Effectiveness of COVID-19 vaccines: findings from real-world studies

To the Editor: We recently reviewed the first studies of the real-world effectiveness of coronavirus disease 2019 (COVID-19) vaccines.[1] We found evidence of protection against serious illness and death but noted the difficulties in performing such studies in Australia. This was because of the (then) low national case numbers and lack of ready access to the necessary linked health data.

Since then, the literature on vaccine effectiveness has expanded dramatically. By February 2022 the Johns Hopkins Bloomberg School of Public Health and partners had generated a database of 181 studies conducted in 26 countries.[2] The most studied vaccines were Pfizer (117 studies), Moderna (47), AstraZeneca (43), Janssen (17) and Sinovac (8). Twenty-three studies investigated booster doses, and seven studies mentioned analysis of the Omicron variant. Study outcomes included infections (117 studies), hospitalisations (69), deaths (30), and viral transmission (5). Study designs varied, with 32 mentioning cohort analysis and 16 mentioning test negative analysis in their titles. Most studies were performed in the United States (56 studies), followed by Israel (32), the United Kingdom (29), Qatar (9), Canada (8), Brazil (6) and Denmark (4).

Not one of the listed studies was conducted in Australia. We should be asking why.

Australia no longer lacks the case numbers to make estimates of vaccine effectiveness. We collect good data on vaccination status, infections (including viral variants), hospitalisations and deaths, plus the information needed to adjust for confounding of the associations between vaccine exposure and outcomes. However, authorities have not linked these datasets at individual level and made them available for detailed analysis.

This situation should not continue. There are well established principles for protecting the privacy of individuals who are included in routinely collected data.[3] The Commonwealth and state governments and relevant agencies seem unable or unwilling to link and properly analyse these data. Consequently, they should ensure that regularly updated comprehensively linked de-identified datasets can be accessed by qualified researchers.

Stephen Duckett has recently called for an Australian review of lessons from the COVID-19 pandemic using a systems rather than a punitive lens.[4] We agree. Better linkage, access and analysis of our health system data should be high on the list.

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3 Arbuckle L, Ritchie F. The five safes of risk-based anonymization. *IEEE Secur Priv* 2019; 17: 84-89.
4 Duckett S. How to learn the lessons of Australia's COVID history. *Pearls and Irritations* 2022; 19 Jan. https://johnmenadue.com/how-to-learn-from-our-covid-history-no-not-with-a-royal-commission (viewed Mar 2022). ■