GENEVA - 17 June 2016: The yellow fever vaccine given as one fifth of the regular dose could be used to control an outbreak in case of vaccine shortages.

Experts agreed with this proposal at a meeting convened by the World Health Organization (WHO) to consider potential shortages in yellow fever vaccine due to the outbreak in Angola and Democratic Republic of Congo.

WHO Strategic Advisory Group of Experts (SAGE) on Immunization reviewed existing evidence that demonstrates that using a fifth of a standard vaccine dose would still provide protection against the disease for at least 12 months and possibly much longer.

This approach, known as fractional dosing, is under consideration as a short-term measure, in the context of a potential vaccine shortage for use in emergencies. This approach is not proposed for routine immunization, as there is not yet enough data available to show that lower doses would confer the life-long protection provided by a vaccination with one full dose.

"Yellow fever outbreaks in Angola, Democratic Republic of the Congo and Uganda are placing unprecedented demands on vaccine supply for emergency vaccination campaigns to control the spread of the disease," says Jon Abramson, chair of the WHO Strategic Advisory Group of Experts (SAGE) on Immunization.

"Right now we have enough vaccines in the global stockpile to cope with the ongoing outbreaks if there are no further extensions. However, given the wide spread of the disease in Angola and the potential for it to get out of control in the city of Kinshasa, in the Democratic Republic of Congo, WHO and partners are seriously considering the use of this dose-sparing strategy to prevent transmission through large-scale vaccination campaigns."

At the request of the Emergency Committee regarding yellow fever convened by WHO's Director-General on 19 May, the WHO secretariat has been exploring options, based on existing evidence, on ways to increase vaccine supply in case of urgent need.

SAGE was asked to review the evidence and options presented by WHO. A formal evaluation and recommendations by SAGE on the use of lower doses of yellow fever vaccine are planned for October 2016.

In the interim, SAGE found that the available evidence is sufficient to determine that fractional dosing of yellow fever vaccine to one fifth of the standard dose (0.1ml instead of 0.5ml) could be a safe and effective option for mass vaccination campaigns to control urban outbreaks in situations of acute vaccine shortage.

More research is needed to find out whether fractional doses would be effective in young children, who may have a weaker immune response to yellow fever vaccine.

Practical issues on administering the reduced doses need further investigation, including obtaining the necessary supply of suitable syringes.

International Health Regulations require full dose for travellers

Yellow fever is the only disease specified in the International Health Regulations (IHR) for which countries may require proof of vaccination from travellers as a condition of entry. The IHR were amended in 2014 to indicate that a single dose of the vaccine is sufficient for life-long immunity and therefore extends the validity of vaccination certificates to the life of the person vaccinated. All countries must abide by this new amendment when it enters into force on 11 July 2016.

A yellow fever vaccine given at a fractional dose would not qualify for a yellow fever certificate under the IHR requirements. Travellers will need to obtain the full dose of the vaccine to be eligible for the yellow fever certificate.

Global supply

WHO has prequalified yellow fever vaccines from 4 different vaccine manufacturers which together produce an annual volume of around 80-90 million doses. Prequalification means that vaccines and medicines meet WHO's high standards of quality, safety and efficacy.

The global stockpile , funded by Gavi, the Vaccine Alliance, has 6 million doses for emergency use per year and this has already been depleted twice since February of this year. To date, WHO and partners have sent around 18 million vaccine doses to Angola, Democratic Republic of the Congo and Uganda for emergency use to control the current outbreaks.

In addition to fractional dosing, WHO's SAGE group is looking at ways to prevent yellow fever outbreaks on a long-term basis by strengthening mass vaccination catch-up campaigns in conjunction with improving routine childhood immunization in countries with yellow fever.

WHO's response strategy to the ongoing outbreaks requires coordinated work with partners in five areas: surveillance and risk assessment, vaccination, case management, social mobilization and risk communication and vector control.

More on yellow fever