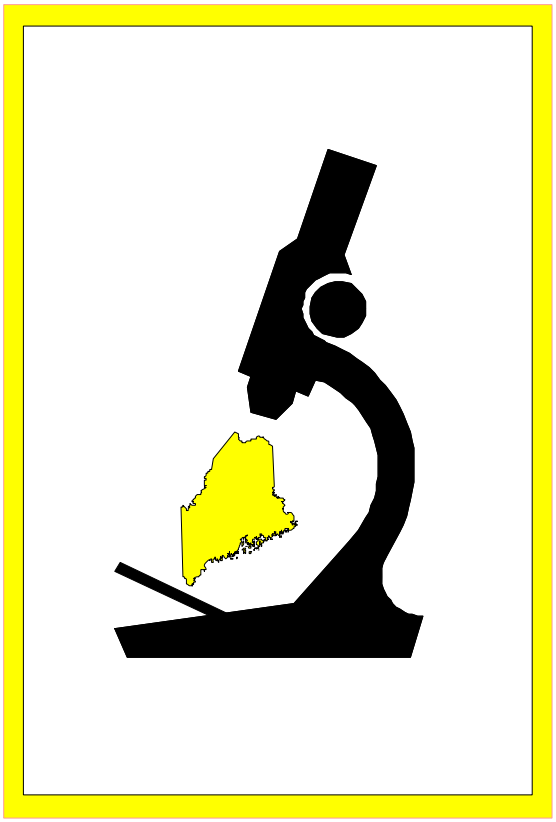
Reportable Infectious Diseases in Maine



2006 Summary

Maine Center for Disease Control and Prevention
An Office of the Department of Health and Human Services
John E. Baldacci, Governor
Brenda M. Harvey, Commissioner

Reportable Infectious Diseases in Maine

2006 Summary

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This is the thirteenth consecutive annual report on infectious diseases in Maine published by the Division of Infectious Disease. It is intended to provide an overview of communicable diseases of public health importance in Maine.

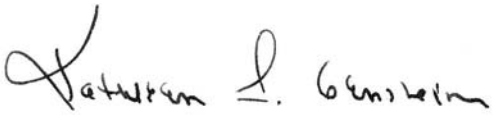
This report would not be possible without the continued support of our healthcare and public health partners throughout the state. They have expended considerable time handling infectious diseases that impact Maine residents. Their active and critical role in the infectious disease surveillance cycle translates into statewide policies and programs that protect our residents from infectious disease through health promotion, disease prevention, and early detection, containment, and treatment.

We encourage our partners' continued support and vigilance in our efforts to protect the people of Maine through timely, complete, and accurate infectious disease reporting. The better we are able to prevent and control disease now, the better positioned we will be to respond to emerging infectious disease threats in the future.

For more information on what, when, and how to report infectious disease please see *Appendix C (Notifiable Conditions List)* of this report, visit our website at www.mainepublichealth.gov, or call 1-800-821-5821.

We hope you find this report useful as we all work to protect and promote the health of Maine's residents.

Sally-Lou Patterson
Director, Division of Infectious Disease
Maine Center for Disease Control and Prevention



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INTRODUCTION

Overview of Public Health Surveillance

The responsibility of governments to control and prevent disease dates back hundreds of years. Government responsibility was exercised during the epidemics of plague, syphilis, and smallpox in the Middle Ages to identify possible sources of disease, isolate infectious cases, and quarantine their contacts to prevent further spread of infection. Illness was monitored, regulations were enacted to prevent pollution of streets and public water supplies, and instructions were made for appropriate methods of burial and food handling.

Infectious disease surveillance in the United States began soon after the colonies were established. In 1741 Rhode Island passed legislation requiring tavern keepers to report contagious disease among their patrons. Two years later, Rhode Island enacted legislation requiring the reporting of smallpox, yellow fever, and cholera.

National disease surveillance began in 1850, when mortality statistics were first published by the federal government based on the decennial census. The legal requirement to collect national morbidity data in the United States was initiated in 1878, when Congress authorized the US Public Health Service to collect reports of the occurrence of quarantineable diseases including cholera, plague, smallpox, and yellow fever.

Today, a total of 66 infectious diseases are nationally reportable; 68 are reportable in Maine. The list of reportable infectious diseases changes periodically. Diseases may be added to the list as new pathogens emerge or when a previously recognized pathogen becomes more important. Also, some diseases may be deleted from the list as their incidence or importance declines. While modern advances in sanitation, personal hygiene and immunizations serve to provide greater control and prevention of some diseases, other infectious diseases continue to thrive and still other yet to be identified infectious disease entities are constantly emerging.

The Maine Center for Disease Control and Prevention works with healthcare providers and laboratorians to gather infectious disease information, analyze it, and provide reports in a timely manner.

Surveillance data are useful for identifying situations that require immediate public health action, such as disease outbreaks; identifying emerging diseases, including identifying populations at higher risk of infection; monitoring trends in the burden of disease; guiding the planning, implementation and evaluation of disease prevention and treatment programs; and forming public policy, including the allocation of heath care resources.

The public health "patient" is the community, and information about that community can be useful to the clinician providing care to the individual. Partnership between public health professionals and health care providers is critical to assure accurate, representative and timely information for all.

Disease Reporting in Maine

Health care providers, medical laboratories, health care facilities, administrators, health officers and veterinarians are required to report notifiable diseases to the Maine Center for Disease Control and Prevention**.**

Diseases that are possible indicators of bioterrorism and thirteen other diseases requiring specific and prompt public health response are to be reported immediately. The remainder of notifiable conditions are to be reported within 48 hours of recognition or strong suspicion of disease.

Disease reports may be made by telephone or fax to the Maine Center for Disease Control and Prevention 24 hours a day, 7 days a week. The reporting numbers are toll free: telephone 1-800-821-5821 and fax 1-800-293-7534. An epidemiologist is on call 24 hours a day, 7 days a week to respond to public health emergencies. Disease reports may also be mailed to the Division of Infectious Disease, 286 Water Street, 8th Floor, 11 State House Station, Augusta, Maine 04333-0011.

Infectious disease and notifiable conditions reportable in Maine are listed on the Maine Center for Disease Control and Prevention website, along with the Rules for the Control of Notifiable Conditions and current information regarding infectious disease incidence in Maine (available at http://www.maine.gov/dhhs/boh/ddc/disease_reporting.htm).

Purpose of Report

The annual report of infectious diseases fulfills multiple functions. First, it allows public health officials to quantify the magnitude of certain problems. For example, surveillance data indicate the spread of West Nile Virus in birds and mosquitoes within Maine. Second, the report allows us to evaluate the effectiveness of our prevention measures. For example, the incidence of vaccine preventable diseases provides evidence about the effectiveness of the state's immunization program. Third, data in the report allow us to detect changes in health care practice. For example, is hepatitis B vaccine and immune globulin being given at birth to children born to women who are chronic carriers? Fourth, the report helps us plan for future events. For example, data on HIV and AIDS help to establish the need for treatment resources, including antiviral medications for the indigent. Finally, the report serves as an historical document of public health surveillance data providing information on the descriptive epidemiology of reportable infectious diseases in Maine.

2006 Infectious Disease Surveillance Highlights

Bioterrorist agents - Except for four cases of Q fever, none of the potential agents of bioterrorism were reported in Maine during the past year.

Enteric diseases - Giardiasis, salmonellosis, and campylobacteriosis were the three most commonly reported enteric infections in Maine in 2006. Multiple outbreaks of gastrointestinal disease were reported during the year; an etiologic agent was not identified in many cases.

Respiratory diseases - Although the overall number of TB cases remained stable, the percentage of cases among foreign-born persons remained high. Fifty-six percent of cases of TB in Maine were among the foreign-born in 2006. Activities for influenza surveillance were enhanced to better prepare for a possible pandemic.

Sexually transmitted infections - Chlamydia remained the most commonly reported infectious disease in Maine with 2,304 cases in 2006. Fifty-seven new cases of HIV were also reported along with 137 cases of gonorrhea and 16 cases of syphilis.

Vaccine preventable disease – Varicella and pertussis continued to be the most commonly reported vaccine preventable diseases in Maine in 2006. In contrast, most other vaccine preventable diseases were at historically low levels.

Vectorborne diseases - Surveillance for West Nile Virus has identified infected birds and mosquitoes in Maine, but human cases have yet to be reported in the state. Lyme disease continued to be the most commonly reported vectorborne disease with 338 cases in 2006

Zoonotic diseases - The epizootic of rabies in wildlife continued with 127 wild animals from 5 different species (raccoon, skunk, bat, fox, and wolf-hybrid) identified as rabid in 2006. Among domestic animals, rabies was identified in six cats and one cow.

Methods

The data included in the annual report is expressed in case numbers based on case definitions developed by the Federal Centers for Disease Control and Prevention (CDC) and adopted by the Maine Center for Disease Control and Prevention. Some of these case definitions may change year to year and may also include probable case definitions as well as laboratory confirmed cases. Salmonella, Shiga toxin producing E. coli and Shigella infections had probable case definitions starting in 2006 that may or may not be included in each section. All tables included in the introduction section include all confirmed and probable cases used by the CDC for their weekly and annual reports.

All 2006 rates illustrate county specific rates per 100,000 population. Rates are calculated by dividing the number of cases by the 2000 U.S. Census Bureau county population and multiplying by 100,000.

Selected Reportable Diseases by Year, Maine, 2000-2006

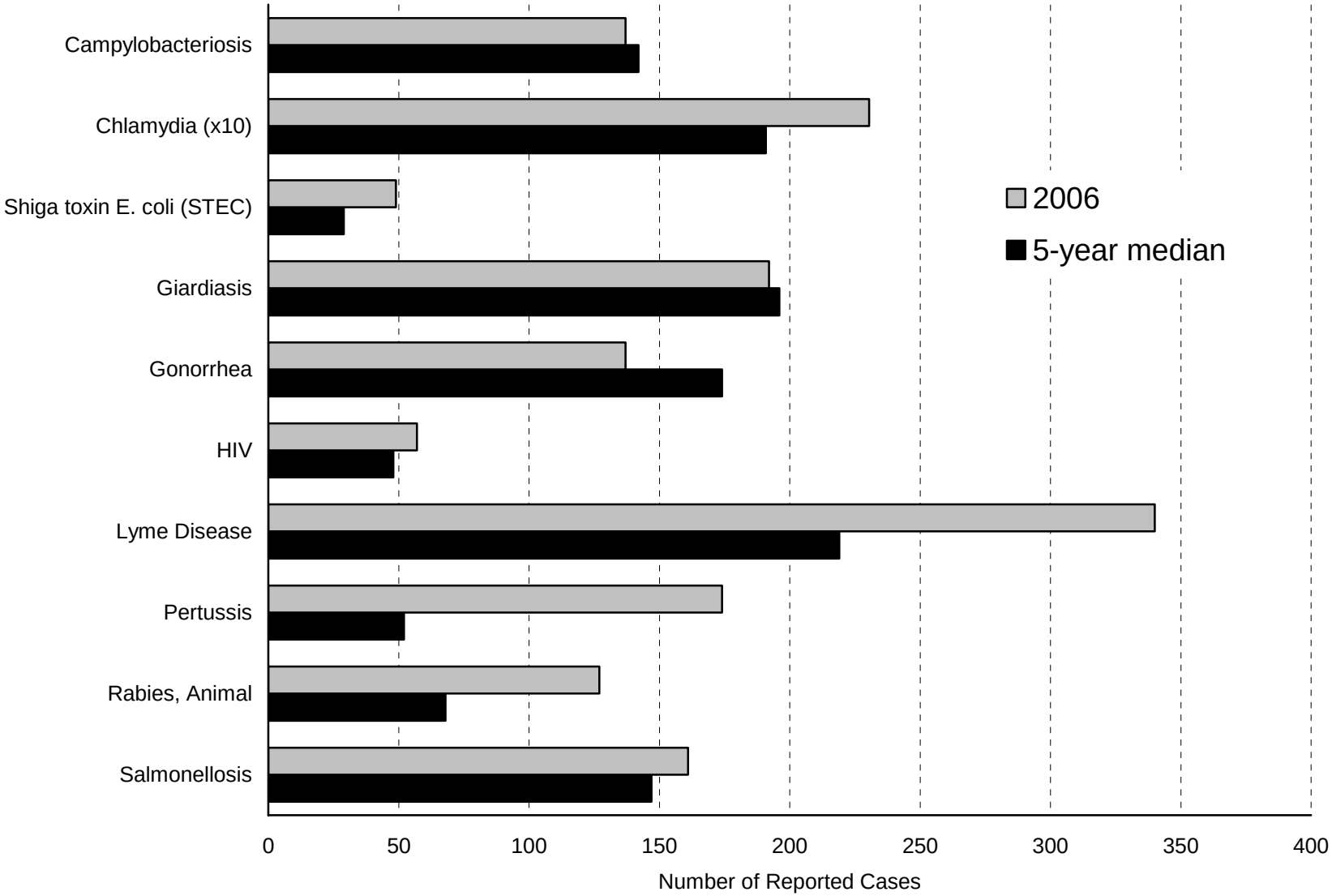
Disease	2000	2001	2002	2003	2004	2005	2006
AIDS	44	45	27	50	49	23	42
BABESIOSIS	0	1	2	3	5	11	9
BOTULISM, FOODBORNE	0	0	2	0	1	0	0
CAMPYLOBACTERIOSIS	149	124	139	146	141	159	137
CHLAMYDIA	1474	1346	1801	2040	2120	2253	2304
CRYPTOSPORIDIOSIS	20	20	12	20	22	30	52
CYCLOSPORIASIS	0	0	0	0	1	0	0
EHRLICHIOSIS	1	1	1	1	1	6	14
GIARDIASIS	238	197	212	184	155	202	192
GONORRHEA	90	141	142	231	214	142	137
HANTAVIRUS (PULMONARY)	0	0	0	0	0	0	0
H. INFLUENZAE (INVASIVE)	2	2	2	6	15	12	21
HEMOLYTIC UREMIC SYNDROME	0	1	3	0	2	0	6
HEPATITIS A	23	11	9	16	16	9	8
HEPATITIS B (ACUTE)	5	7	14	7	12	14	26
HIV INFECTION	51	40	39	55	46	58	57
LEGIONELLOSIS	2	8	6	2	1	7	11
LISTERIOSIS	2	2	5	6	8	3	6
LYME DISEASE	71	108	218	175	224	245	338
MALARIA	7	5	6	5	6	5	4
MEASLES	0	0	0	0	0	0	0
MENINGOCOCCAL DISEASE	10	8	9	10	13	2	9
MUMPS	0	0	0	0	0	2	0
PERTUSSIS	51	23	21	91	193	55	174
PSITTACOSIS	0	0	0	0	1	0	0
Q FEVER	0	0	0	2	0	3	4
RABIES (ANIMAL)	139	85	67	82	69	61	127
RUBELLA	0	0	0	0	0	0	0
SALMONELLOSIS	127	166	147	141	108	163	161
SHIGA TOXIN PRODUCING E. COLI*	32	31	49	15	18	29	49
SHIGELLOSIS	11	6	10	7	13	15	10
STREPTOCOCCAL (GpA-INVASIVE)	12	12	12	20	15	14	19
STREPTOCOCCAL (GpB-INVASIVE)	13	18	18	27	31	28	18
STREP PNEUMO (DR-INVASIVE)	0	0	0	0	4	8	12
SYPHILIS (EARLY)	1	4	3	15	2	3	16
TUBERCULOSIS	24	20	23	24	20	17	16
TOXIC SHOCK SYNDROME	2	0	1	1	1	0	0
VARICELLA	1271	146	792	1012	363	318	238
VIBRIO SPECIES	0	1	4	3	4	2	5
YERSINIOSIS	3	2	0	0	0	0	0

*Shiga toxin producing E. coli (STEC) is a new code that includes all previously reported enterohemorrhagic E. coli cases.

Reportable Diseases with Less Than Five Cases in 2006, Maine, 1997-2006.

	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	**10 year total**
Anthrax*	0	0	0	0	0	0	0	0	0	0	**0**
Botulism*	0	0	1	0	2	0	1	0	0	0	**4**
Brucellosis*	0	0	0	0	0	0	0	0	0	0	**0**
Creutzfeld-Jacob disease	0	0	0	0	NR	NR	NR	NR	NR	NR	**0**
Cyclosporiasis	0	0	1	0	0	0	0	0	NR	NR	**1**
Dengue Fever^	4	1	0	0	0	0	0	0	0	0	**5**
Diphtheria**	0	0	0	0	0	0	0	0	0	0	**0**
Encephalitis, Arboviral	0	0	1	0	0	2	1	0	0	0	**4**
Hantavirus Pulmonary Syndrome	0	0	0	0	0	0	0	0	0	0	**0**
Hepatitis C, acute	2	0	0	2	0	1	2	0	0	0	**7**
Malaria^	4	5	6	5	6	5	7	3	5	1	**47**
Measles**	0	0	0	0	0	0	0	0	0	0	**0**
MRSA, invasive	2	0	1	0	0	0	0	0	0	0	**3**
Mumps**	0	2	0	0	0	0	0	0	0	0	**2**
Plague*	0	0	0	0	0	0	0	0	0	0	**0**
Q fever*	4	2	0	2	0	0	0	0	0	0	**8**
Psittacosis	0	0	1	0	0	0	0	0	0	1	**2**
Poliomyelitis**	0	0	0	0	0	0	0	0	0	0	**0**
Rubella**	0	0	0	0	0	0	0	0	0	0	**0**
Severe Acute Respiratory Syndrome (SARS)	0	0	0	0	NR	NR	NR	NR	NR	NR	**0**
Smallpox*	0	0	0	0	0	0	0	0	0	0	**0**
Streptococcal, Group B, invasive, infant	1	3	1	2	5	1	2	0	0	0	**15**
Tetanus**	0	0	0	0	1	0	0	0	0	0	**1**
Toxoplasmosis	0	0	1	0	0	1	NR	NR	NR	NR	**2**
Trichinosis	0	0	0	0	0	0	0	0	0	0	**0**
Tularemia*	0	0	0	0	0	0	0	0	0	0	**0**
Typhoid Fever	1	0	0	0	0	0	1	0	0	0	**2**
Venezuelan Equine Enchephalitis*	0	0	0	0	NR	NR	NR	NR	NR	NR	**0**
West Nile Virus	0	0	0	0	NR	NR	NR	NR	NR	NR	**0**
Yellow Fever^	0	0	0	0	NR	NR	NR	NR	NR	NR	**0**
*Possible indicators of bioterrorism, ^ most likely due to recent travel/migration, **Vaccine preventable disease, NR=Not reportable											

Selected Reportable Diseases in Maine, 2006 and Five Year Median



Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by County, Maine, 2006

	Babesiosis		Campylobacteriosis		Cryptosporidiosis		Ehrlichiosis		Giardiasis		Haemophilus influenzae, invasive	
County	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**
Androscoggin	0	0.0	12	11.6	4	3.9	0	0.0	8	7.7	2	1.9
Aroostook	0	0.0	2	2.7	1	1.4	0	0.0	6	8.1	1	1.4
Cumberland	2	0.8	40	15.1	2	0.8	1	0.4	57	21.5	2	0.8
Franklin	0	0.0	3	10.2	1	3.4	1	3.4	8	27.1	0	0.0
Hancock	1	1.9	2	3.9	4	7.7	1	1.9	8	15.4	1	1.9
Kennebec	0	0.0	13	11.1	9	7.7	0	0.0	14	12.0	3	2.6
Knox	1	2.5	4	10.1	2	5.0	1	2.5	8	20.2	0	0.0
Lincoln	1	3.0	5	14.9	6	17.8	4	11.9	5	14.9	2	5.9
Oxford	0	0.0	2	3.7	0	0.0	0	0.0	13	23.7	1	1.8
Penobscot	0	0.0	10	6.9	9	6.2	4	2.8	14	9.7	2	1.4
Piscataquis	0	0.0	3	17.4	3	17.4	0	0.0	0	0.0	0	0.0
Sagadahoc	0	0.0	2	5.7	2	5.7	0	0.0	3	8.5	2	5.7
Somerset	0	0.0	10	19.7	3	5.9	1	2.0	11	21.6	2	3.9
Waldo	0	0.0	0	0.0	3	8.3	0	0.0	2	5.5	0	0.0
Washington	1	2.9	5	14.7	0	0.0	0	0.0	7	20.6	0	0.0
York	3	1.6	24	12.9	3	1.6	1	0.5	28	15.0	3	1.6
Maine Total	9	0.7	137	10.7	52	4.1	14	1.1	192	15.1	21	1.6

Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by County, Maine, 2006

	Hemolytic uremic syndrome		Hepatitis A		Hepatitis B, acute		Legionellosis		Listeriosis		Lyme Disease	
County	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**
Androscoggin	0	0.0	2	1.9	5	4.8	0	0.0	0	0.0	10	9.6
Aroostook	0	0.0	1	1.4	2	2.7	0	0.0	0	0.0	0	0.0
Cumberland	0	0.0	1	0.4	3	1.1	3	1.1	2	0.8	96	36.1
Franklin	0	0.0	0	0.0	1	3.4	0	0.0	0	0.0	5	14.0
Hancock	1	1.9	0	0.0	3	5.8	0	0.0	0	0.0	6	11.6
Kennebec	0	0.0	0	0.0	0	0.0	2	1.7	1	0.9	22	18.8
Knox	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	17	42.9
Lincoln	0	0.0	1	3.0	0	0.0	0	0.0	0	0.0	19	56.5
Oxford	0	0.0	0	0.0	1	1.8	0	0.0	0	0.0	1	1.8
Penobscot	1	0.7	2	1.4	8	5.5	3	2.1	1	0.7	5	3.5
Piscataquis	0	0.0	0	0.0	1	5.8	0	0.0	0	0.0	0	0.0
Sagadahoc	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	13	36.9
Somerset	1	2.0	0	0.0	0	0.0	1	2.0	0	0.0	3	5.9
Waldo	2	5.5	0	0.0	0	0.0	0	0.0	0	0.0	8	22.1
Washington	1	2.9	0	0.0	0	0.0	0	0.0	1	2.9	0	0.0
York	0	0.0	1	0.5	2	1.1	2	1.1	1	0.5	133	71.2
Maine Total	6	0.5	8	0.6	26	2.0	11	0.9	6	0.5	338	26.5

Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by County, Maine, 2006

	Meningococcal invasive disease		Pertussis		Rabies, animal		Salmonellosis		Shiga toxin producing E. coli		Shigellosis	
County	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**
Androscoggin	1	1.0	51	49.1	1	1.0	7	6.7	1	1.0	0	0.0
Aroostook	0	0.0	1	1.4	0	0.0	11	14.9	2	2.7	1	1.4
Cumberland	2	0.8	33	12.4	13	4.9	31	11.7	3	1.1	2	0.8
Franklin	0	0.0	5	17.0	7	23.8	1	3.4	0	0.0	0	0.0
Hancock	0	0.0	14	27.0	5	9.7	8	15.4	2	3.9	0	0.0
Kennebec	1	0.9	7	6.0	7	6.0	23	19.6	19	16.2	1	0.9
Knox	0	0.0	11	27.8	9	22.7	5	12.6	1	2.5	0	0.0
Lincoln	0	0.0	5	14.9	15	44.6	3	8.9	1	3.0	0	0.0
Oxford	0	0.0	4	7.3	4	7.3	12	21.9	4	7.3	0	0.0
Penobscot	0	0.0	11	7.6	18	12.4	6	4.1	4	2.8	0	0.0
Piscataquis	0	0.0	5	29.0	1	5.8	2	11.6	0	0.0	0	0.0
Sagadahoc	0	0.0	9	25.6	15	42.6	4	11.4	1	2.8	0	0.0
Somerset	1	2.0	7	13.8	12	23.6	12	23.6	4	7.9	0	0.0
Waldo	0	0.0	1	2.8	13	35.8	2	5.5	1	2.8	0	0.0
Washington	0	0.0	1	2.9	0	0.0	3	8.8	2	5.9	0	0.0
York	4	2.1	9	4.8	7	3.7	31	16.6	4	2.1	6	3.2
Maine Total	9	0.7	174	13.6	127	10.0	161	12.6	49	3.8	10	0.8

Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by County, Maine, 2006

	Streptococcus, invasive Group A		Streptococcus pneumonia, invasive, drug resistant		Tuberculosis		Vibriosis	
County	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**
Androscoggin	3	2.9	0	0.0	3	2.9	0	0.0
Aroostook	2	2.7	0	0.0	0	0.0	0	0.0
Cumberland	2	0.8	7	2.6	10	3.8	2	0.8
Franklin	0	0.0	0	0.0	0	0.0	0	0.0
Hancock	2	3.9	0	0.0	0	0.0	0	0.0
Kennebec	1	0.9	0	0.0	2	1.7	0	0.0
Knox	0	0.0	0	0.0	0	0.0	0	0.0
Lincoln	0	0.0	0	0.0	1	3.0	0	0.0
Oxford	1	1.8	0	0.0	0	0.0	0	0.0
Penobscot	2	1.4	0	0.0	0	0.0	0	0.0
Piscataquis	0	0.0	0	0.0	0	0.0	0	0.0
Sagadahoc	2	5.7	1	2.8	0	0.0	0	0.0
Somerset	1	2.0	0	0.0	0	0.0	0	0.0
Waldo	0	0.0	0	0.0	0	0.0	0	0.0
Washington	0	0.0	2	5.9	0	0.0	0	0.0
York	3	1.6	2	1.1	0	0.0	3	1.6
Maine Total	19	1.5	12	0.9	16	1.3	5	0.4

Reportable HIV/STDs, Number of Cases and Rate per 100,000 Persons by County, Maine, 2006

