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Supporting Information

Supplementary formula

This appendix was part of the submitted manuscript and has been peer reviewed.
It is posted as supplied by the authors.

Appendix to: Heriot GS, Jamrozik E. Not in my backyard: COVID-19 vaccine development requires someone to be infected somewhere. *Med J Aust* 2021; doi: 10.5694/mja2.50930.

Relationship between statistical power, trial group size and vaccine efficacy.

$$n = \frac{(Z_{1-\alpha} + Z_{\beta})^2 [p\varepsilon'_m(1 - p\varepsilon'_m) + p\varepsilon'_v(1 - p\varepsilon'_v)]}{(p\varepsilon'_m - p\varepsilon'_v)^2}$$

Where: Z is the cumulative distribution function of a standardised normal deviate

α is the one-tailed type 1 error rate

β is the type 2 error rate

p is the probability of infection in the trial population

ε is the relative risk reduction of infection from vaccination (vaccine efficacy)

ε'_m is the complement of the minimum desirable vaccine efficacy

ε'_v is the complement of the true candidate vaccine efficacy