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Survival in the environment

In light of limited data for SARS-CoV-2, evidence was assessed from studies conducted with previous human coronaviruses including MERS-CoV and SARS-CoV. Human coronaviruses can survive on inanimate objects and can remain viable for up to 5 days at temperatures of 22 to 25°C and relative humidity of 40 to 50% (which is typical of air-conditioned indoor environments).

Survival on environmental surfaces is also dependent on the surface type. An experimental study using a SARS-CoV-2 strain reported viability on plastic for up to 72 hours, for 48 hours on stainless steel and up to 8 hours on copper. Viability was quantified by end-point titration on Vero E6 cells. Extensive environmental contamination may occur following an AGP. The rate of clearance of aerosols in an enclosed space is dependent on the extent of any mechanical or natural ventilation – the greater the number of air changes per hour (ventilation rate), the sooner any aerosol will be cleared.

The time required for clearance of aerosols, and thus the time after which the room can be entered without a filtering face piece (class 3) (FFP3) respirator, can be determined by the number of air changes per hour (ACH) as outlined in WHO guidance; in general wards and single rooms there should be a minimum of 6 air changes per hour, in negative-pressure isolation rooms there should be a minimum of 12 air changes per hour.

Where feasible, environmental decontamination should be performed when it is considered appropriate to enter the room or area without an FFP3 respirator. A single air change is estimated to remove 63% of airborne contaminants, after 5 air changes less than 1% of airborne contamination is thought to remain. A minimum of 20 minutes, that is 2 air changes, in hospital settings where the majority of these procedures occur is considered pragmatic.