

# Facemask sampling (FMS) for the detection and quantification exhaled microbes

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#### **Face Mask Sampling (FMS)**

- PROTECT
  A COVID-19 National Core Study
- Duckbill mask containing PVA strips for microbe capture
- Dr Daniel Pan and colleagues to collect samples
- Wear mask for 30 mins+
- Sample stable for months at RT
- Remove and dissolve strips
- Extraction
- Molecular detection of nucleic acids

E gene for SARS-Cov-2 RNA Viral Load (VL) General 16S for Bacteria





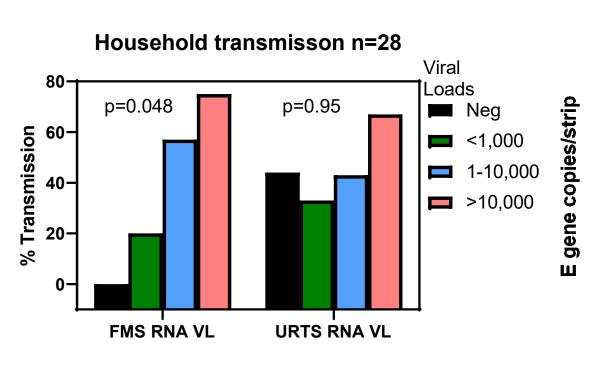


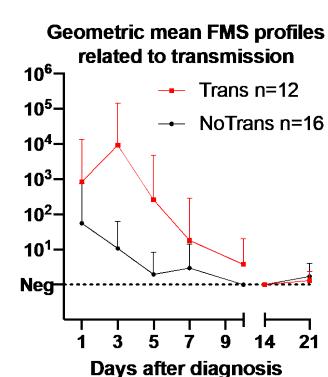


- Contemporaneous FMS and Swabs weakly correlate (r<sup>2</sup> 0.15-0.2)
- Instances of FMS negative and swab positive and vice versa (though latter rare)
- Swabs do not predict FMS RNA VL

## Early FMS RNA VLs associates with transmission





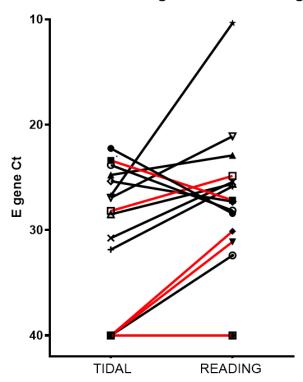


### Talking increases FMS RNA VL?

15 individuals, on day1 post
positive LFT
Consecutively for 30 min each,
1xFMS with quiet TIDAL
breathing and 1xFMS READING
Alice in Wonderland at defined
volume – Order randomised



#### Effect of Reading vs Tidal breathing

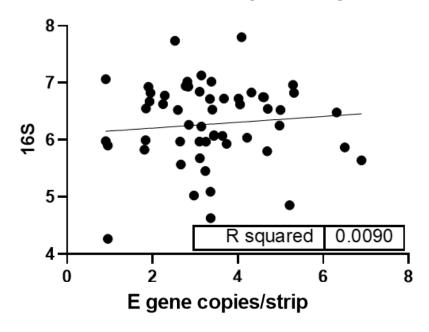


RED = READING FIRST

# FMS VLs do not correlate with bacterial 16s rDNA



Lack of corelation between 16s and viral RNA captured by FMS





#### **Future Work**

- Trials of particle size selective sampling mask
- Make FMS available in parallel with LFTs
- Transmission study with HM prison staff
- Use as rapid assessment of infectivity to be used for recruitment in Pretoria Human to Hamster transmission studies.
- Study 24 hours aerosol output.