

The Decline in Pneumococcal Disease In Adults Following Introduction of Pediatric Vaccine

Since 1995, the Minnesota Department of Health (MDH) Emerging Infections Program (EIP) has been conducting surveillance for invasive disease caused by several important bacterial pathogens, including *Streptococcus pneumoniae* (pneumococcus). This program is part of a national network called Active Bacterial Core Surveillance (ABCs), which was established and funded by the Centers for Disease Control and Prevention (CDC). The network currently includes collaborating sites in 11 states, including Minnesota, and covers a population base of approximately 27 million people.

One of the system's strengths is its capability to monitor population-based trends in invasive disease, such as following vaccine licensure or the

adoption of new prevention strategies. The system has been used, for example, to monitor the impact of the 7-valent pediatric pneumococcal conjugate vaccine, Prevnar (PCV-7), on disease incidence rates since the vaccine's licensure in 2000.

This report provides a summary of recently published findings from the EIP/ABCs indicating that use of PCV-7 in children has likely caused a major decrease in the incidence of invasive pneumococcal disease (IPD) among adults aged 50 years or older during the years 2000 through 2003 compared with the 2 years before licensure, 1998 and 1999.¹

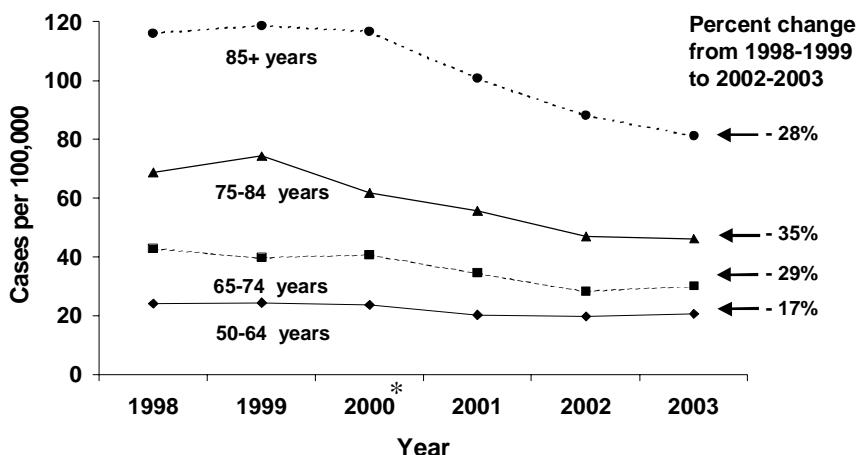
The study analyzed IPD trend data among adults aged 50 years or older

from 8 EIP/ABCs sites that were continuously under surveillance from 1998 through 2003. The combined population of these areas included approximately 5 million people aged 50 years or older. The principal goal of the study was to assess whether the incidence of IPD among older adults declined following use of the new PCV-7 in infants and young children. Unlike the 23-valent pneumococcal polysaccharide vaccine (PPV-23) used primarily in older adults, pneumococcal conjugate vaccines reduce nasopharyngeal colonization by vaccine serotypes.² Because children younger than 2 years are frequently colonized by pneumococcus, and because PCV-7 affects colonization, its use in children could affect community transmission. Secondary goals of the study were to determine whether disease characteristics or the spectrum of patients acquiring IPD had changed.

Methods

Residents of the surveillance areas were included as IPD cases when *S. continued...*

Figure 1. Annual Incidence of Invasive Pneumococcal Disease and Percent Change in Incidence by Age Group for Adults ≥50 Years, Active Bacterial Core Surveillance, 1998-2003



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pneumoniae could be isolated from a normally sterile site (eg, blood, cerebrospinal fluid, or pleural fluid). The study's disease reporters included infection control practitioners (ICPs) and laboratory staff from each surveillance-area hospital and reference laboratory that processes bacterial blood cultures. The reporters were contacted routinely to assure that all cases had been reported, and microbiology records were re-checked to include any missed cases. Pneumococcal isolates were submitted for serotyping and antimicrobial susceptibility testing. Using Census data (2000) or postcensal population estimates as denominators (1998-1999, 2000-2002), mean annual incidence rates were calculated by age group, gender, race, and by whether the serotype of the invasive isolate was included in one of these three categories: 1) any of the 7 serotypes covered by PCV-7 (4, 6B, 9V, 14, 18C, 19F, and 23F); 2) any of 16 serotypes covered only by PPV-23* (1, 2, 3, 5, 7F, 8, 9N, 10A, 11A, 12F, 15B, 17F, 19A, 20, 22F, and 33F); and 3) any other serotype or nontypeable pneumococci (not included in either vaccine).

