

2008 Georgia Data Summary:

Haemophilus influenzae & *Haemophilus influenzae* type B (Hib) Disease



WHAT IS IT?

Haemophilus influenzae are bacteria that naturally inhabit the human respiratory tract, sometimes causing disease when factors such as viral infections, chronic lung disease, extremes of age, or a compromised immune system contribute to illness. *H. influenzae* type B (Hib) is a particular strain of *H. influenzae*, that is highly virulent and dangerous, particularly in young children. Hib disease is now rare, because of routine childhood vaccination to prevent it.

HOW DOES IT SPREAD?

H. influenzae bacteria spread from person to person via airborne droplets or direct contact with oral secretions. Spread of bacteria may or may not cause symptoms of illness. Vaccination can reduce the spread of Hib bacteria and disease. Vaccination prevents Hib from colonizing the nasal passages, and reduces exposures to Hib in the population.

WHAT ILLNESSES DOES IT CAUSE?

H. influenzae can cause many types of illness, most of which originate in the respiratory tract (ears, nose, throat, and chest). Infections may include local infections like otitis media, bronchitis, or pneumonia, or severe invasive disease like meningitis or blood-stream infection with sepsis. Severe, invasive infections were characteristic of Hib disease before the vaccine became available and included meningitis, mastoiditis, epiglottitis, and orbital /periocular cellulitis.

HOW IS *H. influenzae* DISEASE TREATED?

Antimicrobials are required to treat *H. influenzae* infections. Persons with severe illness are likely to be hospitalized and receive intravenous (IV) antibiotics.

HOW COMMON IS Hib DISEASE?

Because of the introduction and routine use of the Hib conjugate vaccine, the current national rate is far less than 1 case per 100,000 children per year. Previously, Hib was the leading cause of bacterial meningitis in infants and children, with an annual incidence of 40 to 100 cases per 100,000 children in the U.S., and resulting in death or permanent disability for approximately 6,000 children per year.

HOW DOES GEORGIA TRACK DISEASES CAUSED BY *H. influenzae*?

Invasive *H. influenzae* disease was made notifiable to public health in 1990. Active surveillance, through regular contact with laboratories was implemented statewide in 2001 to ensure complete case ascertainment. Isolates are requested for serotyping at the Georgia Public Health Laboratory. Epidemiologists complete case-report forms to characterize the type of infection and outcome.

HOW IS GEORGIA AFFECTED BY *H. influenzae* DISEASE?

In 2008, 148 cases and 27 deaths were documented in Georgia from invasive *H. influenzae* disease, including 4 cases of Hib and no associated deaths. Figure 1 shows the number of cases in Georgia over the last 21 years and Figure 2 illustrates the incidence of invasive *H. influenzae* disease since 1987.

Figure 1: Reports of Invasive *Haemophilus influenzae* Disease Cases & Deaths, Georgia, 1987-2008

