Factors influencing virus infectivity



Environment

Temperature
Relative humidity
Light (UV exposure)
Type of surface
Medium (charge, properties)
Association with solids



HOST

Age Immunosuppression Genetic susceptibility Health status Behaviour



Virus Properties

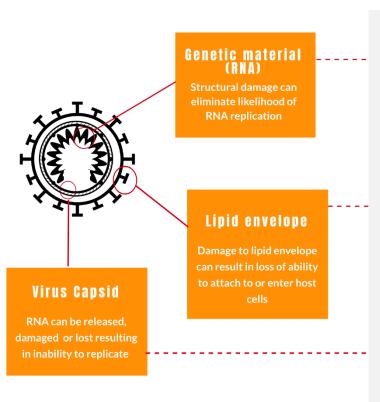
Lipid envelope
Virus stability in the
environment
Infectious Dose



Transmission

Airborne (droplet and aerosols) Waterborne Fomites

Environment and disinfection can impact virus biology



Analyses for wastewater

RT-PCR

Sample is processed to extract RNA
Detects presence of genetic material
(or nucleic acids)
Does not provide information on
infectivity

Cell culture assay

Sample is processed but viruses remain intact Detects presence of infective virus Provides information on infectivity

Transfection assay

Sample is processed to obtain pure virus genome
Genome is inserted directly into host cells to confirm infectivity
Does not account virus loss of ability to attach to or enter host cells