

Death Certificate Surveillance in New Hampshire

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 Office of Community and Public Health
 Bureau of Communicable Disease Surveillance
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BACKGROUND

New Hampshire is one of the only states in the country that has Vital Records Vision 2000 (VRV2000), a system where death certificates are filed electronically, with the Bureau of Vital Records within 24 hours of **being signed** by the physician. After September 11, 2003, a query with over 50 illnesses related to potential bioterrorism diseases and their differential diagnoses was developed.

QUERY ITEMS

ANTHRAX	LEPTOSPIROSIS
ATROPINE	MALARIA
BOTULISM	MELIODOSIS
BRUCELLOSIS	MENINGITIS
BURKHOLDERIA	MENINGOCOCCEMIA
CHICKEN POX	MYASTHENIA GRAVIS
CJD	NIPAH
C. PERFRINGENS	ORGAN FAILURE
COXIELLA	PARALYSIS
BURNETTI	PENDING
CREUTZFELD	PLAGUE
ENCEPH	PNEUMONIA
EPSILON TOXIN	PSITTACOSIS
FEVER	Q FEVER
FLU-LIKE	RESPIRATORY
F. TULARENSIS	RICKETTSIOSIS
GASTROINTESTINAL	SEPSIS
GLANDERS	SMALLPOX
GUILLAIN-BARRE	STAPH ENTEROTOXIN B
HANTAVIRUS	TOXIC SYNDROMES
HEAT STROKE	TULAREMIA
HEPATITIS	TYPHUS
HISTOPLASMOSIS	VARICELLA
HYPOXIA	VARIOLA
INFLUENZA	VIRAL HEMORRHAGIC
	YERSINIA

METHODS

Electronic death certificates that list any of the query items in the text of the cause of death are reviewed. Demographic information is also received. The death certificate information is sent in a daily report to the Bioterrorism Surveillance Coordinator (BSC). The report is exported into an Excel spreadsheet. The death certificates are scrutinized for unusual deaths, such as pneumonia in a young person with no comorbidity factors. They are also sorted to look for clusters of death occurring in towns of residence, places of death (such as nursing homes), and places of employment. The BSC has access to the entire death certificate in the electronic data warehouse and is able to get the decedent's name and the name of the certifying physician to begin an investigation when an unusual death or cluster is found.

SAMPLE OF DAILY REPORT

State File #	Date of Death	Age	Sex	Town of residence	ME case	Manner	Query item	Cause of Death A	Time interval	Cause of Death B	Time interval	Cause of Death C	Time interval	Other conditions	Place of Death	Town of Death	Employment
6201	4-Aug-03	25	F	Nashua	N	N	ARDS	ARDS	Days	Bilateral Pneumonitis	Days				General Hospital	Derby	Al's Restaurant
6197	3-Aug-03	68	F	Alton	N	N	Sepsis	Sepsis	1 week	Gangrenous Foot	2 weeks	Diabetes	years	Renal Failure	Memorial Hospital	Carmel	Cal's Shoe Factory
6198	4-Aug-03	64	M	Derry	N	N	Pneumonia	Asystole		Hypoxia	1 day	Pneumonia	2 weeks	Dementia	Sunview Rest Home	Avon	US Postal Service
6204	5-Aug-03	28	M	Rye	N	N	Pending	Pending Toxicology							3 Main Street	Vernon	Prospect School
6206	5-Aug-03	73	F	Keene	N	N	Enceph	Infectious Encephalitis	week						St Mary's Hospital	York	self
6200	2-Aug-03	43	M	Boston	N	N	Sepsis	Septic Shock		CAP					Memorial Hospital	Carmel	TAGA, Inc

RESULTS

- Three unusual deaths have been found using this system. None had been reported to Public Health.
 - ARDS due to Bilateral Pneumonitis**- Investigation revealed that a previously healthy 25 year old was hospitalized for 6 days prior to death. Cause of infection unable to be diagnosed. Antemortem specimen obtained and sent to CDC for further testing.
 - Septic Shock due to Community Acquired Pneumonia**- Investigation revealed that a previously healthy 43 year old was hospitalized with pulmonary infiltrates for 11 days prior to death. Postmortem specimens obtained and sent to CDC for further testing.
 - Infectious Encephalitis**- Investigation revealed that a 73 year old had been treated at a local hospital for suspected West Nile Virus at time of death. Postmortem specimens were obtained and sent to NH Public Health Lab where WNV was ruled out.
- Death certificate surveillance was used to:
 - Respond to a community request for information regarding a suspected cluster of deaths reported by a private citizen. The investigation showed that the decedents had chronic medical problems that were not apparent to the general public.
 - Monitor nursing home deaths statewide during a respiratory outbreak at 5 nursing home facilities in New Hampshire.

