Centers for Disease Control and Prevention
Case Studies in Applied Epidemiology
No. 021-310

Public Health Surveillance in New York City — Then and Now

Participant's Guide

Learning Objectives
After completing this case study, the participant should be able to:

- ☐ Define surveillance and identify the key features of a surveillance system;
- ☐ Apply criteria for deciding which diseases should be included in a notifiable disease surveillance system;
- ☐ List the types of information that should be collected on a surveillance case report form;
- ☐ Describe the differences between notifiable disease surveillance and syndromic surveillance.

This case study was developed by Richard Dicker in 2003 based on information provided by Robin Curtis, Timothy Holtz, Farzad Mostashari, Adam Karpati, Debjani Das, Tracee Treadwell, and Kate Glynn, with input from the 2002 Epi 216d class of the Harvard School of Public Health and the 2002 EIS Summer Course instructors. The current version was modified by Richard Dicker.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service

PART I

For many years, the New York City (NYC) Department of Health (DOH) conducted public health surveillance by relying on its passive notifiable disease system.

Question 1: What is public health surveillance?

Question 2: What is *passive* surveillance? What's the alternative? When might you use this alternative?

Question 3: How is notifiable disease surveillance generally conducted in the United States?

The list of diseases and conditions that must be reported by physicians, laboratories, hospitals, and others varies from state to state. In many states, a state Board of Health determines the list of notifiable diseases, as well as who must report, within what time frame, and how to report. In some states, the state health department or state epidemiologist has this authority. In a few states, only the state legislature can change the reporting requirements.

The NYCDOH must follow New York State's list of notifiable diseases, but it can add to it, with the approval of the New York City Board of Health.

The list of diseases and conditions that should be reported by the states to CDC is determined by majority vote of the Council of State and Territorial Epidemiologists (CSTE). Note that, although CDC can make recommendations and requests for additions, modifications, and deletions, CDC has no vote. Many diseases are notifiable in some states but not nationally, and some diseases are notifiable nationally but not notifiable in every state.

Question 4: What are some of the uses of surveillance, i.e., why do surveillance?

Periodically, states and CSTE consider additions, modifications, or deletions to the list of nationally notifiable diseases. Criteria and justifications for adding a disease vary. For example, a health agency may justify the addition of a new disease to its list by its need to:

1. take public health action as necessary / appropriate (particularly if disease occurrence or distribution changes)
2. establish baseline incidence data if a new intervention is on the horizon (e.g., establish baseline incidence of *H. flu* or chickenpox and monitor impact of vaccination.)
3. learn more about the epidemiology and natural history/spectrum of illness of a new disease such as AIDS (in the early 1980s) or SARS.

Often, intended reporters (physicians, labs, etc.) complain that too many diseases are already on the list, too much information is sought on the forms (which take too long to fill out and send in), and too little is done with the data that already are collected. The result is widespread underreporting of all but the most serious and rare conditions with clear public health implications (e.g., botulism, plague).

The list of notifiable diseases in NYC in 2001 is shown in Table 1. The list includes some 80 diseases and conditions, but it does not include varicella (chickenpox).

Fact sheets for varicella, Kawasaki syndrome, and plague from the NYCDOH are attached.

Table 1. List of Notifiable Diseases, New York City, 2001

Communicable Diseases

Acquired immunodeficiency syndrome (AIDS)
Amebiasis
☎ Anthrax
☎ Arboviral infections
Babesiosis
☎ Botulism
Brucellosis
Campylobacteriosis
Chancroid
☎ Cholera
Cryptosporidiosis
Cyclospora
☎ Diphtheria
E. coli O157:H7
Ehrlichiosis
Encephalitis
Giardiasis
Glanders
Gonorrhea
Granuloma inguinale
☎ Hantavirus
Hemolytic Uremic Syndrome
☎ *Hemophilus influenzae* invasive disease
Hepatitis A
Hepatitis B
Hepatitis C (confirmed cases only)
Hepatitis, Non-A, Non-B
Human immunodeficiency virus (HIV) infection
Kawasaki syndrome
Legionellosis
Leprosy (Hansen's disease)
Leptospirosis
Listeriosis
Lyme disease
Lymphogranuloma venereum
Malaria
☎ Measles
Melioidosis (Whitmore Disease)
Meningitis
– Aseptic
– *Hemophilus influenzae* Meningitis
– Meningococcal Meningitis
– Meningitis, other bacterial
Meningococcemia
Mumps
Pelvic Inflammatory Disease, Non-specific
Pertussis
☎ Plague
☎ Polio
Psittacosis
☎ Q Fever
☎ Rabies, human or animal
Rickettsialpox
Rocky Mountain Spotted Fever
Rubella
Rubella Syndrome, Congenital
Salmonellosis
Scarlet Fever
Shigellosis
☎ Smallpox
Staphylococcus enterotoxin B
Streptococcus Group A (invasive only)
Streptococcus Group B (invasive only)
Streptococcus pneumoniae
Syphilis (all forms)
Tetanus
Toxic Shock Syndrome
☎ Trachoma
☎ Transmissible spongiform encephalopathies
Trichinosis
Tuberculosis
☎ Tularemia
Typhoid fever
Urethritis, Non-specific
Vibrio species, Non-Cholera
☎ Viral Hemorrhagic Fever
Visceral Larva Migrans
Yellow fever
Yersiniosis

