

RECOMMENDATIONS ON SINGAPORE'S COVID-19 VACCINATION STRATEGY BY THE EXPERT COMMITTEE ON COVID-19 VACCINATION

December 2020

This report summarises the recommendations of the Expert Committee on COVID-19 Vaccination to the government of Singapore, on the overall COVID-19 vaccination strategy for Singapore, based on information available to the Expert Committee as of 23 December 2020.

Background

2. The COVID-19 pandemic continues to present a public health challenge across the world. The clinical effects of COVID-19 infection vary, with some patients displaying no or mild symptoms, while others may progress to severe respiratory symptoms and other systemic disease. COVID-19 infection can sometimes result in prolonged illness and persistent symptoms even in the young. Where transmission in a community or population is widespread, this can overburden healthcare services and affect the functioning of society as restrictions on movement and activity are placed on the population. While public health measures have been shown to be effective in containing outbreaks, the fundamental challenge is that the vast majority of people in Singapore and the world do not have any immunity to this novel virus. The development and availability of effective COVID-19 vaccines is a critically important milestone, providing the means to fundamentally contain the pandemic, diminish its impact in terms of morbidity and deaths from infection, and eventually allow societies to return to normalcy.

3. At the time of this report, Singapore has a low rate of local transmission. However, there is an ever-present threat of disease outbreak as the global pandemic intensifies, and as Singapore progressively resumes activities. COVID-19 will continue to be a global concern for some time, and it is expected that periodic outbreaks of clusters in many countries, including those with strong travel links to Singapore, are likely to persist. With our high population density and a significant proportion of persons in older age groups, Singapore remains vulnerable to the disease and its spread. With the availability of safe and highly efficacious vaccines, there is great value in vaccinating the population widely to pre-emptively protect against the risks of COVID-19.

Role of the Expert Committee

4. The Expert Committee on COVID-19 Vaccination was convened by the Ministry of Health to make recommendations to the government on Singapore's COVID-19 vaccination strategy, including ensuring the safe and effective use of COVID-19 vaccines in Singapore's population groups. The Committee closely monitors the global vaccine landscape and recommendations by global authorities, makes detailed assessments of vaccine candidates for their safety, efficacy and suitability for the different segments of Singapore's population based on the latest clinical data, and makes recommendations on the population groups which should be prioritised for the

vaccines we have on hand, in a period where vaccine supply is limited. The composition and terms of reference of the Expert Committee are detailed in **Annex A**.

Key Considerations for COVID-19 Vaccine Deployment

I. Goals of the COVID-19 vaccination strategy

5. The ultimate goal of our vaccination strategy against COVID-19 is to achieve as high a level of population coverage as possible. This approach protects the maximum number of individuals possible, and will markedly reduce the overall proportion of persons susceptible to the disease and the likelihood of uncontrolled chains of transmission. Where a substantial proportion of a population is vaccinated, indirect protection may be conferred to others who may not yet be deemed suitable to receive the vaccines on hand, for example, persons in age groups not comprehensively studied yet in the clinical trials.

6. A national effort to vaccinate the population as widely as possible will take time to implement. Amidst a global pandemic, vaccines will be in limited supply in the initial period following authorisation by regulatory authorities. Therefore, in the immediate term, there is a need to prioritise high-risk groups within the population, including persons at highest risk of being infected and persons most vulnerable to severe disease and complications.

II. Requirements for vaccines to be deployed

7. The baseline requirement for a vaccine to be deployed is that it must have interim authorisation by the Health Sciences Authority (HSA) under the Pandemic Special Access Route (PSAR) framework. A vaccine which has been authorised for use under PSAR would have been assessed by HSA to demonstrate that it meets the required safety, efficacy and quality standards, and that the benefits outweigh the known risks.