	Chlamydia		Gonorrhea		Syphilis, Primary and Secondary		HIV	
County	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**
Androscoggin	317	305.4	15	14.5	0	0.0	9	8.7
Aroostook	64	86.6	2	2.7	0	0.0	1	1.4
Cumberland	652	245.5	47	17.7	7	2.6	17	6.4
Franklin	43	145.9	1	3.4	0	0.0	0	0.0
Hancock	63	121.6	1	1.9	0	0.0	4	7.7
Kennebec	183	156.3	12	10.2	4	3.4	6	5.1
Knox	72	181.7	6	15.1	0	0.0	2	5.0
Lincoln	41	122.0	2	5.9	0	0.0	0	0.0
Oxford	87	158.9	6	11.0	2	3.7	3	5.5
Penobscot	286	197.4	12	8.3	0	0.0	4	2.8
Piscataquis	17	98.6	0	0.0	0	0.0	1	5.8
Sagadahoc	59	167.5	3	8.5	1	2.8	1	2.8
Somerset	72	141.5	2	3.9	1	2.0	0	0.0
Waldo	36	99.2	3	8.3	1	2.8	1	2.8
Washington	32	94.3	7	20.6	0	0.0	1	2.9
York	280	149.9	18	9.6	0	0.0	7	3.7
Maine Total	2304	180.7	137	10.7	16	1.3	57	4.5

Summary of Disease Outbreaks and Clusters Investigated by the Division of Infectious Disease, Maine, 2006

Report Date	County	Site	Illness description	Etiology
January	Washington	School	Mononucleosis like symptoms	
January	Lincoln	Long term care facility	Influenza like illness	Confirmed Influenza A
January	Waldo	Long term care facility	Influenza like illness	Suspect Influenza
February	Franklin	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Kennebec	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Androscoggin	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Oxford	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Lincoln	School	Influenza like illness	Suspect Influenza
March	Androscoggin	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Oxford	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Oxford	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Lincoln	School	Influenza like illness	Suspect Influenza
March	Lincoln	School	Influenza like illness	Suspect Influenza
March	Kennebec	Long term care facility	Influenza like illness	Confirmed Influenza
March	Kennebec	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Kennebec	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Lincoln	School	Influenza like illness	Suspect Influenza
March	Lincoln	School	Influenza like illness	Suspect Influenza
March	Sagadahoc	School	Influenza like illness	Suspect Influenza
March	Lincoln	School	Influenza like illness	Suspect Influenza
March	Lincoln	School	Influenza like illness	Suspect Influenza
March	Knox	School	Influenza like illness	Suspect Influenza
March	Knox	School	Influenza like illness	Confirmed Influenza
March	Knox	School	Influenza like illness	Suspect Influenza
March	Kennebec	Day Care	Influenza like illness	Confirmed Influenza
March	Lincoln	School	Influenza like illness	Confirmed Influenza A
March	Oxford	Long term care facility	Influenza like illness	Confirmed Influenza
March	Penobscot	Long term care facility	Influenza like illness	Suspect Influenza
March	Penobscot	Long term care facility	Influenza like illness	Suspect Influenza
March	Hancock	School	Influenza like illness	Confirmed Influenza B
March	Penobscot	School	Influenza like illness	Confirmed Influenza
March	Washington	Long term care facility	Influenza like illness	Confirmed Influenza
March	Washington	Long term care facility	Influenza like illness	Confirmed Influenza A
March	Cumberland	School	Influenza like illness	Confirmed Influenza A
March	Lincoln	Long term care facility	Influenza like illness	Suspect Influenza
March	Knox	School	Influenza like illness	Suspect Influenza
April	Hancock	School	Influenza like illness	Suspect Influenza
April	Waldo	School	Influenza like illness	Suspect Influenza

Report Date	County	Site	Illness description	Etiology
April	Penobscot	School	Influenza like illness	Suspect Influenza
April	Oxford	Long term care facility	Influenza like illness	Confirmed Influenza A
April	Oxford	Long term care facility	Influenza like illness	Confirmed Influenza
April	Penobscot	Long term care facility	Influenza like illness	Confirmed Influenza
April	Franklin	Long term care facility	Influenza like illness	Confirmed Influenza A
April	Oxford	Long term care facility	Influenza like illness	Confirmed Influenza A
April	Oxford	Long term care facility	Influenza like illness	Confirmed Influenza A
April	Androscoggin	School	Tuberculosis	Pulmonary Tuberculosis
May	Piscataquis	Other facility	Gastroenteritis	Cryptosporida
May	Piscataquis	Long term care facility	Gastroenteritis	Suspect Norovirus
June	Penobscot	Other facility	Gastroenteritis	Salmonella Montevideo
June	Cumberland	Homeless Shelter	Tuberculosis	Pulmonary Tuberculosis
July	Aroostook	Day Care	MRSA	MRSA
July	Kennebec	Other facility	Gastroenteritis	Cryptosporidia
July	Oxford	Event	Gastroenteritis	Salmonella Oranienburg
August	Oxford	Event	Gastroenteritis	E. coli O157
August	Statewide	Statewide	Gastroenteritis	E. coli O157
September	Cumberland	Long term care facility	Gastroenteritis	Suspect Norovirus
October	York	Event	Gastroenteritis	Salmonella Typhimirium
October	Somerset	School	Gastroenteritis	Suspect Norovirus
October	Waldo	Hospital	TASS	TASS
November	Lincoln	Long term care facility	Gastroenteritis	Norovirus
November	Kennebec	Hospital	Gastroenteritis	Suspect Norovirus
November	Somerset	Other facility	Gastroenteritis	Cryptosporidia
November	Kennebec	School	Gastroenteritis	Suspect Norovirus
November	Kennebec	Other facility	Gastroenteritis	Salmonella enteritidis
November	Lincoln	Long term care facility	Gastroenteritis	Norovirus
December	Lincoln	Hospital	Gastroenteritis	Suspect norovirus
December	Aroostook	School	Conjunctivitis	Pneumococcal conjunctivitis
December	Waldo	School	Gastroenteritis	Suspect Norovirus
December	Aroostook	Long term care facility	Gastroenteritis	Norovirus
December	York	Long term care facility	Gastroenteritis	Norovirus
December	Cumberland	Long term care facility	Gastroenteritis	Norovirus
December	Knox	Long term care facility	Gastroenteritis	Suspect Norovirus

ENTERIC DISEASES

Campylobacteriosis

Campylobacteriosis is caused by bacteria of the genus *Campylobacter*. Most people who become ill with campylobacteriosis get diarrhea, cramping, abdominal pain, and fever within 2 to 5 days after exposure to the organism. Diarrhea may be bloody and can be accompanied by nausea and vomiting. Illness typically lasts one week. Some persons who are infected with *Campylobacter* don't show any symptoms. In persons with compromised immune systems, *Campylobacter* sometimes spreads to the bloodstream and can cause a life-threatening infection.

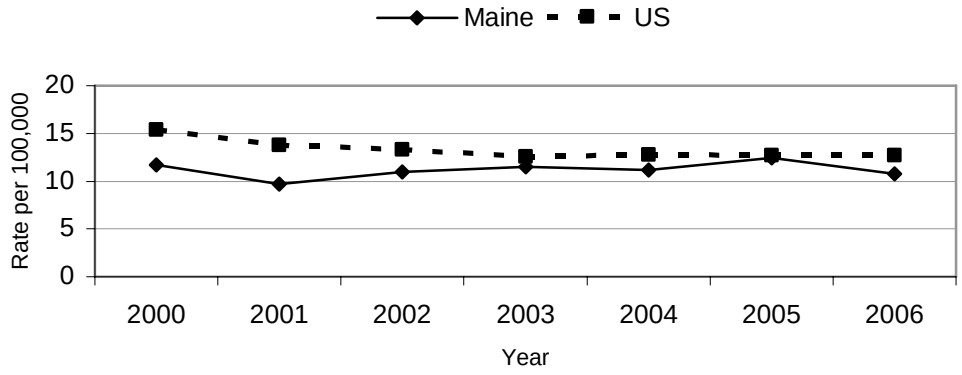
During 2006, a total of 137 cases of campylobacteriosis were reported to the Maine CDC. This represents an overall case rate of 10.7 per 100,000 population. Seventy-five (55%) of the cases were male. The median age was 43 years with a range of 1 to 91 years. There were no clusters or outbreaks identified.

In 2006, reports of campylobacteriosis were received from 15 of 16 counties. There were no reports from Waldo County. Somerset County, Piscataquis County and Lincoln County had the three highest case rates at 19.7, 17.4, and 14.9 per 100,000, respectively. Adults between the ages of 40 and 64 years appear to have the greatest incidence of campylobacteriosis, although infection can be more severe in children under the age of five years.

Most cases of campylobacteriosis are thought to be sporadic, (i.e. not related to outbreaks). In instances where cases may be part of an underlying outbreak, it is often difficult to detect the outbreak. Although estimated incidence at the national level has seen a steady decline in the last six years, incidence in Maine has remained relatively stable with no substantial or sustained decline.

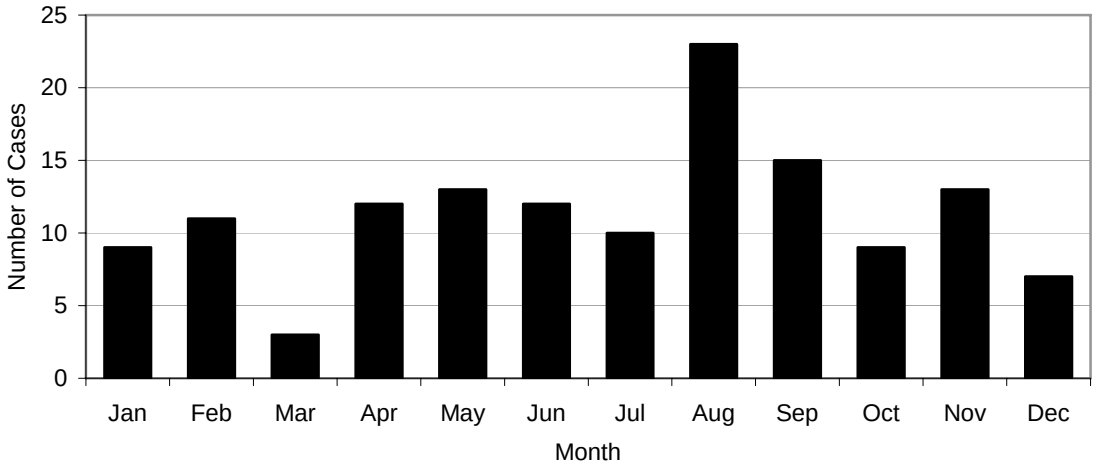
Education regarding the proper cooking of poultry and other meat, and the need to avoid drinking untreated water and unpasteurized milk or juice, may decrease the incidence of campylobacteriosis.

Incidence of Campylobacteriosis, Maine and United States*, 2000-2006

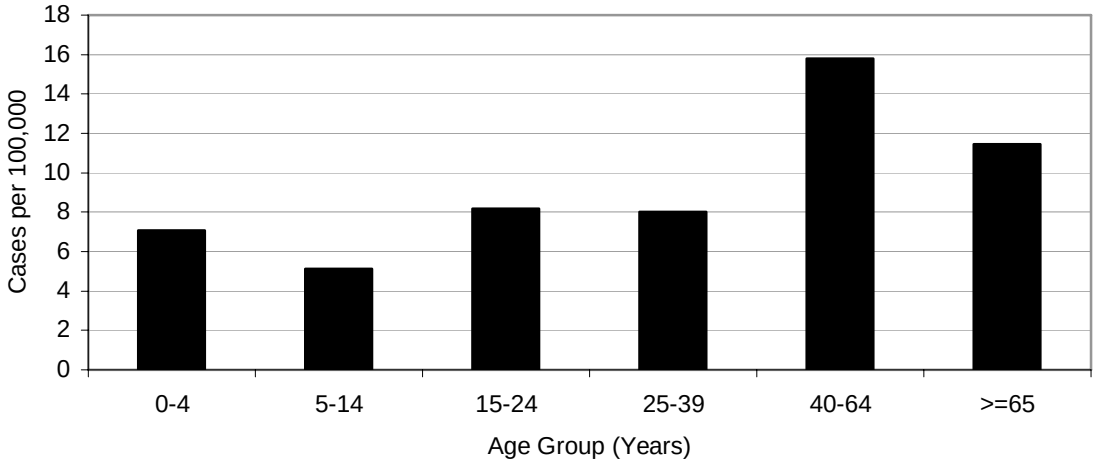


*Campylobacteriosis is not nationally reportable. Estimated US rates are from FoodNet data.

Campylobacteriosis by Month, Maine, 2006



Campylobacteriosis by Age Group, Maine, 2006



Cryptosporidiosis

Cryptosporidiosis, a diarrheal disease caused by parasites of the genus *Cryptosporidium*, is transmitted through the fecal-oral route and can cause severe diarrhea, accompanied by abdominal cramps, nausea, vomiting, weight loss, and low-grade fever.

During 2006, a total of 52 confirmed cases of cryptosporidiosis were reported to the Maine CDC. This represents an overall rate of 4.1 cases per 100,000 population. Twenty-eight (53.9%) of the cases were female. The median age was 30 years with a range of 1 to 88 years.

In 2006, reports of cryptosporidiosis were received from 14 of 16 counties. There were no reports from Oxford County and Washington County. Lincoln County recorded the highest case rate (17.8 per 100,000), followed by Piscataquis County and Waldo County at 17.4 and 8.3 per 100,000, respectively. Children under five years of age appear to have the greatest incidence of cryptosporidiosis.

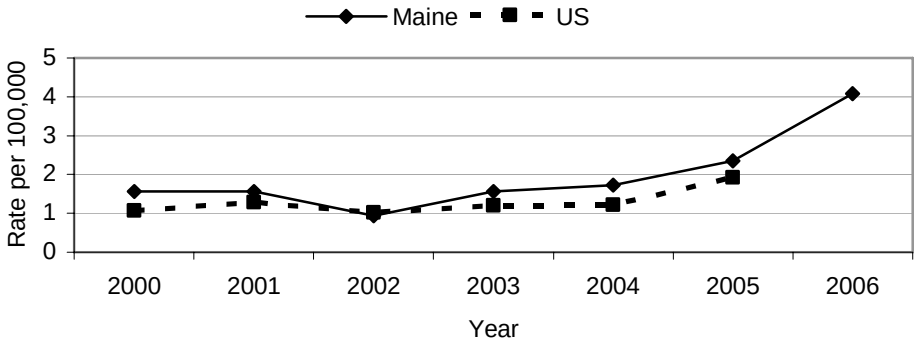
In 2006, there were a total of three outbreaks associated with cryptosporidiosis. Seven (13.5%) of the 52 confirmed cases and more than 20 probable[1] cases were related to these outbreaks. The outbreaks occurred in May, July, and October and involved farms, camp settings and an animal auction.

In the last two years, we have seen a substantial increase in the number of cryptosporidiosis cases reported to the Maine CDC. Most of these reports were sporadic cases, but 13.5% were related to outbreaks.

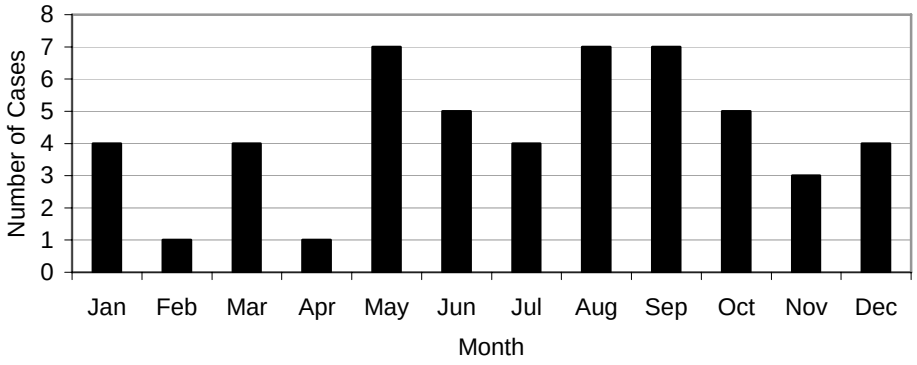
Summer and fall seasons coincide with increased outdoor activities such as recreational swimming, camping, trips to farms, and visits to agricultural fairs and petting zoos. These activities present various opportunities for children and adults alike to come into contact with parasites that cause diseases including cryptosporidiosis. Persons who engage in recreational swimming or use group bathing facilities such as pools, spas or hot tubs are strongly encouraged to practice good personal hygiene and to avoid water that might be contaminated.

[1] There is no *probable* case classification for cryptosporidiosis at the national or state level. In outbreak settings, however, a probable case may be defined as a clinically compatible case that is epidemiologically linked to a confirmed case.

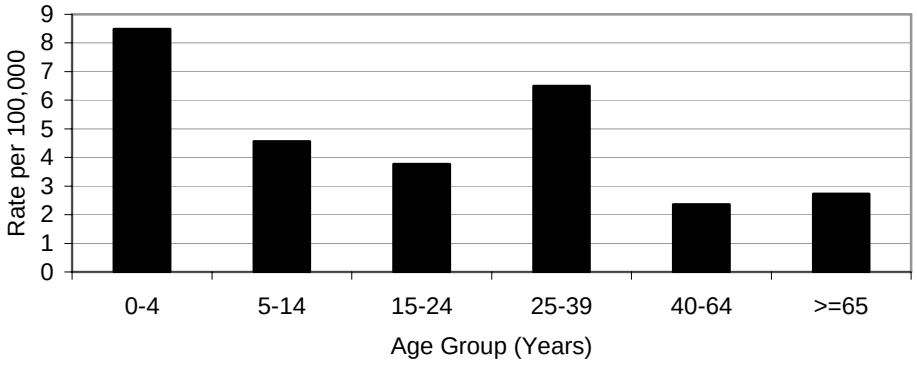
Incidence of Cryptosporidiosis, Maine and United States, 2000-2006



Cryptosporidiosis by Month, Maine, 2006



Cryptosporidiosis by Age Group, Maine, 2006



Giardiasis

Giardiasis, a diarrheal illness caused by a single-celled parasite, is one of the most commonly reported infectious diseases in Maine. The parasite (*Giardia intestinalis*) that causes the disease lives in the intestine of an infected person or animal and is passed through the stool. Outside the body, the parasite is known to thrive in the environment for long periods of time. Persons who come into contact with contaminated feces and surfaces or swallow contaminated water and food can become infected with *Giardia*.

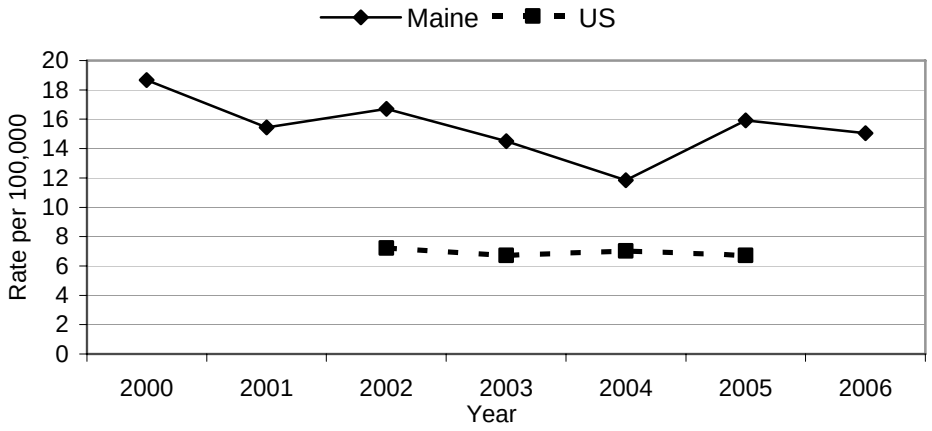
During 2006, a total of 192 cases of giardiasis were reported to the Maine CDC. This represents an overall case rate of 15.1 per 100,000 population. One hundred (52%) of the cases were female. The median age was 36 years with a range of 7 to 88 years. There were no clusters or outbreaks identified.

In 2006, reports of giardiasis were received from 15 of 16 counties. There were no reports from Piscataquis County. Franklin County, Oxford County, and Somerset County recorded the three highest case rates at 27.1, 23.7, and 21.6 per 100,000, respectively. Children under five years of age appear to have the greatest incidence of giardiasis.

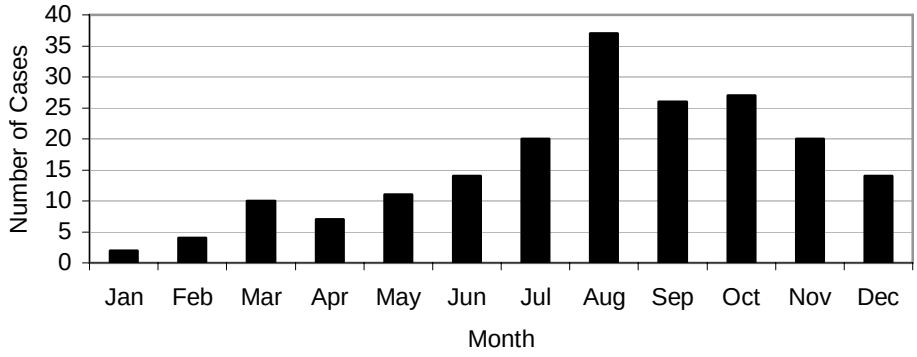
In any given year giardiasis is one of the most commonly reported infectious conditions in Maine. Incidence usually peaks in the summer months when the climate is warm and provides an ideal environment for activities that lead to exposure to the organism that causes the infection. Consumption of water from untreated (e.g. ponds, lakes, etc.) or inadequately treated (e.g. private wells) sources and recreational water usage present prime opportunities for the year-round ingestion and transmission of this rather widespread organism in the State. Giardiasis can also be acquired through person-to-person contact, especially in childcare settings. The close personal contact in childcare facilities and poor hygiene of young children provide ample opportunities for the spread of *Giardia* and other enteric parasites.

Families that own private wells are advised to have their wells tested once every year for fecal bacterial contamination usually resulting from sewage overflows, storm water runoff, and agricultural runoff. If the water is found to have high levels of fecal bacteria, disinfection with bleach can restore water quality to safe levels. It is important to note, however, that *Giardia* is moderately resistant to chlorine and may survive bleach disinfection. Additionally, persons who use natural water bodies (e.g. lakes, rivers and ponds) for swimming, boating, backpacking and other recreational purposes are advised to take precautions against ingesting untreated water as these water sources may be infested with *Giardia*. Operators of childcare facilities must emphasize improved sanitation and personal hygiene by staff and children, especially after toilet use and diaper change.

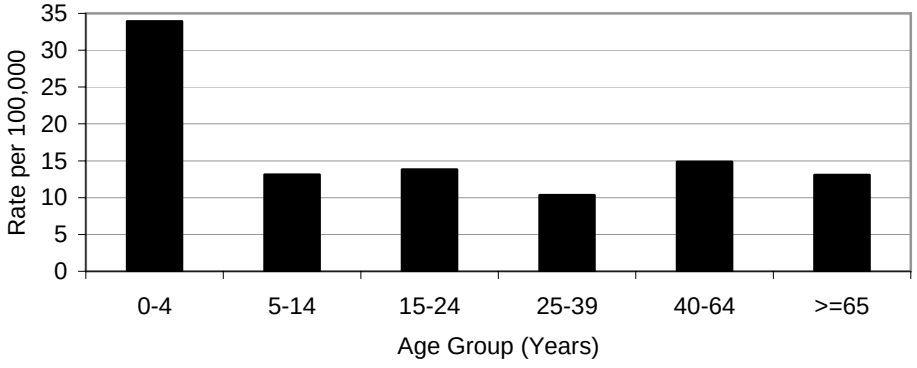
Incidence of Giardiasis, Maine and United States, 2000-2006



Giardiasis by Month, Maine, 2006



Giardiasis by Age Group, Maine, 2006



Hemolytic uremic syndrome, post-diarrheal

Hemolytic uremic syndrome (HUS) is a life-threatening illness characterized by hemolytic anemia, thrombocytopenia, and acute renal failure. Most cases of HUS are preceded by diarrhea caused by infection with shiga toxin-producing *Escherichia coli*

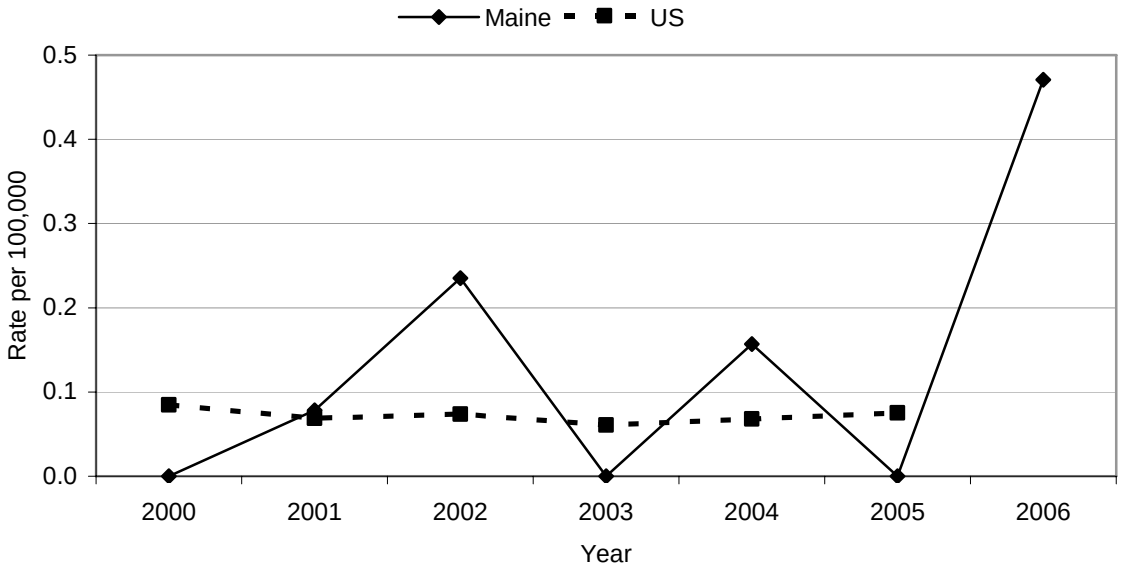
During 2006, a total of six confirmed cases of HUS were reported to the Maine CDC. This represents an overall case rate of 0.5 per 100,000 population. Five (83%) of the cases were males. The median age of cases was 3 years, with a range of 6 months to 14 years.

