DuPage County Health Department
CD REVIEW
Volume 8, No. 1 January 2012

DUPAGE COUNTY HEALTH DEPARTMENT
Everyone, Everywhere, Everyday

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General Information

Communicable Disease and Epidemiology
(630) 221-7553

Environmental Health
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Immunizations
(630) 682-7400

Sexually Transmitted Diseases
(630) 221-7553

HIV/AIDS
(630) 221-7553

Tuberculosis
(630) 221-7522

School Health
(630) 221-7300

Travel Clinic
(630) 682-7400

Animal Care & Control
(630) 407-2800

Please contact Communicable Disease and Epidemiology at (630) 221-7553 or ebarajas@dupagehealth.org to send suggestions or to be added to the distribution list.

The purpose of this two-page surveillance update is to promote the control and prevention of **communicable disease (CD)** by providing clinically relevant information and resources to healthcare professionals in DuPage County.

Under the Microscope

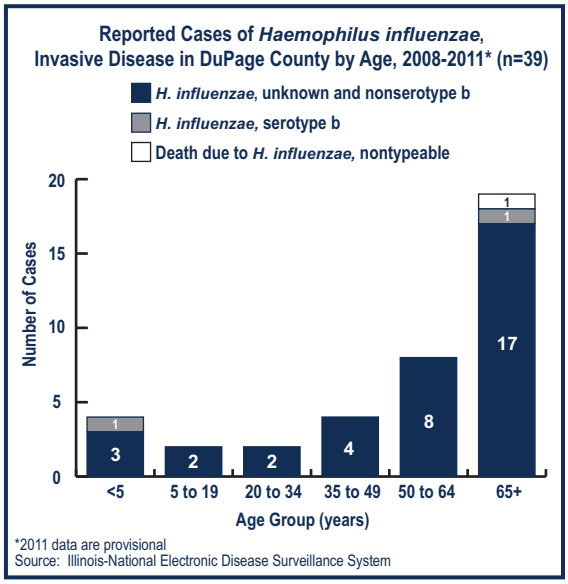
Haemophilus influenzae type b

For questions or to report a suspect or known case of Haemophilus influenzae, invasive disease, please call the DuPage County Health Department at (630) 221-7553.

Haemophilus influenzae is a cause of bacterial infections that are often severe, particularly among infants. Before the introduction of effective vaccines, *H. influenzae* type b (Hib) was the leading cause of bacterial meningitis and other invasive bacterial disease among children younger than 5 years of age; approximately one in 200 children in this age group developed invasive Hib disease.[1] **Due to routine use of the Hib conjugate vaccine since 1990, the incidence of Hib disease in infants and young children has decreased by 99%** to fewer than 1 case per 100,000 children under 5 years of age. In the U.S., **Hib disease occurs primarily in underimmunized children and among infants too young to have completed the primary immunization series**.[2,3]

The most striking feature of Hib disease is **age-dependent susceptibility**. Hib disease is not common beyond 5 years of age. Passive protection of some infants is provided by transplacentally acquired maternal IgG antibodies and breastfeeding during the first 6 months of life. In the prevaccine era, peak attack rates occurred at 6–7 months of age, declining thereafter. The presumed reason for this age distribution is the acquisition of immunity to Hib with increasing age.[1]

The organism enters the body through the nasopharynx. Organisms colonize the nasopharynx and may remain only transiently or for several months in the absence of symptoms (asymptomatic carrier). In some persons, the organism causes an invasive infection. The exact mode of invasion to the bloodstream is unknown. Antecedent viral or mycoplasma infection of the upper respiratory tract may be a contributing factor. The bacteria spread in the bloodstream to distant sites in the body, with meninges especially likely to be affected.[1]



Invasive disease caused by *H. influenzae* type b can affect many organ systems. The most common types of invasive disease may present as **meningitis, epiglottitis, pneumonia, arthritis, and cellulitis. Osteomyelitis** (bone infection) and **pericarditis** (infection of the sac covering the heart) are less common forms of invasive disease. **Otitis media and acute bronchitis due to *H. influenzae* are generally caused by nontypeable strains. Hib strains account for only 5%–10% of *H. influenzae* causing otitis media.**[1]

Nontypeable (unencapsulated) strains may cause invasive disease but are generally less virulent than encapsulated strains. Nontypeable strains are rare causes of serious infection among children but are a common cause of ear infections in children and bronchitis in adults.[1]

A Gram stain of an infected body fluid may demonstrate small gram-negative coccobacilli suggestive of invasive *Haemophilus* disease. CSF, blood, pleural fluid, joint fluid, and middle ear aspirates should be cultured on appropriate media. A positive culture for *H. influenzae* establishes the diagnosis. **All isolates of *H. influenzae* should be serotyped, to determine whether an isolate is type b, which is the only type that is potentially vaccine preventable.** Antigen detection may be used as an adjunct to culture, particularly in diagnosing *H. influenzae* infection in patients who have been partially treated with antimicrobial agents, in which case the organism may not be viable on culture.[1]

