World Health Organization

Updates to product specific Interim Recommendations

Interim recommendations for use of the mRNA vaccines BioNTech/Pfizer and Moderna against COVID-19

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Main updates made

- Goal and strategy for the use of the mRNA vaccines against COVID-19
- Second boosters
- Children
- Heterologous booster
- Co-administration with other vaccines
- Persons with comorbidities, pregnant, lactating, immunecompromised
- Other programmatic considerations
- Knowledge gaps

Grading of evidence of mRNA-1273 vaccine for children

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GRADEing of Evidence	Statement on quality of evidence	SAGE Working Group Judgement
Efficacy against PCR confirmed COVID-19 (Children 6-11 years)	**Very low level of confidence**	We have very low confidence in the quality of evidence that 2 doses of mRNA-1273 vaccine are efficacious in preventing PCR-confirmed COVID-19 in children (aged 6– 11 years).
Safety-serious adverse events (Children 6-11 years)	**Very low level of confidence**	We have very low confidence in the quality of evidence that the risk of serious adverse events in children (aged 6 –11 years) following 1 or 2 doses of mRNA-1273 vaccine is low.
Efficacy PCR confirmed COVID-19 (Children 6 months- 5 years)	**Moderate level of confidence**	We are moderately confident that he quality of evidence that 2 doses of mRNA-1273 vaccine are efficacious in preventing PCR-confirmed COVID-19 in children (aged 6 months–5 years).
Safety-serious adverse events (Children 6 months- 5 years)	**Very low level of confidence**	We have very low confidence in the quality of evidence that the risk of serious adverse events in children (aged 6 months–4 years) following 1 or 2 doses of mRNA-1273 vaccine is low.

Grading of evidence of BNT162b2 vaccine for children

GRADEing of Evidence	Statement on quality of evidence	SAGE Working Group Judgement
Efficacy against PCR confirmed COVID-19 (Children 6 months- 4 years)	**Very low level of confidence**	Very low confidence in the quality of evidence that 3 doses of BNT162b2 vaccine are efficacious in preventing PCR-confirmed COVID-19 in children (aged 6 months–4 years).
Safety-serious adverse events (Children 6 months- 4 years)	**Very low level of confidence**	We have very low confidence in the quality of evidence that the risk of serious adverse events in children (aged 6 months–4 years) following 1, 2 or 3 doses of BNT162b2 vaccine is low.

Use of mRNA vaccines in children

Intended use according to the vaccine label = Persons aged 6 months and older.

WHO recommendation for use = For prioritization by age and other considerations, please see the WHO Prioritization Roadmap(7). Healthy children and adolescents belong to the lowest priority-use group, children and adolescents with comorbidities belong to the medium priority-use group, and children and adolescents with moderate to severe immunocompromising conditions belong to the highest priority-use group.

Administration of mRNA-1273 and BNT162b2 vaccines

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mRNA-1273 vaccine

For persons aged 12 and above, the schedule, as per manufacturer specification, is **two doses** (100 µg, 0.5 ml each), given intramuscularly into the deltoid muscle, 4 weeks apart.

For children aged 6 to 11 years, the schedule as per manufacturer specification is **two doses** (50µg in 0.25 ml each), 4 weeks apart.

For children aged 6 months to 5 years, the schedule, as per manufacturer specification, is **two doses** (25 µg [0.25 ml each), 4 weeks apart.

BNT162b2 vaccine

For all persons aged 12 years and above; the recommended schedule is **two doses** (30 µg, 0.3 ml each)

For children aged 5 to 11 years two doses (10 µg, 0.2 ml each) given intramuscularly into the deltoid muscle.

For infants and children aged 6 months to 4 years, the recommended schedule is **three doses** (3µg, 0.2 ml each):

a schedule of two doses 3 weeks apart followed by a third dose at least 8 weeks after the second dose are according to the label.