Reports of HUS were received from five counties: Waldo County (2), Washington County (1), Somerset County (1), Penobscot County (1), and Hancock County (1). All six cases were reported between June and September, the peak period for shiga toxin-producing *E. coli* infections.

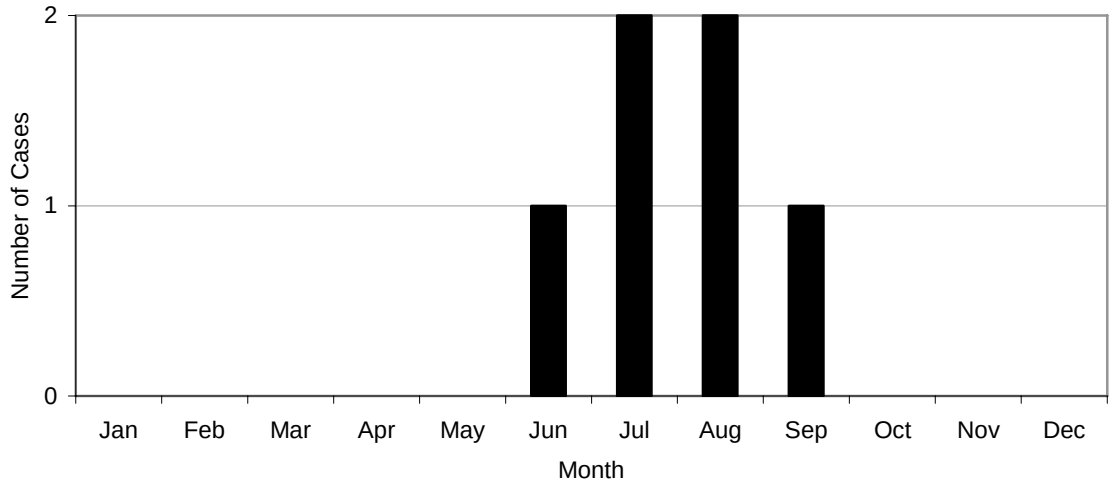
In the United States, it is estimated that about eight percent of persons infected with *E. coli* O157:H7 go on to develop HUS. In Maine, three of the six HUS cases reported in 2006 were associated with patients previously diagnosed with culture-confirmed Shiga toxin-producing *E. coli*. The overwhelming majority of cases of HUS occur in children under the age of fifteen years. Although *E. coli* O157:H7 is often associated with HUS, it is important to note that all types of shiga toxin-producing *E. coli* can cause HUS.

Continued adoption and implementation by the food, produce, and pet industries of control measures introduced by the FDA and the USDA may help reduce the incidence of HUS. In addition, as with all infectious diseases, prompt reporting is critical for effective and timely public health interventions.

Incidence of Hemolytic Uremic Syndrome, Post-diarrheal, Maine and United States, 2000-2006



Hemolytic Uremic Syndrome, Post-diarrheal, by Month, Maine, 2006



Hepatitis A

Hepatitis A is a liver disease caused by the hepatitis A virus (HAV). HAV is transmitted person-to-person by the fecal-oral route. Persons most at risk include those traveling abroad to countries where the virus is common, sexual and household contacts of infected persons, drug users, and children living in states* with high rates of infection during the period between 1987 and 1997. Children infected with HAV may often be asymptomatic. Infected adults often show a variety of symptoms including fever, anorexia, diarrhea, and jaundice.

During 2006, a total of eight confirmed cases of acute HAV were reported to the Maine CDC. This represents an overall case rate of 0.6 per 100,000 population. There was an even distribution of male and female cases. The median age of cases was 44 years, with a range of 29 to 62 years.

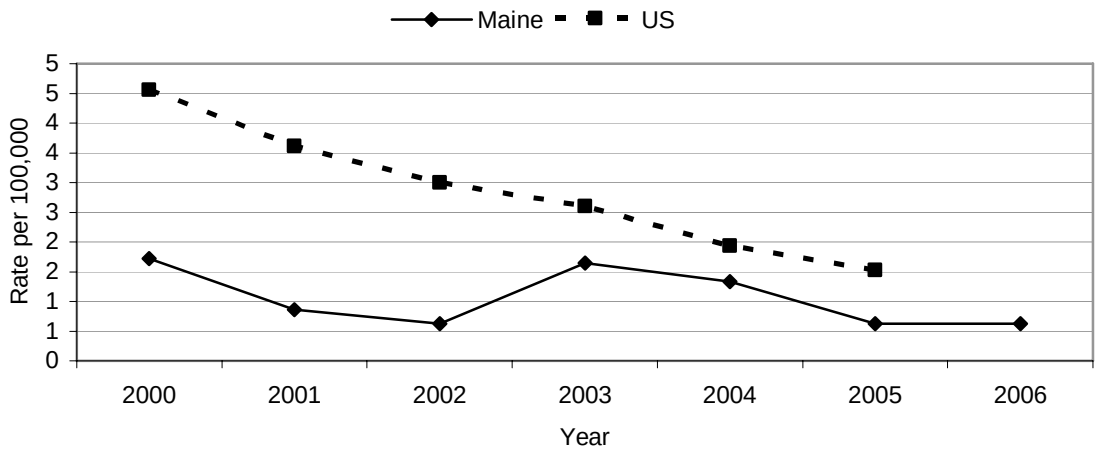
Reports of HAV were received from six of 16 counties: Androscoggin County (2), Aroostook County (1), Cumberland County (1), Lincoln County (1), Penobscot County (2), and York County (1).

The introduction of the hepatitis A vaccine in 1999 has played an important role in the substantial decrease in disease incidence across the country over the past few years. Not accounting for occasional outbreaks, it is expected that this reduction in HAV incidence would be sustained in line with improved vaccine coverage.

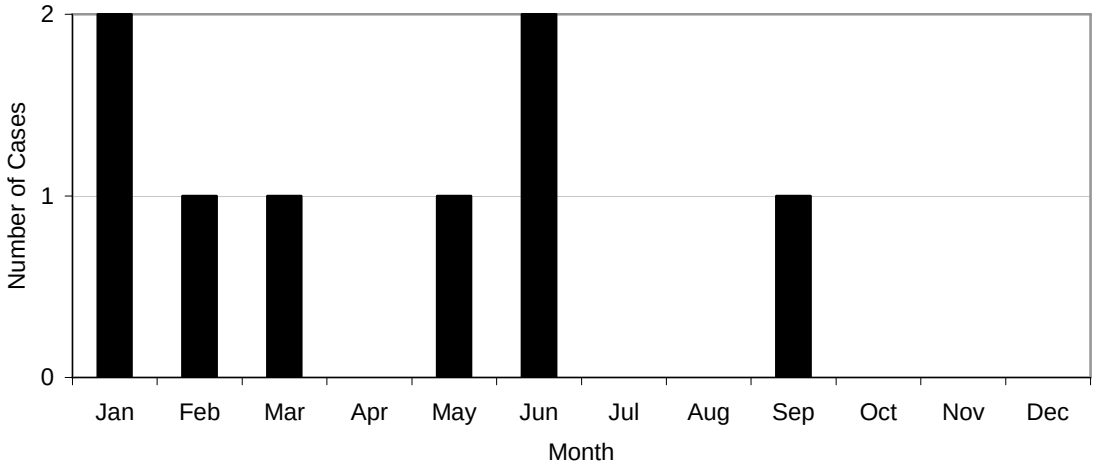
The hepatitis vaccine is widely available and is the best protection against infection. The vaccine is recommended for persons 12 months or older in age or who belong to one of the high-risk groups mentioned above. Short-term protection against hepatitis A is available from immune globulin, which can be given before and within 2 weeks after coming in contact with a person infected with acute HAV. Proper hand washing after using the bathroom, changing a diaper, and before preparing and eating food is strongly recommended.

*States include Arizona, Alaska, Oregon, New Mexico, Utah, Washington, Oklahoma, South Dakota, Idaho, Nevada and California.

Incidence of Acute Hepatitis A, Maine and United States, 2000-2006



Acute Hepatitis A by Month, Maine, 2006



Listeriosis

Listeriosis is a bacterial disease caused by *Listeria monocytogenes* and may present as mengitis and sepsis. It has been most frequently linked to ready-to-eat meals, soft cheeses, and raw milk. Pregnant women are most at risk as the infection can be passed on to the fetus.

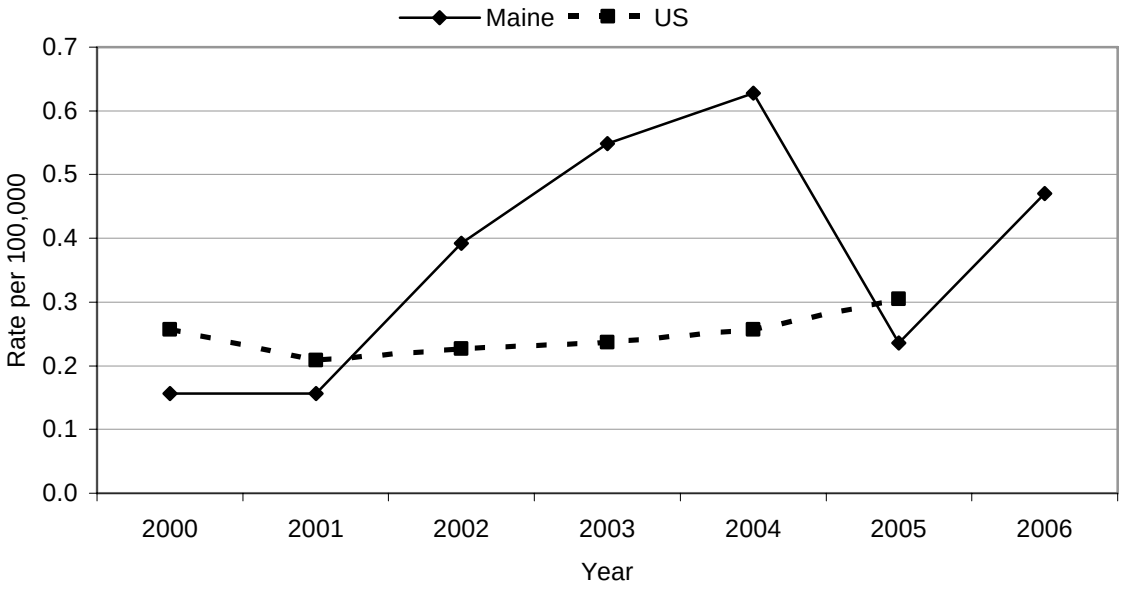
During 2006, a total of six confirmed cases of listeriosis were reported to the Maine CDC. This represents an overall case rate of 0.5 per 100,000 population. Five (83%) of the cases were males. The median age of cases was 71 years, with a range of 43 to 84 years.

Reports of listeriosis were received from five of 16 counties: Cumberland County (2), Kennebec County (1), Penobscot County (1), Washington County (1), and York County (1). All six cases were reported between June and August.

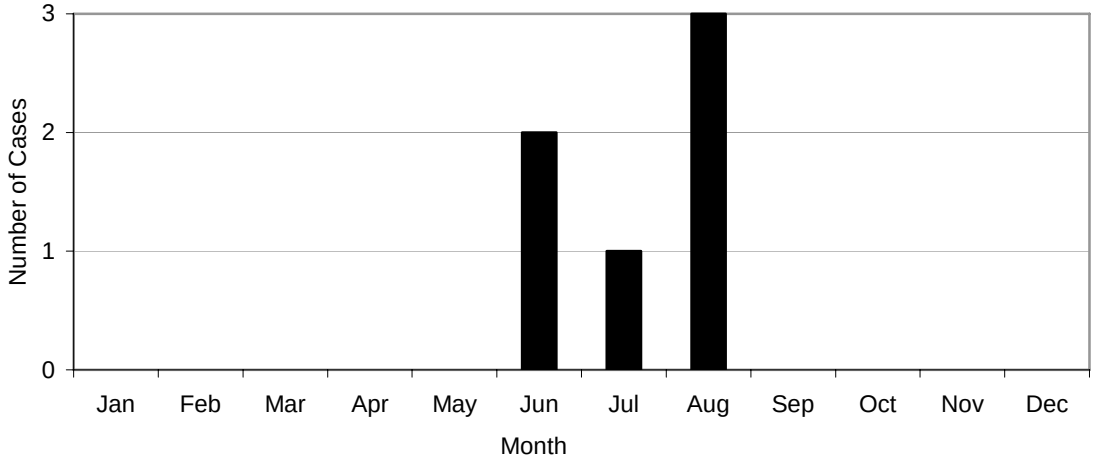
An estimated 2,500 people become seriously ill with listeriosis each year in the United States. Among healthy adults, pregnant women are about 20 times more likely to get listeriosis. It is estimated that about one-third of all listeriosis cases occur during pregnancy.

Prevention and control measures for listeriosis are the same as for other foodborne diseases. People should not eat poultry or meat without following proper cooking instructions. Avoid eating raw milk or foods made from raw milk. In addition, high-risk groups including pregnant women and people with weakened immune systems should avoid eating such foods as ready-to-eat meals, hot dogs, soft cheese, and refrigerated smoked seafood.

Incidence of Listeriosis, Maine and United States, 2000-2006



Listeriosis by Month, Maine, 2006



Salmonellosis

Salmonellosis is an illness of variable severity usually manifested by diarrhea, abdominal pain, fever, and sometimes nausea and vomiting.

During 2006, a total of 140 culture-confirmed cases of salmonellosis were reported to the Maine CDC. This represents an overall rate of 11.0 per 100,000 persons. Seventy-four (53%) of the confirmed cases were female. The median age was 42 years, with a range of one month to 92 years. Serotypes Enteritidis and Typhimurium were the two most commonly reported serotypes and accounted for about 42% of patient isolates submitted to the state laboratory. In addition to the 140 culture-confirmed cases, there were 21 probable cases without culture confirmation.

During 2006, salmonellosis was reported in all 16 Maine counties. Oxford County and York County had the two highest case rates at 20.1 and 17.1 per 100,000, respectively. Aroostook County and Hancock County jointly recorded the third highest case rate at 13.5 per 100,000. Consistent with national data, children under the age of five years had the highest incidence of salmonellosis in Maine during 2006 with a rate of 24.0 per 100,000.

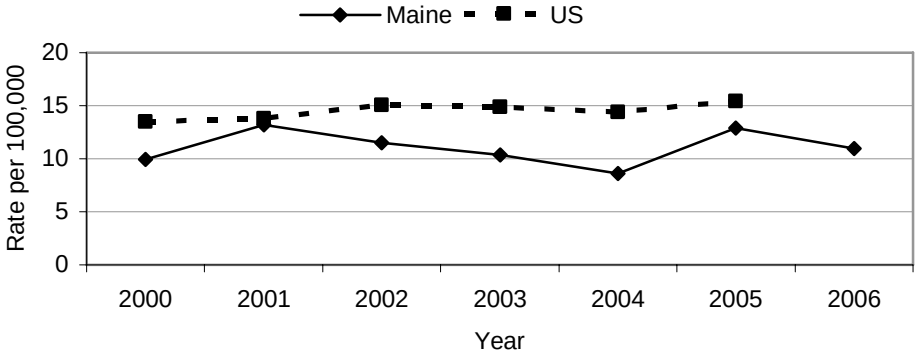
In 2006, nine clusters of salmonellosis were identified by use of pulsed-field gel electrophoresis and through routine epidemiologic investigations. Three of these clusters developed into actual outbreaks and were investigated accordingly. Overall, 20% (28 of 140) of culture-confirmed *Salmonella* cases were associated with clusters and outbreaks.

Salmonellosis continues to be a major enteric pathogen in Maine, especially in children under the age of five years. Human infection still occurs primarily through the ingestion of contaminated meat, poultry, eggs, and fresh produce.

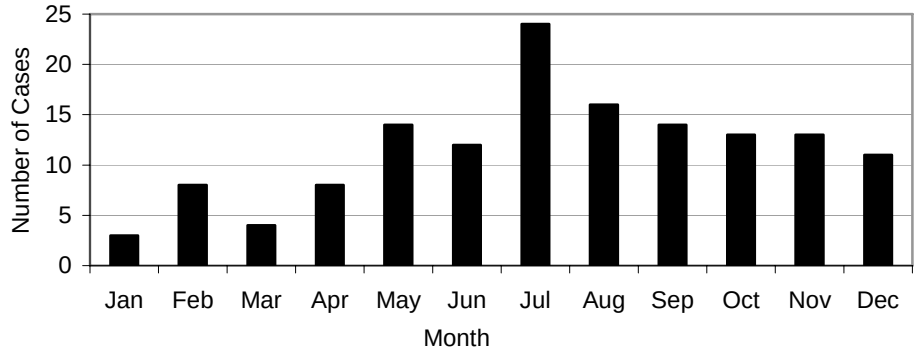
Many food items, including raw or undercooked eggs, poultry, meat and fresh produce may be contaminated with *Salmonella*. People should not eat eggs, poultry, or meat without following proper cooking instructions. Produce should be thoroughly washed before eating. People who have contact with reptiles (snakes, lizards, turtles, etc.), birds, and live poultry should wash their hands immediately after handling these animals.

Typhoid fever is a life-threatening illness caused by the bacterium *Salmonella* Typhi. *S.* Typhi lives only in humans. Persons with typhoid fever carry the bacteria in their bloodstream and intestinal tract. In addition, a small number of people, called carriers, recover from typhoid fever (i.e. no longer show symptoms) but continue to carry the bacteria. Both ill persons and carriers may shed *S.* Typhi in their feces. In 2006, one culture-confirmed case of *Salmonella* serotype Typhi was reported in a 39 year-old female with overseas travel history. Typhoid fever is uncommon in Maine and this was the first case reported since 2001.

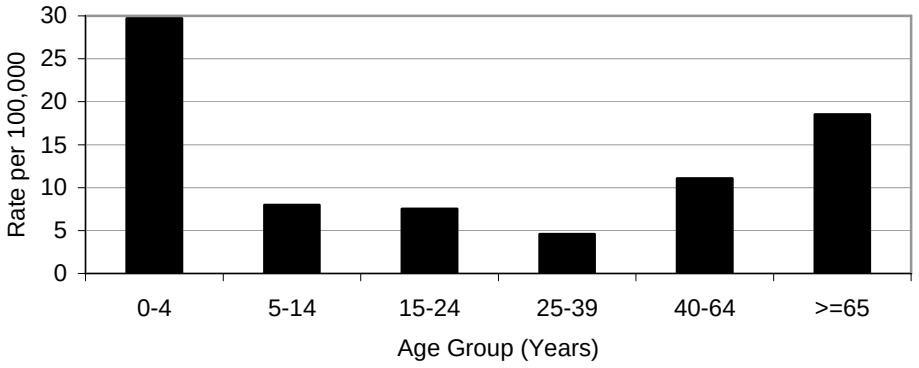
Incidence of Salmonellosis, Maine and United States, 2000-2006



Salmonellosis by Month, Maine, 2006



Salmonellosis by Age Group, Maine, 2006



Shiga toxin-producing *Escherichia coli*

Shiga toxin-producing *Escherichia coli* (STEC) can cause both sporadic and epidemic disease manifested by bloody diarrhea, abdominal cramps, hemorrhagic colitis, and in rare cases hemolytic uremic syndrome (HUS). Surveillance categories for STEC include: a) serogroup O157:H7; b) serogroup non-O157; and c) not serogrouped.

During 2006, a total of 39 confirmed cases of STEC were reported to the Maine CDC. This represents an overall case rate of 3.1 per 100,000 population. Seventeen (44%) of the 39 cases were serogroup O157 and 19 (49%) were serogroup non-O157. Three cases (8%) were not serogrouped. Twenty-five cases (60%) were females. The median age of cases was 24 years, with a range of 1 to 81 years. In addition to the 39 confirmed cases, there were 11 probable cases of STEC.

In 2006, reports of STEC were received from 14 of the 16 counties in Maine. Franklin County and Piscataquis County did not report any cases. The counties of Somerset, Kennebec, and Oxford had the three highest case rates at 7.9, 7.7 and 7.3 per 100,000, respectively. Children under five years of age appeared to have the greatest risk for STEC infection (11.3 per 100,000), followed by persons between the ages of 15 and 24 years (5.0 per 100,000).

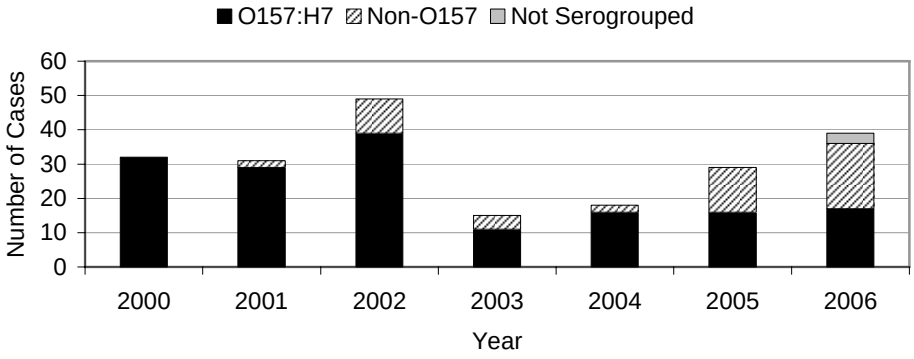
During 2006, five *E. coli* O157:H7 clusters, accounting for a total of seven cases (18%), were identified by use of pulsed-field gel electrophoresis (PFGE). Two of the five clusters developed into actual outbreaks and were investigated accordingly.

Although the incidence of STEC is relatively low compared to other enteric infections, it is still regarded as a major foodborne pathogen largely because of the severity of the disease and the complications that can result from it. Human infection with STEC occurs primarily through consumption of contaminated food and water as well as contact with farm animals such as cattle, which maintain *E. coli as* part of their intestinal flora.

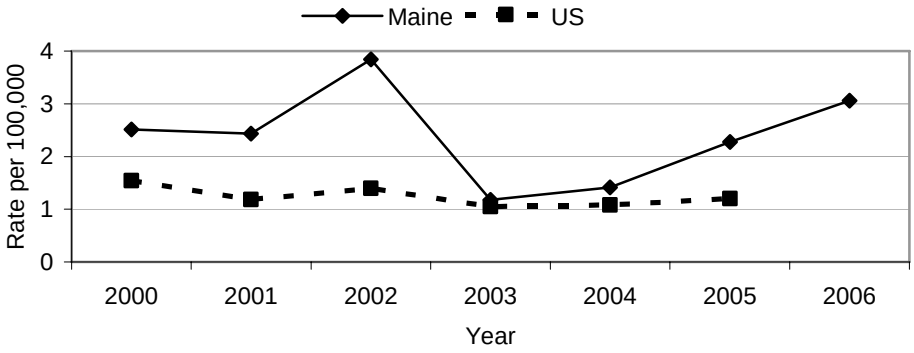
Continued adoption and implementation by the food, produce, and pet industries of control measures introduced by the FDA and the USDA may help reduce the incidence of STEC. In addition, as with all infectious diseases, prompt reporting is critical for effective and timely public health interventions.

Note on Surveillance Strategy: In 2005, the Maine CDC formally asked clinical laboratories to submit all shiga toxin-positive isolates to the state lab irrespective of the serogroup. Upon receipt of a shiga toxin-positive broth, the state lab confirms shiga toxin-production and determines the serogroup. This requirement now allows the Maine CDC to capture STEC cases that previously might have gone undetected since most clinical labs are only able to identify O157:H7 isolates. The implication for surveillance data is that the number of non-O157 cases reported since 2005 may not be compared with the number of cases reported in the years before 2005.

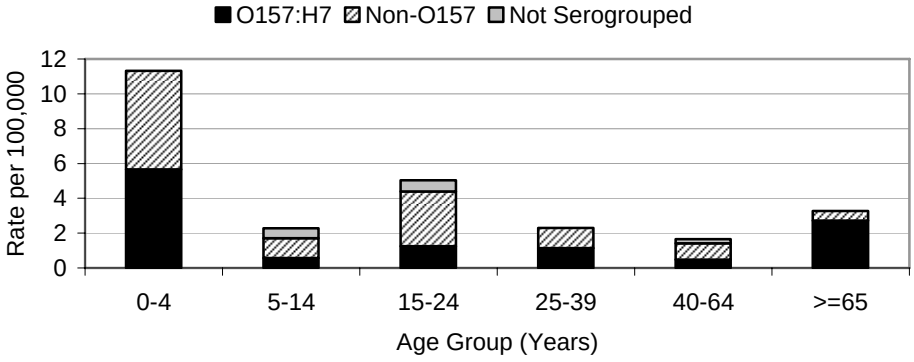
Shiga toxin-producing *E. coli* Cases, Maine, 2000-2006



Incidence of Shiga toxin-producing *E. coli*, Maine and United States, 2000-2006



Shiga toxin-producing *E. coli* by Age Group, Maine, 2006



Shigellosis

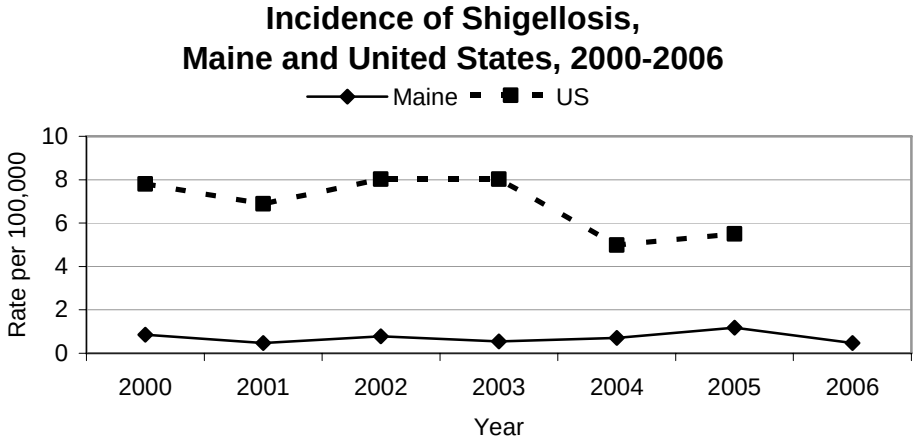
Shigellosis is an infectious disease caused by a group of bacteria called *Shigella*. Most persons infected with *Shigella* develop diarrhea, fever, and stomach cramps starting a day or two after they are exposed to the bacterium. The diarrhea is often bloody. Shigellosis usually resolves in 5 to 7 days. Some persons who are infected may have no symptoms at all, but may still pass the *Shigella* bacteria to others.

