WHO position paper on influenza vaccines*

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* This position paper is concerned mainly with vaccines and vaccination against seasonal (epidemic) influenza
Background information

- Seasonal (epidemic) influenza causes considerable morbidity and mortality world-wide and represents a public health problem with significant socioeconomic implications
- Influenza A and B viruses are globally important human respiratory pathogens causing epidemics, usually during the winter, and out-of-season sporadic cases and outbreaks
- Influenza A viruses may also cause worldwide pandemics
- Subtypes of influenza A viruses are defined by the genetically variable haemagglutinin (HA) or neuraminidase (NA) antigens
- Minor mutations in the HA gene ("antigenic drift") enable the virus to evade immune recognition and may result in seasonal influenza outbreaks
Background information -2

• The annual influenza attack rate is estimated at 5–10% in adults and 20–30% in children
• Clinical characteristics include fever, cough, sore throat, runny nose, headache, muscle and joint pain, and malaise
• In young children, impaired respiration, dehydration, altered mental status, and irritability signify serious disease
• Secondary bacterial pneumonia is a frequent complication of influenza, particularly in risk groups
• Etiology-specific diagnosis of influenza requires laboratory confirmation
• Risk groups for severe influenza include pregnant women, children aged <5 years, the elderly, and individuals with underlying health conditions (e.g. HIV/AIDS, asthma, and chronic heart or lung diseases)

• Infected health-care workers may transmit influenza virus to patients at risk
Influenza vaccines -1

- Seasonal influenza vaccines are trivalent and include two influenza A-strains and one influenza B-strain
- Trivalent inactivated influenza vaccines (TIVs) for intramuscular injection and trivalent live attenuated influenza vaccines (LAIVs) for intranasal application are available
- TIVs include formulations containing an adjuvant or an increased antigen concentration for use mainly in the elderly, and also an intradermally administered TIV
- Recently, a quadrivalent LAIV (2 A- and 2 B-strains) was licensed
Influenza vaccines -2

• TIVs are the only vaccines licensed for children aged 6-24 months, persons aged ≥ 50 years, and for pregnant women
• Non-pregnant individuals aged 2-49 years may receive either TIV or LAIV
Influenza vaccines -3

• Vaccine composition is revised twice annually to ensure coverage against prevailing strains in the northern and southern hemispheres
• When the vaccine strains closely match the circulating influenza viruses, efficacy of TIV and LAIV against confirmed influenza in healthy individuals <65 years of age typically range from 70% to 90%
• The corresponding vaccine efficacy in individuals aged ≥65 years, and in individuals with underlying medical conditions, is at best modest, irrespective of setting, population and study design
WHO position and recommendations -1

• Influenza vaccination aims primarily at protecting vulnerable high risk groups against severe influenza-associated disease and death. However, influenza causes considerable morbidity worldwide even beyond these groups.

• Internationally available vaccines for the control of seasonal influenza are safe and efficacious and have the potential to prevent significant annual morbidity and mortality.

• Country-specific information about risk groups, disease burden and cost-effectiveness are important to aid national policy makers and health programme planners in making informed decisions about target groups and timing for vaccination.
WHO position and recommendations -2

• For countries considering the initiation or expansion of programmes for seasonal influenza vaccination, WHO recommends that pregnant women should have the highest priority

• Additional risk groups to be considered for vaccination, include children aged 6–59 months, the elderly, individuals with specific chronic medical conditions, and health-care workers

• Countries with existing influenza vaccination programmes targeting any of these additional groups should continue to do so and should incorporate immunization of pregnant women into such programmes
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WHO position and recommendations -3

• Children <6 months of age (not eligible for current influenza vaccines) should be protected against influenza through vaccination during pregnancy and of close contacts of these infants

• Children 6 - 23 months of age are a target group for influenza immunization because of their high burden of severe disease and should be vaccinated if resources permit

• Children 2 - 5 years of age are at lower risk compared with younger children, but respond better to vaccination with TIV and in particular with LAIV
WHO position and recommendations -4

- Persons \( \geq 65 \) years of age have the highest risk of mortality from influenza and are an important target for vaccination. Although in general, vaccines are less effective in elderly people, vaccination is still the most efficacious public health tool to protect elderly against influenza.

- Vaccination of health-care workers should be considered as part of a broader infection control policy for health-care facilities.
WHO position and recommendations -5

- TIV is administered intramuscularly (except for intradermal formulations)
- Children aged 6 -35 months should receive a pediatric dose and previously unvaccinated children aged <9 years should receive 2 injections administered at least 4 weeks apart
- Children aged ≥9 years and healthy adults should receive a single dose of the vaccine
- LAIV is given as nasal spray, one dose only, but children aged 2- 8 years should normally receive 2 doses, at least 4 weeks apart
- Influenza vaccination is recommended every year, particularly for high risk groups
WHO position and recommendations -6

- TIVs are considered safe, but transient reactions at the injection-site may occur (>1/100 administrations)
- Apart from severe allergy to vaccine components, there are no contraindications to the use of TIV
- LAIVs are considered safe for healthy individuals, but are contraindicated in cases of severe allergy to vaccine components, as well as in children with severe asthma or advanced immunodeficiency
- There is insufficient information on the safety of using LAIV in pregnant women
WHO position and recommendations -7

• Successful introduction of influenza vaccines to healthy younger populations, including pregnant women and young children, will require effective educational programmes and communication

• For pregnant women, year-round availability of the most recent influenza vaccines is essential

• Strengthening of seasonal influenza programmes will assist in programmatic preparedness for pandemic vaccine introduction

• Influenza surveillance platforms are critical for monitoring and communicating the impact of introducing seasonal influenza vaccination