Hospitalization is generally required for invasive Hib disease. Antimicrobial therapy with an effective third-generation cephalosporin (cefotaxime or ceftriaxone), or chloramphenicol in combination with ampicillin should be begun immediately. The treatment course is usually 10 days. Ampicillin-resistant strains of Hib are now common throughout the U.S. Children with life-threatening illness in which Hib may be the etiologic agent should not receive ampicillin alone as initial empiric therapy.[1]

Risk factors for Hib disease include exposure factors and host factors that increase the likelihood of exposure to Hib. Exposure factors include household crowding, large household size, child care attendance, low socioeconomic status, low parental education levels, and school-aged siblings. Host factors include race/ethnicity (elevated risk among African Americans, Hispanics, Native Americans—possibly confounded by socioeconomic variables that are associated with both race/ethnicity and Hib disease), chronic disease (e.g., sickle cell anemia, antibody deficiency syndromes, malignancies, especially during chemotherapy), and possibly gender (risk is higher for males). Protective factors (effect limited to infants younger than 6 months of age) include breastfeeding and passively acquired maternal antibody.[1]

The Hib vaccine shortage that occurred during 2007-09 is completely resolved and there are adequate supplies of Hib vaccine for all children to receive the infant **primary series** and the **booster dose at 12 through 15 months of age**. The return to the full schedule began in July 2009 and, since September 2009, vaccine providers have been recommended to recall children in need of the booster dose.[4,5]

References:
1. *www.cdc.gov/vaccines/pubs/pinkbook/downloads/hib.pdf*
2. *www.cdc.gov/ncidod/dbmd/diseaseinfo/haeminfluserob_t.htm*
3. *www.cdc.gov/mmwr/preview/mmwrhtml/mm58e0123a1.htm*
4. *www.immunize.org/askexperts/experts_hib.asp*
5. *www.cdc.gov/vaccines/vpd-vac/hib/*