During 2006, a total of six confirmed cases of shigellosis were reported to the Maine CDC. This represents an overall case rate of 0.5 per 100,000 population. Four cases (67%) were females. The median age of cases was 50 years, with a range of 4 to 77 years. There were four additional cases that met the probable case definition for shigellosis.

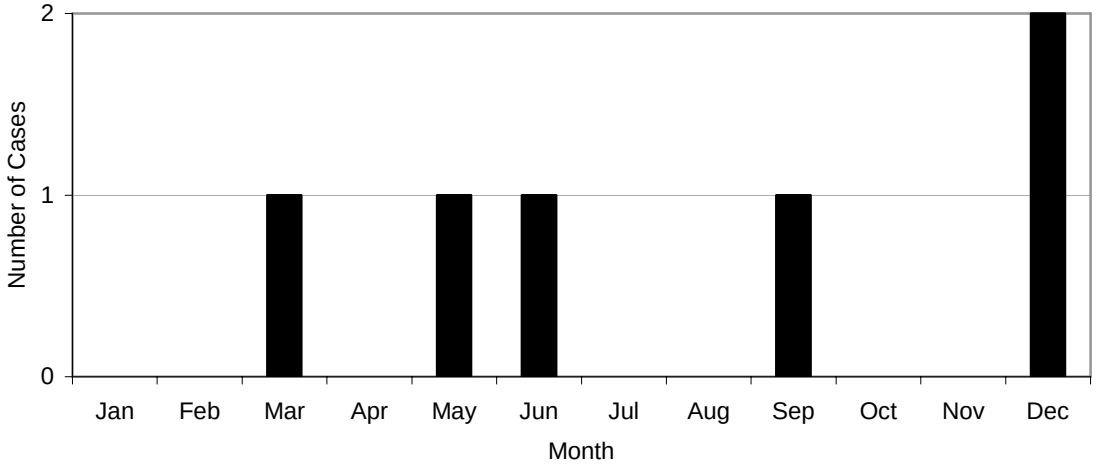
In 2006, reports of shigellosis were received from four counties: York County (2), Cumberland County (2), Kennebec County (1), and Aroostook County (1).

Shigellosis incidence remains relatively low in Maine. The incidence in 2006 was about the same as the 5-year median.

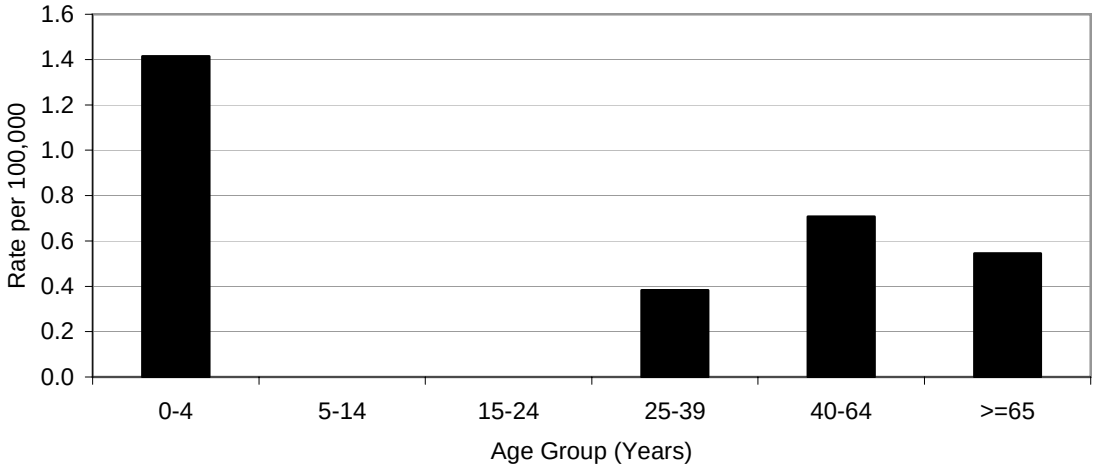
Shigella can be easily passed from one infected person to another through the fecal-oral route and the potential for outbreaks makes case investigations a high public health priority. Cases involved in childcare, patient care, or food handling are restricted from work until infection clears.



Shigellosis by Month, Maine, 2006



Shigellosis by Age Group, Maine, 2006



Vibriosis

Vibriosis is an infection of variable severity characterized by diarrhea and vomiting, primary septicemia, or wound infections. *Vibrio parahaemolyticus* and *Vibrio alginolyticus* are the primary causes of vibriosis in Maine. *V. parahemolyticus* is most often associated with the ingestion of raw or undercooked seafood while *V. alginolyticus* is commonly isolated from wound culture.

During 2006, a total of five confirmed cases of vibriosis were reported to the Maine CDC. This represents an overall case rate of 0.4 per 100,000 population. Three (60%) of the cases were males. The median age of cases was 50 years, with a range of 27 to 64 years. Three cases (60%) were *V. parahemolyticus* while the other two cases were *V. alginolyticus*.

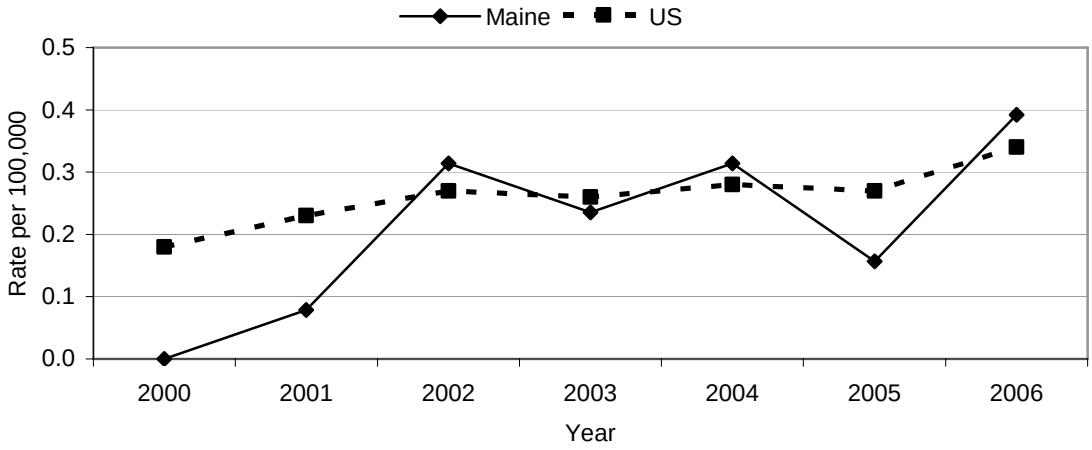
Reports of vibriosis were received from York County (3) and Cumberland County (2). All five cases were reported between April and July.

In 2006, the incidence of vibriosis in Maine was the highest in six years. This was consistent with estimated incidence at the national level, which was the highest since the federal CDC began active population-based surveillance in selected sites across the country (FoodNet) in 1996. Data from more than a decade of surveillance has prompted the federal CDC to add vibriosis to its list of nationally notifiable conditions, effective January 2007.

Vibrio infections caused by *V. parahaemolyticus* can be prevented by thoroughly cooking seafood, especially oysters. Wound infections can be prevented by avoiding exposure of open wounds to seawater.

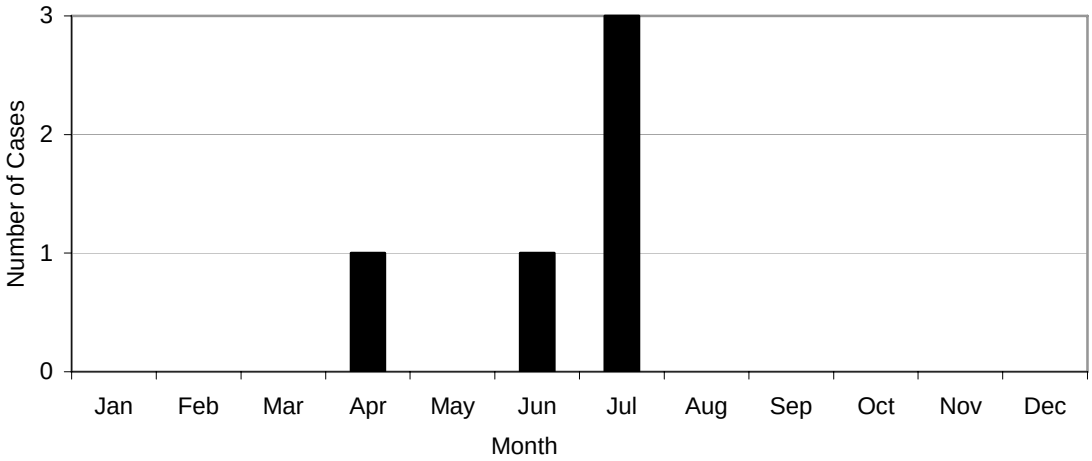
The Maine CDC works closely with the Department of Marine Resources on each confirmed case of *Vibrio* to determine if the source is a commercial seafood establishment that needs to be inspected.

Incidence of Vibriosis, Maine and United States*, 2000-2006



*Non-cholera vibriosis was not nationally reportable for years shown. US rate estimates from FoodNet data. Beginning January 2007, vibriosis will be nationally notifiable.

Vibriosis by Month, Maine, 2006



MENINGITIS AND SEPTICEMIA

Invasive Group A Streptococcal Disease

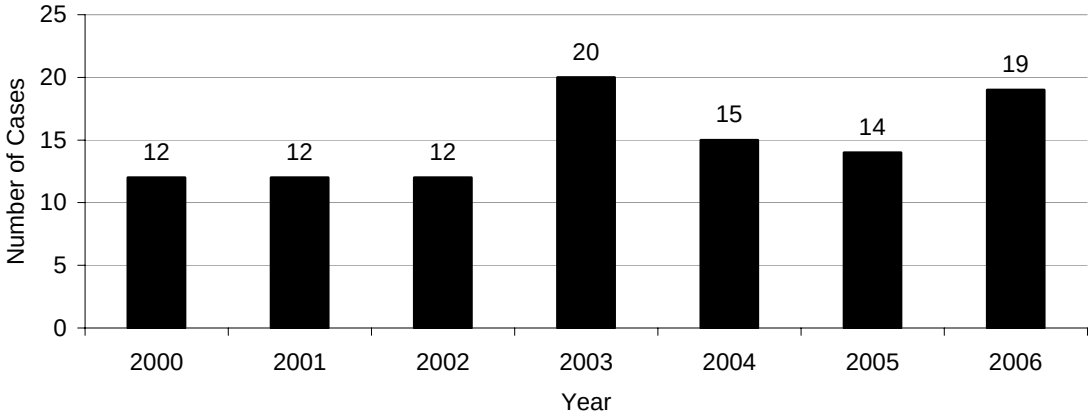
Invasive group A streptococcal infections may present as any of several clinical syndromes, including pneumonia, bacteremia in association with cutaneous infection (e.g., cellulitis, erysipelas, or infection of a surgical or nonsurgical wound), deep soft-tissue infection (e.g., myositis or necrotizing fasciitis), meningitis, peritonitis, osteomyelitis, septic arthritis, postpartum sepsis (i.e., puerperal fever), neonatal sepsis, and nonfocal bacteremia. Approximately 5,000 cases of invasive disease (1.7/100,000 population) occurred each year in the United States; necrotizing fasciitis and streptococcal toxic shock syndrome each account for approximately 6% of cases.

A case of Invasive Group A *Streptococcus* is defined as isolation of group A *Streptococcus* (*Streptococcus pyogenes*) by culture from a normally sterile site (e.g., blood or cerebrospinal fluid, or, less commonly, joint, pleural, or pericardial fluid).

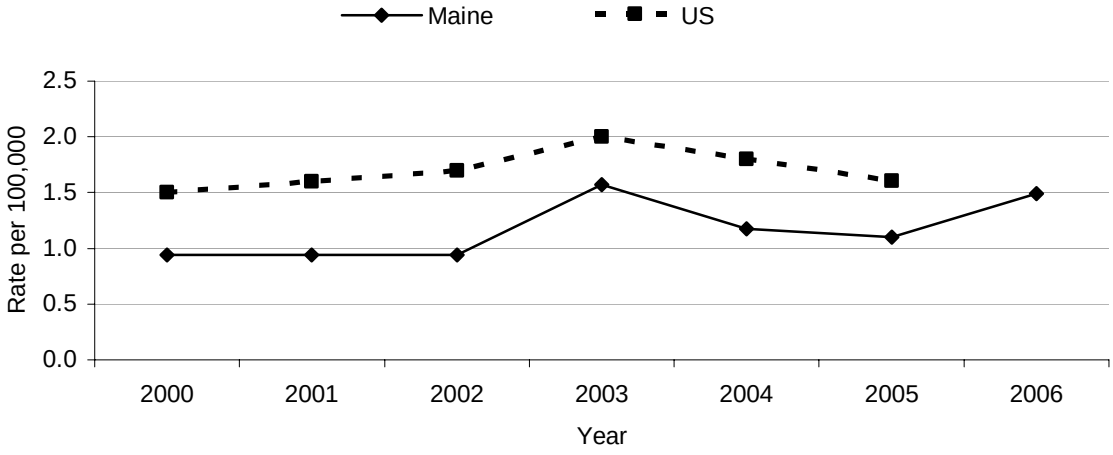
In 2006, 19 cases of invasive Group A streptococcal disease were reported in Maine. In the United States, 4,715 cases of invasive Group A streptococcal disease were reported in 2005, or 1.6 cases per 100,000 population. In Maine, 1.5 cases were reported per 100,000 population in 2006. Invasive Group A streptococcal disease occurred in 10 Maine counties in 2006, including Androscoggin, Aroostook, Cumberland, Hancock, Kennebec, Oxford, Penobscot, Sagadahoc, Somerset, and York Counties. Sagadahoc County reported the highest rate of invasive Group A streptococcal disease. Of the 19 cases reported in 2006, the median age was 67 years (range 6-89 years).

Invasive Group A streptococcal disease can be treated with many different antibiotics, sometimes requiring hospitalization and more intensive therapies. Early treatment can reduce the risk of morbidity and mortality. The following groups are at higher risk of invasive Group A streptococcal disease: the elderly, persons who are immunosuppressed, persons with chronic cardiac or respiratory disease, persons with diabetes, persons with skin lesions (i.e. children with varicella [chicken pox], intravenous drug users), African-Americans, and American Indians.

Invasive Group A Streptococcal Disease by Year, Maine, 2000-2006



Incidence of Invasive Group A Streptococcal Disease by Year, Maine and United States, 2000-2006



Invasive Group B Streptococcal Disease

Group B *Streptococcus* is a bacterium that causes illness in newborns, pregnant women, the elderly, and adults with other health conditions, such as diabetes or liver disease. Group B Streptococcal (GBS) disease is the most common cause of life threatening infections in newborns, often causing blood infections (sepsis) and infections of the fluid and lining surrounding the brain (meningitis). In pregnant women, GBS can cause bladder infections, womb infections (amnionitis and endometritis), and stillbirth. Among men and women who are not pregnant, the most common diseases caused by GBS are blood infections, skin and soft tissue infections, and pneumonia. Approximately 20% of men and nonpregnant women with GBS disease die of the disease. Asymptomatic carriage in gastrointestinal and genital tracts is common and intrapartum transmission via ascending spread from vaginal and/or gastrointestinal GBS colonization can result in infection. The mode of transmission of disease in nonpregnant adults and older children (>1 week) is unknown.

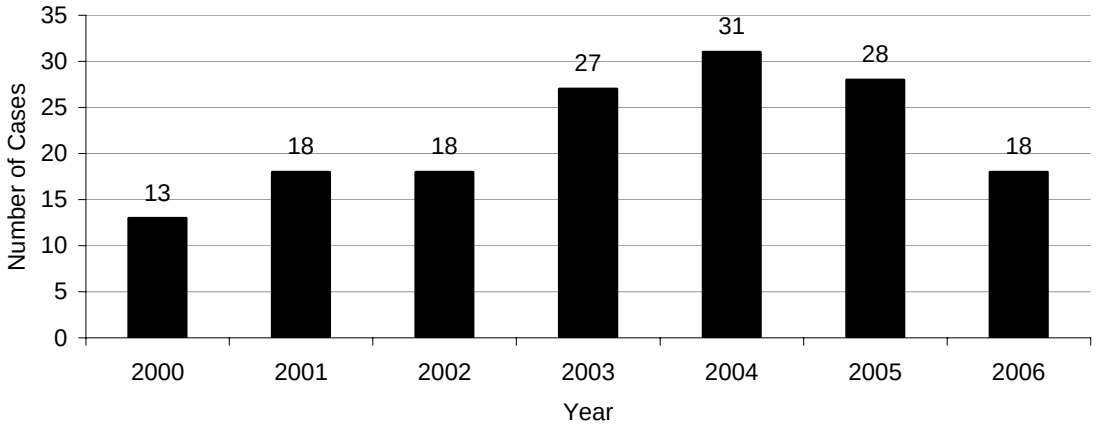
All cases of invasive group B streptococcal disease were investigated during January 1 to November 28, 2006. During November 29 to December 31, 2006, only invasive cases in children less than one year of age were investigated.

A total of 18 cases of invasive group B streptococcal disease were reported in Maine in 2006, including one child aged less than one year. In the United States, approximately 19,000 cases of invasive group B streptococcal disease occur annually (6.8 per 100,000 population). In 2006, 1.4 cases of invasive group B streptococcal disease were reported in Maine per 100,000 population. Invasive group B streptococcal disease was reported among residents of six Maine counties in 2006. Androscoggin County had the highest rate of invasive group B streptococcal disease, with 2.9 cases per 100,000. Of the 18 invasive Group B Streptococcal disease cases reported in 2006, the median age was 69 years (range 1 month to 89 years).

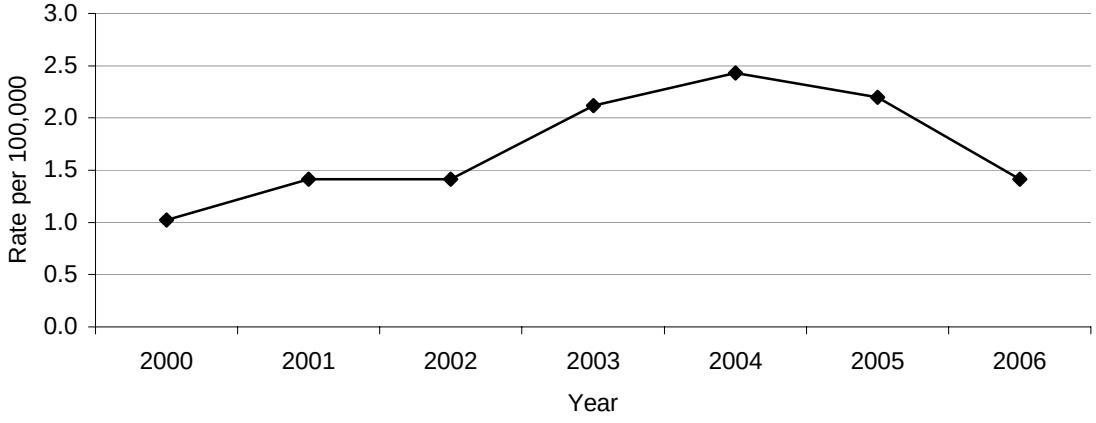
Targeting prevention efforts for invasive group B streptococcal disease in adults is difficult, considering the mode of disease transmission among nonpregnant adults is unknown. However, there are opportunities for public health officials to work with community groups on education and prevention issues, to further prevent infection among infants and pregnant women, and to quickly identify infection among other adults. Persons with chronic illnesses are most at risk of invasive GBS disease, although risk of infection is also high among children born to women with GBS colonization, prolonged rupture of membranes or preterm delivery. Health care providers are encouraged to integrate GBS prevention into routine obstetric care by promoting the use of national guidelines for GBS prevention (See www.cdc.gov/groupbstrep/ for more information).

In 2007, public health investigations of invasive GBS will focus on infants aged less than one year to identify and better understand risk factors associated with these infections.

Invasive Group B Streptococcal Disease by Year, Maine, 2000-2006



Incidence of Invasive Group B Streptococcal Disease by Year, Maine, 2000-2006



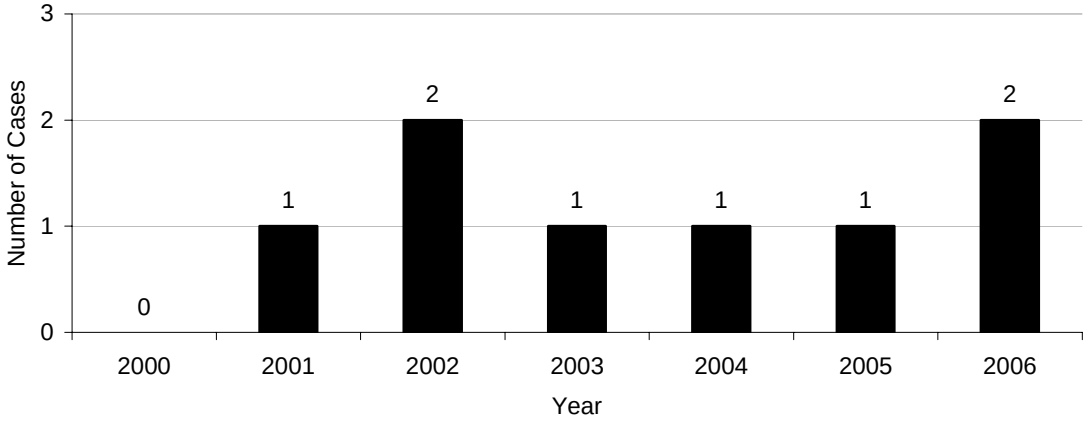
Haemophilus Influenzae Type B

Before the introduction of effective vaccines in 1990, *H. influenzae* type b (Hib) was the leading cause of bacterial meningitis and invasive bacterial disease among children <5 years of age. The most common forms of *H. influenzae* invasive disease are meningitis, epiglottitis, pneumonia, arthritis, and cellulitis. Asymptomatic human carriers are the only known reservoir for *H. influenza*e, and transmission is presumed to occur by respiratory droplet spread. Generally, the incidence of *H. influenzae* tends to peak in September-December and March-May, though the reason for this pattern is not known.

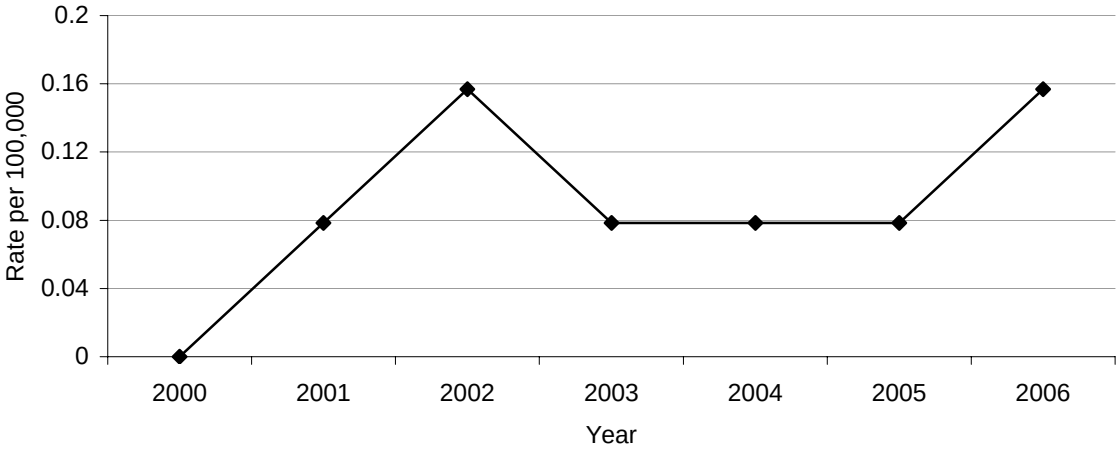
In 2006, two cases of *H. influenzae* type b were reported in Maine in unrelated, fully immunized children >5 years of age. The number of *H. influenzae* type b cases reported since 2000 has varied little, with two cases in 2002, and one case each in 2003, 2004, and 2005. In Maine, 0.2 *H. influenzae* type b cases were reported per 100,000 population in 2006.

Infants and young children, household contacts, and day-care classmates are most at risk of invasive *H. influenzae* type B disease. Nationwide, routine use of the *H. influenzae* type B conjugate vaccine has increased since 1990, resulting in a decreased incidence of invasive *H. influenzae* type B disease to 1.3 per 100,000 children. Maintaining high vaccination rates, particularly among children in child-care settings, is important to prevent invasive *H. influenzae* type B disease.

H. influenzae Type B Disease by Year, Maine, 2000-2006



Incidence of _H. influenzae_ Type B Disease by Year, Maine 2000-2006



Meningococcal Disease

Meningococcal disease occurs from an infection with *Neisseria meningitidis*, a gram-negative bacterium. Meningococcal disease can result in meningitis, an inflammation of the tissue surrounding the brain and spinal cord, or meningococcemia, an infection of the blood. There are multiple serogroups of *Neisseria meningitides*; serogroup A, B and C organisms account for at least 90% of cases.

