The Pump Handle

"I had an interview with the Board of Guardians of St. James's parish, on the evening of Thursday, 7th September, and represented the above circumstances to them. In consequence of what I said, the handle of the pump was removed on the following day."

John Snow, 1855

January 2008 Topics

- Influenza Update
- Shigellosis in Sioux County Update
- Merck Hib Vaccine Recall
- Yellow Fever Vaccine Shortage
- MRSA in Animals

Influenza Update

As of Feb. 2, 2008, a total of 330 laboratory-identified influenza cases have been reported to the North Dakota Department of Health (NDDoH). Of the 330 reported cases, 85 percent were identified as type A (n=280), 11 percent as type B (n=36) and 4 percent unknown type (n=14). Of the 280 influenza A cases, seven have been sub-typed and identified as type A H1.

At this time, no influenza-associated pediatric deaths have been reported to the NDDoH. Influenza-associated pediatric deaths have been reportable to the Centers for Disease Control and Prevention (CDC) since 2004. Updated information about influenza and *Staphylococcus aureus* co-infections in pediatrics was provided by the CDC and includes testing and treatment recommendations. The full document can be viewed at www.ndflu.com//Reporting/Reporting.aspx. Contact the NDDoH immediately if you have identified a death in a child with laboratory-identified influenza.

For more information about influenza and influenza activity or to order educational materials free-of-charge, visit the NDDoH influenza website at www.ndflu.com.

Shigellosis in Sioux County Update

Since Oct. 1, 2007, 17 cases of shigellosis caused by *Shigella sonnei* have been identified in Sioux County. Fourteen cases (82 percent) are children younger than 10 (age range: 2 to 60; median: 8). Investigations of reported cases are continuing. Statewide, an additional four cases

of shigellosis have been reported in this timeframe, but none are epidemiologically linked with cases from Sioux County.

Several cases in Sioux County attend elementary school together. No precise risk factor at the school has been identified at this time. Custer District Health provided educational materials to schools and child-care centers, and the NDDoH provided testing and treament guidelines to physicians in the area. Testing at the NDDoH Division of Laboratory Services indicate the strain of *Shigella* circulating in Sioux County is dually resistant to ampicillin and Bactrim. For information about antibiotic susceptibility testing and treatment recommendations, view the health advisory at www.ndhan.gov/data/health/Health%20Advisory%2012-27-07.pdf.

Information about shigellosis and shigellosis in child-care settings can be found at www.ndhealth.gov/Disease/faq/Faqs.aspx#S.

Merck Hib Vaccine Recall

On Dec. 13, 2007, Merck & Co. Inc. announced a voluntary recall of certain lots of two *Haemophilus influenzae* type b (Hib) conjugate vaccines, PedvaxHIB® and Comvax® (Hib/hepatitis B vaccine). Some state-supplied PedvaxHIB® was included in this recall. Providers may also have private doses of recalled vaccine. The affected doses were distributed beginning in April 2007. Additional information regarding the affected lots is available online from the Food and Drug Administration (FDA) at www.fda.gov/consumer/updates/hib121307.html.

No potency concerns have been identified for these recalled vaccine lots. Individuals who received vaccine from these lots should complete their immunization series with a Hib-containing vaccine not affected by this recall, but do not need to be revaccinated to replace a dose they received from a recalled lot. Providers should call Stericycle at 800.643.0240 to coordinate the return of recalled Hib vaccines.

Hib vaccine shortage:

Merck has suspended production of its Hib conjugate vaccines and does not expect to resume distribution of these vaccines until the fourth quarter of 2008. The recall of PedvaxHIB and Comvax, along with the suspension of production, is expected to result in short-term disruption to the Hib vaccine supply in the United States.

One other Hib conjugate vaccine, manufactured by sanofi pasteur, is currently licensed and available for use in the United States. ActHIB® is unaffected by the recall. However, due to an expected increase in demand, sanofi pasteur likely will not be able to immediately provide adequate Hib vaccine to fully vaccinate all children for whom the vaccine is recommended. TriHIBit® (DTaP/Hib) is no longer available for order directly from sanofi pasteur. Limited supplies of TriHIBit® are still available from the NDDoH.

Because of the short-term reduction in available doses of Hib-containing vaccines, CDC recommends that providers temporarily defer administering the routine Hib vaccine booster dose administered at age 12 to 15 months except to children in specific groups at high risk. Providers should register and track children for whom the booster dose is deferred to facilitate recalling them for vaccination when supply improves.

Children at high-risk include those with:

- Asplenia.
- Sickle cell disease.
- Human immunodeficiency virus infection and certain other immunodeficiency syndromes.
- Malignant neoplasms.

CDC recommends that providers continue to vaccinate these high-risk children with available Hib conjugate vaccines according to the routinely recommended schedules, including the 12 to 15 month booster dose. PedvaxHIB® (if available), ActHIB® and TriHIBit® may be used for the booster doses for these children during this shortage.

American Indian/Alaska Native (AI/AN) children are also at increased risk for Hib disease, particularly in the first six months of life. Compared with sanofi pasteur Hib vaccines, the administration of Merck Hib vaccines leads to a more rapid seroconversion to protective antibody concentrations within the first 6 months of life. CDC recommends that providers who currently use PedvaxHIB® and/or Comvax® to serve predominantly AI/AN children in AI/AN communities continue to stock and use only Merck Hib vaccines not affected by the recall and to vaccinate according to the routinely recommended schedules, including the 12 to 15 month booster dose.

