Covid Evidence Digest 3/27/2020

NYC Health + Hospitals, Office of Population Health

1/ The effect of human mobility and control measures on the COVID-19 epidemic in China (Science)

Bottom Line:
The early spread of COVID-19 in China was very closely linked to human movement from Wuhan to other Chinese cities, and the drastic control measures implemented in China substantially mitigated spread.

Details:
This study used real-time mobility data from Wuhan to examine the role of human mobility on COVID-19 transmission across China. The early spread of COVID-19 outside of Wuhan was very closely linked to the volume of human movement from Wuhan. Intensive control measures, including mobility restrictions, were then implemented to limit the spread of COVID-19. The combination of interventions implemented in China were successful in mitigating spread and reducing local transmission of COVID-19, but it is nearly impossible to definitively determine the impact of each individual intervention.

Key Takeaways:
- Travel restrictions are particularly useful in the early stage of an outbreak when it is confined to a certain area that acts as a major source.
- Once outbreak is more widespread, local mitigation strategies increase in importance.

2/ Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia (NEJM)

Bottom Line:
In Wuhan, China, human-to-human transmission of COVID-19 had been occurring nearly 2-3 weeks before the first cases were reported.

Details:
This study analyzed epidemiological data on the first 425 confirmed COVID-19 cases in Wuhan, China. The majority of the earliest cases were linked to the Huanan Seafood Wholesale Market in Wuhan, but findings show that human-to-human transmission had been occurring since early December 2019, well before the first reported cases on December 29, 2019. In the outbreak's early stages, the number of cases doubled about every 7.4 days, with a basic reproduction number of 2.2 (i.e. on average, each patient had spread the infection to about 2.2 other people).

Key Takeaways:
- Early COVID-19 infection is difficult to identify and isolate
- Widespread testing in outpatient clinics and emergency departments would be needed for proactive case finding

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3/Meplazumab treats COVID-19 pneumonia: an open-labelled, concurrent controlled add-on clinical trial (Pre-print, not peer reviewed)

Bottom Line:
In a study of 28 patients hospitalized with COVID-19 in China, 17 patients who received meplazumab injections recovered faster than 11 patients who did not receive injections.

Details:
The COVID-19 virus uses a protein on human cells (CD147) to bind and infect cells. Meplazumab also binds to CD147, potentially blocking the virus' ability to infect cells. 17 hospitalized patients with COVID-19 were given meplazumab injections, and their outcomes were compared to 11 similar COVID-19 patients who did not receive meplazumab. Compared to patients who did not receive the treatment, patients receiving meplazumab cleared their virus faster, and were discharged from the hospital sooner. None reported adverse effects with the injections.

Key Takeaways:
- A small group of COVID-19 patients receiving meplazumab had improved recovery with no reported adverse effects
- Larger trials are needed to more fully evaluate this potential treatment