

## 2008 Bureau of Communicable Disease Annual Report

Our Mission: To recognize and rapidly respond to communicable disease threats, to prevent or control ongoing transmission, and to strengthen and coordinate emergency preparedness, response and recovery in the New York City healthcare community.

### Our Core Activities:

- Conduct surveillance for 73 infectious diseases and conditions as mandated by the New York City Health Code.
- Triage reports of new or concerning diseases and disease clusters.
- Conduct case investigations to determine likely sources of infection. Ensure preventive treatment is offered to contacts at risk for secondary infection.
- Detect and investigate infectious disease outbreaks.
- Routinely analyze communicable disease surveillance data to identify new or concerning disease trends.
- Educate and advise the public and medical community on a wide range of communicable disease issues, with a focus on treatment and prevention.
- Plan and oversee the surveillance and epidemiologic response to bioterrorism and other potential communicable disease threats of greater public health concern.
- Direct efforts to improve and coordinate health care emergency preparedness at New York City hospitals and primary care clinics.

### Summary of outbreaks and investigations

The following table indicates the total volume of reports received by the Bureau, as well as the investigations which resulted from reported cases.

| <b>Disease reports received and investigations conducted by BCD</b>   | <b>Number</b>                                 |
|---|---|
| Number of disease reports processed   | 31,913 (40%) electronic<br>48,082 (60%) paper |
| Number of disease events assigned for investigation   | 3667  |
| Number of foodborne disease investigations  | 15  |
| Number of investigations of clusters and outbreaks  | 54  |
| Number of other investigations of individual case reports of greater public health concern (e.g., meningococemia) | 75  |

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### Noteworthy investigations

- BCD investigated a cluster of gram-negative bloodstream infections following invasive pain management procedures at a single outpatient facility. *Klebsiella pneumoniae* and *Enterobacter aerogenes* were isolated from patients who had been injected with medications for pain management. Infection in these patients likely was due to lapses in infection control at the clinic, as the site visit identified multiple opportunities for bacterial contamination. Among the breaches in infection control noted at the clinic were inadequacies in hand hygiene, personal protective equipment, and injection site preparation, use of single-dose medication vials for multiple patients, and re-insertion of spinal needles into the same patient. The facility ceased performing invasive procedures until recommendations to improve infection control were implemented. All patients recovered from the infections, and no further cases have been identified.
- More than two dozen New York City residents fell ill due to infection with *Salmonella* Saint Paul, a rare strain of *Salmonella* responsible for an outbreak in over 40 states, the District of Columbia, and Canada during late spring/summer. BCD interviewed individuals as part of a national case-control study and traced the origins of select produce items to investigate potential links. The investigation was a collaborative effort with the Centers for Disease Control and Prevention, the Food and Drug Administration, and other local and state health departments. Jjalapeño peppers were determined to be a major source of contamination.  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5734a1.htm>
- Five cases of nosocomial listeriosis were associated with admission to a New York City hospital. Bureau staff visited the hospital to obtain food histories and review medical charts to investigate any common medications, treatments or procedures that might have been associated with their listeriosis infections. Based on this information, sliced turkey meat and tuna salad were identified as potential vehicles for the outbreak. Environmental sampling of the hospital kitchen by the Office of Environmental Investigations found the outbreak strain of *Listeria monocytogenes* in tuna salad, on the can opener and in a floor drain. After an extensive cleaning and remediation process in the hospital kitchen, all follow-up sample results were negative for *Listeria monocytogenes*. The hospital kitchen was allowed to resume making tuna salad and to use the sandwich prep area and equipment after evaluation by a state inspector. No subsequent cases of listeriosis have been reported in connection to the hospital, and no additional cases of listeriosis with the same PFGE pattern as this outbreak have been identified elsewhere in New York State or the United States.
- In fall BCD investigated an outbreak of viral conjunctivitis and associated epidemic keratoconjunctivitis (EKC) at an ophthalmology clinic. Bureau staff, along with the New York State Department of Health, conducted a site visit and performed chart reviews for patients diagnosed with viral conjunctivitis or EKC and to evaluate infection control practices. One patient had a positive culture for adenovirus, the likely etiology of the outbreak. Though previous investigations of similar outbreaks have identified inadequate hand washing, contaminated eye drops and inadequate disinfection of instruments in

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association with infection, no similar infection control breaches were noted during the clinic's site visit. The Bureau and NYS Department of Health made recommendations to improve infection control practices, and no subsequent reports of illness have been received.

