

Updated [8/15/21]

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Peer Review by:

**PICO – Is there increased morbidity and mortality in vaccinated patients infected with the new, B.1.167 strain of SARS-CoV-2?**

**Key Findings**

- The new strain of SARS-CoV-2 B.1.167 has several mutations (L452R, E484Q, and P681R) which may increase the strain's transmissibility.<sup>1</sup>
- In a controlled study involving hamsters infected with the B.1.167 as well as the original strain, higher pathogenicity and viral load in the lungs was demonstrated in those infected by the B.1.167 strain. Though the weight loss was observed in a greater fraction of hamsters infected by the new strain, the difference was not statistically significant.<sup>1</sup>
- As compared to unvaccinated individuals, individuals who have received both doses of the SARS-CoV-2 vaccine have a higher (statistically significant,  $p < 0.0001$ ) antibody response to the B.1.167 strain.<sup>2</sup>
- The L452R and E484Q mutations in the B.1.167 strain are mutations in the receptor-binding domain of the spike protein. The combined effect of these is not yet fully understood.<sup>3</sup>
- The SARS-CoV-2 B.1.617.2 (Delta) variety first appeared in India and has since spread around the world. It appears to be more transmissible than other variations, according to evidence. 47 COVID-19 infections were linked to a gymnastics facility between April 15 and May 3, 2021, including 21 laboratory-confirmed B.1.617.2 cases and 26 epidemiologically associated cases. The overall attack rates for facilities and households were 20% and 53%, respectively. In indoor sporting settings and households, the B.1.617.2 strain is highly transmissible, which could lead to an increase in attack rates.<sup>4</sup>
- In a span of only 6 weeks beginning in April 2021, the alpha (B.1.1.7) variant of SARS-CoV-2 was displaced from a prevalence of 70% of positive cases to 42% of positive cases. The large majority of this displacement was due to the rise in prevalence of the B.1.617.2 (Delta) variant.<sup>6</sup>
- Another variant of SARS-CoV-2, the P.1 (gamma) variant, is also contributing to the displacement of the Alpha variant.<sup>6</sup>

**Vaccine Impact:**

- Mesa County, Colorado experienced a higher rate of vaccine breakthrough cases due to the Delta variant than other Colorado counties between April and June 2021. Vaccine effectiveness was 78% in Mesa County and 89% in other Colorado counties.<sup>5</sup>
- A study conducted by Public Health England demonstrated very good (>90%) efficacy of the AstraZeneca and Pfizer vaccines against hospitalizations after the administration of two doses.<sup>6</sup>
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**Recommendations:**

- Vaccination is a vital first-line defense against new strains of COVID-19. Its benefits include preventing infection, serious illness, and death from COVID-19.<sup>5</sup>
- In areas with high case rates, indoor masking and social distancing, regardless of vaccination status, is recommended.<sup>5</sup>

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