Symptoms of meningococcal disease include fever, headache, and stiff neck in cases with meningitis, and sepsis and rash in meningococcemia. The incubation period is commonly 3-4 days, but onset of illness can occur from 2-10 days after exposure. Transmission of meningococcal disease generally occurs through direct contact with respiratory secretions from the nose or throat of an infected person. Up to 15% of cases are fatal. Approximately 10-15% of patient who recover from meningococcal disease have permanent hearing loss, mental retardation, loss of limbs, or other sequelae.

In 2006, nine cases of meningococcal disease were reported in Maine. In the United States, 1,245 cases of meningococcal disease were reported in 2005, or 0.4 meningococcal disease cases per 100,000 population. In Maine, 0.7 meningococcal disease cases were reported per 100,000 population in 2006. Meningococcal disease was identified among residents of five counties in 2006: Androscoggin, Cumberland, Kennebec, Somerset, and York. In 2006, six cases of meningococcal disease were serogroup B, one was serogroup Y, and 2 were untypable.

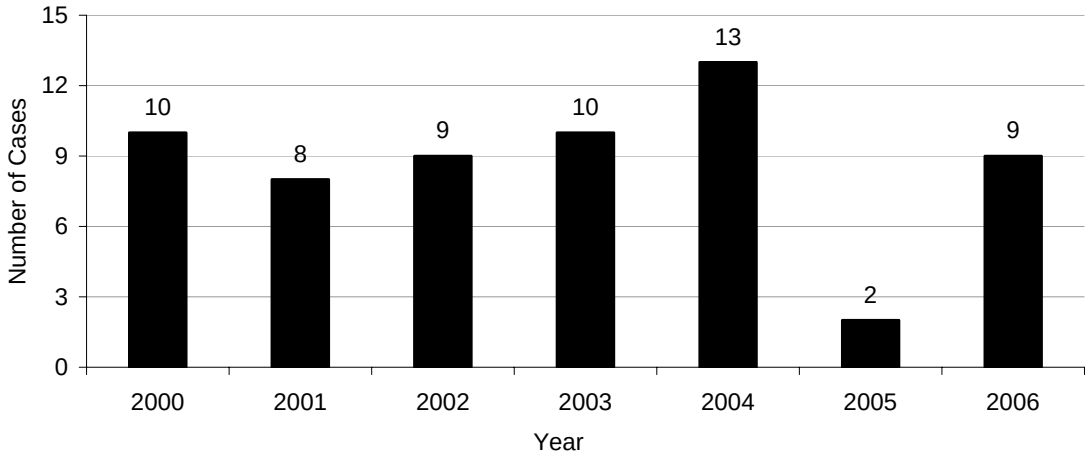
Suspected cases of meningococcal disease should be immediately reported to the Maine CDC, so that disease can be prevented among close contacts. There is a vaccine that protects against four strains of *N. meningitides* (A, C, W-135, and Y). The meningococcal conjugate vaccine licensed in 2005 is recommended for adolescents, college students, military recruits, international travelers, and certain other groups.

Meningococcal Disease by Serogroup and Year, Maine, 2002-2006

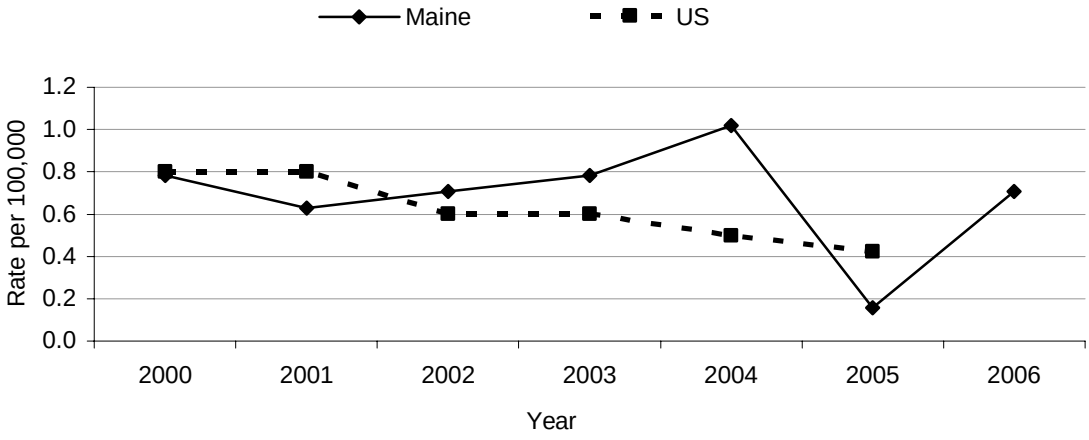
Year	Serogroup						Total
	B	C	Y	W-135	Untypable	Unknown*	
2002	4	3	0	0	1	1	9
2003	1	5	2	1	0	1	10
2004	4	2	4	1	1	1	13
2005	2	0	0	0	0	0	2
2006	6	0	1	0	2	0	9

* Isolates not available for serogrouping

Meningococcal Disease by Year, Maine, 2000-2006



Incidence of Meningococal Disease by Year, Maine and United States, 2000-2006



Invasive *Streptococcus pneumoniae*, Drug Resistant

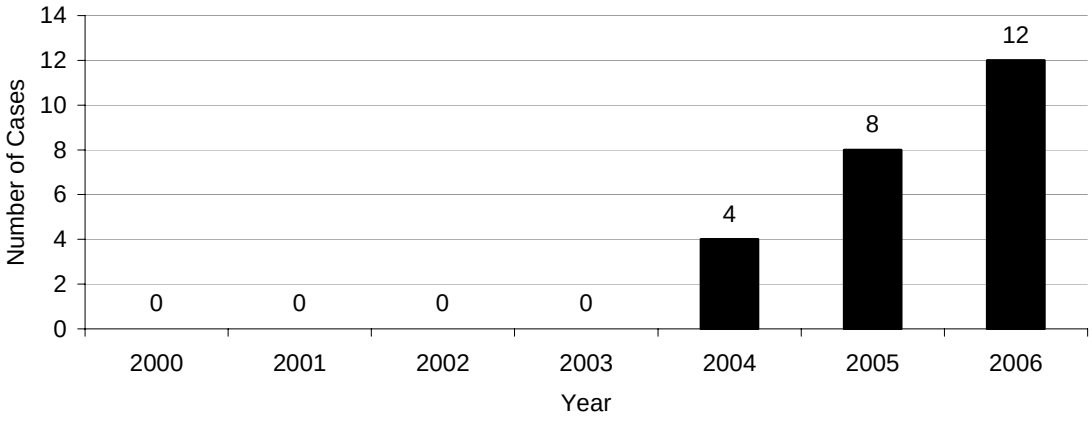
Streptococcus pneumoniae, also called pneumococcus, is a gram-positive bacteria that typically occur in pairs, called diplococci. Some pneumococci are encapsulated, resulting in a more pathogenic organism. Pneumococci are classified by serotype, and 90 serotypes have been identified, though only a few produce the majority of invasive pneumococcal infections. Seven serotypes (6A, 6B, 9V, 14, 19A, 19F, and 23F) account for most drug resistant (resistant to one or more commonly used antibiotics) *Streptococcus pneumoniae*.

Pneumococcal pneumonia is the most common clinical presentation of pneumococcal disease among adults. Infection is typically spread through person-to-person transmission, primarily through droplets. The incubation period is short, typically 1 to 3 days, and symptoms generally include an abrupt onset of fever and shaking chills, productive cough, pleuritic chest pains, shortness of breath, rapid breathing, and poor oxygenation. Until 2000, S*treptococcus pneumoniae* infection caused 60,000 cases of invasive disease annually, 40% of which were drug resistant. The incidence of drug resistant *Streptococcus pneumoniae* has decreased since the introduction of the pneumococcal conjugate vaccine for children in 2000.

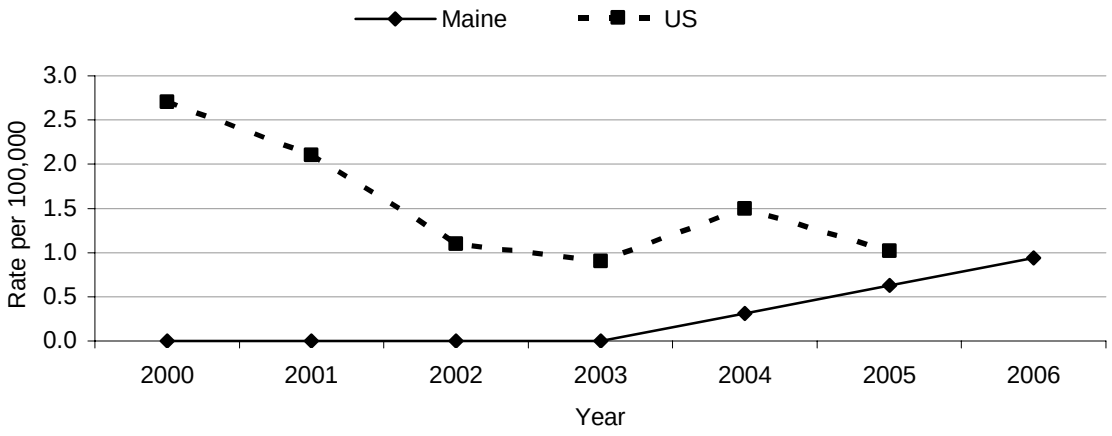
In Maine, 12 cases of drug resistant invasive S*treptococcus pneumoniae* were reported in 2006. In the United States, 2,996 cases of drug resistant invasive *Streptococcus pneumoniae* disease were reported in 2005, or 1.0 drug resistant invasive *Streptococcus pneumoniae* disease per 100,000 population. In Maine, 0.9 cases per 100,000 of drug resistant invasive S*treptococcus pneumoniae* disease were reported in 2006. The median age of persons with drug resistant invasive *Streptococcus pneumoniae* in 2006 was 66 years (range 4 months-85 years).

Widespread overuse of antibiotics has contributed to the spread of resistant strains of *Streptococcus pneumoniae*. More prudent use of antibiotics and wider use of the pneumococcal vaccine are needed to reduce drug resistance.

Drug Resistant Invasive *Streptococcus Pneumoniae* Disease by Year, Maine, 2000-2006



Incidence of Drug Resistant Invasive *Streptococcus Pneumoniae* Disease Rate, Maine and United States, 2000-2006



Invasive *Streptococcus pneumoniae* Disease in Children <5 Years

Streptococcus pneumoniae, also called pneumococcus, is a gram-positive bacteria that typically occur in pairs, called diplococci. Some pneumococci are encapsulated, resulting in a more pathogenic organism. Pneumococci are classified by serotype, and 90 serotypes have been identified, though only a few produce the majority of pneumococcal infections. In the United States, the seven most common serotypes isolated from blood or cerebral spinal fluid of children less than 5 years of age account for 80% of infections.

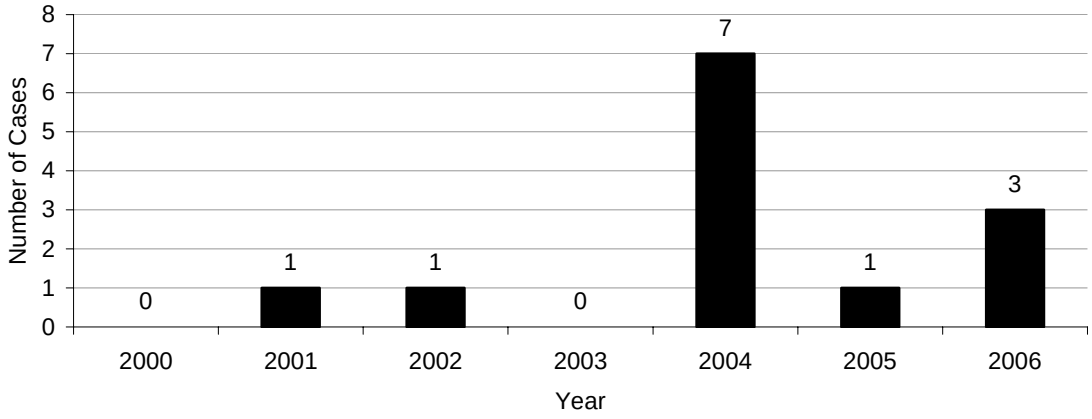
Since 2000, when the pneumococcal conjugate vaccine (PCV7) was recommended for routine use in infants, the incidence of all invasive pneumococcal infections has decreased by 80% for children younger than two years of age and by approximately 90% for infections caused by vaccine and vaccine-related serotypes. Invasive disease caused by serotypes not contained in PCV7 (called serotype replacement) has been noted in some areas.

In Maine, three case of invasive pneumococcal disease in children less than 5 years of age were reported in 2006. All three of these infections were also drug resistant. In the United States, 1,495 cases of invasive *Streptococcus pneumoniae* disease in children less than 5 years were reported in 2005, or 7.8 cases in children less than 5 years per 100,000 population. In Maine, 4.2 invasive S*treptococcus pneumoniae* disease in children less than 5 years were reported per 100,000 population in 2006. Invasive *Streptococcus pneumoniae* disease among children less than 5 years of age was reported in Cumberland, Sagadahoc and York Counties in 2006. All three cases had a history of receiving the pneumococcal conjugate vaccine; however at least two children were too young to have received the entire 4-dose series.

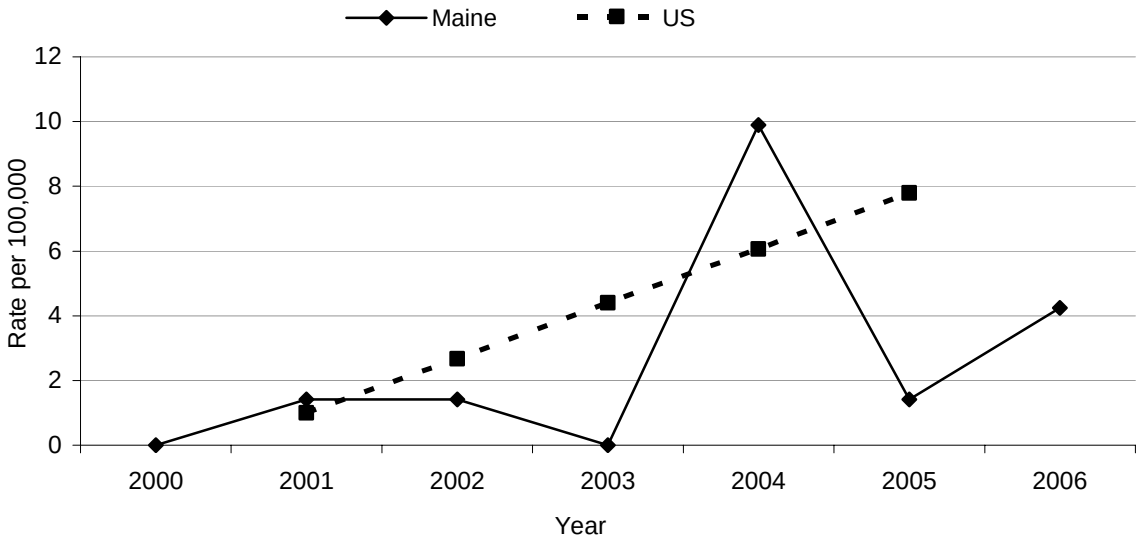
All children less than 24 months of age and children age 24-59 months with high risk medical conditions should be routinely vaccinated with PCV7 vaccine. The primary series, initiated in infancy, consists of three doses routinely given at 2, 4, and 6 months of age. The fourth booster dose is recommended at 12-15 months of age. After 4 doses of PCV7 vaccine, virtually all healthy infants develop antibodies to all 7 serotypes contained in the vaccine.

Continued surveillance of invasive pneumococcal infections is needed to determine whether, and how frequently, serotype replacement may be occurring.

Invasive *Streptococcus Pneumoniae* Disease in Children <5 Years by Year, Maine, 2000-2006



Incidence of Invasive *Streptococcus Pneumoniae* Disease in Children <5 Years by Year, Maine and United States, 2000-2006



OTHER COMMUNICABLE DISEASES

Legionellosis

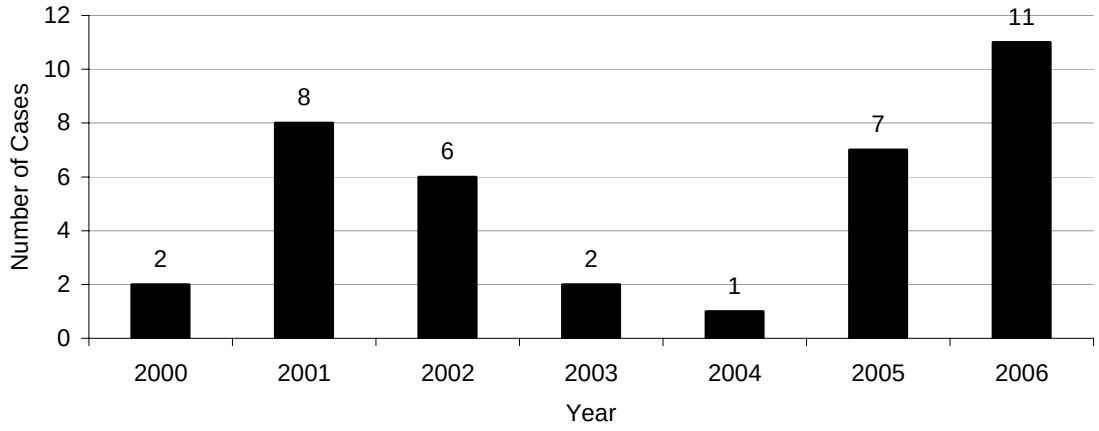
Legionellosis is an acute bacterial disease with two distinct clinical and epidemiologic manifestations: Legionnaires disease and Pontiac fever. Both are characterized initially by anorexia, malaise, myalgia, and headache. Legionnaires disease is associated with radiographic pneumonia and a case fatality rate as high as 39% in hospitalized patients, particularly among those with compromised immunity. Pontiac fever is not associated with pneumonia and patients usually recover spontaneously in 2-5 days without treatment. There are 35 species of *Legionella* with at least 45 serogroups; however *L. pneumophila* serogroup 1 is most commonly associated with disease.

Legionella is found primarily in water sources, such as hot water systems, air conditioning cooling towers, evaporative condensers, humidifiers, whirlpool spas, respiratory therapy devices and decorative fountains. Illness occurs most frequently with increasing age, especially in patients who smoke and those with diabetes mellitus, chronic lung disease, renal disease or malignancy; and in the immunocompromised. Epidemiologic evidence suggests Legionellosis is transmitted through airborne droplets; people usually show symptoms of Legionellosis 2-10 days after exposure to a reservoir.

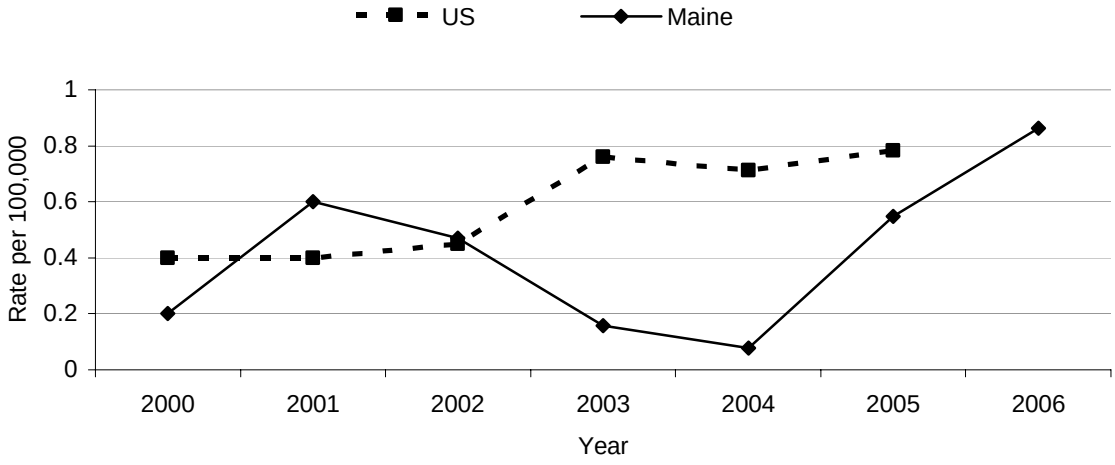
In 2006, 11 cases of Legionellosis were reported in Maine. In the United States, 2,301 cases of Legionellosis were reported in 2005 (0.8 cases per 100,000 population). In 2006, 0.9 cases of Legionellosis were reported in Maine per 100,000 population. Legionellosis was reported in five Maine counties in 2006: Cumberland, Kennebec, Penobscot, Somerset, and York Counties. Of the 11 Legionellosis cases reported in 2006, the median age was 58 years (range 26-89 years).

Legionnaires disease should be considered in the differential diagnosis when assessing a patient with community-acquired pneumonia. The preferred tests for detection of *Legionella* species are the urine antigen assay for *Legionella pneumophila* serogroup 1 and culture with selective media. Once identified, patients can be treated successfully with antibiotics. To prevent Legionellosis, cooling towers should be drained when not in use, and mechanically cleaned periodically to remove scale and sediment. Tap water should not be used in respiratory therapy devices. Maintaining hot water system temperatures at 50°C (122°F) or higher may reduce the risk of transmission.

Legionellosis by Year, Maine, 2000-2006



Incidence of Legionellosis by Year, Maine and United States, 2000-2006



Invasive Methicillin-Resistant *Staphylococcus aureus,* Community-associated

Invasive Methicillin resistant *Staphylococcus aureus* (MRSA) is defined as isolation of antibiotic-resistant *Staphylococcus aureus* from a normally sterile site, such as blood, cerebrospinal fluid (CSF), pleural fluid, peritoneal fluid, pericardial fluid, surgical aspirate, bone, joint fluid, or internal body site (e.g., lymph node, brain). Invasive infections are considered community-associated (CA) if they occur in a person with (1) no medical history in the past year of hospitalization; admission to a long-term care facility, skilled nursing facility, or hospice; surgery, or dialysis; and (2) no permanent indwelling medical device that passes through the skin into the body. During 2006, reports of invasive MRSA were investigated to determine community-association.

During 2006, one case of invasive CA MRSA was reported, with an incidence rate of 0.1 cases per 100,000 population. The reported case experienced a polymicrobial infection, and required intensive therapy as an inpatient.

As an infection commonly found in the community and transmitted through household or personal contacts, providers and patients should be informed of strategies to manage and prevent MRSA infections. Maine has adopted guidelines developed for evaluation and management of CA MRSA infections in outpatient settings, available at http://www.maine.gov/dhhs/boh/disease_methicillin-resistant.htm or upon request. Following infection control measures, such as those listed below, can reduce the transmission of MRSA.

Measures to reduce MRSA transmission

1. **Appropriate wound care**: Cover wounds with clean, dry bandages
2. **Hand hygiene**: Wash hands frequently with soap and warm water, especially after contact with patient's bandage or wound
3. **Clean environment**: Use disinfectant effective against *Staphylococcus aureus*
4. **Avoid sharing personal items**: Towels, washcloths, razors, and clothing should not be shared
5. **Inform a healthcare provider**: Tell your healthcare provider if you had contact with someone with MRSA
6. **Avoid contact with others**: Avoid contact sports and other skin-to-skin contact until your infection has healed

Maine CDC will continue to monitor CA MRSA infections in Maine. Health care providers are encouraged to report cases of CA MRSA, particularly when invasive infections are present or outbreaks are suspected. Since September 2005, epidemiologists investigate cases of invasive disease and outbreaks and provide consultation on MRSA infections.

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Q fever

Acute Q fever is typically characterized by a febrile illness usually accompanied by rigors, myalgia, malaise, and retrobulbar headache. Acute disease may also include acute hepatitis, pneumonia, and meningoencephalitis. Clinical laboratory findings may include elevated liver enzyme levels and abnormal chest film findings. Asymptomatic infections may also occur. Chronic infections are known to result in potentially fatal endocarditis months to years after acute infection, particularly in persons with underlying valvular disease. A chronic fatigue-like syndrome has been reported in some Q fever patients.

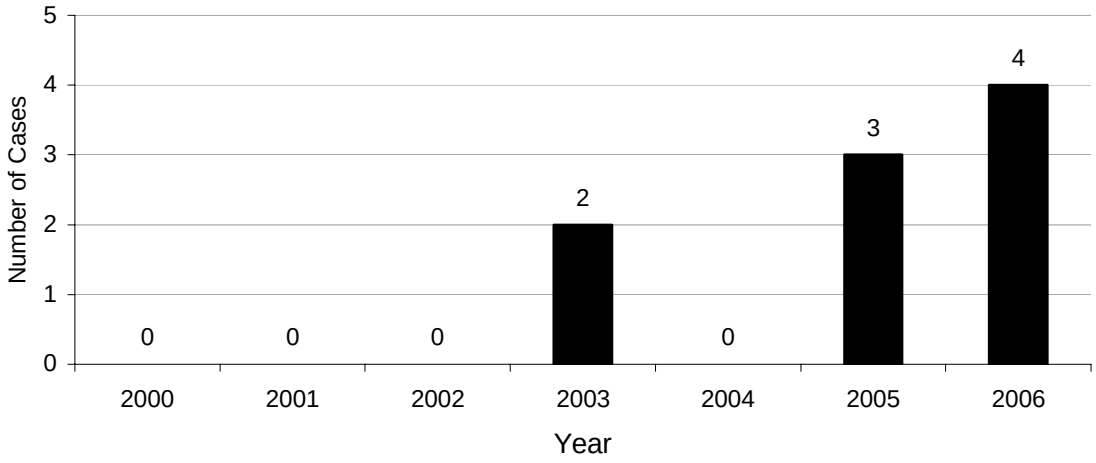
Diagnostic tests recommended for diagnosing Q fever in symptomatic patients include a fourfold or greater change in antibody titer to *Coxiella burnetii* phase II or phase I antigen in paired serum specimens ideally taken 3-6 weeks apart. The cutoff for significant antibody is determined by individual laboratories. Clinically compatible or epidemiologically linked cases with a single supportive Immunoglobulin G (IgG) or Immunoglobulin M (IgM) titer are classified as probable. Clinically compatible or epidemiologically linked cases with positive laboratory results are classified as confirmed.