Results

Analysis of 9,934 cases showed a substantial decline in the rate of IPD among all adults aged 50 years or older, from 40.8 cases/100,000 in 1998-1999 to 29.4 cases/100,000 in 2002-2003 (-28%; 95% confidence interval [CI], -31% to -24%). Rates of IPD also declined significantly within each of 4

age groups (50-64, 65-74, 75-84 and ≥85 years), with declines ranging from -17% for those aged 50 through 64 years to -35% for those aged 75 thru 84 years (Figure 1). Percentage declines in incidence were the same for men and women aged 50 years or older (-28%), and were almost the same for blacks (-29%) and whites (-28%), although disease incidence among blacks was almost twice that of whites (51.3 and 26.8 cases/100,000, respectively, in 2002-2003). There was a decline in death rates among adults aged 50 years or older, from 6.9 cases/100,000 in 1998-1999 to 5.7 deaths/100,000 in 2002-2003 (-18%; 95% CI, -27% to -9%).

Among children younger than 5 years, the target age group for PCV-7, the decline in the incidence of IPD was significant, from 95.3 cases/100,000 in 1998-1999 to 61.4 cases/100,000 (-36%) in 2000-2001 and 24.2 cases/100,000 (-75%) in 2002-2003.

Based on 89% of cases with serotyped isolates, striking differences occurred in incidence rates when assessed by serotype (Figure 2). Between 1998-1999 and 2002-2003, the incidence of IPD caused by any of the PCV-7 serotypes declined 55% (95% CI, -58% to -51%) among adults aged 50 years or older, and these rates declined significantly within each of the 4 adult age groups. There were no significant changes in incidence of IPD caused by the

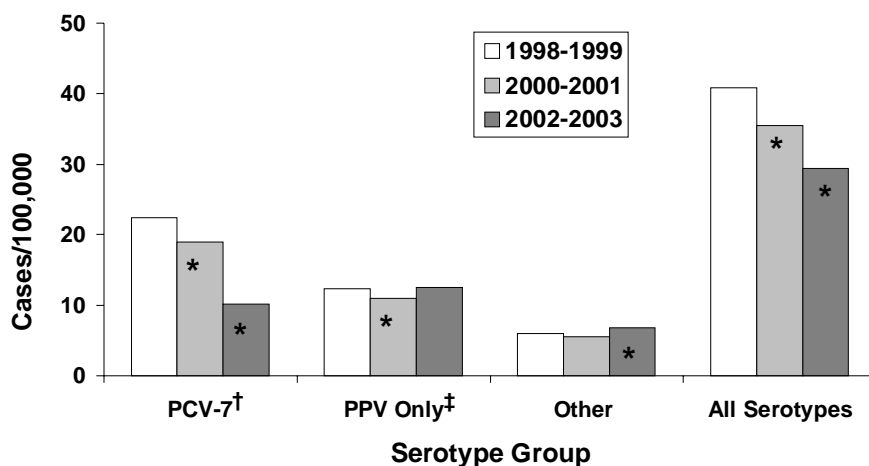
serotypes found only in PPV-23. The only significant change in incident disease caused by serotypes not covered by either vaccine was an increase among those aged 50 through 64 years (+56%). Rates of IPD caused by each individual PCV-7 serotype declined significantly between 1998-1999 and 2002-2003.

Three disease syndromes accounted for the majority of IPD cases in adults aged 50 years or older: pneumonia with a bloodstream or other sterile site isolate (invasive pneumonia) (73.2%), bacteremia without a focus (19.1%), and meningitis (3.6%). Between 1998-1999 and 2002-2003, the incidence of bacteremia without focus exhibited the greatest decline, from 10.1 to 4.3 cases/100,000 (-57%; 95% CI, -62% to -52%). Between those same time periods, the incidence of invasive pneumonia declined from 28.5 to 22.8 cases/100,000 (-20%), while the incidence of meningitis did not change significantly, from 1.7 to 1.8 cases/100,000 (+5%).

