

Issue:

Fecal transmission of COVID-19 was raised as potentially affecting SEIU Healthcare workers. This research presents an analysis of best-available science and data on the issue of fecal transmission of COVID-19

Introduction

Diarrhea and digestive symptoms are common among COVID-19 cases as they were for SARS (2003) (Gu, et al, 2020). From the onset of the health crisis, researchers have noted and documented COVID-19 viral RNA in human feces. An early study from February 1 to 14 noted, “fecal-oral transmission could be an additional route for viral spread. Prevention of fecal-oral transmission should be taken into consideration to control the spread of the virus.” (Xiao et al. 2020). It remains uncertain the number of ways in which COVID-19 transmission can occur, but the precautionary principle should prevail.

Research indicates oral and anal swabs as reliable sources of detecting infection at different periods of illness. Oral swabs can detect virus from day 0 to day 14, an anal swab is more accurate from day 5 to day 28, as noted below:

[1]

The above table also notes that anal swabs continue to test positive even after nasopharyngeal tests show negative results. As such, precautions for healthcare workers and the public are required even after negative respiratory tests and onwards. Some researchers are recommending “that transmission-based precautions for hospitalized patients with SARS-CoV-2 should continue if feces test results are positive (Xiao, et al. 2020).”

Fecal Matter and Wastewater

Stool samples can be tested to determine the presence of the virus from both an individual standpoint, and a more general population-based approach. Many cities are experimenting with detection in wastewater systems for population health epidemiology.

Parisian wastewater tests detected COVID-19 in wastewater. Wurtzer, et al. (2020 Preprint) were able to extrapolate samples to “compare the average level of SARS-CoV-2 genomes in wastewater samples over time with the number of confirmed fatal cases of COVID-19 in the Paris area... as expected, we confirmed that the increase of genome units in raw wastewaters accurately followed the increase in the number of fatal cases observed at the regional and national level.” The study researchers concluded that “the contamination of wastewater and the detection of viral genome occurred before the beginning of the exponential growth of the epidemic.” More research continues testing of wastewater in informing public health interventions in places around the world like the Netherlands (Medema G, et al. 2020) and The United States (Wu et al, 2020).

Structurally, there are concerns that the built environment can exacerbate transmission. Defects in the water plumbing systems have been identified as a possible method of transmission during a 2003 study of a Hong Kong housing block with 342 confirmed SARS cases, and 42 deaths. Virus laden droplets created airborne transmission in empty U-bends in washrooms, which was aided by bathroom extract ventilation. High concentrations of infected people lead to a higher viral load which leads to a higher risk of disease spread. The interconnectedness of such systems coupled with self-isolation could also increase the risk of spread (Gormley, et al, 2020).

Lessons Learned from SARS (2003)

Reviewing literature from the 2003 SARS outbreak, “diarrhea is a common presenting system of SARS.” (Leung et al., 2003). The researchers also noted that “SARS-CoV RNA can be detected in the stool of patients for more than 10 weeks after symptom onset.” Since the outbreaks in Canada and the USA have not reached a 10-week mark, this 2003 data could be useful in informing precautionary measures of fecal matter.

Peiris et al. (2003), noted that “the leading hypothesis [of a community outbreak of 300 people] is that small virus-containing droplets from contaminated sewage entered the bathrooms of the apartment complex through dried-up U-traps, but other contributory factors cannot be ruled out.” Similar incidents have been reported in Hong Kong during the COVID-19 outbreak as well (see Gormley et al. 2020).

“The question of whether stool remains a potential source of the virus in recovering or even recovered patients deserves further evaluation. It is also imperative that strict precautions be used in handling the excreta of these patients in addition to routine droplet and fomite precautions to minimize the risk of viral transmission” (Leung, et al. 2003).

One study from He, et al. (2007) found that “The fecal load of SARS-CoV was at least between 2 and 3 logs higher than in throat washes or sera at comparable time points.” The presence of the virus, however, does not necessarily mean quantities sufficient for transmission. However, as the researchers noted: “long term fecal viral shedding may be an additional source of community spread of SARS, although the infectivity of feces may be better assessed with virus isolation.”

There has not been definitive research that rules out the possibility of community transmission from fecal sources.

Recommendations

- General Knowledge of Fecal Matter Transmission
 - » Members should be aware of fecal transmission as a potential, extra-respiratory vector for transmission of COVID-19
 - » Members should recognize that abdominal pain, diarrhea, and digestive symptoms are consistent with COVID-19 and take appropriate precautions
 - » Members should know that there is evidence of viral loads in feces even after respiratory tests are negative
- Infection Control and Environmental Cleaning
 - » Hand hygiene and droplet and contact precautions are standard
 - » Disinfectants to avoid fecal-related spread are much the same regardless of method of transmission.
 - » Bathroom sanitization
 - Do not ignore foul odors in bathrooms, kitchens and wash areas[2]Ensure all water appliances are fitted with a proper U-bend
 - To ensure water traps are filled, open a tap on all U-bends twice a day for five seconds
 - If wastewater piping appears open, seal immediately while PPE
- Enhanced precautions for homecare, community care, and long-term care workers, and other HCWs who encounter excrement should include:

- » Avoiding cohorting of infected and non-infected patients
- » Separation of toilet facilities/equipment for presumptive/confirmed cases
- » Separation of toilet cleaning facilities/equipment for areas with presumptive/confirmed cases
 - Toilets should be cleaned after being used by positive/presumptive case where separating bathroom facilities is not possible
- » Community care and long-term care homes must consider protective protocols for work involving washrooms, diaper disposal, and adequate PPE for anyone in contact with supplies, hampers, soiled linens
- » Cleaners should be advised of extra precautions when cleaning washrooms and provided proper PPE to conduct disinfecting protocols
- » HCWs who wash and change incontinent clients should take extra precautions and not undertake this work without PPE
- » HCWs who do laundry collection and services should be informed of risks and given PPE
- Until additional research is uncovered that definitively identifies methods of transmission, all precautions herein should be utilized.

Citations

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