



## Pooled sample testing to detect community transmission of SARS-CoV-2

Journal Article, Retrospective study

Published online April 6, 2020

Hogan CA, Sahoo MK and Pinsky B. Sample pooling as a strategy to detect community transmission of SARS-CoV-2. JAMA April 2020. doi. 10.1001/jama.2020.5445

### Summary

#### Methods

- Retrospective study conducted at the Stanford Health Care Clinical Virology Laboratory, California.
- Nasopharyngeal and bronchoalveolar lavage samples of patients with respiratory symptoms between January 1, 2020 and February 26, 2020. These were negative for all other routine respiratory pathogens.
- Nine or 10 individual samples were pooled and screening done using RT-PCR for both E and RNA-dependent RNA polymerase (RdRp) genes.
- Positive pools were deconvoluted, and individual samples were again tested for both the genes.

#### Results:

- A total of 292 pools were screened corresponding with a total of 2888 samples (2740 nasopharyngeal samples and 148 bronchoalveolar lavage samples)
- Two samples were positive, i.e. a confirmed positive rate of 0.07% for SARS-CoV-2.
- One pool gave a false positive report.

#### Conclusion

- The pooled sample strategy gave an estimate of overall disease burden among symptomatic individuals in the area. The burden of disease in the San Francisco Bay area early in the pandemic was low. Only three individuals during that period tested positive using standard criteria.
- This testing strategy improved testing throughput, limited use of reagents and increased overall testing efficiency with a slight loss of sensitivity.

#### Appraisal:

- Performed in a single laboratory catering to a restricted geographical area.
- May miss patients in whom COVID-19 has not been suspected.
- The cause for false positive detection has not been discussed. This may be a potential cause for concern in large scale application.
- Does not obviate the need for individual diagnostic testing.

#### Opinion:

The strategy of sample pooling has earlier been used for community monitoring of trachoma. For diagnosis of SARS-CoV infection it may facilitate rational utilisation of resources; and is useful in areas with low prevalence of the disease. The ICMR conducted a feasibility study in KGMU Lucknow by pooling five samples; and has recommended its use only in areas with a low prevalence of the disease i.e. <2% from the existing data. Pooling is not advised in areas with positivity rates of >5%. (ICMR advisory dated 13.04.2020). However, pooled sample diagnosis can provide an effective strategy to track or monitor the spread or resurgence of an infection within a population.

#### Appraisers

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