8. In assessing the suitability of vaccine candidates for specific population groups, the Expert Committee took into consideration the following key criteria:

- a. Vaccine safety. Rates of death (if any), serious adverse events and adverse events of special interest;
- b. Vaccine efficacy. Efficacy in preventing confirmed symptomatic infection and protection in various subgroups;
- c. Vaccine tolerability. Frequency and nature of typical side effects such as fever, pain and injection site inflammation; and
- d. Data adequacy of clinical trials. Size of clinical trials participation, diversity of trial recruitment and data quality.

Evaluation of Pfizer-BioNTech COVID-19 Vaccine

9. The Expert Committee notes that on 14 December 2020, under the PSAR framework, HSA authorised the Pfizer-BioNTech COVID-19 Vaccine for use in Singapore in individuals aged 16 years and older to prevent COVID-19. The key points

of HSA's clinical assessment, based on the available clinical trial data with median follow-up duration of 2 months, are as follows:

- a. High vaccine efficacy of 95% in preventing symptomatic COVID-19 disease in vaccinated persons demonstrated across age groups 16 years and older. There is no sign of waning protection, and there will be ongoing monitoring and review of further data on the duration of immunity.
- b. Safety profile consistent with other established and registered vaccines. No significant safety concerns have been detected. Common side effects expected as part of the body's natural response to a vaccination, such as injection site pain, fever, fatigue and headache, were self-limiting. As with other established vaccines, in rare instances, persons may suffer severe allergic reactions. Therefore, as a precautionary measure, persons with a history of anaphylaxis or severe allergic reactions should not receive the vaccine until further studies are done.
- c. The benefits of the Pfizer-BioNTech COVID-19 Vaccine in the protection against COVID-19 outweigh the known risks. That said, we recognise that continued monitoring for longer-term efficacy of the vaccine to determine the duration of protection against COVID-19, as well as monitoring for rare and serious adverse events will be needed. Pfizer-BioNTech will also be continuing their study of vaccine safety in certain subpopulations, such as pregnant women and children. HSA requires continued submission of updated data by Pfizer-BioNTech as they become available. Until more information is available, pregnant women and those under the age of 16 years should not receive the vaccine. It is also not recommended yet for immunocompromised individuals until further data is accrued.

10. The Expert Committee has independently reviewed the clinical data on safety and efficacy of the Pfizer-BioNTech COVID-19 Vaccine and has been briefed by HSA on its full range of considerations in granting interim authorisation under PSAR. The Committee concurs with the indication for the vaccine as authorised by HSA: the vaccine is suitable for use in Singapore, for persons aged 16 years and older, for the prevention of COVID-19.

11. The Expert Committee agrees with HSA's requirement for Pfizer-BioNTech to continue submission of additional clinical data that continues to emerge, and will continue to monitor and review the following aspects of the Pfizer-BioNTech Vaccine:

- a. Vaccine efficacy and safety in other population subgroups, including persons in different age groups (including those below age 16 years); persons with immunosuppression or other medical conditions; pregnant or lactating women;
- b. Vaccine efficacy against asymptomatic infection and severe disease, and its ability to generate a response in the body to prevent infection from the outset thereby preventing transmission (i.e. sterilising immunity);
- c. Long-term safety data to detect rare and severe adverse events; and
- d. Durability of protection provided.

Key Considerations for Prioritisation of Population Subgroups

12. Given the high global demand for COVID-19 vaccines and the time needed to scale up manufacturing and distribution, initial supplies of vaccines will be limited. Vaccine stocks are expected to arrive in Singapore in batches over several months and vaccination will therefore have to take place in a progressive manner. Hence, there is a need to prioritise certain segments of the population, in a way that maximises the beneficial impact of vaccination at the population and system level.

13. The Expert Committee has carefully deliberated over the priority groups for vaccination, and also reviewed published papers and reports, as well as recommendations from WHO and other major agencies. The key public health parameters that undergird the Committee's deliberations are:

- a. The risk of exposure to infection;
- b. The risk of severe disease and complications if infected with COVID-19; and
- c. The risk of rapid transmission and large outbreaks in their natural and daily setting.

