WHO position on *Haemophilus influenzae* type b (Hib) vaccination-July 2013

Summary

Haemophilus influenzae type b is a vaccine preventable cause of death and serious disease (meningitis and pneumonia) in infants and young children.

In the year 2000, before widespread introduction of Hib vaccine in resource-poor countries, Hib was responsible for at least 8.13 million cases of serious disease in children aged 1-59 months (uncertainty range 7.33-13.2 million cases) and 371,000 deaths (uncertainty range 247,000-527,000).[1] By 2008, when 136 WHO Member States had introduced the vaccine, it is estimated that Hib caused 203,000 deaths in children aged < 60 months (uncertainty range 136,000-281,000).[2]

Hib bacteria are carried in the human nasopharynx from where they can be transmitted to other humans via droplets from nasopharyngeal secretions. Only a very small proportion of those who harbour Hib will develop clinical disease, however, those who carry Hib in the nasopharynx are important disseminators of the organism.

Vaccination remains the only effective means of preventing Hib disease and is becoming increasingly important as Hib antibiotic resistance grows.

In view of their demonstrated safety and efficacy, **WHO recommends the inclusion of conjugate Hib vaccines in all infant immunization programmes**. The use of Hib vaccines should be part of a comprehensive strategy to control pneumonia including exclusive breastfeeding for six months, hand washing with soap, improved water supply and sanitation, reduction of household air pollution, and improved case management at community and health facility levels.[3]

Recommended schedule: WHO recommends that any one of the following Hib immunization schedules may be followed:

- 3 primary doses without a booster (3p);
- 2 primary doses plus a booster (2p+1);
- 3 primary doses with a booster (3p+1).

In countries where the peak burden of severe Hib disease occurs in young infants, providing 3 doses of vaccine early in life may confer a greater benefit.

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[1] Watt JP et al. Burden of disease caused by *Haemophilus influenzae* type b in children younger than 5 years: global estimates. *The Lancet*, 2009, 374:(9693) 903-911.

[2] WHO. http://www.who.int/immunization_monitoring/burden/Pneumo_hib_estimates/en/.

[3] WHO/UNICEF Ending Preventable Child Deaths From Pneumonia and Diarrhoea by 2025: The integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD). Geneva, 2013, http://www.who.int/maternal_child_adolescent/news_events/news/2013/gappd_launch/en/

Booster dose: In some settings (e.g. where the greatest disease morbidity and mortality occur later, or where rate reductions of disease are not fully sustained after the routine use of Hib vaccine), it might be advantageous to give a booster dose by following either a 2p+1 or 3p+1 schedule.

Age at first dose: Because serious Hib disease occurs most commonly in children aged between 4 months and 18 months, immunization should start from 6 weeks of age, or as early as possible thereafter.

Interval between doses: The interval between doses should be at least 4 weeks if 3 primary doses are given, and at least 8 weeks if 2 primary doses are given. Booster doses should be administered at least six months after completion of the primary series.

Interrupted schedule/late commencement: If the schedule has been interrupted, vaccination should be resumed without repeating the previous dose. Children who start vaccination late, but are aged under 12 months, should complete the vaccination schedule (e.g. have 3 primary doses or 2 primary doses plus a booster). When a first dose is given to a child older than 12 months of age, only one dose is recommended. Hib vaccine is not required for healthy children after 5 years of age.

Contraindications/precautions: The Hib conjugate vaccine is contraindicated in people with known allergies to any component of the vaccine. There are no other known contraindications or precautions

Surveillance: Continuous high quality surveillance for Hib disease is needed to monitor the impact and changes in disease epidemiology over time. Surveillance should cover not only the age group targeted for immunization but also older age groups in order to document the impact of vaccination on age patterns of disease and identify the need for, and timing of, booster doses.

Managing resurgence: Some countries have observed increases in disease incidence several years after vaccine introduction, but these increases have been very small relative to the overall Hib disease reductions following vaccine introduction. Increases in the incidence of Hib cases should be investigated promptly and include documentation of the age, Hib vaccination status, time since last Hib vaccine dose, and HIV status of individuals infected.