



PREVENTION OPPORTUNITIES UNDER THE BIG SKY

HAEMOPHILUS INFLUENZA TYPE B DISEASE: PREVENTABLE BY CHILDHOOD VACCINATION

Haemophilus influenzae causes severe bacterial infections, especially among infants. Before the introduction of vaccines, *Haemophilus influenzae* type b was the leading cause of bacterial meningitis and other invasive bacterial disease in children less than 5 years of age. In the early 1980's, an estimated 20,000 cases of invasive *Haemophilus influenzae* disease occurred annually in the United States, primarily among children younger than 5 years of age. After the introduction of effective *Haemophilus influenzae* type b (Hib) vaccines, the incidence of invasive Hib disease declined by more than 99%. In 2005, only 9 cases of invasive Hib disease in children less than 5 years of age were reported to the Centers for Disease Control and Prevention (CDC). Another 217 cases with unknown *Haemophilus influenzae* serotypes were also reported. Most cases were among children who were unvaccinated or incompletely vaccinated.

At the current time, two conjugate Hib vaccines are licensed in the U.S.: PRP-T (ActHIB) and PRP-OMP (PedvaxHIB) (1). Unfortunately, some young children have not been vaccinated and remain at risk for serious, preventable disease. This issue of *Montana Public Health* describes the recent experience in Minnesota and urges physicians and parents in Montana to be sure that children are vaccinated.

Minnesota's Experience: 2008

In 2008, five cases of *Hib* disease in children aged <5 years were reported to the Minnesota Department of Health. One of the children died. This is the largest number of cases in children aged < 5 years reported in Minnesota since 1992. None of the five cases were enrolled in group child care and there was no known relationship to each other. Three of the five cases had received no vaccinations because of parent or guardian deferral or refusal (2).

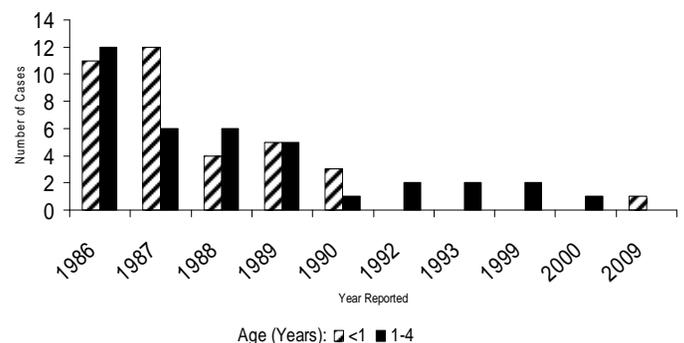
This is a troubling reminder that although the number of cases of Hib disease has dramatically decreased, this preventable disease still occurs.

Minnesota reviewed vaccination coverage data reported to the Minnesota Immunization Information Connection, the state's immunization information system, and found among children aged 7 months, coverage for a 3-dose primary series of Hib vaccine was only 46.5%. The Minnesota investigators found that the age appropriate vaccination level for children was 18 percentage points lower for Hib than for DTaP or pneumococcal conjugate vaccination. Further analysis of this situation is ongoing by Minnesota investigators (3).

Montana's Experience: Since 1986

Since the introduction of effective, conjugate Hib vaccine in the late 1980's, the occurrence of Hib disease has declined dramatically in Montana.(Figure) In February 2009, the first case of Hib disease in a child aged <5 years since 2000 was reported.

Figure. *Haemophilus influenzae* type b invasive disease in children <5 Years, Montana, 1986-2009



A review of Montana's state immunization information system, WIZRD, showed a 9.5 percentage point higher rate of age-appropriate coverage for 3-doses of DTaP than for Hib vaccination. This suggests that opportunities are being missed to provide protection for children against Hib disease.

Immunize on time,
every time!

Hib Immunization Schedule

The two types of Hib vaccines PRP-T (ActHIB) and PRP-OMP (PedvaxHIB) have slightly different schedules. Typically the schedules are:

PRP-T (ActHIB): Doses are administered for the primary series at 2, 4, and 6 months and a booster dose at 12-15 months.

PRP-OMP (PedvaxHIB): Doses are administered for the primary series at 2 and 4 months and a booster dose at 12-15 months.

However, there are some caveats to administering Hib doses. Children starting late may not need the entire series and the number of doses a child needs depends on the child's current age. A detailed description of these caveats can be found at <http://www.dphhs.mt.gov/PHSD/Immunization/documents/HibSchedule12-59Months.pdf>

Hib Schedule during Shortage

In December 2007, the Merck company stopped selling PedvaxHIB and Comvax. That left only one manufacturer of Hib vaccine in the U.S. It was necessary to modify the Hib immunization schedule until

sufficient doses could be produced to resume the normal Hib schedule. The interim recommendations for administration of Hib vaccine are (4):

- Defer administering the routine Hib vaccine booster normally administered at age 12-15 months, except for specified high-risk groups who should continue to receive the booster dose at 12-15 months.
- These high-risk groups include children with asplenia, sickle cell disease, human immunodeficiency virus infection, and certain other immunodeficiency syndromes, and malignant neoplasms.
- American Indian and Alaska Native children should also continue to receive the full routinely recommended schedule including the 12-15 month booster dose. It is preferred that PedvaxHIB be used for these children, if available.

It is important that all children receive a complete primary series of Hib vaccine before 12 months of age in order to prevent disease and reduce carriage of Hib.

Although spot shortages of Hib vaccine may occur, there is enough vaccine available in the U.S. to vaccinate children following these interim recommendations.

RECOMMENDATION to health care providers and parents

Be sure children <5 years are vaccinated with Hib vaccine to protect these children against invasive Hib disease.

For more information, contact the Immunization Section at 406-444-5580 and see www.immunization.mt.gov.

References:

1. Centers for Disease Control and Prevention. Epidemiology and prevention of vaccine-preventable diseases. 10th ed. Washington DC: Public Health Foundation, 2008; 115-127.
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3. Personal communication, Minnesota Department of Health, February 2009.
4. Centers for Disease Control and Prevention. Invasive interim recommendations for the use of *Haemophilus influenzae* type b (Hib) conjugate vaccines related to the recall of certain lots of Hib-containing vaccines (PedvaxHIB[®] and Comvax[®]). MMWR. 2007;56(50):1318-1320.

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1400 Broadway
Helena, MT 59620-2951
Anna Whiting Sorrell, Director, DPHHS
Steven Helgerson, MD, MPH, State Med. Officer
Jane Smilie, MPH, Administrator, PHSD
Mail Stop: 69078