In 2006, four cases of Q fever were identified in Maine; one was classified as probable Q fever and three were classified as confirmed. In the United States, 136 cases of Q fever were reported in 2005, or 0.05 cases per 100,000 population. In Maine, 0.3 cases of Q fever were reported per 100,000 population in 2006. Q fever was primarily diagnosed through serologic testing. Paired specimens were obtained in the three confirmed case; whereas only one titer was obtained for the probable case. Case-patients reported clinical symptoms consistent with Q fever, including fever greater than 100.5°F, myalgia, retrobulbar pain, and headache.

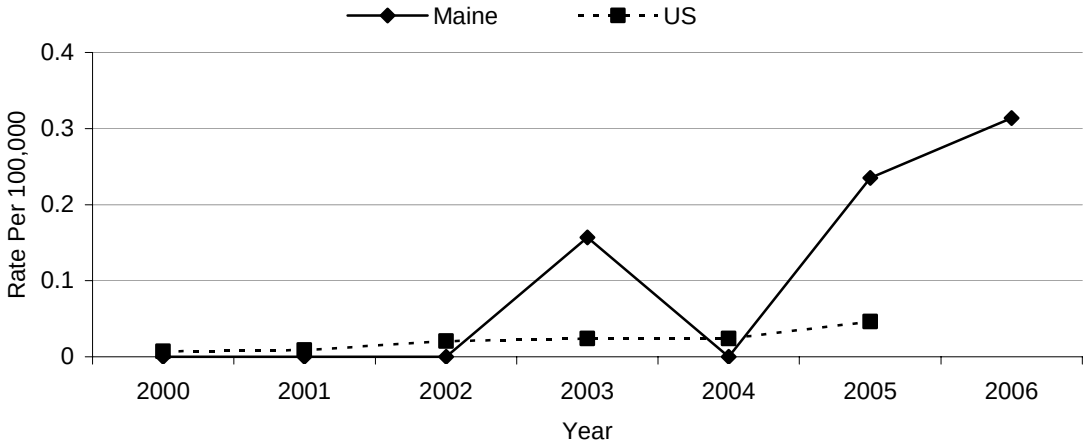
Q fever is a zoonotic disease caused by *C. burnetii*, a species of bacteria that is distributed globally. Cattle, sheep, and goats are the primary reservoirs of *C. burnetii*. *Coxiella burnetii* does not usually cause clinical disease in these animals, but can be excreted in milk, urine, and feces of infected animals. Most importantly, during birthing the organisms are shed in high numbers within the amniotic fluids and the placenta. Humans are often very susceptible to the disease, and very few organisms may be required to cause infection.

Improving diagnostic methods will improve the reporting of Q fever cases. Prevention of Q fever should focus on education around sources of infection, disposal of animal birth products, and counseling persons at highest risk for developing chronic Q fever, especially persons with pre-existing valvular heart disease or individuals with vascular grafts.

Q fever by Year, Maine, 2000-2006



Incidence of Q fever by Year, Maine and United States, 2000-2006



Rabies in Animals

Rabies is a viral disease of the central nervous system (brain and spinal cord) that is almost always fatal. Rabies in humans is rare in the U.S., but rabies in animals – especially wildlife – is common. The rabies virus can infect any mammal, but in Maine infection is most common among bats, skunks, foxes, and raccoons. Rabies is transmitted through contact with the saliva of an infected animal from a bite, scratch, or contact with an open wound. Using direct fluorescent antibody testing on central nervous system tissue, Maine's Health and Environmental Testing Laboratory performs rabies testing on animals with human or domestic animal exposure, or animals without exposure at the submitter's expense.

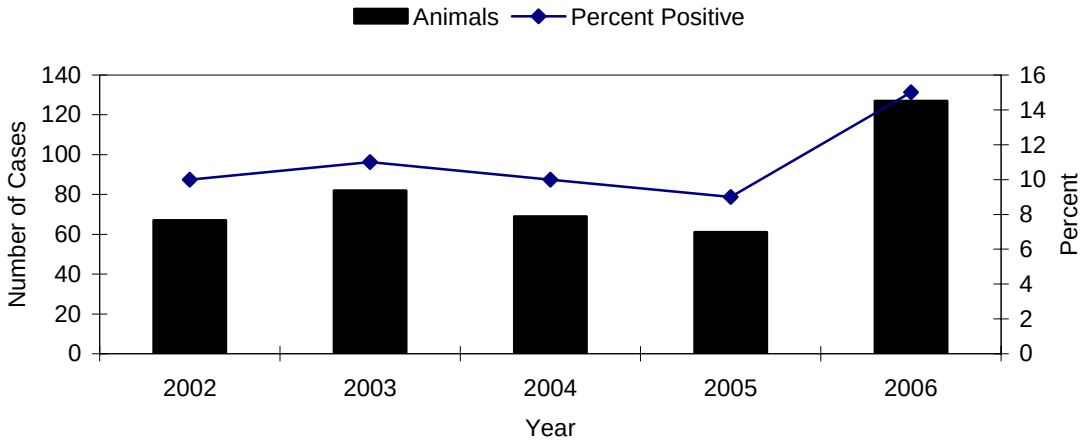
A total of 822 animals were submitted for rabies testing during 2006. Of these, 127 (15.5%) animals were positive for the rabies virus. Although bats, raccoons, and skunks accounted for the majority of rabid animals identified in 2006, six domestic cats were also found to be rabid. The number of animal rabies increased in 2006 compared to previous years. Rabies-positive animals were identified in 83 towns in 14 counties in 2006

In 2006, a total of 144 persons were recommended by Maine CDC to receive PEP as a result of an exposure to a rabid animal or an animal unavailable for testing and presumed to be rabid. Of these, 38% were due to an exposure to a laboratory-confirmed rabid animal. One hundred seventy-eight domestic animals were quarantined in 2006 due to an exposure with a wild animal. Domestic animals that were up-to-date on their rabies vaccine (70%) received a vaccine booster and were quarantined for 45-days. Those that were not up-to-date or never vaccinated (30%) were either euthanized or quarantined for 6-months and provided a vaccine booster.

Animal rabies is found regularly among wild animals and occasionally among unvaccinated domestic animals in Maine. Recognition, prompt assessment, and management of potential rabies exposures will prevent human and domestic animal rabies in Maine. The majority of human PEP in 2006 may have been averted had the animal suspected of rabies been captured and submitted for rabies testing. Increasing public knowledge about the risks of rabies associated with wild animals, including bats, and unknown domestic animals is important to prevent future exposures.

For more information on animal rabies, see the Maine CDC rabies surveillance website (www.maine.gov/dhhs/boh/ddc/rabies_surveillance.htm) and federal CDC rabies website (www.cdc.gov/ncidod/diseases/submenus/sub_rabies.htm).

Number of Rabid Animals and Percent of Animals that Tested Positive by Year, Maine, 2002 - 2006



Positive Rabies Results, by Species, Maine 2006

County	Bat	Cat	Cattle	Gray Fox	Raccoon	Skunk	Wolf Hybrid	Total
Androscoggin	1							1
Cumberland	4	1		1	4	2	1	13
Franklin					7			7
Hancock					3	2		5
Kennebec	3				3	1		7
Knox					5	4		9
Lincoln				1	12	2		15
Oxford	1				2	1		4
Penobscot		1			8	8		17
Piscataquis		1				1		2
Sagadahoc	1	1			5	8		15
Somerset					6	6		12
Waldo	1	2	1		3	6		13
York	4				1	2		7
Total	15	6	1	2	59	43	1	127

Tuberculosis

Tuberculosis (TB) is a communicable disease caused by *Mycobacterium tuberculosis*. It is spread through the air by tiny airborne particles (droplet nuclei) expelled by persons who have infectious pulmonary tuberculosis. TB infection begins when the mycobacterium is inhaled into the lung and begins to multiply. The immune system usually prevents the development of disease. Persons who are infected but who do not have TB disease have no symptoms and are not infectious. These persons are said to have latent tuberculosis infection (LTBI). Although tuberculosis usually affects the lungs, other organs may also be infected (extrapulmonary tuberculosis). Persons who have extrapulmonary tuberculosis are not infectious.

Maine's 2006 tuberculosis case rate of 1.2 cases per 100,000 continues to reflect a low incidence of disease, compared to the national case rate of 4.9 cases per 100,000. In 2006, 16 cases of tuberculosis were reported, compared to 17 reported cases in 2005. No cases of multi-drug resistant (MDR) or extensively drug resistant (XDR) tuberculosis were diagnosed in 2006, although one case of single drug resistant tuberculosis was identified. In 2006, no cases of co-infection with tuberculosis and HIV were diagnosed. One death due to TB was reported.

The geographic distribution of tuberculosis cases reflects the distribution of at-risk populations throughout the state. More cases were noted in urban areas of greater foreign-born population density. The mean age for tuberculosis cases in 2006 was 39 years (median 34, range 1 to 87). Three pediatric cases were diagnosed. Ten (63%) of Maine's 2006 cases were female.

Persons over age 65 have traditionally comprised Maine's second highest risk group, with 12% of 2005 cases diagnosed in persons over age 65. In 2006, only one of Maine's sixteen cases was over age 65. According to the US Census Bureau, Maine has become "the oldest state in the US", with 14% of the population over age 65. Chronic disease and previous tuberculosis infection are risk factors that contribute to increased rates of tuberculosis among the elderly population. Ongoing surveillance and provider awareness of TB risk among the elderly continues to be a priority for Maine's TB Control Program.

Foreign-born persons continue to arrive in Maine from countries of high tuberculosis prevalence, both as refugees and as secondary migrants from other areas of the United States. Refugees are screened for tuberculosis within weeks of arrival and more than 60% are found to have evidence of tuberculosis infection. During 2005, the TB Program re-located its Lewiston TB Clinic to a site more easily accessible for foreign-born persons. Clinic services at the site were expanded and enhanced in 2006.

In 2006, nine (57%) of Maine's TB cases were diagnosed among foreign-born persons. Eight of these tuberculosis cases occurred among persons who had arrived in the US in the five years prior to 2006 and one of these occurred in a school setting. More than two hundred contacts to this infectious case were identified both in the school and within the child's social network.

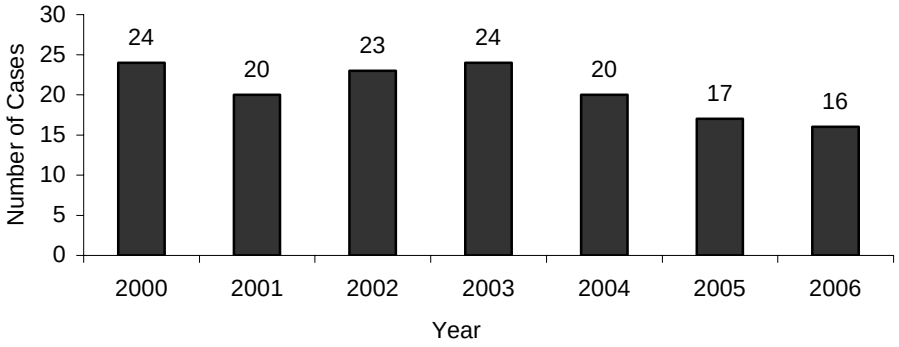
In 2003, an outbreak of tuberculosis occurred among eight homeless men in Portland, underscoring the critical importance of tuberculosis surveillance in this vulnerable population. Subsequent to the 2003 outbreak, the Maine Center for Disease Control and Prevention, in collaboration with its community partners, developed and distributed recommendations for control of tuberculosis in homeless shelters. The recommendations had not been fully implemented when in 2006, an additional case of TB was diagnosed in a homeless shelter resident. Although the 2006 case was not linked to the 2003 outbreak, the successful treatment

of the case was expensive and raised complex issues related to the development of drug resistance and the implementation of involuntary isolation and treatment procedures.

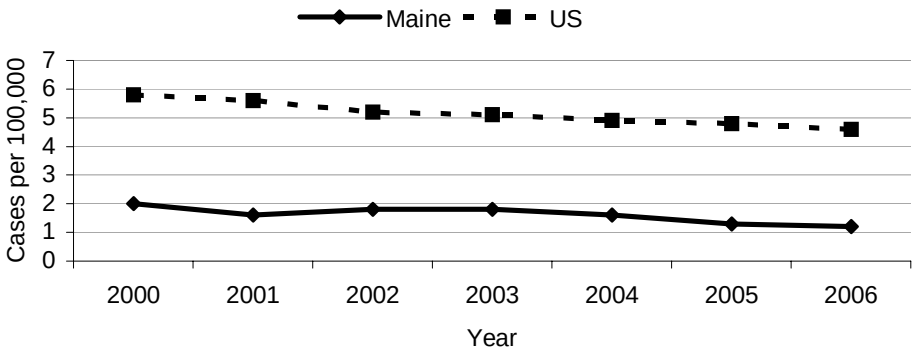
Although latent tuberculosis infection (LTBI) is not a reportable condition in Maine, the Tuberculosis Control Program partners with medical providers in the community to promote treatment for LTBI by providing pharmacy and nursing case management support. In 2006, more than 500 persons received treatment support for latent tuberculosis infection in Maine.

Although case rates are declining in Maine, it is critical that tuberculosis infrastructure be maintained and that each case of tuberculosis disease completes an appropriate treatment regimen that includes directly observed therapy (DOT). Such a regimen ensures adequate treatment and guards against the development of drug resistant organisms. The shifting nature of Maine's demographic profile and the recent outbreak of tuberculosis among Maine's homeless population are illustrative of the need for continuing tuberculosis surveillance, monitoring of treatment, and provider education in the community.

Tuberculosis by Year, Maine, 2000-2006



Incidence of Tuberculosis , Maine and United States, 2000-2006



SEXUALLY TRANSMITTED AND BLOODBORNE DISEASES

Chlamydia

Chlamydia is a common sexually transmitted disease (STD) caused by the bacterium *Chlamydia trachomatis*. Though symptoms of chlamydia are usually mild or absent, infection can cause irreversible damage to a woman's reproductive system. Serious complications, including infertility, can occur silently before a woman ever recognizes a problem. Chlamydia can also cause discharge from the penis of an infected man.

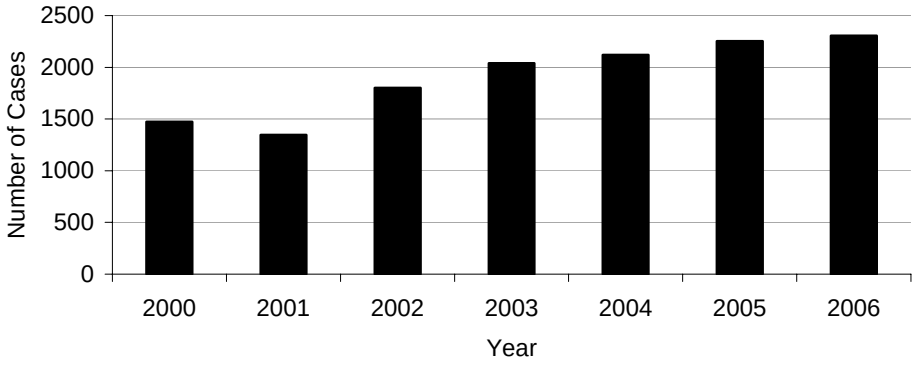
Chlamydia is the most frequently reported STD in the state. During 2006, 2,304 cases were reported. Apart from a slight decline in 2001, the number of cases increased each year between 1996 and 2006. The number of cases reported in 2006 represents an increase of 2% over the 2005 total. During the period 2000 to 2006, between 1,346 and 2,304 cases were reported annually, with a seven year mean of 1,905 cases per year.

Case rates for chlamydia have risen both in Maine and nationally. In Maine, the rate has risen from 95.1 cases per 100,000 in 1999 to 180.7 cases in 2006. Nationally, the rate rose from 253.0 cases per 100,000 in 1999 to 332.5 in 2005.

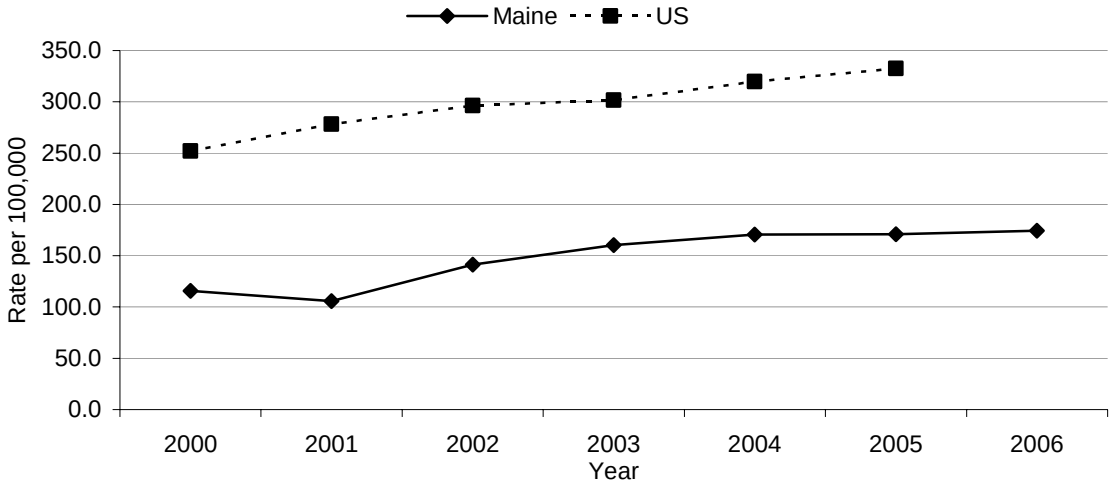
People 24 years old and under are disproportionately affected by this disease, accounting for three-quarters of all 2006 cases. Females were diagnosed with chlamydia much more often than males, comprising 73% of all reports. This does not mean greater numbers of women are infected with chlamydia; women are tested for the disease more frequently than men, and may be more likely to exhibit symptoms of the disease.

Androscoggin, Cumberland, Penobscot and Knox Counties have chlamydia rates that are higher than the statewide rate.

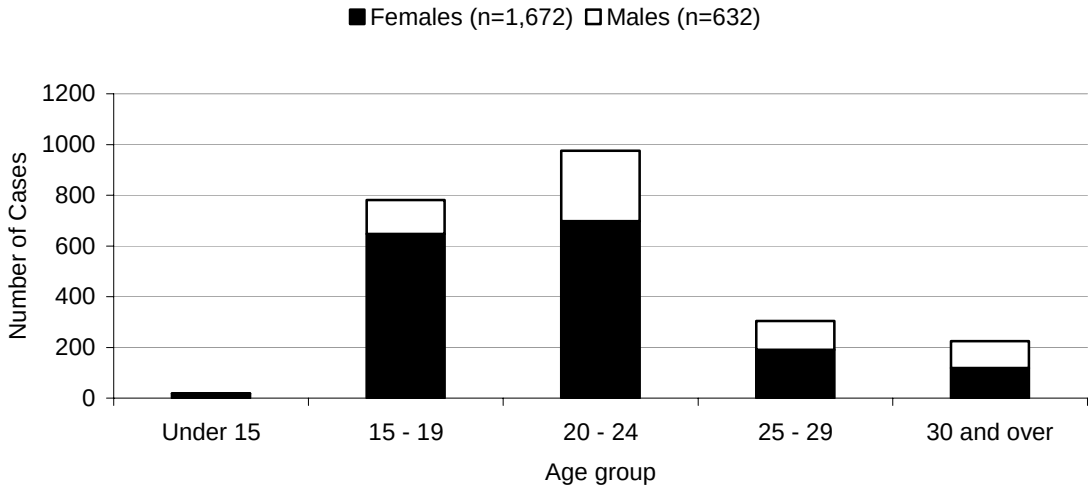
Chlamydia by Year, Maine, 2000-2006



Incidence of Chlamydia by Year, Maine and United States, 2000-2006



Chlamydia by Sex and Age Group, Maine, 2006



Gonorrhea

In women, gonorrhea is a common cause of pelvic inflammatory disease. In men, gonorrhea can cause epididymitis, a painful condition of the testicles that can lead to infertility if left untreated. Gonorrhea can also spread to the blood or joints, which may cause life threatening illness. In addition, people with gonorrhea can more easily contract HIV, the virus that causes AIDS. People infected with HIV and gonorrhea are more likely to transmit HIV to someone else.

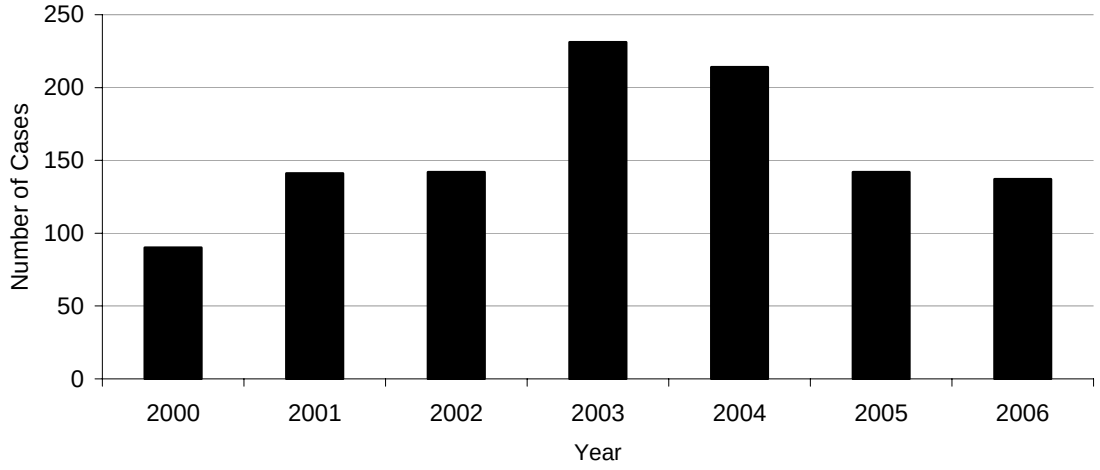
One hundred thirty-seven cases of gonorrhea were diagnosed in Maine in 2006, representing a 4% decrease from the 2005 total. Although there was a marked increase in the number of cases reported in 2003, cases have decreased over the past three years. During the period 2000 to 2006, between 90 and 231 cases were reported annually, with a seven-year mean of 157 cases per year.

Case rates of gonorrhea have fluctuated in both Maine and the US. The Maine rate decreased from 16.2 cases per 100,000 in 2004 to 10.7 cases in 2006. The US rate, which declined from 1999 through 2004, increased slightly to 115.6 cases per 100,000 in 2005. The US rate is more than ten times the Maine rate.

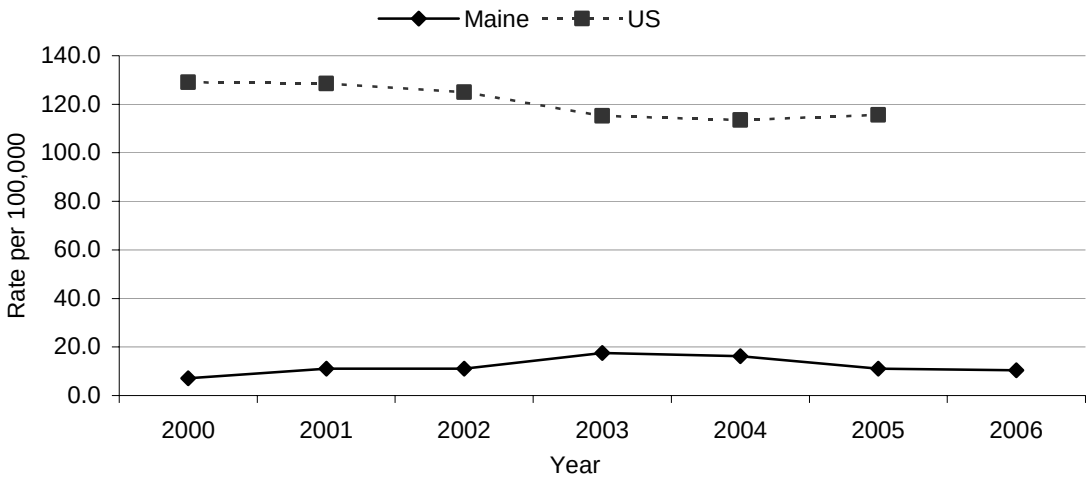
Just under one half of the cases reported in 2006 occurred in the 20-29 year old age range, and only 16% were less than 20 years-old. Males comprised approximately 61% of all gonorrhea cases. The greater proportion of male cases is likely due to cases among males who have sex with males (MSM), who accounted for 29% of cases reported in 2006.

Five counties, Washington, Cumberland, Knox, Androscoggin and Oxford, had gonorrhea rates that were higher than the state rate.

