

NERVTAG paper: Duration of infectiousness following symptom onset in COVID:

- This issue was considered in the context of COVID-19 cases who were clinically well enough to be managed at home.
- The committee highlighted the importance of distinguishing the detection of viral RNA by PCR, which may not represent infectious virus, and the detection of infectious virus, which requires virus isolation techniques. It was also noted that there was not a lot of definitive data in relation to infectious virus versus PCR positives.
- The committee highlighted the general lack of data on infectious load, transmissibility risk and onset of acquired immunity.
- Available scientific literature on the detection of SARS-CoV-2 RNA, reviewed at this meeting suggested that on average up PCR results falls below the limit of detection of available PCR tests at about 10-14 days after the date of onset of symptoms.¹⁻³ In the largest study, of 292 confirmed cases, the median time from the onset of symptoms to first negative RT-PCR results for oropharyngeal swabs of convalescent patients was 9.5 (6.0- 11.0) days.³ However, some patients can remain PCR positive for a month or longer days.^{4,5} This is also true for prolonged detection of viral RNA in faeces. A PCR positive sample does not necessarily mean the person is infectious.
- Three pieces of data were discussed in some detail:
 1. Unpublished PHE data reported the mean time of the first 16 patients that PHE had reviewed for virus shedding as detected by PCR was 11.6 days. However, culturable virus was not detectable after day 7. It was also reported that an analysis of sera from patients does show the detection of antibody from around day 10.
 2. Woelfel et al. provided detailed virologic data on nine hospitalised but mildly unwell patients. Although the last PCR positive swabs was at day 28 after onset, *“no isolates were obtained from samples taken after day 8 in spite of ongoing high viral loads”*.⁵
 3. A modelling study by He et al. used data from 414 throat swabs collected from 94 patients moderately ill patients and data on the serial interval in 77 transmission pairs to estimate the infectiousness profile of COVID-19. The authors concluded that *“Infectiousness was estimated to decline relatively quickly within 7 days of illness onset.”*⁶
- **Based on the available, but very limited, information it is NERVTAG’s opinion that for mildly unwell individuals managed in the community, a period of seven days of self-isolation after illness onset is reasonable. This may need to be revisited as additional evidence on the duration of infectiousness arises.**
- A longer period of isolation (14 days) may be warranted for certain groups:
 - People who care for vulnerable individuals at home or in institutions where infection prevention and control measures are not in place.
 - Immunocompromised individuals and those on steroids (including those with lung disease) who may have a more prolonged period of viral replication and infectiousness.
 - Moderately or severely ill, hospitalised patients, who are likely to have higher viral loads and more prolonged viral replication, and therefore a more prolonged period of infectiousness.

13/04/2020

- Particular caution should be exercised in COVID-19 patients discharged from hospital to nursing homes, homeless shelters, or other institutions where there are vulnerable individuals.

References

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