

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.

Guidance documents were often found in topic areas where published evidence had not yet been produced, whereas some topic areas with a more robust body of published research have not yet led to the production of guidance documents.

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; and
- Evidence to guide best practice standards for screening and testing for VOC under different conditions.
- A comprehensive jurisdictional scan to identify, compare, and contrast provincial strategies and guidelines.

What is the current situation?

Three SARS-CoV-2 variants of concern (VOC) were identified in late 2020: B.1.1.7 (UK variant), B.1.351 (South Africa variant), and P.1 (Brazil variant). 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 and guidance documents 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, preprint, and grey literature related to the VOC in MEDLINE, Embase, the Cochrane Library, Epistemonikos' L-OVE on COVID-19, medRxiv, and bioRxiv (up to Apr 7, 2021), Google, Twitter, and relevant websites (up to Apr 14, 2021). Title/abstracts and full text were screened independently by two reviewers. Data were double extracted using a standardized form which was co-developed with infectious disease experts. 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, and the AGREE II tool for guidance documents.

What did the review find?

- 18 studies, 4 reports, and 20 guidance documents reported on public health measures. Included studies used a wide range of designs and methods.
- The 4 studies that qualified for appraisal were mostly low quality, with overall scores ranging 10-80%, and the majority were preprints. Guidance documents scored 17-83%, and rarely cited evidence.
- Public health measures were identified as critical adjuncts to a comprehensive vaccination campaign. Increased risk of VOC household transmission makes isolation, testing, and contact tracing critical components of infection control. Guidance on these measures was mixed across jurisdictions, but tended to recommend isolation/quarantine of 10-14 days with two tests occurring at the beginning (day 0-2) and near the end (day 8-10). Handwashing, masking, and physical distancing recommendations remain relatively unchanged, and studies on these measures as they pertain to VOC is very limited.

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