CONNECTICUT DEPARTMENT OF PUBLIC HEALTH
Keeping Connecticut Healthy

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Free Influenza Testing

Isolation and identification of circulating influenza virus strains are an important part of the Connecticut Department of Public Health's (DPH) influenza surveillance system. The DPH encourages physicians to submit throat swabs from patients with a typical influenza syndrome (abrupt onset of fever, myalgia, and cough) to the DPH Laboratory for virus isolation. Specimens should be collected no later than 3 days after onset of symptoms and sent immediately to the DPH Laboratory, on wet ice or cold packs if possible.

Throat swab collection kits (VRCs) may be obtained at no cost by calling the DPH Laboratory at 860- 509-8501. Health care providers can submit specimens for influenza testing at no charge. Please check "181 V Influenza surveillance" on the microbiology test requisition form and provide all other necessary information. If you have any questions on specimen collection, handling, or transport, please contact the DPH Virus Laboratory at 860-509-8553.

Surveillance for Human Illness Caused by Avian Influenza A (H5N1) Virus

It is likely that the avian influenza A (H5N1) epizootic will eventually reach the United States (US). As “bird flu” moves closer to the US, interest in diagnosing human influenza A (H5N1) infection following bird exposure, as well as the identification of a mutation of the virus into a strain readily passed between people, is increasing.

Surveillance

There are two phases for surveillance for human infection: 1) the current phase in which avian H5N1 is not circulating in the US; and 2) the phase after which H5N1 has begun circulating in birds in the US. The current objective of human surveillance in the US is to detect human cases of H5N1 infection that may have been acquired as a result of exposure in countries in which H5N1 has been identified. In addition, if a human case is confirmed, an additional objective will be to determine whether infection has been spread to any close human contacts.

For the current phase, the Connecticut Department of Public Health (DPH) recommends maintaining enhanced surveillance to identify patients at increased risk for infection with the avian influenza A (H5N1) virus. Guidelines for enhanced surveillance include both clinical and exposure criteria, as follows:

- Radiographically confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe respiratory illness for which an alternate diagnosis has not been established, AND
- History of travel within 10 days of symptom onset to a country with documented H5N1 avian influenza in poultry, wild birds, and/or humans.

In addition, testing for avian influenza A (H5N1) should be considered on a case-by-case basis in consultation with the DPH, Epidemiology Program for hospitalized or ambulatory patients with:

- Documented temperature > 100.4° F, AND
- One or more of the following: cough, sore throat, shortness of breath, AND
- History of contact with poultry (e.g., visited a poultry farm, a household raising poultry, or a bird market), or a known or suspected human case of influenza A (H5N1) in an H5N1-affected country within 10 days of symptom onset.

Availability of Testing

Laboratory testing for human cases of possible avian influenza (H5N1) is available only through the DPH Laboratory. The DPH Laboratory will

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provide free testing for avian influenza A (H5N1) for any patient reported through the surveillance system who meets the above surveillance criteria.

Acceptable specimens include the following:

- oropharyngeal aspirates or washes (preferred specimen due to low viral load), nasopharyngeal swabs, or aspirates
- throat swabs
- sputum
- tracheal aspirates
- broncheoalveolar lavages

Wash specimens must have a minimum specimen volume of 200 microliters. Swab specimens should be collected using swabs with a Dacron tip and an aluminum or plastic shaft (wooden shafts are not acceptable). These are the swabs supplied in the State Viral Culture Collection Kit (VRC). Swabs should be submitted in viral transport medium, refrigerated or frozen, and shipped on ice or ice packs.

Unacceptable specimens include

- Swabs with calcium alginate, cotton tips, or wooden shafts
- Specimens not refrigerated or frozen
- Insufficient specimen volume (less than 200 microliters)
- Incomplete/incorrect labeling or documentation
- Specimens not meeting epidemiological case criteria

Testing Turn Around Time

- Rapid Influenza A Membrane ELISA (not specific for H5N1): same day results
- LRN FDA Approved Avian Influenza (H5N1) PCR: next day results

Due to the inability to perform viral cultures safely, all presumptive positive samples will be forwarded to the Centers for Disease Control and Prevention (CDC) immediately for confirmation.

How to Request Testing

Specimens for avian influenza A (H5N1) testing should not be sent to the DPH Laboratory without first consulting the DPH Epidemiology Program (860-509-7994 or 7995, Monday-Friday 8:30 am – 4:30 pm; 860-509-8000 after hours and weekends). If the patient meets the surveillance criteria for testing listed above, then authorization will be given to proceed with testing.

Once influenza A (H5N1) has arrived in the US, testing criteria may be modified, although the objectives will remain the same. Additional information will be made public at that time through the CDC and Connecticut Health Alert Networks, and through the DPH web page (http://www.dph.state.ct.us/).

If you have questions, please contact the DPH Epidemiology Program or the DPH Laboratory (860-509-8553). To order VRC kits, please call the DPH Laboratory at 860-509-8501.

Shigellosis in Connecticut, 2000-2005

Shigellosis is a gastrointestinal infection caused by any of four species of the bacterium *Shigella*. In Connecticut, shigellosis is a physician and laboratory reportable disease. This report describes the epidemiology of shigellosis cases reported to the Connecticut Department of Public Health (DPH) from 2000 to 2005.

During 2000-2005, 429 cases of shigellosis were reported to the DPH with an average of 72 cases per year (Figure 1). The average annual rate was 2.1 cases per 100,000 population. Cases occurred in all age groups with the highest rates among children aged 1-4 years (6.6 cases per 100,000 population) and 5-9 years (4.0 cases per 100,000 population) (Figure 2). The majority of cases were caused by *Shigella sonnei* (Table 1).

