

## Persistence of clinically-relevant levels of SARS-CoV2 subgenomic RNA (sgRNA) in non-immunocompromised individuals

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Prevention of ongoing transmission of SARS-CoV-2 is an essential component of managing the current pandemic. A key prerequisite for this is an accurate understanding the kinetics of viral clearance, likely infectious duration and the circumstances under which clinically relevant levels of active and potentially infectious virus may persist.

We carried out an assessment of E gene and sgRNA viral load as a function of disease severity in a retrospective collection of swab samples from 176 PCR-confirmed individuals. We then determined the viral clearance dynamics of E gene and sgRNA viral sequences in serial samples from a subset of 17 individuals, and assessed duration of positive test result in a further set of 65 E gene positive individuals and 32 sgRNA positive individuals.

We found that both E gene and sgRNA viral load correlated with the presence of COVID-19 symptoms, and that whilst sgRNA viral load declined before E gene viral load, some individuals retained both sgRNA and E gene positivity for extended periods of time of up to 68 days. 13% of sgRNA positive cases still exhibited clinically-relevant levels of virus after 10 days, and that these individuals were without clinical features previously associated with prolonged viral clearance times.

Our results suggest that care needs to be taken in the assumption

that people other than older adults with frailty or those with immunocompromise will be clear of infectious virus after 10 days. We have shown that active virus may persist after this period, which may lead to increased onward transmission risk. We suggest when onward transmission would pose a serious public health threat, for example return to residential care after hospitalisation, that inpatient hospital infection control policies should not be relaxed without evidence of negative test.

### Biography

Merlin is a PhD student at the University of Exeter with Professor Lorna Harries. His PhD focuses on COVID mortality and the links with [ageing and metabolic diseases](#). This began with understanding the role that viral load may play in disease severity, alongside producing the first evidence that individuals may shed clinically relevant levels of potentially replicative competent SARS-CoV-2 beyond 10 days. Current and future work will assess the role of [immunosenescence](#) in SARS-CoV-2 infections and evaluate the potential of novel senotherapeutics in treating COVID-19 which may have implications for wider [viral infections](#) and general immunity.

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