonotic illnesses.
 - While participants reported a decrease in wild animal hunting, trading or consumption activities, hunting or consumption of some wild animals (e.g. rodents, bats, civets, frogs, snakes and birds) still occurred
 - Recent infrastructure improvements and inspections of designated slaughter houses were recognized to have improved hygiene and sanitation conditions. Poultry slaughter and sale in wet markets remained a concern.
 - Bat caves and roosts close to human dwellings were reported; wild animals among crops were observed.
- Mitigation opportunities through gun control policies, enforcement of wildlife protection laws were reported to have reduced wildlife hunting. Healthcare access to local government clinics was generally good. Access to government-provided free or low-priced vaccines for domestic animals was limited

Li, et al. (Feb 10, 2020). A qualitative study of zoonotic risk factors among rural communities in southern China. International Health. <https://doi.org/10.1093/inthealth/ihaa001>

- Lee and Hsueh review the emergence of the zoonotic coronaviruses SARS, MERS, and 2019-nCoV. They provide a high level review of reservoirs, mechanisms of infection, routes of transmission, clinical presentation and pandemic potential, with an emphasis on using this information to inform current 2019-nCoV containment.

Lee P-I and Hsueh P-R (Feb 4, 2020). Emerging threats from zoonotic coronaviruses-from SARS and MERS to 2019-nCoV, Journal of Microbiology, Immunology and Infection. <https://doi.org/10.1016/j.jmii.2020.02.001>

Mental Health and Personal Impact

- The Substance Abuse and Mental Health Services Administration has three helpful resources related to mental health during infectious disease outbreaks. These were developed in response to previous events to support community members and may be particularly helpful as WA continues to stand up quarantine processes for 2019-nCoV outbreak response.
 - [Taking Care of Your Behavioral Health: Tips for Social Distancing, Quarantine, and Isolation During an Infectious Disease Outbreak](#)
 - [Coping with Stress During Infectious Disease Outbreaks](#)
 - [Taking with Children: Tips for Caregivers, Parents, and Teachers During Infectious Disease Outbreak](#)

Other Resources

- Per multiple news sites, [including NPR](#), the WHO has announced the official name of the emergent 2019-nCoV to be COVID-19. This name will be used as appropriate in future literature reviews.

Need to get caught up?

Malik, et al. provide a review of the emerging 2019-nCoV focusing on its genetics, likely evolution, and antigen profile – relating this last to developing vaccine and therapeutics. Implications for disease control are discussed.

Malik YS, et al. (Feb 8, 2020). Emerging novel Coronavirus (2019-nCoV) - Current scenario, evolutionary perspective based on genome analysis and recent developments, Veterinary Quarterly. <https://doi.org/10.1080/01652176.2020.1727993>

- Arabi, et al. provide a review of critical care management for adults with severe respiratory viral infections, including antiviral therapies, other pharmacologic interventions, supportive care, and infection control measures. The review covers a spectrum of common respiratory viruses (e.g., influenza, hCoVs, RSV) and emerging or re-emerging viruses (e.g., measles, hanta, and 2019-nCoV)

Arabi YM, et al. (Feb 10, 2020) Critical care management of adults with community-acquired severe respiratory viral infection, Intensive Care Med,
<https://doi.org/10.1007/s00134-020-05943-5>

In addition to the articles described here, there are several editorials, commentaries, and technical (e.g., drug trial) papers available to view via the [2019-nCoV SharePoint site](#) along with previous Lit Reps.