

## **Varicella and Herpes Zoster Vaccination Position Paper – June 2014**

Varicella (chickenpox) is an acute, highly contagious disease with worldwide distribution caused by the varicella zoster virus (VZV). In temperate climates most cases occur before the age of 10 years. The epidemiology is less well understood in tropical areas, where a relatively large proportion of adults in some countries are seronegative.

The estimated global burden of disease-specific mortality caused by varicella is considerably lower than that due to other major infectious diseases such as measles, pertussis, rotavirus, or invasive pneumococcal disease. Based on conservative estimates, the global annual varicella disease burden would include 4.2 million severe complications leading to hospitalization and 4200 deaths. Despite the routine use of measles and pertussis vaccination, the age-standardized death rates (per 100 000 cases) in 2010 was 0.1 (95% CI: 0.0–0.7) for varicella compared to 1.7 (95% CI: 0.6–4.1) for measles and 1.1 (95% CI: 0.0–5.5) for pertussis. In the pre-vaccine era in high-income developed countries, case fatality rates for varicella were approximately 3 per 100 000 cases compared to 1–3 per 1000 cases for measles.

While mostly a mild disorder in childhood, varicella tends to be more severe in adults. It is characterized by an itchy, vesicular rash, usually starting on the scalp and face, initially accompanied by fever and malaise. The disease may be fatal, especially in neonates and immunocompromised individuals. Complications include VZV-induced pneumonitis or encephalitis and invasive group A streptococcal infections.

The transmission of VZV is via droplets, aerosol or direct contact, or indirectly by touching freshly soiled contaminated items. Patients are usually contagious from a few days before onset of the rash until the rash has crusted over.

Following infection, the virus remains latent in neural ganglia; upon subsequent reactivation, usually much later in adult life, VZV may cause herpes zoster (HZ) commonly known as shingles, a disease affecting mainly immunocompromised individuals and elderly people. The clinical manifestation is a unilateral vesicular rash, characteristically restricted to a single dermatome, which is usually accompanied by radicular pain along that dermatome. Patients experience significant pain and discomfort that may last for weeks, months or even years in severe cases, diminishing the quality of life.

No causal treatment is available for varicella or HZ, though live attenuated vaccines are available for the prevention of varicella and for the prevention of HZ.

### **WHO position**

There is strong scientific evidence that varicella vaccine is safe and effective in preventing varicella related morbidity and mortality in immunocompetent individuals. WHO recommended that routine childhood immunization against varicella could be considered in countries where the disease has an important public health impact. Resources should be sufficient to support sustained vaccine coverage  $\geq 80\%$ . Settings where varicella vaccine coverage levels are less than 80% are at risk of an increase of severe disease and mortality in adults.

Those countries deciding to introduce routine childhood varicella immunization, should administer vaccination at 12-18 months of age. The number of doses administered is dependent on the goal of the vaccination program. One dose is sufficient to reduce mortality and severe morbidity from varicella. Two doses induce higher effectiveness and should therefore be recommended in countries where the programmatic goal is, in addition to decreasing mortality and severe morbidity, to further reduce the number of cases and outbreaks.

Due to the increase in severity of varicella in immunocompromised, certain groups of immunocompromised should be considered for VZV vaccination. Limited data on the immunization of health care workers (HCW) are available, yet countries should consider vaccination of non-immunized health care workers without a history of varicella with two doses of varicella vaccine, even in absence of varicella vaccination in the routine immunization schedule, if the risk of severe varicella in the population in direct contact with the HCW is high (e.g. immunocompromised).

Herpes zoster vaccine is safe and demonstrated clinical protection against herpes zoster, post-herpetic neuralgia and other serious herpes zoster complications. To date no data are available on long term protection induced by the vaccine. Due to limited data and the unknown burden of disease in most countries, initial evidence of waning of protection over time and uncertainty of the optimal age for vaccination SAGE could not make any recommendation about routine herpes zoster vaccination at this time.