### New programs and activities

- The Bureau initiated a campaign aimed at preventing recreational water illness. Due to the increasing number of recreational water outbreaks in the United States caused by *Cryptosporidium*, BCD partnered with Public Health Engineering and the Centers for Disease Control and Prevention (CDC) to develop health promotion materials for NYC swimming pool users and pool operators. The materials developed included a poster that outlines steps pool patrons can take to prevent recreational water illness, which was mailed to each of NYC's more than 800 public swimming pools. Each mailing included a letter providing additional information regarding recreational water illness, particularly cryptosporidiosis, and warned that even well maintained pools can transmit *Cryptosporidium* if pool patrons do not participate in healthy swimming habits. In addition, DOHMH developed a National Recreational Water Illness Prevention Week webpage outlining measures to prevent recreational water illness, with links to other websites for additional information for members of the public, aquatics staff members, and health care providers. This webpage can be found at: <http://www.nyc.gov/html/doh/html/cd/rwn.shtml>.
- The Bureau's Hospital Emergency Preparedness Program conducted an exercise to evaluate a mass screening, triage and isolation protocol for use during a large communicable disease outbreak, such as an influenza pandemic.
- The Bureau produced and distributed the NYC Pediatric Resource Directory, a comprehensive resource of pediatric critical care resources offered by NYC hospitals.
- The Bureau made the following amendments to the New York City health code for the list of reportable diseases in:
  - Additions: Anaplasmosis (a bacterial disease transmitted by the bite of an infected ticks, formerly reported under the disease "Ehrlichiosis"); electronic laboratory reporting of Methicillin-resistant *Staphylococcus aureus*, norovirus, and respiratory syncytial virus, along with electronic laboratory reporting of antimicrobial susceptibility profiles for reportable bacterial diseases;
  - Deletions: scarlet fever

### Focus on select diseases

- a. Lyme Disease: From 2007 to 2008, the rate of Lyme disease increased from 5.0 to 6.5 cases per 100,000 population. This accompanied a change in the case definition for Lyme disease which made the case criteria more restrictive; this ordinarily results in a decrease in cases. However, in 2008, the rate of Lyme disease in New York State similarly increased, and tick surveillance conducted by NYS Department of Health showed a large increase in

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the number of *Ixodes scapularis*, the vector for Lyme disease, collected in counties outside NYC. In the counties nearest NYC, infection rates of the ticks tested were as high as 40-50% for *Borrelia burgdorferi*, the bacteria responsible for Lyme disease. Most Lyme disease cases in NYC residents are thought to be acquired outside the city, based on a study conducted by BCD from 2005-2007; as a result, the increase in Lyme disease observed in 2008 likely is due in part to the increase in the tick population in counties outside NYC.

- b. Shigella: The rate of shigellosis more than doubled from 2007 to 2008, from 3.4 to 8.9 cases per 100,000. BCD identified an outbreak in an observant religious community as responsible for the increase in cases, and conducted an investigation of the ill patients. Approximately 60% of individuals with *Shigella* were less than 5 years of age and the most common risk factor for illness was attending daycare or nursery school, along with having contact with a person with a diarrheal illness. The outbreak was not linked to a common source or event, as cases were distributed through many daycares, and no individual school appeared to be the center of the outbreak. Transmission of *Shigella* was believed to be person-to-person and the risk for young children presumably was from the lack of proper hand-washing techniques. In response BCD staff conducted targeted outreach at neighborhood meetings and health fairs regarding handwashing. Educational materials were developed with community leaders from the affected neighborhoods. Handwashing posters were modified based on recommendations from local community leaders and public health educators and were translated to languages appropriate for the community. The educational materials also were distributed to daycares and schools in the other observant religious communities in the area.

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REPORTABLE DISEASES AND CONDITIONS IN NEW YORK CITY, 2004-2008:  
NUMBER OF CASES AND RATES PER 100,000 POPULATION