Outbreaks

Any suspected outbreak among 3 or more persons of any disease or condition, whether listed or not, or any unusual manifestation of disease in an individual.

Poisonings

Foodborne illness
Lead poisoning

Injuries

Animal bites
Window falls (children age 16 and younger)

☎ Report immediately by telephone

In 1992, a Canadian province developed the following criteria to prioritize conditions for their own notifiable disease list (0-5 points for each, no weighting):

1. World Health Organization interest
2. Agriculture Canada interest (USDA equivalent)
3. Disease incidence
4. Morbidity (severity of illness)
5. Mortality (frequency of occurrence)
6. Case-fatality rate
7. Communicability
8. Potential for outbreaks
9. Socioeconomic impact
10. Public perception of risk
11. Vaccine preventability
12. Necessity for an immediate public health response to an individual case

Question 5: Using a scale of 0 (low) to 5 (high), assign a score for each criterion below for varicella, Kawasaki syndrome, and plague. Sum your scores for each disease.
Note: Information sheets from the NYCDOH about the three diseases are provided on the following pages.

Criteria	Varicella	Kawasaki	Plague	
WHO interest				
Disease incidence				
Severity of the illness				
Mortality incidence				
Potential for outbreaks				
Socio-economic impact				
Public perception of risk				
Vaccine preventability				
Immediate PH response				
Emerging / re-emerging				
Potential bioterrorism agent				
Total				

Question 6: Would you recommend adding varicella to NYC's notifiable disease list? Would you recommend removing Kawasaki Syndrome from NYC's notifiable disease list? What arguments would you use to support your recommendations?

New York City Department of Health & Mental Hygiene
Bureau of Communicable Disease

Chickenpox
(varicella zoster)

What is chickenpox?
Chickenpox is a highly contagious disease caused by the varicella virus, a member of the herpes virus family. It is the most commonly reported childhood disease. In 1994, there were 5,977 cases reported among New York City residents (rate of 81.6 cases per 100,000 persons). Effective in 1995, chickenpox is no longer required to be reported to the New York City Department of Health.

Who gets chickenpox?
Almost everyone gets chickenpox. In metropolitan communities, about 75 percent of the population has had chickenpox by age 15 and at least 90 percent by young adulthood. In temperate climates, chickenpox occurs most frequently in the winter and early spring.

How is chickenpox spread?
Chickenpox is transmitted to others by direct person-to-person contact, by droplet or airborne spread of discharges from an infected person's nose and throat, or indirectly through articles freshly soiled by discharges from an infected person's lesions. The scabs themselves are not considered infectious.

What are the symptoms of chickenpox?
Initial symptoms include sudden onset of slight fever and feeling tired and weak. These are soon followed by an itchy blister-like rash. The blisters eventually dry, crust over, and form scabs. The blisters tend to be more common on covered than on exposed parts of the body. They may appear on the scalp, armpits, trunk, and even on the eyelids and in the month. Mild or inapparent infections occasionally occur in children. The disease is usually more serious in adults than in children.

How soon after infection do symptoms appear?
Symptoms commonly appear 13–17 days after infection, with a range of 11–21 days.

When and for how long is a person able to spread chickenpox?
A person is able to transmit chickenpox from five days before onset of rash to not more than six days after the appearance of the first lesion. Contagiousness may be prolonged in people with impaired immunity.

Does past infection with chickenpox make a person immune?
Chickenpox generally results in lifelong immunity. However, this infection may remain hidden and recur years later as Herpes Zoster (shingles) in older adults and sometimes in children.

