RESEARCH BRIEF

Public Health Implications of SARS-CoV-2 Variants of Concern

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Emerging Points of Interest

There is evolving evidence regarding changes in vaccine scheduling related to the need for a third dose of vaccine.

Multiple studies show that frequent PCR or rapid antigen testing (ideally, 1-3 times per week) is one of the most effective strategies for preventing and containing outbreaks, especially in schools and post-secondary settings.

Public health measures in the community help mitigate cases in schools, as transmission is more likely to occur in the community than in schools.

Evidence related to public health measures and Delta is emerging rapidly.

An increasing number of modelling studies indicate that by vaccinating children and/or adolescents, the impact of VOC, particularly Delta, could be mitigated, along with the continued vaccination of adults.

Increasing evidence shows that combined NPIs are more effective than single NPIs at containing outbreaks.

Some evidence showing that mixing vaccine types and booster vaccines (i.e., third doses) provides good protection against VOCs.

Increasing evidence suggests that a third dose of vaccine would be beneficial, particularly against Delta, due to waning immunity among early vaccinated populations.

In light of Delta, continued evidence suggests that a combination of vaccine rollout and NPIs is needed to reduce infection.

Universal mask-wearing continues to show importance in reducing the spread of COVID-19, particularly indoors (e.g., workplaces and schools), regardless of vaccination status.

Minimizing social contacts among adults may be required to reduce spread and keep children in school. Hybrid learning may further reduce the spread of COVID-19, hospitalization, and death.

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Objective

To provide a living synthesis of current evidence related to variants of concern (VOC) in the context of public health measures

Background

Four variants of the original SARS-CoV-2 lineage (Alpha, Beta, Gamma, and Delta) have been declared VOC by the WHO. VOC are defined by their increased potential for transmission, presence of genomic mutations, and rapid spread across countries or regions leading to possible decreased effectiveness of public health measures. The increased transmissibility of VOC has led to surges in COVID-19 incidence, hospitalizations and mortality.

Methods

This living synthesis builds on previous evidence gathered up to May 11, 2021. Searches for this update were run on October 4, 2021, in several health sciences databases, including preprint servers. Screening, data extraction, and critical appraisal were conducted following established systematic and rapid review methodology. For more detail about methods, please refer to the full report.