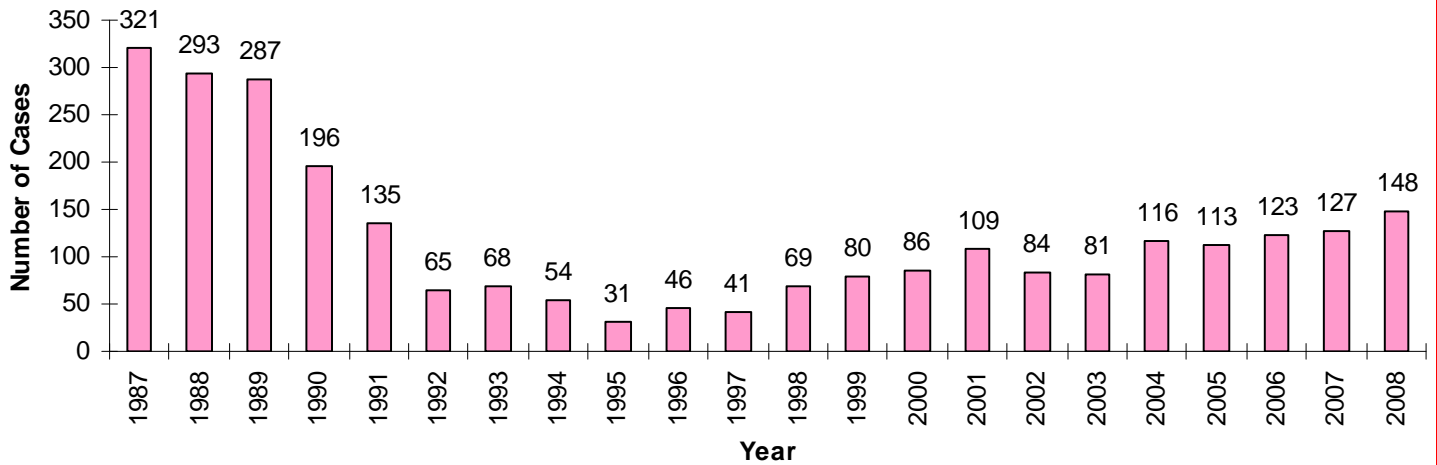
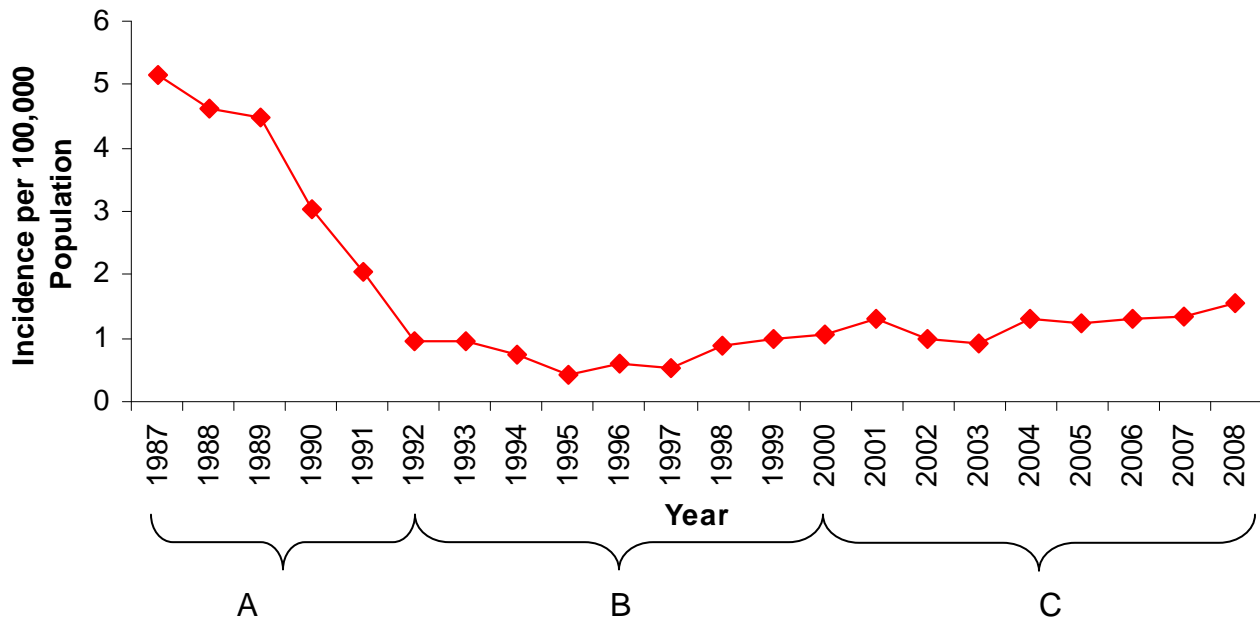


Figure 2: Incidence of Invasive *Haemophilus influenzae* Disease, Georgia, 1987-2008



A – Before 1992, most invasive *Haemophilus influenzae* disease was caused by *H. influenzae* serotype B (Hib). Incidence of Hib disease (and therefore all invasive *H. influenzae* disease) decreased rapidly from 1989 to 1992 as a result of the introduction of Hib conjugate vaccines.

B – During 1993 to 2000, *H. influenzae* disease rates appear low, but case-ascertainment may have been incomplete in parts of the state under passive surveillance.

C – Since 2001, *H. influenzae* has been under active/audited surveillance statewide, resulting in more accurate disease rates.

SOURCE: State Electronic Notifiable Disease Surveillance System (SENDSS)

**Calculation of 2008 incidence was performed using 2007 population estimates

Hib Disease in Georgia & Emerging Issues

- Hib disease is now rare due to routine use of Hib conjugate vaccines, but continued surveillance for Hib disease is important to monitor the effectiveness of current vaccination efforts

- Vaccination against Hib disease is part of the recommended childhood immunization schedule, beginning at age 2 months

- A vaccine recall and resulting shortage since January 2008 has led to interim recommendations for vaccine use, still in effect in early 2009. CDC and ACIP recommend completion of the primary series (first 3 doses at 2, 4, and 6 months of age) for all children, while deferring the 4th (booster) dose unless a child is in a high risk category

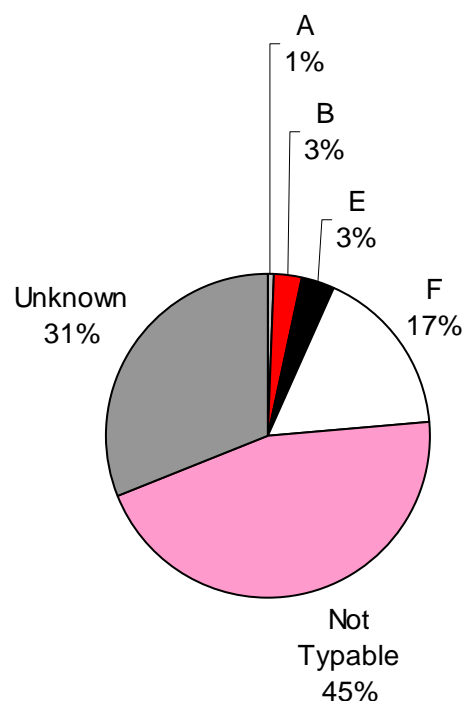
- Georgia documented 4 cases of Hib disease in 2008. One of these cases occurred in a child who was under-immunized (had not completed the primary series against Hib). Of the remaining 3 cases, two were older than age 5 years (too old to qualify for vaccination), and the third had received the primary series but had underlying health problems that may have contributed to susceptibility to infection.