14. In addition, for a population subgroup to be deemed suitable for vaccination, the Expert Committee considered the following key factors:

- a. Whether the subgroup was represented in clinical trials, and the safety and efficacy data for the subgroup;
- b. Its risk of exposure to COVID-19;
- c. Its risk of complications if infected; and
- d. The local and global situation, and the corresponding urgency of deployment to the subgroup.

Recommendations

15. Taking into account the limited supply of vaccines, the current disease epidemiology, and the public health considerations above, the Expert Committee recommends the following groups to be prioritised for vaccination using the Pfizer-BioNTech COVID-19 Vaccine:

- a. Persons at high risk of being infected by COVID-19. These include healthcare workers and workers at the frontline of our national COVID-19 response. There is a duty to protect these workers who place themselves at higher risk of infection in the course of caring for our population, and to ensure the continued effective functioning of our healthcare system, and our national systems for preventing and containing epidemic spread; and
- b. Persons who are most vulnerable to severe disease and complications if they fall ill with COVID-19. These include the elderly and persons with medical comorbidities. Protecting such persons in turn minimises COVID-19 related mortality and morbidity, and the potential strain on our healthcare system.

Even in the older age groups, COVID-19 patients in the upper age bands i.e. 70 years old and above, have worse health outcomes than their younger counterparts i.e. elderly who are 60-69 years old. Where vaccine supply is limited, it is recommended to start with the subgroup of persons aged 70 years and above, followed by persons aged 60-69 years.

16. At a later date, as more vaccines become available, the Expert Committee will assess and make further specific recommendations on the subsequent population groups to be prioritised. For example, persons who live or work in settings where there is potential for rapid transmission and large outbreaks. The assessment and recommendations will have to take into consideration the most current disease epidemiology – both locally and globally, as well as the safety and efficacy profile of the available vaccines on hand at that point in time.

17. Separate from the population groups prioritised for vaccination based on public health considerations, the Expert Committee recognises that there are specific groups of persons who are of critical importance to the functioning of Singapore and should therefore be protected from COVID-19 for greater societal benefits. Examples could include personnel involved in ensuring that Singapore's water and utilities, and other nationally essential services are not disrupted. The prioritisation of these groups should be balanced carefully against the needs of persons prioritised based on public health grounds. On balance, the Committee recommends that around 5% of available vaccine stocks at any given point in time should be set aside for such groups, to ensure that Singapore would be able to continue to function effectively as a nation, even in a local outbreak situation. The detailed identification of these groups is beyond the remit of the Expert Committee, and will be left to the government.

18. Over time, when vaccines become more widely available, the Committee recommends that **all persons domiciled in Singapore, including citizens, permanent residents and long-term pass holders, who are medically eligible** should be vaccinated, so that as much of the population as possible is protected and large outbreaks are averted.

Conclusion

19. The Expert Committee on COVID-19 Vaccination recommends that where safe and efficacious vaccines against COVID-19 are available, all medically eligible persons domiciled in Singapore should receive the vaccines. Given the global situation, even in the current state of low incidence and transmission in Singapore, it would be prudent to start rolling out vaccination progressively to the entire population and to encourage as high coverage as possible, to prevent future large outbreaks. Until such time where vaccines become more widely available, healthcare workers and workers at the frontline of our national COVID-19 response who are at high risk of infection, and the elderly who are more vulnerable to severe disease if infected, should be prioritised at these initial stages.

20. The Expert Committee agrees that the Pfizer-BioNTech COVID-19 Vaccine can be used in persons aged 16 years and older, and it is recommended for Singapore's population, starting with the abovementioned higher risk, higher impact groups. The

Committee will continue to closely monitor the ongoing developments of other COVID-19 vaccines, and review the data when available before making an assessment on their suitability for use in Singapore's vaccination strategy.

21. Until a significant proportion of the population is vaccinated and more data is available on the vaccine's duration of protection and its ability to generate a response in the body to prevent infection from the outset, the Expert Committee recommends that ongoing public health measures, such as safe distancing, mask wearing and good hand hygiene, continue to be practised.