PUBLIC ACCOUNTABILITY COMMITTEE

NSW MANAGEMENT OF THE COVID-19 EPIDEMIC

Virtual hearing, videoconference, Thursday 23 September 2021, 11:36am

Question: If the severity of outcomes of Delta is something like twice what the initial assumptions were, does that produce something like twice the numbers of ward admissions and ICU admissions? And, if not, can you talk us through that?

Response: The most recent evidence on the severity of the SARS-CoV-2 Delta variant is that individuals infected with this virus have a higher probability of hospitalisation following the onset of symptoms, compared with the previously circulating Alpha and ancestral (Wuhan) variants.

In our National Plan modelling we reviewed all available evidence on clinical severity of SARS-CoV-2 infections. The bulk of this evidence related to the Wuhan strain, given that it circulated globally over an extended period. From this evidence we derived age-based estimates of the likelihood of hospitalisation and severe disease outcomes following detection of symptomatic infection.

Based on our review of available evidence about Alpha variant infections at that time, we applied an odds ratio (OR) of 1.42 to hospitalisation outcomes across all age groups. Please note that an OR is different from a percentage increase or decrease. It is the ratio of the odds of going to hospital given symptoms following Alpha infection compared with the odds of going to hospital given symptoms following infection with the Wuhan strain.

At that time, there was uncertainty in the literature about the relative clinical severity of the Delta variant compared with the Alpha variant. Published reports variously described it as milder, about the same, or more severe. On balance we assumed the same severity as for the Alpha strain.

Following completion of that phase of National Plan modelling it has become clear from published studies that the Delta variant is more likely to be associated with severe clinical outcomes than Alpha. The most informative study in the peer reviewed literature reports the odds ratio for hospitalisation given symptoms as 2.08 compared with the Wuhan strain. Given the same 'benchmark' (Wuhan) strain for both viruses, an OR of 2.08 for Delta represents an increase but not a doubling in severity compared to Alpha, for which the assumed OR was 1.42.

An OR is not the same as a percentage increase or decrease. If hospitalisation is rare as is the case for children, then it is approximately true that the OR of 2.08 means hospitalisation is twice as likely. Compared with Alpha, Delta may therefore result in an increase in admissions in this age group by as much as 40-50%. However, for older adults, in whom hospitalisation is a common outcome, the additional increased chance for hospitalisation due to the virus per se will be relatively lower, meaning that absolute numbers of hospitalisations may increase by as little as 10-15%.

Note also that these values are the ORs for hospitalisation *given symptoms.* Vaccination also reduces the likelihood of symptoms given infection, as noted in my original reply. At the same time as updating our clinical severity assumptions, we have also reviewed our other vaccine effectiveness parameters against infection, transmission and development of symptoms. In addition, achieved vaccine coverage in the Australian population has exceeded expectations of our simulations from July, including lowering of the eligible age for immunisation to 12+ years.

As a result, our current assessment is that overall clinical burden in Australia, despite Delta's increased severity, may well be lower than that anticipated in our National Plan work. Of course, if Delta were not more severe than Alpha, anticipated overall clinical burden would be lower still. Ongoing situational assessment of the local epidemic will provide necessary evidence to 'ground truth' these scenarios and inform ongoing policy decision making.

Professor Jodie McVernon 21st October 2021