New York City Department of Health & Mental Hygiene – Communicable Disease – Chickenpox (varicella zoster)

What are the complications associated with chickenpox?
Reye's syndrome is a potentially serious complication associated with chickenpox. Newborn children (less than one month old) whose mothers are not immune, and patients with leukemia may suffer severe, prolonged or fatal chickenpox. Immunodeficient patients and those on immunosuppressive drugs may have an increased risk of developing a severe form of shingles.

Is there a treatment for chickenpox?
In 1992, acyclovir was approved by the U.S. Food and Drug Administration for treatment of chickenpox in healthy children. However, because chickenpox tends to be mild in healthy children, most physicians do not feel that it is necessary to prescribe acyclovir.

Is there a vaccine for chickenpox?
A vaccine to protect children against chickenpox was first licensed in March 1995. It has been recommended for children aged 12 months or older. Older children and adults who have previously had chickenpox do not need to be vaccinated. Contact your doctor for further information about the chickenpox vaccine.

What can be done to prevent the spread of chickenpox?
The best method to prevent further spread of chickenpox is for people infected with the disease to remain home and avoid exposing others who are susceptible. If they develop symptoms, they should remain home until one week after the skin eruption began or until the lesions become dry. Persons with chickenpox should avoid unnecessary exposure of nonimmune newborns and immunodeficient patients. If high-risk newborns and immunodeficient patients are exposed to chickenpox, a dose of varicella zoster immune globulin (VZIG) is effective in modifying or preventing the disease as long as it is given within 96 hours after exposure.

October 2000

New York City Department of Health & Mental Hygiene
Bureau of Communicable Disease

Kawasaki Syndrome
(mucocutaneous lymph node syndrome)

What is Kawasaki syndrome?
Kawasaki syndrome is a serious rash illness of children. It is a relatively rare disease; 6 cases were reported among New York City residents in 1999 (rate of 0.1 per 100,000 persons).

Who gets Kawasaki syndrome?
Most cases occur in infants and children under age five.

How is Kawasaki syndrome spread?
Little is known about how a person gets this syndrome or how it spreads. It does not appear to be transmitted from person to person. Since outbreaks occur, it may be caused by an infectious agent.

What are the symptoms of Kawasaki syndrome?
Most cases have a high spiking fever that does not respond to antibiotics. The fever lasts more than five days and is associated with irritability, swollen lymph nodes, red eyes, dry fissured lips, sore throat, and a "strawberry" tongue. The rash may cover the entire body and is sometimes followed by peeling of the skin on the hands and fingers.

Does past infection make a person immune?
Recurrences have been reported but they are extremely rare.

What is the treatment for Kawasaki syndrome?
Most patients are treated in the hospital where they can be closely watched. Aspirin and immunoglobulin are often prescribed.

What are the complications associated with Kawasaki syndrome?
The most frequent complication is coronary artery aneurysms (ballooning out of vessels in the heart). Other organs may be involved as well. Approximately 1–2 percent of cases are fatal.

How can Kawasaki syndrome be prevented?
At the present time, there are no known effective preventive measures.

October 2000

New York City Department of Health & Mental Hygiene – Communicable Disease – Plague

New York City Department of Health
Bureau of Communicable Disease

Plague
(Pneumonic plague, bubonic plague)

What is plague?
Plague is a bacterial disease caused by *Yersinia pestis*. Wild rodents, especially ground squirrels and prairie dogs, are the natural reservoir for plague. Rats, wild rodents, cats, and dogs can become infected with plague and the disease is occasionally transmitted to people by fleas.

Who gets plague?
Plague is extremely rare in the United States, where the small number of reported cases in recent years have been limited to the Western states. Plague occurs in areas where infection of wild rodents is common, including South America, parts of Africa, and South Asia.

Are there different kinds of plague?
Yes. Bubonic plague gets its name from the enlarged and tender lymph glands, or nodes (called "buboes" during the 14th century, when the disease ravaged Europe). Pneumonic plague gets its name from its pneumonia-like symptoms.

How is plague spread?
Bubonic plague is transmitted primarily by the bite from infected fleas; however, transmission can occur by bites or scratches from infected wild rodents and cats, or contact with tissue from infected animals. Pneumonic plague is far more contagious because it is spread through the air by sneezing or coughing.