WHO recommends that the second dose should be administered 4–8 weeks after the first dose; an interval of 8 weeks between doses is preferred as this interval is associated with higher vaccine effectiveness and lower risk of myocarditis. However, these considerations should be balanced against the need to achieve quick protection, in particular for high risk groups, in settings of high transmission intensity and circulating variants of concern.

Children and adolescents 6 months -17 years of age with comorbidities

Children aged 6 months to 17 years with comorbidities that put them at higher risk of serious COVID-19 disease should be offered vaccination.

For healthy children and adolescents, COVID-19 is rarely lethal. MIS-C and post-acute COVID sequelae are rare, but may occur even after mild or asymptomatic infection. Children can experience significant morbidity but most infections are self-limiting, with only a small proportion requiring hospitalization.

Countries contemplating vaccinating children should consider the benefit-risk, affordability, epidemiological situation, programmatic trade-offs, national childhood vaccination programmes and opportunity costs, seroprevalence rates, and community acceptance. It is of utmost importance for children to continue to receive the recommended childhood vaccines for other infectious diseases.

In accordance with the WHO Prioritization Roadmap, the priority remains to prevent deaths by achieving high vaccine coverage (primary series and boosters) in the highest and high priority-use groups.

First boosters

Booster doses are administered to a vaccinated population that has completed a primary vaccination series when, with time, the immunity and clinical protection has fallen below a rate deemed sufficient in that population. The objective of a booster dose is to restore vaccine effectiveness.

In accordance with the WHO Prioritization Roadmap, a booster dose (50 µg at 0.25 ml, i.e. half the dose used in the primary series) the first booster dose is recommended for the highest priority-use groups (e.g. older adults, persons with moderate to severe immunocompromising conditions, and health workers), 4-6 months after the completion of the primary series. Once high booster dose coverage has been achieved in the highest priority-use group, countries should also consider a booster for lower priority-use groups. If more than 6 months have elapsed since completion of the primary series, the booster dose should be given at the earliest opportunity.

Second boosters

A relative vaccine effectiveness was found to be 62% (95% CI, 50-74) against severe COVID-19, and 74% (95% CI, 50 to 90) against COVID-19 related death comparing 3 dose recipients to 4 dose recipients (21). A further analysis of the risk of severe COVID-19 from 7 days to 30 days post fourth dose showed 42.1 events per 100,000 persons, as compared with 110.8 events per 100,000 persons in the 3-dose recipient comparison group.

To further reduce the risk of severe disease, deaths and disruptions of health services, WHO recommends countries should consider a second booster dose 4-6 months after the first booster dose for all older persons (age specific cut-off should be defined by countries based on local COVID-19 epidemiology), all persons with moderate and severe immunocompromising conditions, regardless of age, adults with comorbidities that put them at higher risk of severe disease, pregnant women and health workers (LINK TO SECOND BOOSTER DOCUMENT).

Co-administration with other vaccines

For persons aged 9 years and above, based on several co-administration studies of COVID-19 vaccines and inferred from co-administration studies of other adult vaccines, COVID-19 vaccines may be given concomitantly, or any time before or after, other adult vaccines including live attenuated, inactivated, adjuvanted, or non-adjuvanted vaccines (26). When administered concomitantly, the vaccines should be injected in separate sites, preferably different extremities. Continued pharmacovigilance monitoring is recommended.

For children below the age of 9 years, there should be a minimum interval of 14 days between administration of this vaccine and all other vaccines except influenza vaccine. This recommendation will be updated as data on co-administration with other routine childhood vaccines become available.

Other programmatic considerations

Countries should consider broader integration of COVID-19 vaccination into primary health care through national immunization programmes is recommended.

WHO recommends that countries consider co-administration of COVID-19 vaccines with seasonal influenza vaccines, whenever feasible, dependent on seasonality. The known risk of serious illness for older adults and many other priority groups infected either with influenza virus or SARS-CoV-2 is substantial. Other adult vaccines may also be co-administered with COVID-19 vaccines as WHO aims for a life course approach for the implementation of COVID-19 vaccines. Such a programmatic approach will help to reach higher uptake of vaccines, increase efficiency and protect stretched health care systems.