

Public health impacts of SARS-CoV-2 variants of concern: Findings from a rapid scoping review

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Summary

In general, although available evidence is varied and scarce, findings from the included studies overwhelming support the implementation of strong public health measures (i.e. lockdowns, distancing, testing, contact tracing) running in parallel with a vaccine schedule. The increased transmissibility of VOC signals the need for more pre-emptive (close-open) versus reactive (open-close) strategies.

Despite the large amount of public attention paid to the Delta variant, this review did not identify any evidence yet published on this newly emerging VOC.

Implications

This review has identified the need for:

- Standardized methods or tools to track adherence to different public health measures;
- Novel methods to collect and analyze data to inform infection-prevention strategies for safer workplace environments during with the emergence of highly transmissible strains;
- Standards for sharing surveillance data nationally to rapidly inform health policy and health system guidance documents;
- Evidence to support guidance related to mask wearing in light of more transmissible strains;
- Evidence to guide best practice standards for screening and testing for VOC under different conditions; and
- Evidence related to the Delta variant, a newly emerging VOC that has so far not led to any published literature.

What is the current situation?

Four SARS-CoV-2 variants of concern (VOC) have been identified by the World Health Organization: Alpha (B.1.1.7), Beta (B.1.351), Gamma (P.1), and Delta (B.1.617). VOC can potentially cause changes in transmissibility, clinical presentation, and severity, and they may have an impact on countermeasures.

What is the objective?

This rapid scoping review aimed to provide a synthesis of current evidence related to public health measures and health systems arrangements associated with VOC. This document provides an overview of findings related to **public health measures**, specifically:

- Modifying approach to vaccination (e.g. using vaccines with greater protection against VOC; using different vaccines for dose 1 and 2; re-vaccinating)
- Modifying infection prevention measures in the community (e.g. handwashing, masking, physical distancing)
- Modifying infection control procedures (e.g. quarantine/isolation, testing, contact tracing, outbreak management)

How was the review conducted?

An information specialist designed a broad, comprehensive search to retrieve all published and preprint literature related to the VOC in MEDLINE, Embase, the Cochrane Library, Epistemonikos' L·OVE on COVID-19, medRxiv, and bioRxiv up to May 11, 2021. Titles/abstracts and full text were screened independently by two reviewers. Data were double extracted using a standardized form. Studies were included if they reported on at least one of the VOC and public health or health system outcomes. Critical appraisal was conducted using the Newcastle-Ottawa Scale for case-control, cohort, and cross-sectional studies.

What did the review find?

- 38 included studies reported on public health measures, and the majority were preprints. Included studies used a wide range of designs and methods.
- Most public health studies were modeling studies, and did not qualify for critical appraisal. Of the 7 studies that qualified for appraisal, three were low quality, two were medium quality, and two were high quality.
- Public health measures were identified as critical adjuncts to a comprehensive vaccination campaign, and the speed of vaccine rollout is a key factor in lowering infection attack rates.
- Evidence supporting modification to infection-prevention measures in different community settings related to VOC is sparse, particularly related to hand washing and masking protocols. Physical or social distancing remains important in reducing the spread of VOC in the community, but studies on this subject made no specific recommendations regarding objective metrics such as proximity time, amount of distance, or type of social distancing strategy.

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