- As seen above in Figure 3, Hib disease constituted 3% of all invasive *H. influenzae* disease in Georgia in 2008. However, 31% of *H. influenzae* cases were not serotyped by the Georgia Public Health Laboratory, indicating the possibility of additional undetected Hib cases

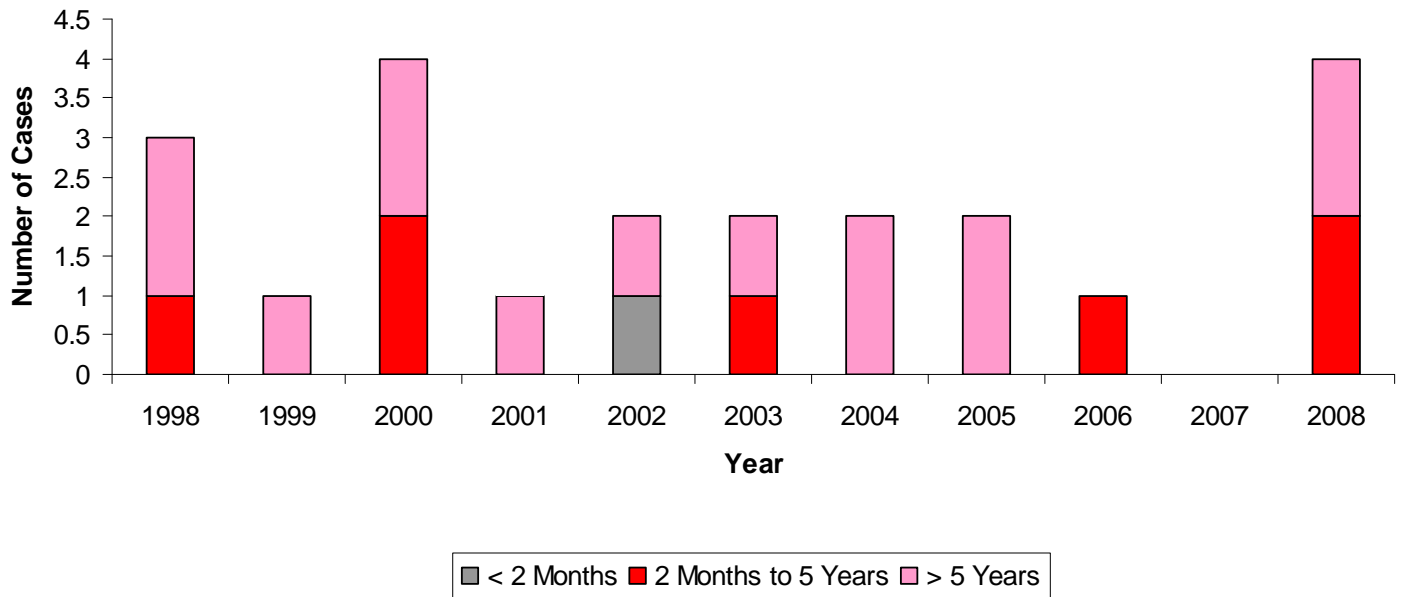
- In order to effectively monitor trends in Hib disease in a time of vaccine shortage, laboratorians and health care providers across the state are asked to promptly submit bacterial isolates from all cases to the Georgia Public Health Laboratory for serotyping

- Figure 4 shows Hib disease cases in Georgia since 1998. An increased number of Hib cases during 2008, and a reduction in timely completion of the Hib vaccine primary series observed in the Georgia Registry of Immunization Transactions and Services (GRITS, not shown) suggest that greater efforts are needed to maintain low rates of Hib disease until the vaccine shortage resolves

Figure 3: Serotypes of Invasive *H. influenzae* Isolates, Georgia, 2008



**Figure 4: Hib Disease in Georgia by Age Group
1998-2008**



Web-Based Resources for *Haemophilus influenzae* Disease Information

Georgia Division of Public Health: Acute Disease Epidemiology Section: Invasive Bacterial Disease:
<http://health.state.ga.us/epi/bacterial/>

Centers for Disease Control & Prevention: *Haemophilus influenzae* Serotype B (Hib) Disease
http://www.cdc.gov/ncidod/dbmd/diseaseinfo/haeminfluserob_t.htm

<http://www.cdc.gov/meningitis/tech-clinical.htm>

Georgia Immunization Program:
<http://health.state.ga.us/programs/immunization/>

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