What are the symptoms of plague?
Initial symptoms include fever, chills, muscle aches, headache, nausea, vomiting, diarrhea, abdominal pain, and extreme exhaustion. Swollen and tender lymph nodes near where the infected flea bit the person are typical of bubonic plague. Pneumonic plague usually presents with a cough and difficulty breathing.

How soon after infection do symptoms appear?
The incubation period for both types of plague is 2 to 7 days after exposure to the bacteria.

How is plague diagnosed?
Plague is diagnosed by isolating the bacteria from sputum, blood, spinal fluid, or infected glands.

What is the treatment for plague?
Plague can be effectively treated with certain widely-available antibiotics, including tetracycline, streptomycin, or chloramphenicol. If untreated, plague can be fatal in approximately 50-60% of infected persons. Pneumonic plague is almost always fatal if not treated.

New York City Department of Health & Mental Hygiene – Communicable Disease – Plague

Does past infection with plague make a person immune?
Immunity after plague recovery is variable, and may not provide complete protection.

How can plague be prevented?
When traveling in areas where plague is common, it is important to avoid being bitten by infected fleas, or having contact with plague-infected animals, or persons infected with pneumonic plague. Patients with pneumonic plague should be quarantined until 3 full days of antibiotic treatment have been administered. Buildings should be rat-proofed, with appropriate storage and disposal of food, garbage, and refuse. Dogs and cats in such areas should be treated with insecticides to prevent flea infestation.

October 2000

Question 7: If New York State public health officials wanted to add varicella to the state notifiable disease list, what information should be specified in the regulation or statute?

The following data from a town outside New York City represent numbers of case reports of hepatitis A received each week over a nine week period.

Table 2. Number of Hepatitis A case reports received, weeks 20-28, Suburb X (population = 150,000)

Week	# Case Reports Received
20	2
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	16

Question 8: What might account for a sudden increase in the number of reported cases, such as that shown in Table 2?

The HIV/AIDS Surveillance Unit of the NYCDOH has conducted active and passive surveillance for AIDS cases since 1982. This unit, which has a large staff dedicated to the active review of hospital, laboratory, and clinical records and death certificates to look for unreported cases, produces a semi-annual surveillance report filled with figures, tables, and some explanatory text that characterizes the past and present AIDS situation in NYC.

Question 9: List the components of basic descriptive epidemiology you would include in a summary surveillance report that will be put on the NYCDOH website. For each component, give the title of at least one figure or table that you would include.

In the mid-1990s, the NYCDOH as well as the rest of the public health community became increasingly concerned about the potential for bioterrorism.

Question 10: Do you think the notifiable disease surveillance system is likely to be adequate for a bioterrorist event?

In response to concerns about bioterrorism, the NYCDOH developed two additional surveillance systems to supplement its notifiable disease reporting — an unexplained death surveillance system and an Emergency Medical Services (EMS) 911 surveillance system. The unexplained death surveillance system is based on a review of death certificates filed at the NYC Vital Records department within 72 hours of death to detect deaths attributed to unusual illnesses. The EMS 911 surveillance system analyzes the previous day's EMS 911 calls against a 3-year baseline for syndromes potentially related to biologic agents. The dataset is analyzed daily for aberrations in space and time.

Meanwhile, the NYCDOH continued to develop and refine its emergency response protocol, to be implemented in case of a bioterrorist or catastrophic event.

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At 8:46 a.m. of September 11, 2001 — at the height of rush hour on a clear and sunny morning in New York City — a commercial airliner crashed into the first tower of the World Trade Center, located within walking distance of the NYCDOH. Sixteen minutes later, a second airplane crashed into the second tower. Hundreds of NYC fire, police, and rescue teams rushed to the burning buildings to help occupants evacuate. By 10:30 a.m., both towers had collapsed in columns of smoke, dust, and debris. The death toll would include airplane passengers and crew, people in the area of the World Trade Center, and New York City firefighters, police, and emergency rescue personnel.

Within minutes, the NYCDOH initiated its emergency response protocol, including its surveillance plan, on which they had worked and practiced for many months.

The NYCDOH, located just a few blocks north of the World Trade Center area, was forced to scramble. The telephone lines had been knocked out and access was difficult, so the offices were relocated to temporary quarters further north, with limited computer resources and space. Nonetheless, the NYCDOH initiated four new surveillance systems in response to the World Trade Center attack:

1. Hospital Needs Assessment Surveillance System, implemented citywide, involved daily monitoring of a) number of emergency department visits, hospital admissions, and deaths, both all-cause and "incident-related", b) number of occupied and empty beds, including those in intensive care units, and c) staffing and supply needs.