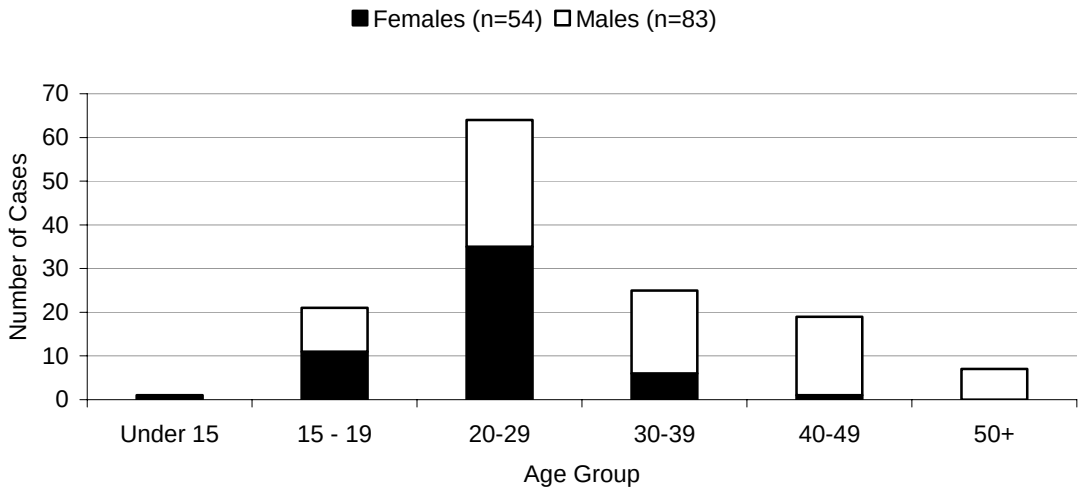
Gonorrhea by Year, Maine, 2000-2006



Gonorrhea by Year, Maine and United States, 2000-2006



Gonorrhea by Sex and Age Group, Maine, 2006



Hepatitis B

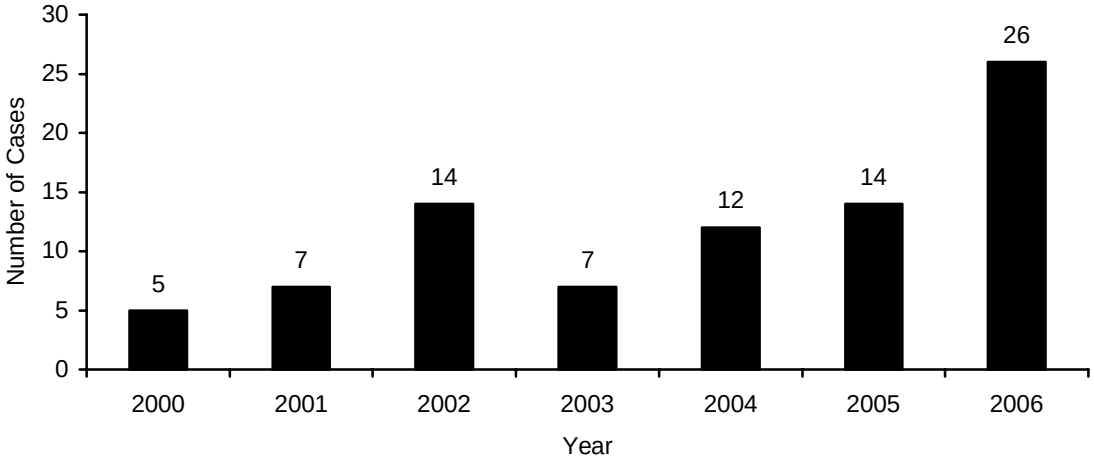
Hepatitis B is a serious viral infection affecting the liver. It is caused by a DNA virus that is transmitted from one person to another through body fluids, such as blood. People can contract the disease from sharing needles and having sex. Babies can contract the disease from their mothers.

In 2006 the case rate for acute hepatitis B in Maine was higher than the United States case rate the year before. Maine's 2006 case rate was 2.0 per 100,000 and the United States case rate was 1.7 in 2005. The rate of acute hepatitis B in the United States decreased 57% from a rate of 3 per 100,000 in 2000 to a rate of 1.7 in 2005. By comparison, the case rate in Maine fluctuated from 0.5 per 100,000 in 2000 to 2.0 in 2006.

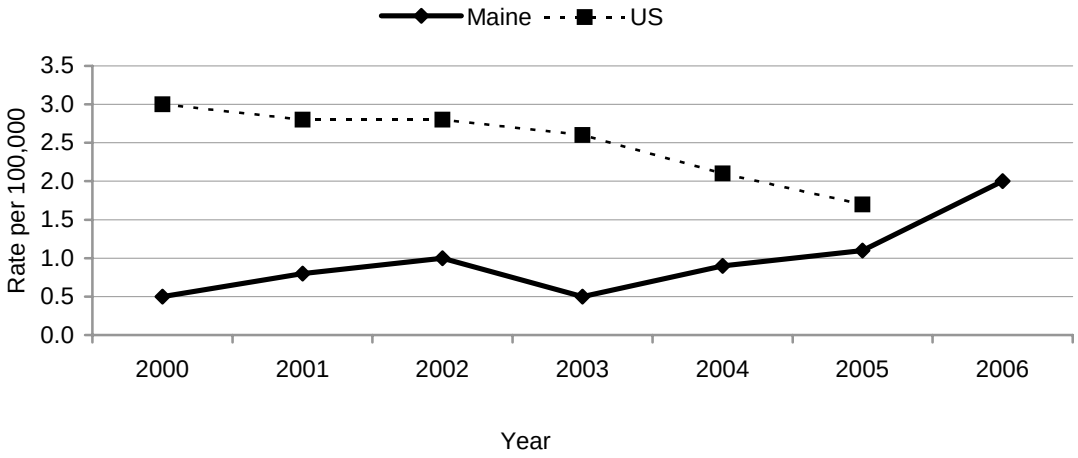
At present, efforts continue to focus on prevention, education, evaluating and improving surveillance systems as well as on case management for perinatal hepatitis B. Perinatal refers to infants born to mothers who are infected with hepatitis B. Our goal is to provide universal childhood immunization for hepatitis B by vaccinating all newborn infants with their first dose prior to discharge and completing the hepatitis B series by the time the child reaches 18 months of age. Within the framework of a comprehensive hepatitis plan, the Maine CDC is initiating conversations with healthcare providers, patients, and other stakeholders with the goal of improving reporting practices, increasing vaccine coverage rates among high-risk populations, and targeting education efforts to the most vulnerable populations. The Maine CDC started actively monitoring and reporting probable and confirmed cases of chronic hepatitis B to the federal CDC in July of 2006. Complete data on chronic hepatitis B will be available in the 2007 annual report.

The Maine CDC administers a perinatal hepatitis B project through the Maine Immunization Program, which aims to prevent the spread of hepatitis B from mother to child. The program maintains a statewide registry of pregnant women who are infected with hepatitis B and works with a woman's primary care provider, hospital infection control professionals and the managers of labor and delivery units. The goal is to prevent hepatitis B infections in newborns by ensuring they receive timely immunization and post-vaccination serological testing.

Acute Hepatitis B by Year, Maine, 2000-2006



Incidence of Acute Hepatitis B by Year, Maine and United States, 2000-2006



Hepatitis C

Hepatitis C Virus (HCV) is the most common bloodborne infection in the United States and the leading reason for liver transplantation. Hepatitis C infects individuals of all ages, ethnic groups, and socioeconomic classes in urban and rural areas of Maine. An estimated 20,000 Maine people have been infected with HCV. Because the infections are often asymptomatic and progress slowly, many people are unaware of their disease status and are missing opportunities for therapeutic or preventive care.

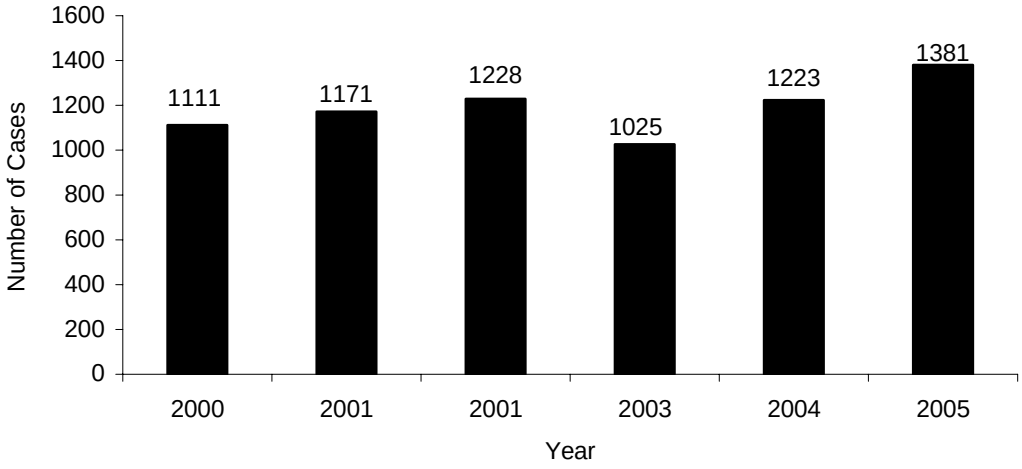
Two confirmed cases of acute hepatitis C virus (HCV) infection were reported in Maine in 2006. Both were females in their 20's. One was an injecting drug user; the other was the partner of an injecting drug user. Due to the lack of a specific test for acute hepatitis C infection, and the lack of symptoms, acute infections frequently go unrecognized.

Since official case reporting was initiated in 1997, the Maine CDC has documented increases in the numbers of individuals diagnosed with hepatitis C. These reports represent Maine people who tested positive for one or more hepatitis C virus diagnostic markers. Data on chronic HCV reports for 2006 are unavailable at this time. In 2005, the Maine CDC received 1,381 reports of persons newly identified with markers for hepatitis C infection positivity, the vast majority of whom were chronically infected. Although the 1,381 reports made in 2005 represent an increase in reports over the 1,223 received in 2004, the annual total is just slightly higher than the numbers of reports received over the previous five years. Due to the number of hepatitis C reports, it is not possible for the Maine CDC to follow up each individual report.

The age distribution for hepatitis C reports made in 2005 demonstrated that the majority of reports received were for persons aged 20-59, with 20% of reports made for persons aged 20-29 and 55% of reports made for persons aged 40-59. Of the 1,381 reported individuals in 2005, 470 (34%) were females and 911 (66%) were males. This represents a slight increase in the percentage of men reported as compared to 61% in 2004 and is comparable with national statistics.

To help identify cases of hepatitis C infection in Maine, medical providers are encouraged to consider each patient's risk for HCV infection to determine the need for testing. Patients for whom testing is indicated include: persons with past or present injection drug use; recipients of transfusions or organ transplants before July 1992; recipients of clotting factor concentrates produced before 1987; persons on chronic hemodialysis; persons with persistently abnormal aminotransferase levels; healthcare, emergency medical, and public safety workers after needle sticks, sharps or mucosal exposures to HCV-positive blood; and children born to HCV-positive women. Children should not be tested for anti-HCV before 18 months of age as anti-HCV from the mother might last until this age. If a diagnosis is desired prior to 18 months of age, testing for HCV RNA can be performed at 1-2 months of age. HCV RNA testing should be repeated at a subsequent visit regardless of the initial HCV RNA test result. Persons who test positive for HCV should be screened for susceptibility to hepatitis A and B virus infection and immunized appropriately.

Chronic Hepatitis C by Year, Maine, 2000-2005



*2006 Hepatitis C data is not available at this time

HIV/AIDS

HIV (human immunodeficiency virus) is the virus that causes AIDS. HIV is transmitted sexually or through blood-to-blood contact. In addition, infected pregnant women can pass HIV to their baby during pregnancy or delivery, as well as through breast-feeding. Some people will develop AIDS as a result of their HIV infection. A person with AIDS has an immune system so weakened by HIV that they usually become sick from one of several opportunistic illnesses, such as PCP (a type of pneumonia), Kaposi sarcoma (a rare cancer), wasting syndrome (involuntary weight loss), memory impairment, or tuberculosis. AIDS usually takes between 2 to 10 years or more to develop in a person infected with HIV.

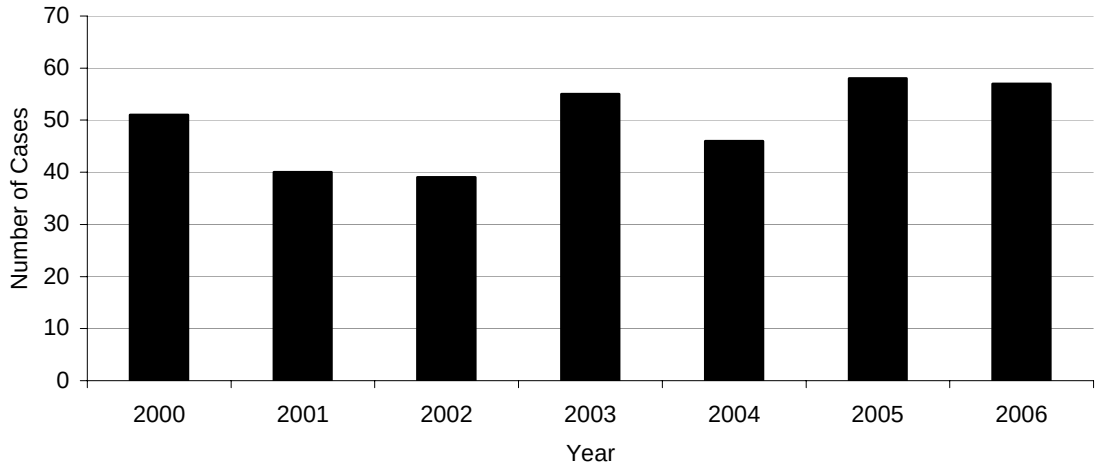
Approximately 1,130 people are estimated to be living in Maine with diagnosed HIV infection, and another 500 may be infected but unaware of their HIV status. The total estimate of people living with HIV in Maine is approximately 1,600.

Fifty-seven new HIV diagnoses were reported during 2006, including 8 females and 49 males. This represents a slight decrease from 2005, when a total of 58 cases were reported. It is important to note that many new HIV diagnoses do not represent newly acquired infections. During the past 5 years approximately 40% of people diagnosed with HIV were ill enough to be classified with AIDS within 6 months of their initial HIV positive test, likely indicating that they'd been infected with HIV for a long while.

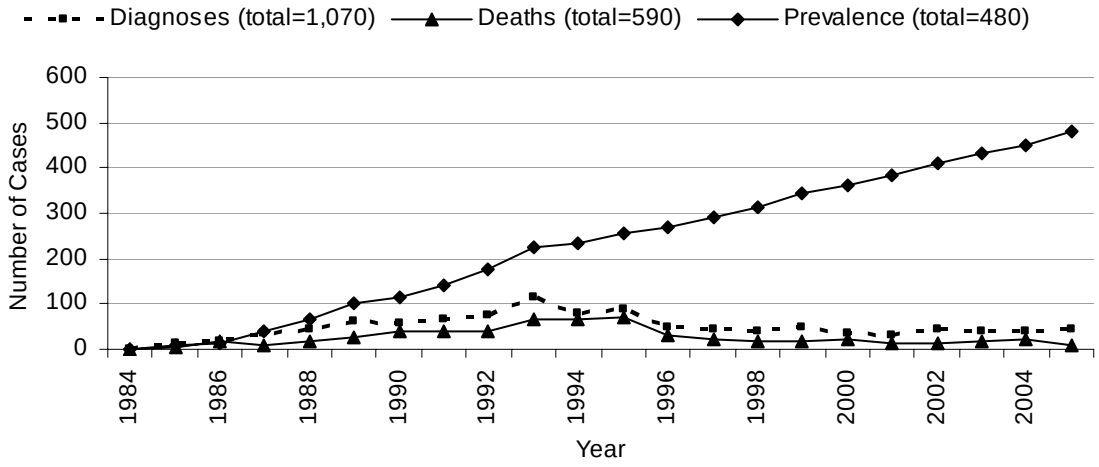
There were 42 new AIDS diagnoses and 11 deaths among persons with AIDS in 2005 (complete AIDS data are not yet available for 2006). Each year since 1985 there have been more new AIDS diagnoses than deaths, indicating that the overall number of people living with AIDS has continued to increase over time. These data suggest that there are more people living with HIV/AIDS in Maine than ever before, with an estimated 480 persons living with AIDS at the end of 2005.

In comparison to the general population, two key risk groups are disproportionately affected by HIV in Maine. These include males who have unsafe sex with males (MSM) and injection drug users who share works or needles (IDU). Heterosexual contact with an at-risk partner is also a significant mode of transmission. In 2006, more than two-thirds (67%) of HIV diagnoses were attributed to male-to-male sexual contact, followed by heterosexual transmission with an at-risk partner (16%) and injection drug use (9%).

HIV Diagnoses by Year, Maine, 2000-2006



AIDS Diagnoses, Deaths and Prevalence by Year, Maine, 1984-2005



Syphilis

Syphilis is a sexually transmitted disease (STD) caused by the bacterium *Treponema pallidum*. It has often been called "the great imitator" because so many of the signs and symptoms of syphilis are indistinguishable from those of other diseases. Syphilis is passed from person to person through direct contact with a syphilis sore. Sores occur mainly on the external genitals, vagina, anus, or in the rectum. Sores also can occur on the lips and in the mouth. Transmission can occur during vaginal, anal, or oral sex. Pregnant women with the disease can pass it to the babies they are carrying.

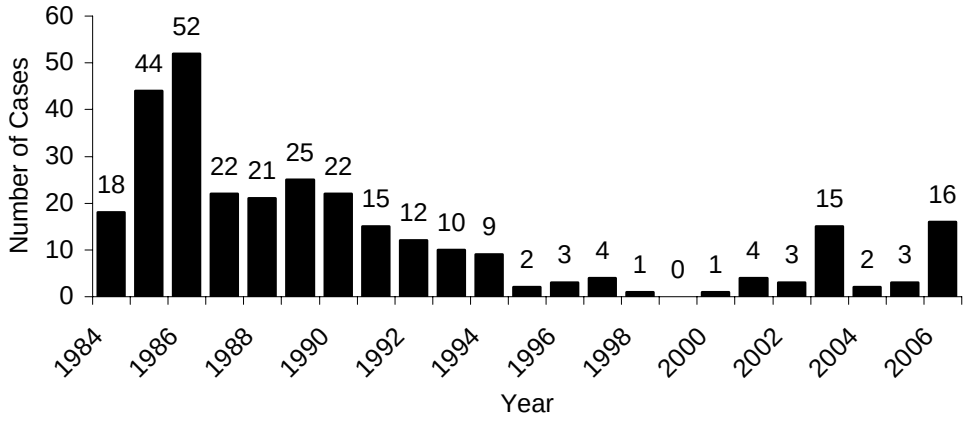
Many people infected with syphilis do not have any symptoms for years, yet remain at risk for late complications if they are not treated. Symptoms of syphilis range from skin sores and rashes soon after infection to much more serious illness in late stages of the disease, including damage to internal organs, nerve damage, blindness and dementia. If untreated, late stage syphilis infection could lead to death. Syphilis is easy to cure in its early stages. A single intramuscular injection of penicillin, an antibiotic, will cure a person who has had syphilis for less than a year. Additional doses are needed to treat someone who has had syphilis for longer than a year.

Genital sores caused by syphilis make it easier to transmit and acquire HIV infection sexually. There is an estimated two- to five-fold increased risk of acquiring HIV infection when syphilis is present.

After peaking in the mid-1980s, syphilis steadily declined in Maine until 1999, when there were no diagnoses reported in the state. Over the past decade, annual syphilis counts have remained low, with fewer than 5 cases during most years. Two notable exceptions were 2003 and 2006, with 15 and 16 diagnoses respectively. These sporadic increases were likely the result of infections acquired out-of-state by Maine residents who traveled to urban areas, where syphilis incidence is higher.

Of the 39 cases diagnosed during the past five years (2002 to 2006), 36 (92%) were male and 23 (59%) were identified as males who have sex with males (MSM). In addition, 12 cases (30%) were among HIV+ MSM. A majority of cases (69%) occurred among people between the ages of 30 and 49. No cases of syphilis have been diagnosed in Maine newborns for more than a decade.

Infectious Syphilis by Year, Maine, 1984-2006



VACCINE PREVENTABLE DISEASES

Influenza

Influenza is a viral illness that typically occurs during the winter months. Characterized by the abrupt onset of constitutional and respiratory signs and symptoms, such as fever, headache, non-productive cough, sore throat, and runny nose, influenza is spread from person to person primarily through the coughing and sneezing of infected persons. Influenza can be diagnosed through laboratory testing. Influenza-like illness (ILI) is defined as fever greater than or equal to 100ºF (37.8ºC) and cough and/or sore throat, in the absence of a known cause other than influenza.

The purpose of influenza surveillance is to inform influenza prevention and control policy. During the 2006-07 influenza season, the Maine Center for Disease Control and Prevention (Maine CDC) conducted influenza surveillance in collaboration with nineteen health care providers, three laboratories, and three city vital records offices during the 33-week reporting period from October 1, 2006 to May 19, 2007. This report summarizes 2006-07 influenza surveillance by key indicators.

Outpatient influenza-like illness (ILI)
Outpatient ILI data were collected through the U.S. Influenza Sentinel Provider Surveillance Network, a collaborative effort between the federal CDC, Maine CDC, and local health care providers. During the 2006-07 season, 15 health care providers were enrolled reporting the total number of patients seen in their practices and the number of those patients seen for ILI by age group on a weekly basis. Maine sentinel providers reported 100,110 patient-visits during the 2006-07 season, 620 (0.6%) of which were for ILI. Outpatient ILI visits peaked during mid-February (MMWR week 7). This appears to be consistent with regional sentinel provider data, which showed a peak in outpatient ILI activity during mid-February (MMWR week 7).

Hospital inpatients
Inpatient surveillance for respiratory illness admissions in Maine was conducted in collaboration with four hospitals. During the 2006-07 season, three hospitals reported the total number of patients admitted to the hospital from the emergency department (ED) and the total number of those patients admitted for respiratory illness using chief complaint or discharge codes, and one hospital reported the total number of patients admitted to the hospital and the total number of those patients admitted for influenza or pneumonia using admitting diagnosis. The four hospitals participating reported 32,270 hospital admissions during the 2006-07 season; on average 4.0% of these admissions were attributable to respiratory illness. Hospital admission for respiratory illness was relatively stable during the 2006-07 season.

Outbreaks
Outbreaks of influenza or influenza-like illness are reportable by law in Maine. The definition used to recognize outbreaks of influenza-like illness varies by setting. During the 2006-07 season, a total of 13 outbreak of influenza were reported in Maine, a decrease from the 2005-06 season when 45 outbreaks were reported. Of these outbreaks, five were reported among schools and 8 were in long-term care facilities. Outbreaks occurred in western, mid-coast, eastern and central regions of the state. Nine outbreaks were laboratory-confirmed as influenza.

Laboratory Reporting

Maine CDC's Health and Environmental Testing Laboratory (HETL) worked collaboratively with hospitals and private laboratories to collect specimens for respiratory virus testing, influenza positive isolate subtyping, and reverse-transcriptase polymerase chain reaction (RT-PCR). Each week, HETL reported the total number of specimens received for respiratory virus testing and the total number positive for influenza A (H1), A (H3), A (subtype pending), and influenza B by specimen collection date. During the 2006-07 season, 202 respiratory specimens were tested by HETL for influenza; 198 of which were tested by culture and/or PCR and 4 were not tested due to insufficient sample. Of the 198 specimens tested for influenza, 28 (13.9%) were positive for influenza (9 for influenza A [H1], 8 for influenza A [H3], 1 for influenza A [Subtype pending] and 10 for influenza B).

Two reference laboratories submitted weekly reports of laboratory-confirmed influenza A or influenza B by culture, reverse-transcriptase polymerase chain reaction (RT-PCR), or immunofluorescent antibody staining (direct or indirect) and total number of specimens negative by final test result date. During the 2006-07 season, a total of 1,755 respiratory specimens were submitted for viral testing to these laboratories. Of these, 280 (16.0%) specimens were positive for influenza (264 for influenza A and 16 for influenza B), 281 (16.0%) were positive for RSV, 2 (0.1%) specimens were positive for parainfluenza-1, 2 (0.1%) specimens were positive for parainfluenza-2, 14 (0.8%) were positive for parainfluenza-3, 17 (1.0%) were positive for adenovirus, 17 (1.0%) specimens were positive for enterovirus, and the remaining specimens were negative.

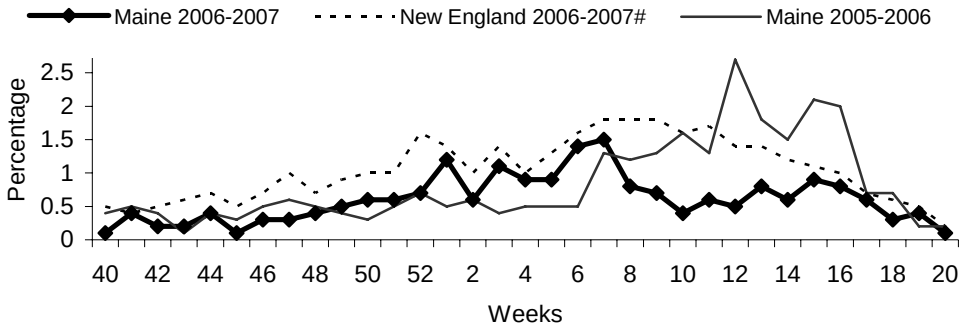
Death Certificates

The vital statistics offices of three Maine cities, Portland, Lewiston and Bangor, reported the number of death certificates in which pneumonia and influenza were mentioned as the primary or secondary cause of death. Data reported represent deaths that occurred in the reporting area, not the residence of the deceased. During the 2006-07 season, a total of 2,049 deaths were reported by three vital records offices. Of which, 207 (10.1%) were attributed to pneumonia or influenza. Pneumonia and influenza-attributable deaths peaked during early April.

Pediatric Fatalities

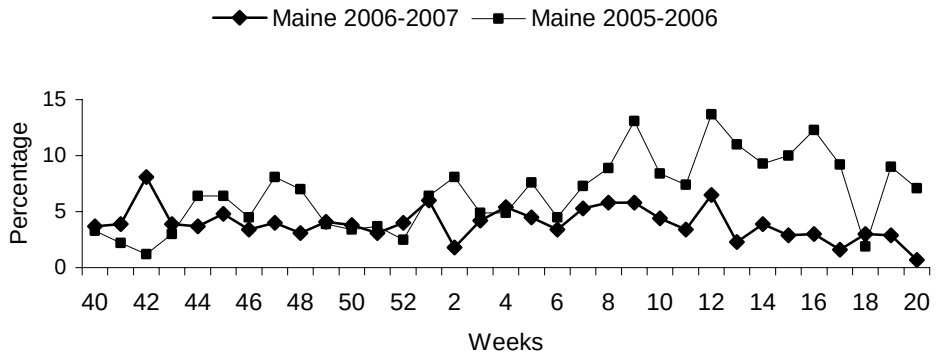
Health care providers and the Office of the Medical Examiner report deaths in persons aged 18 years or younger associated with laboratory-confirmed influenza to Maine CDC. No influenza-associated pediatric deaths were reported in Maine during the 2006-07 season.

