

Viability of SARS-CoV-2 in faecal bio-aerosols

doi:10.1111/codi.15181

Dear Editor,

I read with interest the rapid review by Gupta *et al.* [1] concerning the incidence and timing of faecal samples positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in patients with coronavirus disease (COVID-19). The authors acknowledge insufficient evidence to support transmission via a faeco-oral route and identify the need for further research regarding the viability of SARS-CoV-2 in the context of human faeces. However, it is equally pertinent to consider the viability of the virus in faecal bio-aerosols generated by toilet plumes [2]. During the SARS outbreak, it was suggested that a major contributor to the rapid transmission of the initial 187 cases in Hong Kong was propagation by an aerosolization effect of SARS-CoV-1 in faeces with notably high viral load [3]. There is considerable variation in the stability of the novel coronavirus according to surface type, hence the need to replicate studies in the context of human faeces. Feasibly, fomites in the immediate environment of toilets may also accommodate viable SARS-CoV-2 from virus-laden aerosols generated by toilet flushing. [4] If modelled in accordance with the inverse-square law, the extent of viral dispersion from toilet plumes may be relatively far from the source. Data for the stability of SARS-CoV-2 on hospital lavatory fomites may warrant supplementary measures to mitigate the risk of potential fomite-mediated nosocomial infection [5].

This consideration extends to the handling of faecal wastes discharged from hospitals and others sources. Sewage discharged from two hospitals in Beijing during the SARS outbreak was identified as positive for SARS-CoV-1 [6]. Using quantitative real-time reverse transcription PCR methods, Wang and colleagues confirmed the presence of SARS-CoV-2 RNA in hospital inlets of a preprocessing disinfection sewage pool [7]. Although this review is currently dismissive of faeco-oral transmission based on the available evidence, data in this area are rapidly evolving. Given the far-reaching consequences that this would pose for the environment and risk of nosocomial infection, research into the viability of SARS-CoV-2 in faecal bio-aerosols in addition to human faeces should be considered an urgent priority. Heightened care in the management of faecal wastes is an imperative intervention until these questions are answered.

Funding

None.

Conflicts of interest

I declare no competing interests.

Jay Patel 

University of Leeds, Leeds, UK

E-mail: dn18jyp@leeds.ac.uk

Received 18 May 2020; accepted 20 May 2020; Accepted Article online 9 June 2020

[The copyright line for this article was changed on 25 June, 2020 after original online publication]

References

- Gupta S, Parker J, Smits S, Underwood J, Dolwani S. Persistent viral shedding of SARS-CoV-2 in faeces – a rapid review. *Colorectal Dis* 2020; **22**: 611–20. <https://doi.org/10.1111/codi.15138>.
- McDermott CV, Alicic RZ, Harden N *et al.* Put a lid on it: Are faecal bio-aerosols a route of transmission for SARS-CoV-2? *J Hosp Infect* 2020; **105**: 397–8.
- Yu IT, Li Y, Wong TW *et al.* Evidence of airborne transmission of the severe acute respiratory syndrome virus. *N Engl J Med* 2004; **350**: 1731–9.
- Patel J. A plausible transmission mode. *British Dental Journal*. 2020;**228**: 10:735–735.<http://dx.doi.org/10.1038/s41415-020-1698-0>.
- Patel J. Faecal shedding of SARS-CoV-2: considerations for hospital settings. *Journal of Hospital Infection*. 2020. <http://dx.doi.org/10.1016/j.jhin.2020.05.019>.
- Wang XW, Li J, Guo T *et al.* Concentration and detection of SARS coronavirus in sewage from Xiao Tang Shan Hospital and the 309th Hospital of the Chinese People's Liberation Army. *Water Sci Technol* 2005; **52**: 213–21.
- Wang J, Feng H, Zhang S *et al.* SARS-CoV-2 RNA detection of hospital isolation wards hygiene monitoring during the Coronavirus Disease 2019 outbreak in a Chinese hospital. *Int J Infect Dis* 2020; **94**: 103–6.

A new Chapter for the Association of Coloproctology of Great Britain and Ireland

doi:10.1111/codi.15193

Dear Editor,

The coronavirus pandemic has significantly impacted on the practice of colorectal surgery and other branches of