2. World Trade Center Retrospective Emergency Department Injury Assessment System, and

3. World Trade Center Rescue Worker Prospective Injury and Illness Surveillance System.

4. Syndromic Surveillance System, whose objectives were to detect illnesses related to either a bioterrorist event or an outbreak because of concern that the WTC attacks could be followed by terrorists' use of biological or chemical agents in the city.

Question 11: What is syndromic surveillance? How does it differ from standard notifiable disease surveillance?

Question 12: In designing and implementing a surveillance system that looks for syndromes typical of biologic or toxic agents, list some of the decisions that need to be made.

Among the biologic agents thought to be candidate agents for bioterrorism are variola major (smallpox), *Bacillus anthracis* (anthrax), *Clostridium botulinum* (botulism) and *Salmonella* species (gastroenteritis). The CDC website offered the following information about smallpox:

Smallpox is caused by the variola major virus. The incubation period is about 12 days (range: 7 to 17 days) following exposure. At least 90% of smallpox cases follow a characteristic course. Initial symptoms include high fever, fatigue, and head and back aches. A characteristic rash, most prominent on the face, arms, and legs, follows in 2-3 days. The rash starts with flat red lesions that evolve at the same rate. Lesions become pus-filled and begin to crust early in the second week. Scabs develop and then fall off after about 3-4 weeks. The majority of patients with smallpox recover, but death occurs in up to 30% of cases.

Question 13: Create a syndromic surveillance case definition for smallpox.

The NYCDOH decided to implement the syndromic surveillance system in key emergency rooms around the city. As described earlier, because of concern that the WTC attacks could be followed by terrorists' use of biologic or chemical agents in the city, the syndromic surveillance system's objectives were to identify illnesses related to a bioterrorist event or outbreak. Assistance from CDC's Epidemic Intelligence Service (EIS) was requested, and by September 14, EIS Officers were stationed at 15 hospital emergency departments around the clock, working in shifts. For each patient seen in the emergency department, a one-page form was completed either by the hospital staff or by the EIS Officer. After verifying that a form had been completed for each patient seen, the EIS Officer entered the data into a database on his/her laptop computer, copied the file onto a floppy disk, and brought the disk to the temporary offices of the NYCDOH. There, the data were uploaded, merged, and analyzed.

Question 14: List the information you would propose to collect on the data collection instrument (In other words, design the data collection form.)

On a regular basis, staff conducted analyses in which they compared each syndrome at each hospital with the other hospitals and with the previous days. To identify increases that could represent clusters of disease, they used three different statistical techniques — a space/time scan statistic method to detect aberrations, a CUSUM method (widely used in industry) to detect more gradual deviations, and a moving average method. Shown below is a table produced on September 27 for one syndrome, respiratory infection with fever.

Table 4. Syndrome 5 — respiratory infection with fever, for days 2-12 by hospital, CDC Enhanced Surveillance Project, New York City, September 2001

	Day 12	Day 11	Day 10	Day 9	Day 8	Day 7	Day 6	Day 5	Day 4	Day 3	Day 2
Hospital	9/26	9/25	9/24	9/23	9/22	9/21	9/20	9/19	9/18	9/17	9/16
Total	67	59	75	75 *	66	45	72	81	62	61	56
A	0	1	3	5	5	2	4	2	6	2	2
B	5	8	2	12 *	3	2	8	4	5	3	9
C	2	3	5	2	1	1	5 *	3	1	1	1
D	3	4	3	4	0	1	3	6 *	4	3	1
E	2	0	2	2	1	2	3 *	0	1	0	0
F	22 †	20	17	11	23 *†	15	11	11	17	17	14
G	0	0	4 ‡	5 *†	1	1	2	2	2	0	1
H	10	5	25 †‡	19 *†	18 *	3	12	21	10	11	16
I	1	1	1	2	3	2	1	1	2	1	3
J	16 *	6	6	2	6	10	7	10	6	13	1
K	3	5	4	8	0	3	3	10 *	4	8	2
L	3	2	1	2	0	1	5 *	0	1	0	1
M	0	1	0	0	3 *	1	3	3	0	0	1
N	0	3	1	0	0	0	0	5 *	2	1	3
O	0	0	1	1	2	1	5 *	3	1	1	1

* = statistically significant by space-time method; † = statistically significant by CUSUM;
‡ = statistically significant by Moving Average

For September 26, the analytic techniques "flagged" two possible hospital-specific clusters — in Hospitals F and J — of respiratory infection with fever. These were the 17th and 18th clusters flagged just for this syndrome within the last 11 days.

