

LITERATURE REVIEW SARS-CoV 2

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Impact On Health Systems

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MASKS

MASK WEARING IN PUBLIC

- Mask wearing by the general public can provide protection against primary infections from community contacts and protect against household transmission. Mask wearing should be accompanied by proper hand hygiene and social distancing practices.
- Homemade masks are able to prevent droplet transmission and are most effective when made with cotton or scarf-like materials; multiple layers of cloth provide additional protection.

EXTENDING USABILITY OF N95 RESPIRATORS

- CDC guidelines provide principles for extending usage and reuse of filtering facial respirators, like N95s, in times of limited supply. Decontamination should reduce pathogen burden, retain functionality, and present no residual chemical hazard to mask users.
- Ultraviolet germicidal irradiation (UVGI), vaporous hydrogen peroxide (VHP), and moist heat are the recommended methods for decontaminating N95 masks. Manufacturers should be contacted for guidance on the best mechanism for decontamination.
- The University of Nebraska Medical School has developed a decontamination protocol for N95 respirators that uses UVGI to decontaminate 90 masks/round with a total exposure dose up to 900 mJ/cm².
- The Washington University School of Medicine has implemented a VHP protocol that is capable of decontaminating 200 N95 respirators in 24 hours using a minimum dose of 700 parts per minute (PPM) of VHP.



TRANSMISSION

EFFECTIVENESS OF STAY AT HOME ORDERS

- With continued adherence to stay at home orders, a model has shown that it may be effective in flattening the curve; it showed that the less strict people are in staying at home, the longer the stay at home orders will have to be in place in order to flatten the curve.
- Data from four major cities in the United States has shown that with the implementation of more strict stay at home measures, the average percent change in the number of new cases daily had decreased.

TRANSMISSION FROM SURFACES

- SARS-CoV-2 was shown to be viable on objects made out of plastic and stainless steel for up to 72 hours; caution should be taken when handling objects made out of these materials, especially in higher risk settings such as the ICU, as the virus was found on computer mice, trash cans, and door handles in this setting.
- SARS-CoV-2 was found on copper for up to 4 hours and cardboard for up to 24 hours.

TRANSMISSION IN DROPLET VS AEROSOL FORM

- A model showed that droplets less than 60 μm can travel about 6 feet - 26 feet. Increased humidity was also shown to decrease the distance that the droplets can travel, but also increase the width that the droplet cloud (as from a sneeze) can extend.
- Aerosols of SARS-CoV-2 were found to travel up to about 13 feet.
- The clothing of personnel who were in rooms with SARS-CoV-2 patients were tested positive for viral RNA despite the absence of cough by the patient when they were in the room.
- Airborne precautions may be needed which is supported by evidence that showed 45/60 people present at a choir rehearsal, none of which whom were symptomatic at the time, tested positive for COVID-19 at a later date; this implies that the forceful exhalation during singing may have aerosolized the virus and allowed airborne transmission.