Changes occurred in the proportion of case-patients who were reported to have chronic conditions recognized as risk factors for IPD.³ Between 1998-1999 and 2002-2003, the proportion of case-patients with a co-morbid condition that is an indication for pneumococcal polysaccharide vaccination increased from 62.3% (1,842/2,955) to 72.0% (1,721/2,390) (p<.001).³ This included an increase from 19.5% to 23.0% (p=.006) in the proportion of case-patients with a significant immunocompromising condition (eg, current treatment with systemic steroids, chemotherapy, or radiation; asplenia; or HIV infection), and an increase from 53.9% to 62.6% (p<.001) in case-patients who had one or more other chronic conditions (eg, diabetes, congestive heart failure, or alcohol abuse). Between 1998-1999 and 2002-2003, the proportion of case-patients reported to have HIV infection increased substantially, from 1.7% to 5.6% (p<.001).

Among people aged 65 years or older, the Healthy People 2010 goal for annual incidence of IPD (42 cases/100,000) was reached in 2002-2003, with a standardized rate in this age group of 41.7 cases/100,000.⁴ The goal was reached among whites aged 65 years and older (41.2 cases/100,000) but not among blacks in this age group (54.7 cases/100,000).

Figure 2. Mean Annual Incidence of Invasive Pneumococcal Disease by Serotype Group and Time Period, Adults ≥50 Years, Active Bacterial Core Surveillance, 1998-2003



*Significant change from 1998-1999, p<.05

†Serotypes included in PCV-7 are 4, 6B, 9V, 14, 18C, 19A, and 23F.

‡The pneumococcal polysaccharide vaccine includes 23 serotypes: the 7 included in PCV-7 and 16 others. Incidence reported here is disease caused by any of those 16 types: 1, 2, 3, 5, 7F, 8, 9N, 10A, 11A, 12F, 15B, 17F, 19A, 20, 22F, and 33F.

Conclusion

This study documented a substantial decline in IPD incidence among adults aged 50 years or older during the period 1998 through 2003. These declines were likely due to decreased community transmission of vaccine-type pneumococci from young children, many of whom were vaccinated in 2000-2003. This conclusion based on the following three reasons. First, almost all of the declines in incidence were limited to disease caused by serotypes covered by PCV-7. Second, the timing of the declines in IPD incidence among older adults coincided both with declines in IPD among children under the age of 5 years and with the years of increasing uptake of PCV-7. Third, although there have been increases in the use of PPV-23 vaccine among adults aged 65 years or older during the past several years, the study found declines in IPD incidence among those aged 50 through 64 years, an age group less likely to have been vaccinated with PPV-23, and also among those aged 85 years and

older, a group unlikely to have retained full immunity if vaccinated at or before age 75.

Among case-patients aged 50 years or older with IPD, the proportion that also had chronic conditions increased over time. In addition, although rates of death following IPD in the population declined, this decline (-18%) was lower than the overall decline in IPD incidence (-28%). These findings suggest that the use of PCV-7 in children bestowed greater indirect benefits on healthy adults than on those who were chronically ill. Therefore, vaccination with PPV-23 is an important intervention for adults aged 65 years and older and for younger adults with other indications for the vaccine.³

NOTE: This important national study could not have been completed without the help and cooperation of Minnesota clinicians, ICPs, and microbiologists.

* The 7 PCV-7 serotypes are also covered by PPV-23.

References

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Pertussis Vaccines for Adolescents and Adults and Updated Treatment and Prophylaxis Recommendations

Pertussis (whooping cough) is a highly communicable and potentially serious respiratory illness caused by the *Bordetella pertussis* bacterium. In adolescents and adults its clinical presentation can range from a mild respiratory illness to severe, classic pertussis, characterized by prolonged paroxysmal coughing. The coughing spells can continue for several weeks, necessitating many missed days of school or work. National data indicate that complications, including hospitalization, occur in fewer than 2% of adolescent pertussis cases. Five percent of reported adult cases result in pneumonia and hospitalization. Pertussis in infants, however, is often severe and can be fatal, particularly in those too young to be fully vaccinated.