Question 15: Are these 2 clusters from September 26 worth investigating? Why or why not? If yes, how would you investigate?

PART II

The data collection form used in the field is shown in Attachment 1.

Additional analyses by hospital and by zip code also pointed to the area around Hospital J as "the most likely cluster" on September 26, so investigators traveled to Hospital J and reviewed the medical charts of the 16 patients. Some patients were called at home. The health department staff were able to review the charts and/or reach 14 of the 16 patients. They concluded that 11 of the 14 had readily explained illnesses (for example, bronchiolitis in children or exacerbation of chronic respiratory disease) or miscodes or data entry errors, while only 3 truly had new onset of a respiratory infection with fever.

One additional benefit of the syndromic surveillance system was that, when rumors and fears of disease outbreaks occurred, the NYCDOH could respond quickly and authoritatively.

Question 16: How often should the health department prepare a report? To whom should the report be distributed?

Surveillance was in place for a total of 27 days. Of the 65,535 emergency department visits recorded, 26% were for conditions that were included in the syndromic surveillance system: 13% trauma, 5% exacerbations of an underlying respiratory condition (asthma, chronic pulmonary disease), 3% diarrhea / gastroenteritis, 3% respiratory infection with fever, 1.4% anxiety reactions, and fewer than 1% other syndromes such as sepsis or rash.

In all, "alarms" triggered by one or more of the three statistical analysis methods occurred on 15 (55%) of the 27 surveillance days. Staff of the NYCDOH investigated each alarm, and did not find any instance of a true cluster of disease, nor evidence of bioterrorism.

The resources devoted to this 27-day surveillance system were estimated by the NYCDOH as follows:

- Personnel
  ~ 74 EIS Officers on-site
  ~ 9 NYCDOH / ~4 CDC staff at main office
- Transportation resources
  ~ 5 drivers on call 24 hours / day
- Monetary resources
  > $1 million in CDC funds (excluding salaries)
  > $50,000 in NYCDOH funds for overtime staffing.

Question 17: Would you continue this or another syndromic surveillance system? Why or why not? If yes, in what form?

The temporary "drop-in" surveillance system that relied on EIS Officers was shut down in mid-October, but it paved the way for the syndromic surveillance system currently in place. The new system uses electronic reports from 33 hospitals, covering 68% of emergency department visits in NYC. These hospitals send daily line lists electronically to the NYCDOH. The line lists include age, sex, home zip code, and chief complaint. Each day, the NYCDOH codes the chief complaints into a small number of syndrome categories, then analyzes the data by time and space using a variation of the methods from the "drop-in" system. During the winter of 2001-2002 the new Emergency Department Syndromic Surveillance System identified a rise in cases attributed to influenza-like illness on December 26; confirmation of an increase in laboratory isolates of influenza came on January 11.

More recently, the director of the NYCDOH has become very concerned about diabetes, which appears to be increasing in incidence.

Question 18: How might you conduct surveillance for diabetes, i.e., what sources of data would you recommend for conducting diabetes surveillance?

The director of the NYCDOH called the diabetes situation an "epidemic," noting that the prevalence of diabetes among New York City residents had doubled from 1993 to 2003. In 2004, diabetes had become the fourth leading cause of death in New York City, having moved up from sixth in 2002.

In 2005, the director proposed that all clinical laboratories be required to submit electronic reports (with identifiers of the patient and doctor) of glycosylated hemoglobin (HbA1C) values to the city health department. (Glycosylated hemoglobin is a test used 1-4 times a year among diabetics that reflects blood sugar control over the past 3 months.) In effect, he wanted to add diabetes to the NYCDOH notifiable disease list for laboratories. The health department would use this information to monitor patterns and trends, direct diabetes-control resources, and perhaps provide feedback to physicians about their patients.

Question 19: Return to Question 5 and add "Diabetes" in the right-most column. Assign a score for each criterion, and sum the scores. Based on your score, would you vote for or against the diabetes surveillance proposal?

The NYC Board of Health adopted the regulation on December 14, 2005, for implementation on January 15, 2006. This is the first population-based registry of diabetes in the nation.

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