CDC has provided the NDDoH with an allocation of PedvaxHIB® for its Native American population. Until further notice, providers may order state-supplied PedvaxHIB® for Native American children only. Orders will be reviewed by NDDoH staff and compared to the North Dakota Immunization Information System (NDIIS) doses administered data for Native American children.

If a Native American child presents for Hib vaccination and Merck Hib vaccine is unavailable, that child should preferably be referred to a clinic with Merck Hib vaccine on hand (i.e., IHS). If this is not possible, the child should be vaccinated with sanofi pasteur Hib vaccine.

The NDDoH will be supplying sanofi pasteur ActHIB® vaccine until further notice for vaccination of all other North Dakota children.

Hib vaccine information:
PedvaxHIB® is a three-dose series at 2, 4 and 12 to 15 months of age. ActHIB® is a four-dose series at 2, 4, 6 and 12 to 15 months of age. TriHIBit® may only be used for the booster dose of the Hib series at 12 to 15 months of age. TriHIBit® can be used if the child is 12 months of age or older and has received at least one prior dose of Hib vaccine two or more months earlier and TriHIBit® will be the last dose in the Hib series. TriHIBit® is not approved for use as the primary series at 2, 4 or 6 months of age. If TriHIBit® is used for one of the doses of the primary series, the Hib doses should be considered invalid, and the child should be revaccinated as age-appropriate for Hib.

Hib disease information:
A Hib fact sheet is available at www.ndhealth.gov/Immunize/Disease/.

For more information about the shortage, please see the Morbidity and Mortality Weekly Report at www.cdc.gov/mmwr/preview/mmwrhtml/mm56d1219a1.htm.

Please contact the NDDoH Immunization Program with any questions or concerns at 701.328.3386 or toll-free at 800.472.2180.

Yellow Fever Vaccine Shortage

The CDC has recently become aware of a temporary shortage of single-dose vials of YF-VAX®, the only yellow fever vaccine marketed in the United States. The five-dose vials of YF-VAX® continue to be available in sufficient supply.

According to the manufacturer, sanofi pasteur, there is no shortage of the vaccine itself, but there is a temporary issue related to the specialized production equipment necessary to insert the vaccine into single-dose vials. Delays occurred when the supplier of this equipment went out of business, making it necessary to validate a new supplier. This issue has been rectified, and the single-dose vials are expected to be back in stock in March 2008.

The manufacturer has advised clinics and CDC that the five-dose vials continue to be available. To accommodate all travelers who need this vaccine, clinics administering vaccine are advised to attempt to schedule vaccinations to efficiently use five-dose vials. Because the vaccine has a single supplier in the United States, limitations on orders for the five-dose vial are in place. These limitations allow the company to manage overall supply and provide vaccine to those in need of yellow fever immunization.

For more information on the yellow fever vaccine shortage or yellow fever vaccination recommendations, visit: wwwn.cdc.gov/travel/.

MRSA in Animals

Recently, the NDDoH has received several questions about the possibility of transmission of MRSA between humans and animals, primarily pigs. Although studies have shown a link between animals and humans and the transmission of MRSA, some limitations in the literature and how it may directly apply to hog farms in the U.S. should be noted.

One study indicates that an animal reservoir is responsible for more than 20 percent of all MRSA in the Netherlands[1]. The Netherlands has a no-tolerance policy for MRSA; therefore, to find any MRSA in the Netherlands is surprising and may result in what seems to be a high percentage. Another important note is the study was done on small number of isolates (35 cases and 76 controls) and may not be representative of the total population.

The strain of MRSA, named ST398, has been found to originate in livestock (both pigs and cattle) and can cause colonization and sometimes infection in humans[1]. The highest risk of transmission of ST398 is direct contact between livestock and farmers. Further spread of ST398 into the community from the workers has not been established[2]. A similar study in Ontario found both hospital-acquired MRSA strains and the ST398 strain colonizing in humans and pigs[3]. This indicates that transmission of MRSA is bi-directional: from humans to animals and vise versa.

According to CDC, no reported outbreaks of MRSA in pigs and/or farmers have been reported in the U.S. Furthermore, no isolates associated with pigs have been found in humans. The highest risk of MRSA exposure in the U.S. is still human-to-human contact.

1. van Loo I, et al. Emergence of methicillin-resistant *Staphylococcus aureus* of animal origin in humans. Emerg Infect Dis. 2007 Dec [*January 31, 2008*]. Available from http://www.cdc.gov/EID/content/13/12/1834.htm
2. Armand-Lefevre, et al. Colonal comparison of *Staphylococcus aureus* isolates from healthy pig farmers, human controls, and pigs. Emerg Infect Dis. 2005 May [*December 20, 2007*]. Available from http://www.cdc.gov/ncidod/EID/vol11no05/04-0866.htm
3. Khanna, T. et.al. (2007). Methicillin-resistant *Staphylococcus aureus* colonization in pigs and pig farmers. Veterinary mcirobiology, 3851, 6 p.

Contributing authors of The Pump Handle include Michelle Feist, Molly Sander, Julie Goplin, Tracy Miller and Kirby Kruger. For questions, suggestions or inquiries, or to be removed from the mailing list, please contact Julie Goplin of the Division of Disease Control at 701.328.2375 or by email at ***jgoplin@nd.gov****.*

The pump handle picture in the title was obtained from the website **www.ph.ucla.edu/epi/snow.html**.

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