Minnesota, like other parts of the United States, is experiencing an increase in reported cases of pertussis. In 2004, Minnesota reported a total of 1,368 cases compared to only 207 in 2003—a more than 6-fold increase in cases and the highest number reported since 1950. In 2005, 1,151 cases had been reported as of November 7. The continued circulation of pertussis in the

community has been attributed in part to the waning of vaccine-induced immunity. Immunity against pertussis wanes 5 to 10 years after the last childhood vaccination, which is usually given at ages 4 through 6 years. Thus, adolescents and adults are unprotected against the disease. In 2003, adolescents represented more than one-third of the cases of pertussis both in Minnesota and in the entire United States. Approximately one-fourth of cases are in persons aged 19 years or older. Adolescents, along with adults, serve as primary sources of infection for young children.

Two New Vaccines Now Available

Vaccination is the best way to prevent pertussis. The Food and Drug Administration recently approved two new tetanus, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccines for adolescents and adults. These vaccines—Boostrix (GlaxoSmithKline) and Adacel (Sanofi Pasteur)—are the first products to combine a pertussis vaccine with the routine tetanus and diphtheria (Td) booster. They are also the first pertussis-containing vaccines licensed for use in persons older than 6

years. Boostrix is indicated for persons aged 10 through 18 years; Adacel, for those aged 11 through 55 years. Both products are approved for a single booster dose.

Pertussis Immunization Recommendations

With the availability of the two new vaccines, the Advisory Committee on Immunization Practices (ACIP) made recommendations in June 2005 with the goal of reducing adolescent pertussis disease.¹ The formal recommendations are awaiting final approval of the director of the Centers for Disease Control and Prevention (CDC) and will be published subsequently in the *Morbidity and Mortality Weekly Report (MMWR)*. ACIP recommended that Tdap be given to all 11- and 12-year-olds at the pre-adolescent visit and that adolescents aged 13 through 18 years receive Tdap if they have not received a Td booster. Tdap should be given simultaneously at separate anatomical sites with other vaccines recommended for adolescents.

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Adolescents aged 11 through 18 years who previously received Td are encouraged to receive a single dose of Tdap. A 5-year interval between Td and Tdap is recommended to reduce the risk of local or systemic reactions. However, the interval between Td and Tdap can be less than 5 years. A Canadian study that included about 6,000 children and adolescents supported the safety of intervals as short as 2 years between Td and Tdap.² The risk of a reaction, usually local, may be outweighed by the benefit of protection against pertussis, particularly if a community-wide outbreak exists.

In its October 2005 meeting, ACIP expanded the Tdap recommendation to include adults aged 19 through 64 years. It recommended that adults who are due for the routine Td booster receive a dose of Tdap. Additionally, ACIP recommended that those adults in close contact or who anticipate being in contact with an infant younger than 6 months, including women at preconception and post-partum, be vaccinated at a shorter interval than 10 years.

Persons aged 10 years and older who never received a primary series of DTaP should have a 3-dose Td series in which one of the doses, preferably the first, is Tdap. The 3-dose series should be timed so there is 1 month separating the first and second dose, followed by the third dose 6 months later.

Contraindications for Tdap include an immediate anaphylactic reaction to a previous dose of vaccine containing diphtheria, tetanus, and pertussis and encephalopathy not attributed to another identifiable cause within 7 days of administration of a pertussis vaccine. Precautions for Tdap include acute moderate or severe illness; progressive neurological disorder, uncontrolled epilepsy, or progressive encephalopathy until such a condition stabilizes; Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccines; arthus-type hypersensitivity reactions following a prior dose of tetanus toxoid vaccine; and latex allergy, found in the pre-filled syringe presentation of Boostrix.

In January 2005, CDC proposed new recommendations for pertussis treatment and prophylaxis (Table 1). The preferred antimicrobials for treatment and prophylaxis are macrolides. Erythromycin, clarithromycin, or azithromycin are appropriate first line agents for treatment or prophylaxis of pertussis for persons 6 months of age and older. Trimethoprim-Sulfamethoxazole can be used as an alternate antimicrobial agent. Providers should consider safety, potential interactions with other medications, and cost when choosing an agent.