LIMITATIONS

- Causes of death are often incomplete or poorly worded by the certifying physician. For instance-
 - Congestive Heart Failure due to Coronary Artery Disease due to Urosepsis
 - Respiratory Failure due to Cardiac Arrest
- Place of employment is not necessarily the place of employment at the time of death. Instructions on the death certificate read: Give kind of work done during most of working life. For example, a retired schoolteacher that dies while employed at Wal-Mart will have the school listed as place of employment. People that retired years ago still have places of employment listed.

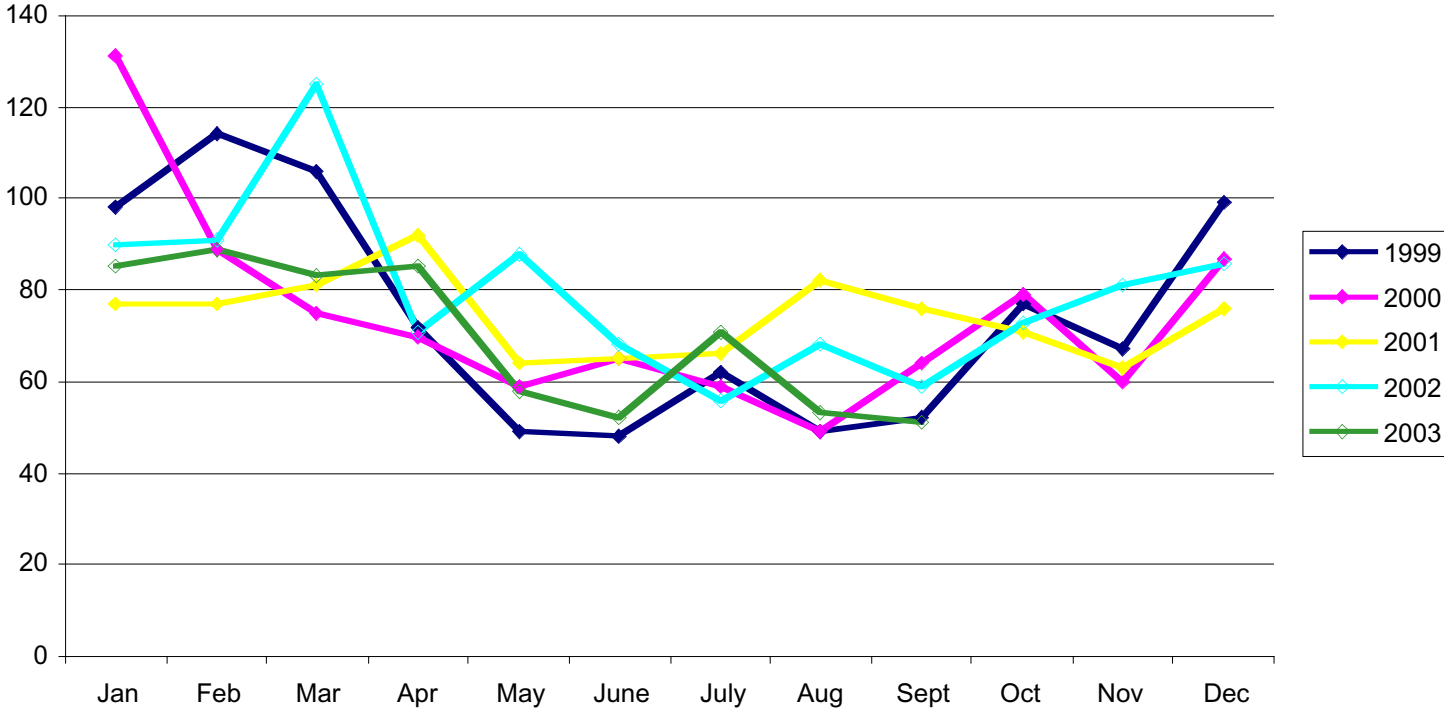
CONCLUSIONS

- Death certificate surveillance is able to:
- Identify deaths that should be, but are not, reported to Public Health.
 - Confirm the presence or absence of cluster deaths.
 - Give timely information on deaths statewide. The average time interval from date of death until certificates are filed with the state is 2.37 days.
 - Enhance collaborations between DHHS and other agencies, including the Office of the Chief Medical Examiner, the Bureau of Vital Records, and hospital infection control staffs.
 - Provide information on seasonal trends in disease and death.

NEXT STEPS

The next step for this project is to gather enough baseline data to calculate a standardized mortality ratio (SMR). Using this data, a comparison between the observed and expected deaths can be made to determine if the number of deaths is unusual.

New Hampshire Pneumonia Deaths, 1999-2003



New Hampshire Pneumonia Deaths, 1997-2002