| Disease  | 2004           | 2005          | 2006          | 2007           | 2008          |
|--|----------------|---------------|---------------|----------------|---------------|
| Amebiasis  | 461<br>(5.8)   | 465<br>(5.8)  | 549<br>(6.9)  | 517<br>(6.2)   | 408<br>(4.9)  |
| Anaplasmosis <sup>1</sup><br>(Human granulocytic anaplasmosis) | 30<br>(0.4)    | 0<br>(*)      | 23<br>(0.3)   | 27<br>(0.3)    | 17<br>(0.2)   |
| Anthrax <sup>2</sup>   | 0<br>(*)       | 0<br>(*)      | 1<br>(*)      | 0<br>(*)       | 0<br>(*)      |
| Babesiosis <sup>1</sup>  | 17<br>(0.2)    | 18<br>(0.2)   | 38<br>(0.5)   | 24<br>(0.3)    | 39<br>(0.5)   |
| Botulism   | 0<br>(*)       | 4<br>(0.1)    | 3<br>(*)      | 2<br>(*)       | 1<br>(*)      |
| Brucellosis  | 3<br>(*)       | 5<br>(0.1)    | 0<br>NA       | 1<br>(*)       | 2<br>(*)      |
| Campylobacteriosis   | 823<br>(10.3)  | 867<br>(10.8) | 957<br>(12.0) | 1006<br>(12.2) | 909<br>(11)   |
| Cholera  | 0<br>(*)       | 1<br>(*)      | 1<br>(*)      | 1<br>(*)       | 0<br>(*)      |
| Cryptosporidiosis  | 138<br>(1.7)   | 148<br>(1.8)  | 155<br>(1.9)  | 105<br>(1.3)   | 107<br>(1.3)  |
| Cyclosporiasis   | 10<br>(0.1)    | 21<br>(0.3)   | 23<br>(0.3)   | 12<br>(0.1)    | 18<br>(0.2)   |
| Creutzfeld-Jacob Disease <sup>3</sup><br>Definite              | 1<br>(*)       | 6<br>(0.1)    | 2<br>(*)      | 10<br>(0.1)    | 6<br>(0.1)    |
| Probable/Possible  | 4<br>(0.1)     | 5<br>(0.1)    | 1<br>(*)      | 6<br>(0.1)     | 5<br>(0.1)    |
| Ehrlichiosis <sup>1</sup>                                      | 18<br>(0.2)    | 24<br>(0.3)   | 6<br>(0.1)    | 17<br>(0.2)    | 1<br>(*)      |
| Encephalitis <sup>4</sup>                                      | 186<br>(2.3)   | 212<br>(2.7)  | 108<br>(1.3)  | 175<br>(2.1)   | 249<br>(3)    |
| <i>Escherichia coli</i> O157:H7                                | 35<br>(0.4)    | 17<br>(0.2)   | 34<br>(0.4)   | 27<br>(0.3)    | 40<br>(0.5)   |
| Giardiasis   | 1088<br>(13.6) | 870<br>(10.9) | 938<br>(11.7) | 847<br>(10.2)  | 840<br>(10.2) |
| <i>Haemophilus influenzae</i> , invasive <sup>5</sup>          | 85<br>(1.1)    | 81<br>(1.0)   | 89<br>(1.1)   | 101<br>(1.2)   | 87<br>(1.1)   |
| Hemolytic uremic syndrome <sup>6</sup>                         | 7<br>(0.1)     | 3<br>(*)      | 6<br>(0.1)    | 2<br>(*)       | 5<br>(0.1)    |
| Hepatitis A <sup>7</sup>                                       | 354<br>(4.4)   | 287<br>(3.6)  | 122<br>(1.5)  | 158<br>(1.9)   | 113<br>(1.4)  |