References

- Centers for Disease Control and Prevention. ACIP votes to recommend routine use of combined tetanus, diphtheria, and pertussis (Tdap) vaccines for adolescents. June 30, 2005. Available at: <http://www.cdc.gov/nip/vaccine/tdap/default.htm>.
- Food and Drug Administration. Vaccines and Related Biological Products Advisory Committee, 102nd Meeting [transcript]. March 15, 2005. Available at: www.fda.gov/ohrms/dockets/ac/05/transcripts/2005-4097t1.htm.

Table 1. Antibiotic Treatment and Prophylaxis

Drug	Infant (<6 months of age)	Child (≥6 months of age)	Adult
Azithromycin ^{1,4} (3-day course not yet approved for treatment of pertussis)	1-5 months: 10 mg/kg/day orally daily for 5 days <1 month of age: same as above and is the preferred choice for infants <1 month old	10 mg/kg/day orally on the first day (maximum 500 mg), 5 mg/kg once daily on days 2-5 (maximum 250 mg/day)	500 mg orally on the first day, 250 mg once daily on days 2-5
Clarithromycin ^{2,4} Not recommended for use in pregnant women	Not recommended for use in infants < 6 months of age; see child dose for infants ≥ 6 months of age	15 mg/kg/day orally divided into 2 doses/day for 7 days (maximum 1 g/day)	500 mg twice daily for 7 days
Erythromycin ^{1,3,4}	Estolate preparation preferred if available 1-5 months: 40-50 mg/kg/day orally divided into 4 doses/day for 14 days (maximum 2 g/day) <1 month of age: same as above, but should only be used as an alternate drug. Drug use is associated with elevated risk of infantile hypertrophic pyloric stenosis	40-50 mg/kg/day orally divided into 4 doses/day for 14 days (maximum 2 g/day)	1-2 g/day orally divided into 4 doses/day for 14 days
Trimethoprim-Sulfamethoxazole ^{2,4} For those not able to tolerate macrolides. Not recommended for use in pregnant or nursing women	Not recommended for use in children < 2 months of age; see child dose for infants ≥2 months of age	8 mg TMP/40 mg SMX/kg/day orally divided into 2 doses/day for 14 days (maximum 320mg TMP/1600mg SMX/ day)	320 mg TMP/1600 mg SMX per day orally divided into 2 doses/day for 14 days

¹FDA Pregnancy Category B drug

²FDA Pregnancy Category C drug

³Some authorities prefer the estolate preparation for children but recommend avoiding its use in adults and pregnant women

⁴Source: Centers For Disease and Control (CDC): Recommendations for Pertussis Treatment and Prophylaxis – January 2005. Posted on CDC's website July 2005 at http://www.cdc.gov/nip/publications/pertussis/chapter3a_update_macrolides.pdf

Pertussis and the Healthcare Setting

With the rise in reported cases of pertussis in Minnesota (see “Pertussis Vaccines for Adolescents and Adults and Updated Treatment and Prophylaxis Recommendations on p. 67) has come an increase in the reported transmission of the disease within the healthcare setting. Pertussis transmission from patient to provider and vice versa, including large outbreaks in healthcare facilities, has been documented in Minnesota and nationally.

Recent Minnesota Department of Health (MDH) investigations of pertussis transmission in a hospital neonatal intensive care unit and in an obstetrics clinic were particularly concerning, as infants are at the highest risk for severe and potentially fatal pertussis-related complications. By promptly recognizing cases, notifying patients, and providing prophylaxis to close contacts, health officials and healthcare facility staff may have prevented secondary cases.

In addition to posing health risks, pertussis is costly when it occurs in healthcare workers because of lost work time and the considerable resources required for the notification and prophylaxis of other staff and patients. Recently, an outbreak of pertussis occurred in a Minnesota healthcare facility, resulting in 17 confirmed cases in employees. Onsets of the illness developed over a 2-month period and involved three clusters within the facility, causing a tremendous expenditure of time, energy, and money to control the spread of the illness. Over the course of the outbreak, 687 employees were provided antimicrobial prophylaxis, and 510 patients were notified of possible pertussis exposure. The situation also contributed to pertussis transmission in the community, as at least one healthcare provider transmitted pertussis to his/her child, and at least one pertussis transmission in a childcare setting was linked to the hospital outbreak.

