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Update to living systematic review on effectiveness of heterologous and homologous covid-19 vaccine regimens

This living systematic review by Au and Cheung (*BMJ* 2022;379:e069989) has been updated. For the latest update, visit doi:. The latest version of this living systematic review comprises 63 studies, including 10 new studies. Twenty five combinations of covid-19 vaccine regimens were identified. The updated findings for vaccine effectiveness before and after the delta and omicron outbreaks are reported. The study found that three dose regimens are the most effective in reducing the risk of non-delta and non-omicron related covid-19 infections. However, during the delta and omicron outbreaks, three doses of vaccine, whether heterologous or homologous, remain effective, with vaccine effectiveness of more than 75%. Additionally, three dose regimens conferred protection in all age groups for non-delta and non-omicron related asymptomatic or symptomatic infections. The youngest age group (<18 years) had a similar protection level to the adult group aged 18-65 years for all regimens. The oldest age group (>65 years) had the highest protection level after any three dose regimen. A three dose regimen of mRNA vaccine was effective in all age groups for the delta variant; however, with significant reduction in effectiveness of the same regimen for the omicron variant. A slight decrease in protection conferred by three doses of mRNA vaccine was observed when compared with delta or omicron related hospital admissions.

With more evidence added to this update, better certainty exists regarding the vaccine effectiveness of a three dose vaccine regimen against covid-19 related infections. These results show that a three dose regimen is effective in protecting against covid-19 even during outbreaks of delta and omicron variants. Consistent with the first publication, an mRNA vaccine continues to be the preferred vaccine type for a booster dose.