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| Disease                                   | 2004           | 2005           | 2006           | 2007           | 2008           |
|---|----------------|----------------|----------------|----------------|----------------|
| Hepatitis B <sup>7</sup>                  | 163<br>(2.0)   | 131<br>(1.6)   | 124<br>(1.5)   | 122<br>(1.5)   | 98<br>(1.2)    |
| Kawasaki syndrome                         | 26<br>(0.3)    | 21<br>(0.3)    | 16<br>(0.2)    | 14<br>(0.2)    | 18<br>(0.2)    |
| Legionellosis <sup>8</sup>                | 73<br>(0.9)    | 119<br>(1.5)   | 185<br>(2.3)   | 184<br>(2.2)   | 141<br>(1.7)   |
| Leprosy<br>(Hansen's disease)             | 10<br>(0.1)    | 6<br>(0.1)     | 3<br>(*)       | 7<br>(0.1)     | 8<br>(0.1)     |
| Leptospirosis                             | 0<br>(*)       | 3<br>(*)       | 1<br>(*)       | 1<br>(*)       | 2<br>(*)       |
| Listeriosis                               | 26<br>(0.3)    | 42<br>(0.5)    | 36<br>(0.5)    | 39<br>(0.5)    | 30<br>(0.4)    |
| Lyme disease <sup>9</sup>                 | 357<br>(4.5)   | 360<br>(4.5)   | 310<br>(3.9)   | 417<br>(5.0)   | 538<br>(6.5)   |
| Malaria                                   | 206<br>(2.6)   | 176<br>(2.2)   | 173<br>(2.2)   | 209<br>(2.5)   | 185<br>(2.2)   |
| Meningitis <sup>4</sup> (Aseptic/viral)   | 712<br>(8.9)   | 486<br>(6.1)   | 350<br>(4.4)   | 405<br>(4.9)   | 374<br>(4.5)   |
| Meningococcal <sup>10</sup>               | 31<br>NA       | 28<br>(0.4)    | 58<br>(0.7)    | 22<br>(0.3)    | 28<br>(0.3)    |
| Other bacterial meningitides              | 109<br>(1.4)   | 83<br>(1.0)    | 64<br>(0.8)    | 78<br>(0.9)    | 71<br>(0.9)    |
| Psittacosis                               | 1<br>(*)       | 0<br>(*)       | 0<br>(*)       | 0<br>(*)       | 0<br>(*)       |
| Rabies in animals <sup>11</sup>           | 14             | 28             | 44             | 44             | 19             |
| Rickettsialpox                            | 16<br>(0.2)    | 12<br>(0.1)    | 17<br>(0.2)    | 14<br>(0.2)    | 17<br>(0.2)    |
| Rocky Mountain spotted fever <sup>1</sup> | 23<br>(0.3)    | 7<br>(0.1)     | 25<br>(0.3)    | 28<br>(0.3)    | 11<br>(0.1)    |
| Salmonellosis, nontyphoidal               | 1265<br>(15.8) | 1193<br>(14.9) | 1273<br>(15.9) | 1296<br>(15.7) | 1262<br>(15.3) |
| Scarlet fever                             | 599<br>(7.5)   | 812<br>(10.1)  | 552<br>(6.9)   | 639<br>(7.7)   | N/A            |
| Shigellosis                               | 420<br>(5.2)   | 415<br>(5.2)   | 275<br>(3.4)   | 283<br>(3.4)   | 733<br>(8.9)   |
| <i>Streptococcus</i> group A, invasive    | 126<br>(1.6)   | 171<br>(2.1)   | 167<br>(2.1)   | 223<br>(2.7)   | 204<br>(2.5)   |

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| Disease   | 2004           | 2005           | 2006           | 2007           | 2008           |
|---|----------------|----------------|----------------|----------------|----------------|
| <i>Streptococcus</i> group B, invasive <sup>12</sup>  | 27<br>(0.2)    | 36<br>(0.5)    | 45<br>(0.6)    | 55<br>(0.4)    | 47<br>(0.4)    |
| <i>Streptococcus pneumoniae</i> , invasive <sup>13</sup>  | 1083<br>(13.5) | 1051<br>(13.1) | 1134<br>(14.1) | 1058<br>(12.8) | 1023<br>(12.5) |
| <i>S. pneumoniae</i> , invasive, resistant to penicillin (% resistant among total blood isolates) <sup>13</sup> | 293<br>(27.1%) | 313<br>(29.8%) | 341<br>(30.1%) | 286<br>(27.1%) | 70<br>(6.8%)   |
| Toxic shock syndrome  | 1<br>(*)       | 2<br>(*)       | 0<br>(*)       | 0<br>(*)       | 0<br>(*)       |
| Trichinosis   | 0<br>(*)       | 0<br>(*)       | 0<br>(*)       | 1<br>(*)       | 1<br>(*)       |
| Tularemia   | 0<br>(*)       | 0<br>(*)       | 0<br>(*)       | 1<br>(*)       | 1<br>(*)       |
| Typhoid fever   | 31<br>(0.4)    | 33<br>(0.4)    | 67<br>(0.8)    | 70<br>(0.8)    | 57<br>(0.7)    |
| <i>Vibrio</i> species, non cholera  | 0<br>(*)       | 5<br>(0.1)     | 7<br>(0.1)     | 3<br>(*)       | 5<br>(0.1)     |
| Yersiniosis   | 8<br>(0.1)     | 12<br>(0.2)    | 19<br>(0.2)    | 19<br>(0.2)    | 22<br>(0.3)    |
| West Nile neuroinvasive disease <sup>14</sup>   | 2<br>(*)       | 14<br>(0.20)   | 8<br>(0.1)     | 13<br>(0.2)    | 8<br>(0.1)     |
| West Nile Fever <sup>14</sup>   | 3<br>(*)       | 0<br>(*)       | 4<br>(0.1)     | 5<br>(0.1)     | 7<br>(0.1)     |

(\*) Rate less than 0.1 per 100,000

Rates are per 100,000 unless otherwise noted and are based on the 2000 U.S. Census Bureau NYC population (8,008,278). Minor variations in data between this report and previous reports (including other publications of the NYC Department of Health and Mental Hygiene) may be due to several factors, including reporting delays, census data availability, corrections and data-processing refinements (e.g., the removal of duplicate reports).