Prevention in the Healthcare Setting

Pertussis is spread by droplets containing *Bordetella pertussis* bacteria. The droplets generally travel no more than 3 feet from the infected patient and

are deposited on the new host’s nasal mucosa, conjunctivae, or mouth. Droplets can be generated during coughing and sneezing, as well as during the performance of certain medical procedures such as a nasopharyngeal (NP) swab, aspirate, or wash.

Standard national guidelines state that “close contacts” of pertussis patients should be provided antimicrobial prophylaxis (See Table 1 on p. 68). While no national standard definition of “close contact” exists, MDH and local health department epidemiologists, with extensive experience conducting pertussis case investigations, have collaboratively agreed to define close contact as either 1) direct face-to-face exposure with an infectious case, or 2) exposure for at least 10 hours over a week’s time, during which the individual is generally within 3 feet (ie, arm’s length) of a case.

Performing an NP swab, aspirate, or wash on an infectious pertussis patient without a surgical mask constitutes a close exposure warranting prophylaxis. Healthcare providers should take droplet precautions (ie, standard precautions and masking) whenever working with an unknown respiratory illness. Masking during such procedures eliminates the need for post-exposure prophylaxis and also protects the healthcare worker from other respiratory illnesses.

Healthcare providers should be mindful of their own symptoms, particularly paroxysmal coughing or a cough illness lasting longer than 7 days. When a healthcare worker is diagnosed with pertussis within the first 3 weeks of the cough illness, the healthcare provider should be excluded from work until he or she has completed 5 days of appropriate antimicrobial treatment. All potentially exposed persons should be informed about pertussis symptoms and encouraged to seek medical evaluation if symptomatic, and asymptomatic close contacts should be prescribed a course of antimicrobial prophylaxis. When patients are exposed to pertussis at a healthcare facility, the facility should assume responsibility for the cost of

notification, testing, prophylaxis, or treatment, as indicated.

Need for Collaboration

Public health agencies and healthcare facilities must work collaboratively to adequately address pertussis prevention and control. Upon identifying pertussis in a patient or healthcare worker, healthcare facilities should notify public health officials for assistance in identifying close contacts and in coordinating contact notification and prophylaxis. Conversely, when MDH or local public health agencies identify a pertussis outbreak in a school or other community setting, they should notify healthcare facilities that may be affected by the outbreak.

Immunization is a primary pertussis prevention and control strategy; however, the current practice of vaccinating children younger than 7 years has not eliminated the reservoir of infection, as pertussis remains endemic despite high immunization rates. The availability of two newly licensed pertussis vaccines for older children and adults provides the opportunity to expand coverage. (See “Pertussis Vaccines for Adolescents and Adults and Updated Treatment and Prophylaxis Recommendations” on p. 67.) The Advisory Committee on Immunization Practices (ACIP) has recommended that older children and adults receive the new pertussis vaccine when they are due for a tetanus diphtheria booster. ACIP is considering recommendations for vaccinating targeted adults, including healthcare workers.

Resources

MDH has developed a number of pertussis-related information pieces targeted to both healthcare providers and the general public that address various aspects of pertussis epidemiology, laboratory testing, treatment and prophylaxis, and prevention and control measures. These materials are posted on the MDH Web site at <http://www.health.state.mn.us/divs/idepc/diseases/pertussis/>.

Minnesota Influenza Vaccination Plan, 2005-06

The 2005-2006 influenza vaccination recommendations of the Advisory Committee on Immunization Practices (ACIP) include the principal changes or updates mentioned here. For a complete copy of the recommendations, visit the Minnesota Department of Health (MDH) immunization Web site at www.health.state.mn.us/immunize.