In 2002, there was a 32% increase in the number of reported cases with an increase of 76% among children aged 1-4 years and 81% among children aged 5-9 years compared to 2001 ($p=0.02$). In 2002, 40% of cases were among Hartford County residents, compared with 25% in the previous years ($p<0.01$). Of the cases reported in 2002, 82% were *S. sonnei,* representing 38 different pulsed-field gel electrophoresis (PFGE) patterns. From November 2002 to February 2003, 16 (73%) cases in Hartford County were attributable to a single PFGE pattern.

In 2005, 58 cases were reported. Of those, 48 (83%) were interviewed to identify risk factors for infection. The survey included questions about international travel, exposure to water and

Figure 1. Number of shigellosis cases and rate per

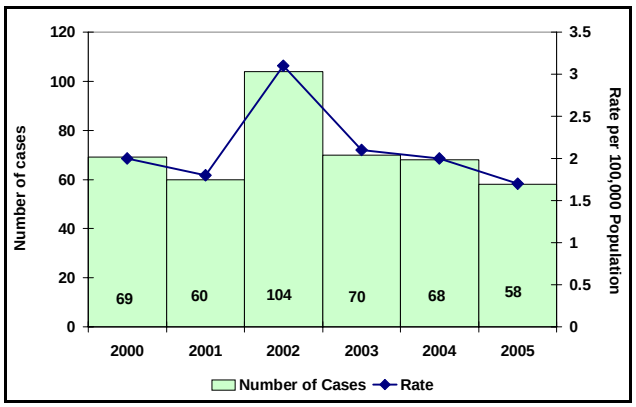

Figure 2. Shigellosis in Connecticut 2000-2005, average annual rate per 100,000 population by age group

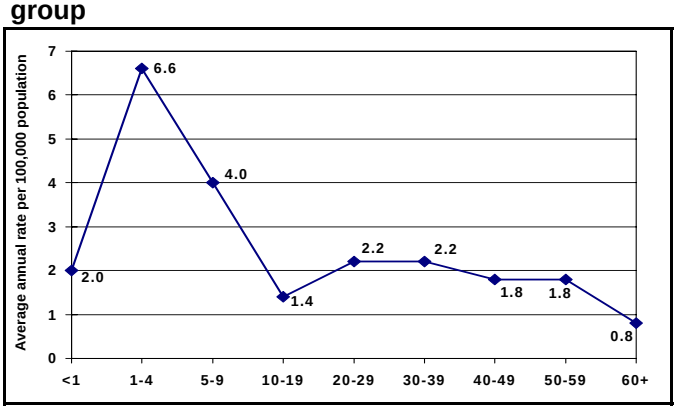

Table 1. Total number and percent of shigellosis cases by species, Connecticut 2000-2005

Species	Number (%)
S. sonnei	300 (70)
S. flexneri	115 (27)
S. boydii	4 (1)
S. dysenteriae	4 (1)
Unknown	6 (1)
Total	429 (100)

daycare settings, and contact with persons with diarrheal illness. Of the cases interviewed, 52% reported international travel to the following destinations: Mexico (7 cases), India (5), Dominican Republic (5), Peru (2), Hong Kong (1), Tanzania (1), Kenya (1), England (1), Libya (1), and Haiti (1). One case traveled to both France and India in the same trip. One case reported working in a daycare setting.

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Editorial Comment

There are approximately 14,000 laboratory-confirmed cases of shigellosis reported in the United States (US) each year (1). Of these, 85% are due to *Shigella sonnei*, which generally causes milder disease than *S. dysenteriae and S. flexneri* (1,2). Only 10% of affected individuals are hospitalized (2). The average annual nationwide incidence of *Shigella* infection during 1989-2002 was 5.6 cases per 100,000 population; more than twice the average annual rate of 2.1 in Connecticut during 2000-2005. Nationally, rates are also highest in those aged 1-4 years (20.6 per 100,000 population).

Humans are the only natural host for *Shigella*. The bacterium is easily passed from person-to-person by the fecal-oral route, especially in settings of poor hygiene. Symptoms include watery or bloody diarrhea, abdominal pain, fever, and malaise. Other complications such as hemolytic-uremic syndrome, Reiter's syndrome, toxic megacolon, convulsions, and bacteremia are rare but can occur.

Outbreaks can occur through consumption of contaminated food or water. Previous outbreaks of *S. sonnei* have implicated fresh produce such as parsley and iceberg lettuce as the source of infection (3-6). Food-borne outbreaks of shigellosis are often due to contamination with human fecal material (6).

Shigella is often transmitted in daycare settings (7). Close contact between young children, minimal hand washing, and frequent diaper changing provide opportunities for spread of the infection. Secondary transmission from infected children to their families and daycare employees is common. In 2002, Connecticut had a large increase in cases of shigellosis, mostly among children aged 1-9 years. The majority of cases were clustered in Hartford County and had the same PFGE pattern. Most cases were among children of daycare age (1-4 years) with possible secondary transmission to their siblings (aged 5-9 years).

It is important to employ preventive measures specifically targeted to parents of young children as well as employees of daycare centers. The primary measure of prevention is frequent hand

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washing. In daycare settings, proper diaper changing techniques and disinfection of toys and surfaces are also indicated. Symptomatic attendees and/or staff with laboratory-confirmed infection should be excluded from day care until diarrhea ceases and two consecutive negative stool cultures spaced at least 24 hours apart are obtained. If treated with antibiotics, cultures should be collected at least 48 hours after last dose.

Currently, there is no vaccine in the US to prevent shigellosis. Conjugate, live attenuated, killed whole-cell, proteosome subunit, and ribosomal vaccines have all been developed, but so far these only provide serotype-specific immunity (2-8). These vaccines will be valuable to help decrease the incidence of shigellosis, especially among young children.

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