Footnotes:

1. Anaplasmosis and Ehrlichiosis: Anaplasmosis (Human Granulocytic Anaplasmosis or HGA) was known until 2001 as Human Granulocytic Ehrlichiosis but was renamed based on reclassification of the etiologic agent, *Anaplasma phagocytophilum*. Ehrlichiosis now refers only to Human Monocytic Ehrlichiosis (HME) and is caused by *Ehrlichia chafeensis*.

Anaplasmosis, Babesiosis, Ehrlichiosis, Rickettsialpox, Rocky Mountain Spotted Fever (RMSF): The DOHMH reports probable and confirmed cases of Anaplasmosis, Babesiosis, Ehrlichiosis, Rickettsialpox

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and RMSF. The probable case definition for each of these diseases varies slightly, but usually requires clinically compatible symptoms plus at least one positive serologic test.

2. The case definitions for anthrax are described in the CDC's Morbidity and Mortality Weekly Report (MMWR) of October 19, 2001, 50(41); 889-893.

3. The World Health Organization classifies Creutzfeldt-Jakob disease as "definite" when the condition is diagnosed by standard neuropathological techniques and/or immunodiagnostic testing of brain tissue. "Probable" and "possible" cases are diagnosed by progressive dementia with other clinical features and other non-invasive diagnostic procedures.

4. Increased case-reporting of encephalitis and viral meningitis from 1999 through 2004 is a result of enhanced surveillance for West Nile viral disease and active case management of suspected cases during the adult mosquito season (June–September).

5. Invasive disease due to *Haemophilus influenzae* comprises several clinical syndromes, including meningitis, bacteremia, epiglottitis, and pneumonia.

6. Active surveillance for hemolytic uremic syndrome among pediatric nephrologists was conducted from 1998 through 2004.

7. Surveillance case definitions for viral hepatitis A (HAV) and viral hepatitis B (HBV) have evolved as improvements have occurred in laboratory-based diagnostic testing. These case definition changes should be kept in mind when interpreting changes in case counts and rates over time. For data in this report, HAV was defined as IgM antibody-positive to HAV (IgM anti-HAV). From 1997 to August 2003, HBV was defined as IgM HBc-positive. Since August 2003, the CDC/CSTE case definition has been used (IgM anti-HBc-positive (or HBsAg-positive, if IgM anti-HBc not done); discrete onset of symptoms; and either elevated serum aminotransferase levels or jaundice). Hepatitis C is not listed in this table as both NYC and national data have been unreliable due to the lack of resources necessary to determine whether a laboratory report represents acute, chronic, or resolved infection; repeated testing of a person previously reported; or a false positive test result.

8. Only confirmed cases of legionellosis are included in surveillance data. Confirmed cases include: those with positive culture from respiratory secretions, lung tissue, or sterile sites; a  $\geq 4$ -fold rise in immunofluorescent antibody titers to 128 or higher against *Legionella pneumophila* serogroup 1; positive direct fluorescent antibody (DFA) testing of respiratory secretions or tissue; or the presence of *L. pneumophila* serogroup 1 antigen in urine.

9. Lyme: A two-test approach using enzyme immunoassay/antibody followed by Western blot is recommended by CDC for Lyme disease testing.

10. Meningococcal disease includes meningitis, meningococemia, or *Neisseria meningitidis* isolated from other sterile sites.

11. On March 11, 1992, a raccoon found on a Staten Island street corner tested positive for rabies. Before this, rabies had not been found in any NYC animal, other than bats, since 3 dogs were reported to have rabies in 1954. The discovery of this rabid raccoon marked the arrival of the mid-Atlantic raccoon rabies epizootic in NYC, prompting the NYC DOH to declare all 5 NYC boroughs enzootic for rabies. There has not been a case of human rabies acquired in NYC since 1944.

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12. Invasive Streptococcus group B (*S. agalactiae*) is an illness that affects newborns whose mothers are asymptomatically colonized. Numbers and rates (per 1000 live births) reflect only early onset disease (age < 7 days) for which there is a prevention strategy.

13. Each month, microbiology laboratories in acute-care facilities report the number of patients who had *Streptococcus pneumoniae* isolated from a sterile site (e.g., blood, cerebrospinal fluid, synovial, peritoneal, pleural, or thoracic fluid). Both susceptible and drug-resistant infections are reportable.

14. West Nile (WN) neuroinvasive disease includes West Nile encephalitis, West Nile aseptic meningitis, and acute flaccid paralysis. West Nile Fever is defined as laboratory evidence of acute WN virus infection associated with mild to moderate illness but no evidence of central nervous system involvement.