

UNITAG Advisory to the Ministry of Health on the status of Post Vaccine COVID-19 Infections and Breakthrough cases in Uganda

1st July 2021

The UNITAG received a request for information regarding post-vaccination COVID-19 infections including breakthrough infections in Uganda. The NITAG has conducted some preliminary review of literature on the issue globally and conducted some preliminary analysis of data available from two COVID-19 diagnosis and treatment sites in Uganda. The following observations and recommendations arise:

While Post Vaccine COVID-19 Infections (PVCIs) include all infections that occur after someone has received any vaccination, a 'breakthrough infection after vaccination' is defined as someone who tests positive for COVID-19 more than 14 days after the second dose of a dual dose vaccine (e.g., AstraZeneca or Pfizer vaccines) or the one dose of a single vaccine (e.g., Johnson & Johnson shot). Therefore, Post Vaccination Covid Infection (PVCi) should always be sub-analyzed to identify those that are true breakthrough infections as distinct from early post-vaccine infections after the first and second dose that occur when the vaccine has not yet elicited the expected full immune response.

A dataset of 30 cases received from two COVID treatment centers in Uganda shows that:

- 1) 63% (19/30) of PVCIs analyzed occurred in people who had received only the first dose of the vaccine so they were not yet fully covered by the vaccine.
- 2) While 37% (11/30) of the PVCIs were in people who had received the second COVID-19 vaccine, the data was not yet complete to show if these occurred after 14 days and it is probable that a number of these were also early post-vaccine infections who were not yet fully covered by the vaccine's protective effect.
- 3) Among the 30 PVCIs assessed, only 3 cases (10%) developed severe COVID infections – all the severe cases occurred in people who had received only one vaccine dose.

It is noted that even in countries where vaccination started much earlier, complete data on PCVIs and Breakthrough cases is still very low. Preliminary findings from the USA, Canada, UK and Israel show that break-through infection rates are very low. However, data from Uganda is still insufficient to provide full recommendations. The NITAG advises as follows:

1. Efforts should be put in place to provide more vaccines in the country and for those who require two doses, provide both doses within the time-span indicated
2. There is an urgent need to improve the surveillance system for PCVIs so that adequate and complete data on all PCVIs is collected. We recommend that in order to have robust data that reliably follows up every case, surveillance activities are set up in selected sentinel surveillance sites that both screen and treat COVID-19, in different regions of the country. Those sites should receive the appropriate resources to conduct active-case-based, laboratory-backed surveillance on each identified PCVI a) to identify true breakthrough infections and differentiate them from early vaccine infections and b) to type the variants involved
3. The PCVI data collected should be enhanced to always capture information on a) the date when the last vaccine was given, b) for those who have received two doses, the dates for each vaccination, c) the date of the COVID-19 positive test following vaccination, d) the type and batch of vaccine received. Each set of data provided on PCVIs should also be accompanied by the number people tested and the number of people who tested positive for COVID-19 from the people tested

In the case of Uganda, the data that was analyzed was very preliminary and not sufficient to provide full generalizable estimates. As more data becomes available, better estimates will be provided.