New Group Recommended for Vaccination

Persons with any condition that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration should be vaccinated against influenza. This includes, but is not limited to, neuromuscular disorders, such as:

- cognitive dysfunction
- spinal cord injuries
- seizure disorder

The 2005-2006 Trivalent Vaccine Virus Strains

- A/California/7/2004(H3N2)-like antigen
- A/New Caledonia/20/99(H1N1)-like antigen
- B/Shanghai/361/2002-like antigen

For the A/California/7/2004(H3N2)-like antigen, manufacturers may use antigenically equivalent A/New York/55/2004 virus, and for the B/Shanghai/361/2002-like antigen, manufacturers may use the antigenically equivalent B/Jilin/20/2003 virus or B/Jiangsu/10/2003 virus.

Influenza Vaccine Now Included in NVCIA

Starting with this influenza season, the influenza vaccine is now part of the National Vaccine Compensation Injury Act (NVCIA). As with all other vaccines that are included in this program, providers are required to give a copy of the most current Vaccine Information Statement (VIS) to the person receiving the vaccine or his/her parent/guardian at the time each dose is given and to record the date of the VIS along with the date provided in the patient's medical record. VISs for this influenza season, written in more than 30 languages, are available at the MDH immunization Web site.

Who Should be Vaccinated?

After October 24, 2005, vaccine became available for anyone wanting to be protected against influenza. The following groups, however, are considered "high-priority" and should be encouraged to be vaccinated:

- persons aged 65 years or older
- residents of long-term care facilities
- persons aged 2 through 64 years with chronic health conditions
- children aged 6 through 23 months
- pregnant women
- healthcare personnel who provide direct patient care
- household contacts and out-of-home caregivers of children younger than 6 months

Vaccination of Healthcare Workers

ACIP recommends that all healthcare workers be vaccinated against influenza annually and that facilities that employ healthcare workers be strongly encouraged to provide vaccine to their workers by using approaches that maximize immunization rates.

Clarification of the Use of Live Attenuated Influenza Vaccine (LAIV)

Who can be vaccinated with LAIV?

LAIV is an option for vaccination of healthy persons aged 5 through 49 years, including those who have close contact with persons at high risk for complications of influenza.

For whom is inactivated vaccine preferred?

Inactivated influenza vaccine is preferred over LAIV for household members, healthcare workers, and others who have close contact with severe immunosuppressed persons (eg, persons with stem cell transplants or severe combined immunodeficiency) during periods when such persons require care in a protected environment.

Should those who have close contact with any immunosuppressed persons be vaccinated with inactivated vaccine?

It is not necessary. LAIV can be used for healthcare workers or other persons who have close contact with persons with "lesser degrees" of immunosuppression (eg, persons with

diabetes or HIV, or those on corticosteroid therapy).

How long does a healthcare worker who received LAIV have to refrain from contact with severely immunosuppressed patients?

If a healthcare worker receives LAIV, he or she should refrain from contact with severely immunosuppressed patients (eg, persons with stem cell transplants or severe combined immunodeficiency) for 7 days after vaccine receipt.

Who can administer LAIV?

Severely immunosuppressed persons should not administer LAIV. However, other persons at high risk for influenza complications (eg, persons with asthma, heart disease, pregnancy, or diabetes) may administer LAIV.

For more information, call the MDH Immunization Hotline at 612-676-5100 or 1-800-657-3970.

Key Influenza Messages for Healthcare Workers

- 1. Influenza vaccination prevents death and serious illness.** Between 800 and 1,000 Minnesotans die every year as a result of influenza complications.
- 2. Unvaccinated healthcare workers spread influenza to persons who are the most vulnerable to serious complications and death from the illness.** Yet only 36% of healthcare workers get vaccinated against influenza every year.
- 3. High-priority patients and their close contacts should be vaccinated.** Healthcare providers can take the following proactive steps to protect those at risk of serious morbidity and death from influenza:
 - Vaccinate patients who are in the clinic for other reasons.
 - Send postcards reminding patients to come in for influenza vaccination.
 - Hold special influenza vaccination clinics.
- 4. Vaccinate until the end of the influenza season.** In Minnesota, the influenza season sometimes lasts until late April or early May.