DUPAGE COUNTY HEALTH DEPARTMENT

CASES[1] OF REPORTABLE DISEASES*

* Last updated by the Illinois Department of Public Health in March 2008

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Vaccine Preventable Diseases	Report Within	2011 Dec	2011 Total	2010 Total	2009 Total	2008 Total	2007 Total	Median Total ('07-'10)
Chickenpox (varicella)	24 hrs	13	82	95	146	236	177	161.5
Diphtheria	24 hrs	0	0	0	0	0	0	0
Haemophilus influenzae, invasive	24 hrs	1	15	7	11	6	5	6.5
Hepatitis A	24 hrs	3	9	3	6	11	16	8.5
Hepatitis B	7 days	0	1	4	8	3	9	6
Hepatitis B (carriers)	7 days	8	111	108	127	128	167	127.5
Influenza, deaths in < 18 yrs old	7 days	0	0	0	1	0	NR	0
Influenza, ICU admissions	3 hrs	0	24	3	NR	NR	NR	NR
Measles (rubeola)	24 hrs	0	0	0	1	14	0	0.5
Mumps	24 hrs	1	4	2	2	2	13	2
Neisseria meningitidis, invasive	24 hrs	0	2	1	6	4	1	2
Pertussis (whooping cough)	24 hrs	33	267	92	26	13	9	28
Poliomyelitis	24 hrs	0	0	0	0	0	0	0
Rubella	24 hrs	0	0	0	0	0	0	0
Streptococcus pneumoniae, invasive disease, in those < 5 yrs old	7 days	0	13	8	8	6	10	8
Tetanus	7 days	0	0	0	0	0	0	0
Other Communicable Diseases								
Anaplasmosis[2]	7 days	0	3	0	0	0	NR	0
Anthrax	3 hrs	0	0	0	0	0	0	0
Botulism, foodborne	3 hrs	0	0	0	0	0	0	0
Botulism, other	24 hrs	0	0	0	0	0	1	0
Brucellosis	3 hrs	0	0	0	0	0	0	0
California encephalitis[3]	7 days	0	0	0	0	0	NR	0
Cholera	24 hrs	0	0	0	0	1	0	0
Creutzfeldt-Jakob disease	7 days	0	2	0	0	0	NR	0
Cryptosporidiosis	7 days	0	5	5	5	1	5	5
Cyclosporiasis	7 days	0	0	0	1	0	0	0
Dengue fever[3]	7 days	0	1	4	4	0	1	2.5
Ehrlichiosis[2]	7 days	0	0	0	0	0	1	0
Enteric *E. coli* infections[4]	24 hrs	0	21	18	12	21	6	15
Giardiasis	7 days	2	54	49	40	53	62	51
Glomerulonephritis[5]	24 hrs	0	0	0	0	0	0	0
Hantavirus pulmonary syndrome	24 hrs	0	0	0	0	0	0	0
Hemolytic uremic syndrome	24 hrs	0	1	0	0	1	0	0
Hepatitis C (cases & carriers)	7 days	8	196	187	213	246	203	208
Hepatitis D	7 days	0	1	0	0	0	NR	0
Histoplasmosis	7 days	0	0	2	2	6	5	3.5
Influenza A, novel virus	3 hrs	0	0	11	181	0	NR	11
Legionellosis	7 days	3	15	11	13	5	13	12
Leprosy	7 days	0	0	0	0	1	0	0
Leptospirosis	7 days	0	0	0	0	0	1	0
Listeriosis	7 days	0	3	6	3	1	1	2
Lyme disease[2]	7 days	0	31	19	17	16	16	16.5
Malaria	7 days	0	7	4	4	4	7	4
Ophthalmia neonatorum	7 days	0	0	0	0	0	0	0
Plague	3 hrs	0	0	0	0	0	0	0
Psittacosis	7 days	0	0	0	0	0	0	0
Q fever[6]	3 hrs	0	0	0	0	0	0	0
Rabies, human case	24 hrs	0	0	0	0	0	0	0
Rabies, potential exposure	24 hrs	1	31	54	15	45	50	47.5
Reye syndrome	7 days	0	0	0	0	0	0	0
Rheumatic fever[5]	24 hrs	0	0	0	0	0	0	0
Rocky Mountain spotted fever[2]	7 days	0	0	0	0	0	0	0
Salmonellosis	7 days	6	99	136	89	105	133	119
Severe Acute Respiratory Syndrome	3 hrs	0	0	0	0	0	NR	0
Shigellosis	7 days	2	22	277	12	24	14	19
Smallpox	3 hrs	0	0	0	0	0	0	0
Smallpox vaccination, complications	24 hrs	0	0	0	0	0	NR	0
St. Louis encephalitis[3]	7 days	0	0	0	0	0	NR	0
Staphylococcus aureus, methicillin resistant (MRSA), in those < 61 days old	24 hrs	0	3	6	6	3	NR	6
Staphylococcus aureus, methicillin resistant (MRSA), community cluster[7]	24 hrs	0	0	1	1	4	NR	1
Staphylococcus aureus (vancomycin-resistant)	24 hrs	0	1	1	0	0	0	0
Streptococcal infections, group A invasive	24 hrs	2	30	20	14	16	11	15
Toxic shock syndrome[9]	7 days	0	1	0	0	1	2	0.5
Trichinosis	7 days	0	0	0	0	0	0	0
Tuberculosis (Category III)	7 days	3	18	26	29	43	27	28
Tularemia	3 hrs	0	0	0	0	0	0	0
Typhoid fever	24 hrs	0	3	3	5	3	6	4
Typhus	24 hrs	0	0	0	0	0	0	0
Vibriosis (non-cholera)	7 days	0	3	1	2	0	1	1
West Nile disease[3]	7 days	0	2	17	0	1	10	5.5
Yersiniosis	7 days	1	3	0	5	1	1	1
STDs, HIV and AIDS								
AIDS[10] (October-December)	7 days	**	16	26	19	22	20	21
Chancroid	7 days	0	0	0	0	0	0	0
Chlamydia	7 days	80	1485	1542	1555	1587	1522	1538.5
Gonorrhea	7 days	16	243	223	225	268	251	259.5
HIV infection[10] (October-December)	7 days	**	24	27	40	23	22	31.5
Syphilis	7 days	0	20	25	33	18	18	22.5

DuPage County healthcare providers and hospitals **must report any suspected or confirmed case of these diseases** to the local health authorities within the number of hours or days indicated.

REPORTING NUMBERS:

Communicable Diseases
(630) 221-7553
24 hours: (630) 682-7400

Tuberculosis
(630) 221-7522

STDs
(630) 221-7553

HIV/AIDS:
(630) 221-7553

[1] Provisional cases, based on date of onset

[2] Listed in CD Rules and Regulations under "Tickborne Disease"

[3] Listed in CD Rules and Regulations under "Arboviral Infections"

[4] O157:H7, STEC, EIEC, ETEC, EPEC

[5] Listed in CD Rules and Regulations under "Streptococcal infections, group A invasive disease sequelae"

[6] Q fever case in 2004 not related to any suspected bioterrorism threat or event

[7] Two or more laboratory-confirmed cases of community onset MRSA infection during a 14 day period

[8] Includes streptococcal toxic shock syndrome and necrotizing fasciitis

[9] Due to *Staphylococcus aureus*

[10] HIV/AIDS data are provided quarterly by IDPH and are provisional, based on date of diagnosis

NR = Not reported

** = Count of 5 cases or less

Websites

CDC:
www.cdc.gov

IDPH:
www.idph.state.il.us

DuPage:
www.dupagehealth.org

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www.dupagehealth.org/publications