

# Transmission (spread) of Covid-19 through Waste-Water (Sewage)

## Schematic Workflow for Experimental Verification

### How to test if Faecal transmission is occurring or not?

1. Collect Sewage with Positive Shedding Patients (Covid-19) hospital ward - sewage line sample
2. Isolate VIRUS
3. Check Covid-19 virus integrity {Membrane, spikes, protein are intact?} --> If not, RNA is incapable of picking ACE2 (receptor)

COLLECT COVID-19 POSITIVE Sewage

Extract Large Sample of VIRUS

VIRUS INTEGRITY TEST

If Yes, ISOLATE for CHECKING POTENCY

Potent?

Check Transmission

Classify RISK

Identify all proteins of all viral parts

Reference:

COVID-19: faecal-oral transmission? <https://doi.org/10.1038/s41575-020-0295-7> and <https://doi.org/10.1038/s41591-020-0817-4>

==> 17 patients remained positive for SARS-CoV-2 in stool after becoming negative in respiratory samples

==> Faecal transmission lasts beyond respiratory detection

[https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30232-2/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30232-2/fulltext)

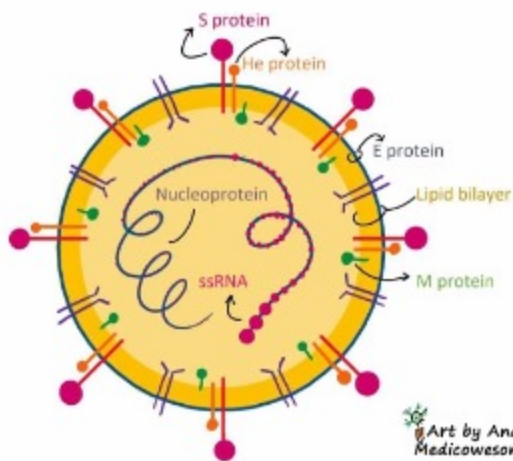
==> viral RNA shedding peaks in 1st week of infection

==> patterns show variability to "SEVERITY", Mild infections - testing negative on RT-PCR by day 10 post-onset; Severe cases shedding into 3rd week.

If No, RNA strands ONLY survive Sewage

COVID-19 Cannot be transmitted

SARS-CoV-2: Molecular Structure



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Legend

- S protein: Spike glycoprotein
- He protein: Hemagglutinin-acetyesterase glycoprotein
- E protein: Small envelope glycoprotein
- M protein: Membrane glycoprotein