Health Department Moves to New Quarters in St. Paul

After 98 years in Minneapolis, the Minnesota Department of Health (MDH) is moving to new quarters in St. Paul. The MDH Minneapolis building, located adjacent to the University of Minnesota (U of M) Academic Health Center campus, is being vacated by mid-December 2005. Offices and the laboratories are moving to two new buildings in St. Paul. The MDH Public Health Laboratories is moving into a laboratory building that will be shared with the Minnesota Department of Agriculture (MDA) Laboratory. A skyway will connect this building to a new office building that will house, among other divisions, the MDH Infectious Disease, Epidemiology, Prevention and Control Division.

Early Moves

A bill establishing the Minnesota State Board of Health became law on March 4, 1872. Charles Nathaniel Hewitt, MD, a proponent of the bill and a Civil War veteran, became the board's first secretary, a position he held for 25 years. The board's initial office was in Red Wing, where Hewitt lived and practiced medicine. There, in 1877, he established a small laboratory for testing food and water (Figure 1, 1877). Typhoid fever, a water-borne disease, was a major health problem at the time. In 1885, Hewitt started publishing *Public*

Health in Minnesota (a predecessor to the *Disease Control Newsletter*) for which he charged 50 cents an issue.

In 1893, Hewitt agreed to move the Public Health Laboratory to the U of M's St. Paul campus. He had strong ties with the University, for he had been teaching a course in public health there since 1873. In 1894, Hewitt relocated the Minnesota State Board of Health's offices to St. Paul as well. In 1907, these offices and the Public Health Laboratory were moved into a newly constructed building on the University's Minneapolis campus (Figure 1, 1926).

The Minnesota State Board of Health, which eventually became known as the Minnesota Department of Health, remained on the U of M campus for the next 62 years, occupying several different buildings. In 1938, a new five-story building (Figure 1, 1938) was erected for the Board of Health at a cost of \$324,900; some of those funds came from the Works Progress Administration. Unfortunately, this building was not designed with laboratory safety in mind and was not large enough for all MDH employees, some of whom had to work in St. Paul. In 1947, health officials asked the state legislature for a new building. This initial request was turned

down, as were subsequent requests in 1955, 1957, and 1959.

The Delaware Street Building

By 1961, 268 health workers were occupying a space designed for 168. Serious safety problems had surfaced. Two microbiologists contracted tuberculosis and three other laboratory workers became infected with encephalitis as a result of faulty ventilation at the 1938 building. Other laboratory workers contracted brucellosis and typhoid fever. In addition, the lack of laboratory space resulted in the loss of federal dollars for research.

In 1965, Governor Wendell Anderson authorized funding for a new building. Officials remained committed to keeping MDH on or near the U of M campus to enable the two institutions to easily exchange expertise and skill. Construction began in 1967 at a site at 717 Delaware Street, close to the U of M Academic Health Campus. The building was dedicated on July 13, 1969 (Figure 1, 1969). For the first time in its history, MDH had all its employees (340 at the time) in one building—except for those employees who worked in its seven field offices. By 1987, however, the growing agency had outstripped its Delaware Street space and opened additional offices in St. Paul.

The New Robert Street Location

A need by both MDH and MDA for improved and expanded laboratory space soon had health officials again requesting funds for a new building. The monies were first appropriated in 1994, and additional funding and authorization for construction occurred in 2000. The legislation stipulated that the new building must be in St. Paul. The need for MDH staff, particularly infectious disease epidemiologists, to be close to the Public Health Laboratory created the impetus to locate MDH's offices and the laboratory next to each other.

Two sections of the Infectious Disease Epidemiology Prevention and Control Division moved from Minneapolis to their new site, the Freeman Building (Figure 1, 2005), on October 28; the STD/HIV section and the Public Health Laboratory will follow in late November and early December. The Cancer Control and the Chronic Disease and **continued...**

Figure 1. Minnesota Department of Health Buildings, 1877-2005



1877



1926



1938



1969



2005

Environmental Epidemiology sections are moving to an existing MDH site in downtown St. Paul. The new addresses are:

Freeman Building
625 Robert Street N.
P.O. Box 64975
St. Paul, MN 55164-0975

MDA/MDH Lab Building
601 Robert Street N.
P.O. Box 64899
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References:

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