Outpatient Visits for Influenza-like Illness, Maine, 2005-2007

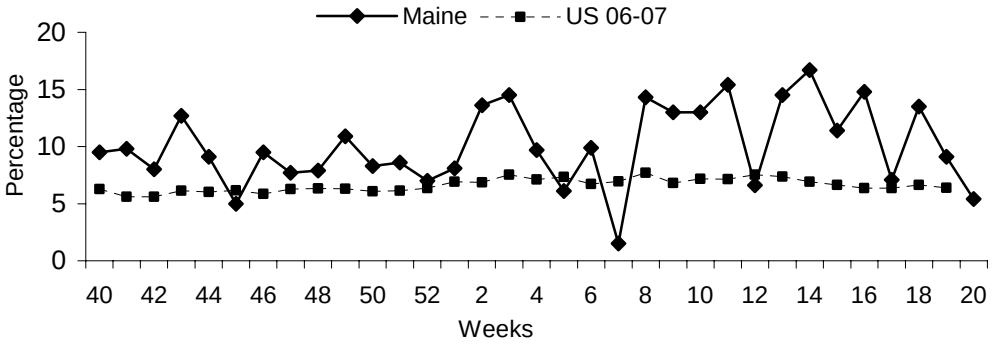


#New England includes: Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire and Maine

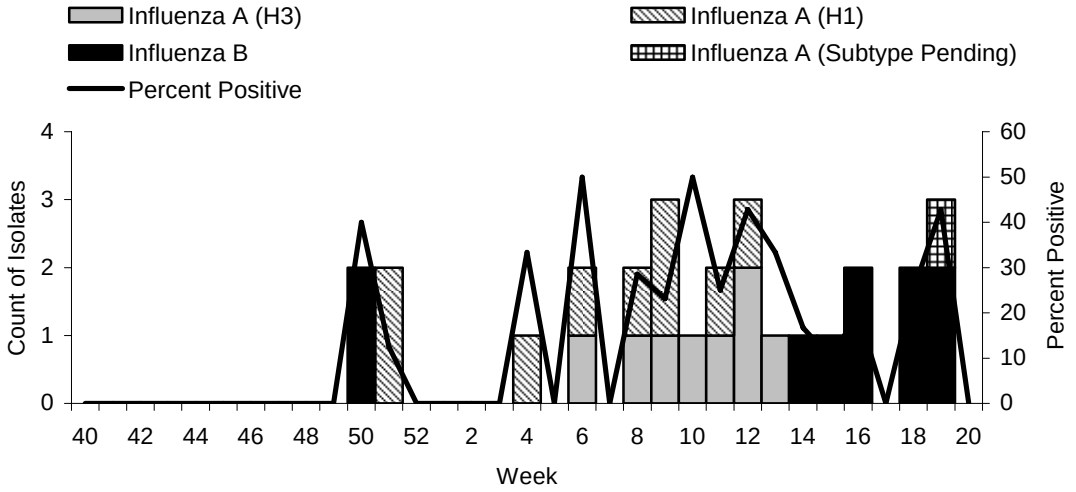
Hospital Admissions due to Respiratory Illness, Maine, 2005-2007



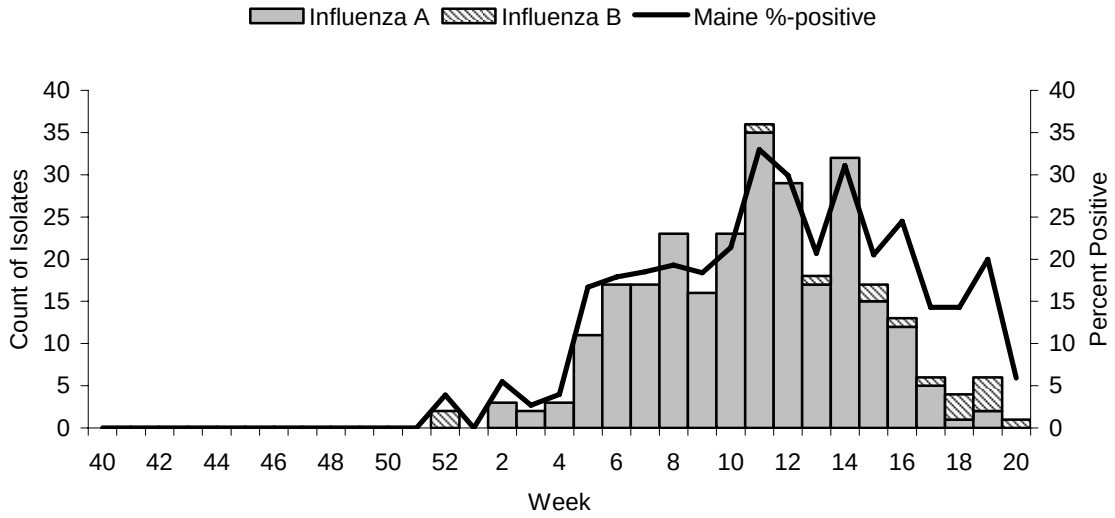
Percentage of Deaths Attributable to Pneumonia and Influenza, Maine and the United States, 2006-2007



Respiratory Specimens Culture and/or PCR-Positive for Influenza, Maine HETL, 2006-2007



Respiratory Specimens Positive for Influenza, Two Reference Laboratories, Maine, 2006-2007



Pertussis

Pertussis (whooping cough) is an acute bacterial infection of the respiratory tract caused by *Bordetella pertussis*. The disease used to be one of the most common diseases among children and was associated with a high mortality rate prior to vaccine licensure. Disease incidence has declined in the US since the vaccine became widely available in the 1940's. However, since the 1980's, disease incidence has increased gradually. Maine saw its largest increase in reported cases in 2004 followed closely by the incidence in 2006. The 2006 data reflects incidence due to an outbreak that affected western, midcoast and southern counties.

All cases were designated as confirmed or probable pertussis cases by the CDC case definition. The average crude incidence rate for Maine from 2000-2005 was 5.5 cases per 100,000 people. Maine's age-adjusted rate was 3.39 per 100,000 people for 2005 and 14.3 per 100,000 people for 2006. The age range of cases was from less than a month of age to 79 years old.

A look at the time distribution of cases shows an increase of reported cases in the second half of 2006 and into early 2007. In reviewing the geographical distribution of 2006 data, cases were reported in all 16 counties of Maine. Forty-eight percent of the cases were reported from Androscoggin and Cumberland counties.

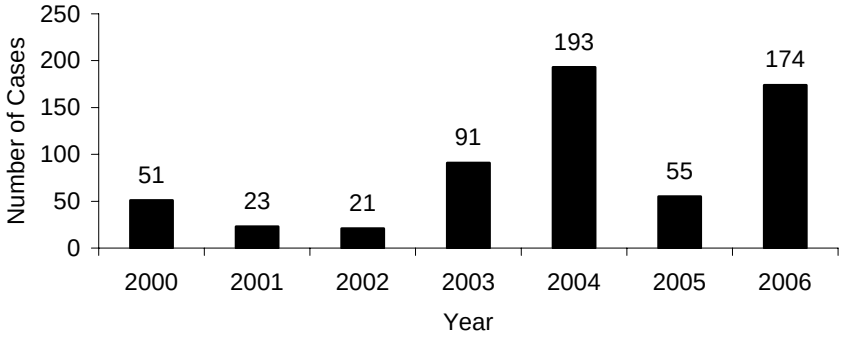
A comparison of Maine and U.S. DTaP vaccination rates indicates that Maine's vaccination rates have been consistently higher than the national rate over the past six years. Pertussis cases are highest among adolescents who, being exposed at school, have waning immunity. The age group with the second highest frequency is infants younger than 1 year of age who are too young to have completed the DTaP series. Many in this group may be the siblings of adolescents with pertussis. Transmission of pertussis to infants is of great concern, as infants are most susceptible to complications of pertussis and to death from the disease.

In 2005 two tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap) products were approved: Adacel ® (Sanoffi-Pasteur) for use in adolescents 11-64 years old and Boostrix ® (GlaxoSmithKline) for use in adults 10-18 years of age. Tdap (Adacel ®) can be used as a replacement for the next scheduled Td (tetanus and diphtheria) in adults, particularly those that have contact with infants, work in a healthcare setting, or have contact with other high risk individuals including immunocompromised individuals and the elderly.

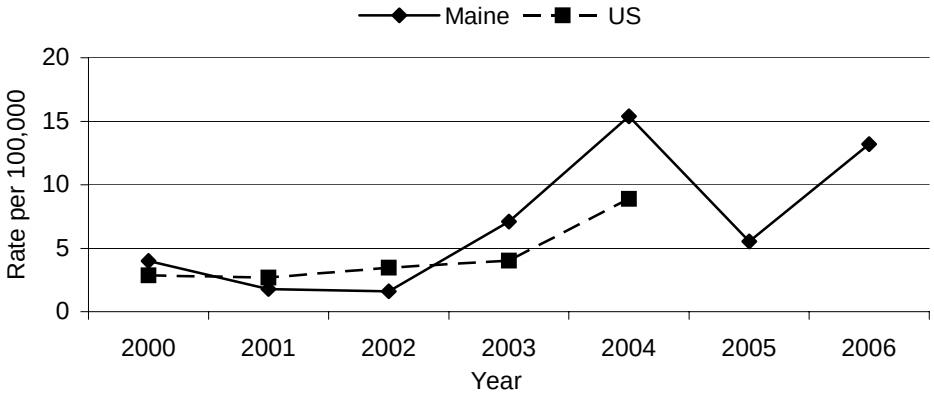
In June 2005 ACIP recommended the use of a single Tdap dose instead of the usual Td toxoid booster vaccine for protection of adolescents 11-18. This recommendation if implemented should result in the reduction in the number of pertussis adolescent cases and also reduce the number of outbreaks that are seen each year.

Furthermore, timely reporting of suspected cases and the strict adherence to disease control recommendations would further reduce the incidence of the disease and the possible exposure of the most susceptible.

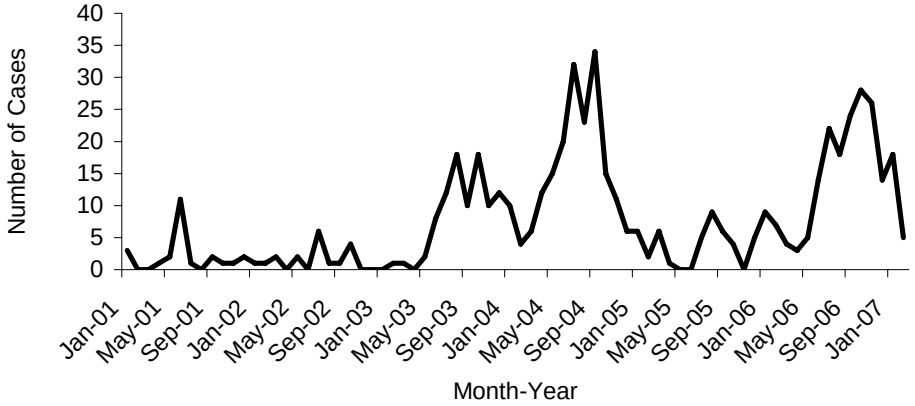
Pertussis by Year, Maine, 2000-2006



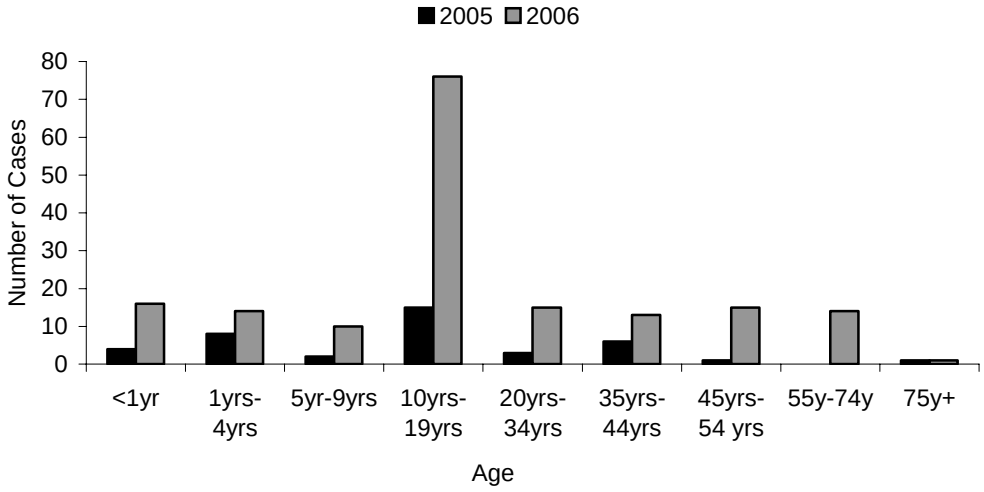
Incidence of Pertussis, Maine and United States, 2000-2006



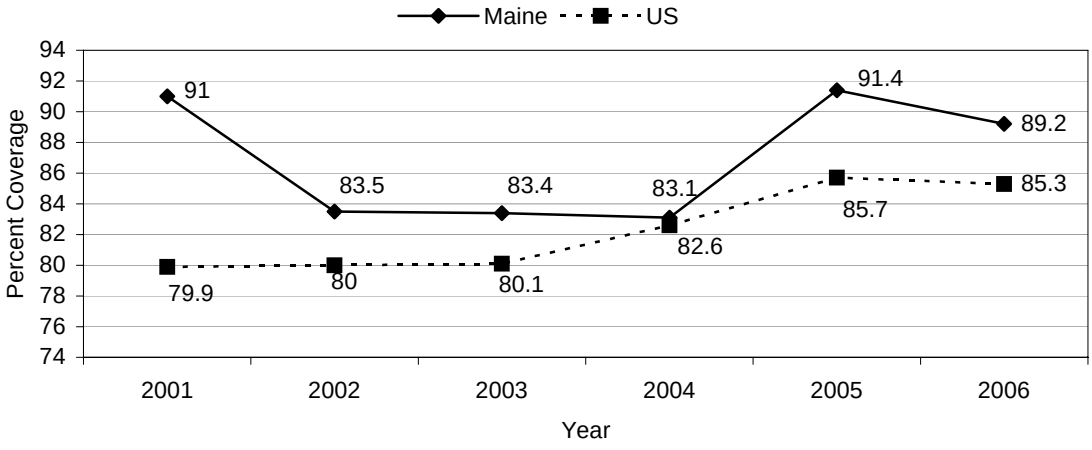
Frequency of Cases per Month, Maine, Jan, 2001- Feb, 2007



Frequency of Pertussis by Age, 2005 (n=40) and 2006 (n=174)



DTaP Vaccination Rates, Maine and United States, 2001-2006



VECTORBORNE DISEASES

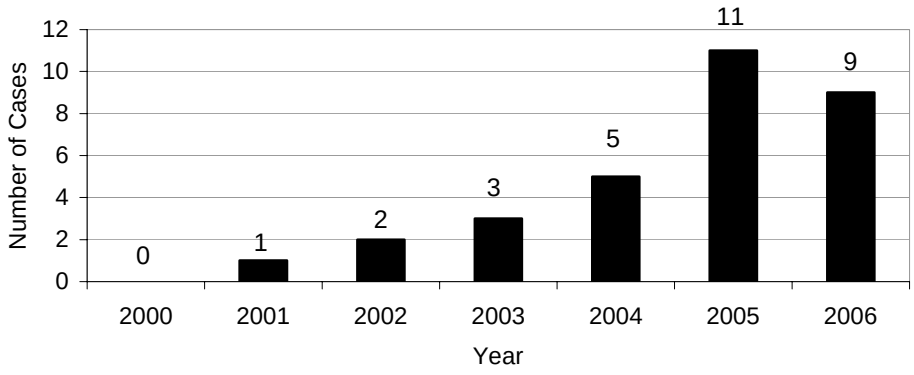
Babesiosis

Babesiosis is caused by protozoa that are carried by deer ticks (*Ixodes scapularis*). Many individuals that contract the disease show no signs of illness, but serious symptoms can occur, especially in immunosuppressed individuals or people who are co-infected with lyme disease. There were nine confirmed cases of babesiosis reported in Maine for 2006.

The individuals with confirmed cases lived in the southern or coastal counties of Maine, which have also displayed high tick populations. At least two of these cases were attributed to out-of-state transmission. Five of the nine cases could not remember a tick bite, but some had been exposed to tick habitat. None of the individuals appear to have been exposed to babesiosis through other risk factors such as blood transfusions. Six out of the nine cases (66.7%) were reported in June or July. The remaining cases were reported in February (1), October (1) and November (1). Since 2001, confirmed cases of babesiosis have nearly doubled every year until 2006.

To avoid contracting Babesiosis, use insect repellents (DEET or permethrin containing products) according to directions on the package and check for ticks regularly. If an engorged tick is found, it should be identified to determine whether the tick is capable of carrying babesosis. If it is not possible to immediately identify the tick, it should be saved for later identification, particularly if symptoms occur.

Babesiosis by Year, Maine, 2000-2006



Lyme Disease

Lyme disease is a tickborne disease with variable dermatologic, rheumatologic, neurologic, and cardiac manifestations. The most reliable early clinical sign of disease is an initial skin lesion commonly referred to as the ”bull’s-eye” rash or erythema migrans, which occurs in 70% to 80% of cases within a month after a tick bite. Untreated infections can lead to later symptoms in the joints, heart, and nervous system. Examples of these late symptoms include: arthritis characterized by recurrent, brief attacks of joint swelling; lymphocytic meningitis; cranial neuritis (such as Bell’s palsy); encephalitis; and second or third degree atrioventricular block.

During 2006, a total of 338 confirmed cases of lyme disease were reported to the Maine CDC. This represents an overall case rate of 26.5 per 100,000 population. Consistent with state and national data from previous years, physician-diagnosed erythema migrans was reported in 73% of cases. Fifty-six percent of the cases were male. The median age was 45 years, with a range of 1 to 91 years.

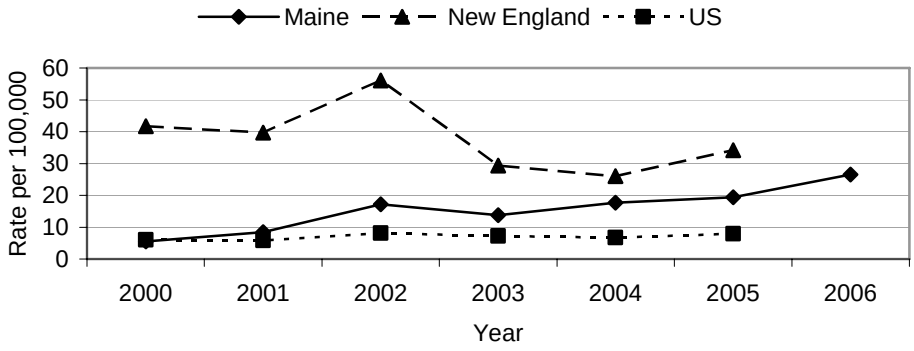
In 2006, lyme disease was reported in 13 of 16 counties in Maine. Aroostook County, Piscataquis County, and Washington County did not report any confirmed cases of lyme disease. York County and Cumberland County together accounted for nearly 68% of cases, with 133 and 96 cases, respectively. In terms of case rates, York County, Lincoln County, and Knox County reported the three highest rates (71.2 per 100,000, 56.5 per 100,000, and 42.9 per 100,000, respectively).

Age appears to be an important risk factor for Lyme disease in Maine. The highest case rates were observed among children between the ages of 5 and 14 years and adults between the ages of 40 and 64. Other high-risk groups were children under the age of five years and seniors 65 years and older. This is somewhat consistent with data from previous years.

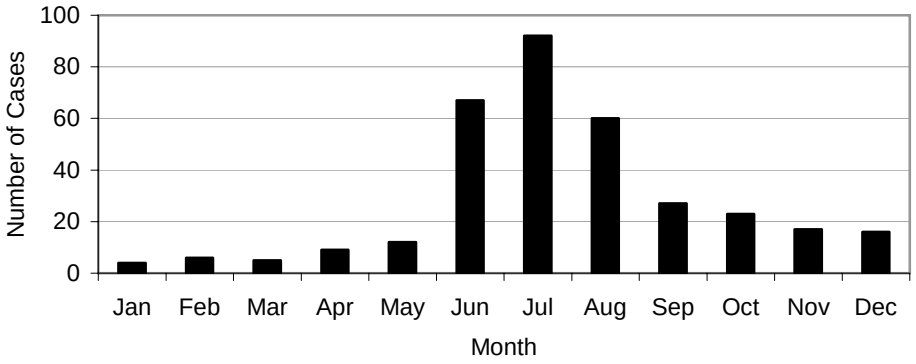
The number of lyme disease cases reported in Maine during 2006 (and its corresponding case rate) is the highest since lyme disease surveillance began. Generally, there has been a gradual increase in incidence in Maine since 2000. Over the same period, incidence at the national level has remained relatively stable while incidence in the New England region has fluctuated but still remains higher than Maine and the United States.

The risk of lyme disease can be reduced by avoiding tick-infested areas; using insect repellents containing DEET (for skin and clothing), permethrin (for clothing only), or picaridin; checking for ticks after returning from tick-infested areas; and modifying the residential landscape.

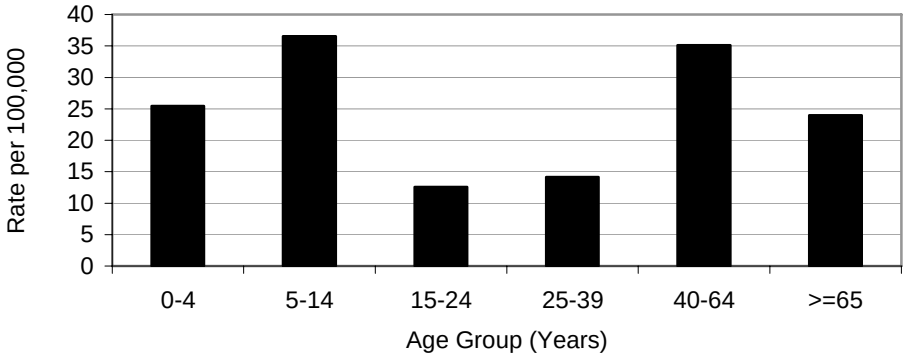
Incidence of Lyme Disease, Maine, New England and United States, 2000-2006



Lyme Disease by Month, Maine, 2006



Lyme Disease by Age Group, Maine, 2006



Human Granulocytic Ehrlichiosis (Anaplasmosis)

The symptoms of Human Granulocytic Ehrlichiosis (HGE) include body aches, headache, fever and malaise. There were two confirmed cases of HGE and eight probable cases in Maine in 2006. The confirmed cases consisted of one female and one male while the eight probable cases consisted of five females and three males. One probable case of HGE was simultaneously a probable case for Human Monocytotropic Ehrlichiosis (HME).

Human Granulocytic Ehrlichiosis is a tick-borne disease carried by the deer tick, one of the most common ticks in Maine. The best way to prevent infection is to take measures to prevent exposure to ticks. Checking for ticks after visiting a tick-infested area is an important way to reduce the risk of contracting HGE. The use of properly applied insect repellents containing DEET or permethrin, will provide protection against ticks.

Human Monocytotropic Ehrlichiosis

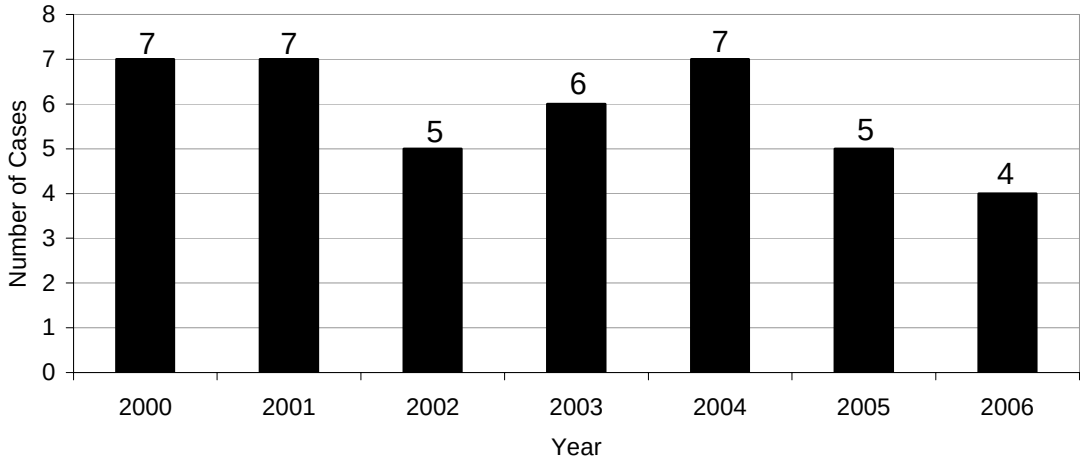
The symptoms of Human Monocytotropic Ehrlichiosis (HME) are, similar to HGE. There were no confirmed cases of HME in Maine in 2006, however, there were four probable cases (symptoms of HME were present, but lab results were incomplete). All the probable cases were female, and one of them was also a probable case for HGE. Transmission of HME is most likely due to the bite of a lone star tick, a tick that is very rarely found in Maine. To reduce the risk of contracting HME, appropriate measures should be taken to reduce the chances of acquiring tick bites such as wearing repellent containing DEET or applying permethrin to clothing and thoroughly checking for ticks after visiting tick-infested areas.

Malaria

Malaria is a serious, sometimes fatal disease caused by protozoa that are carried by mosquitoes. Although the range of infection for malaria appears to be expanding, there has only been one recorded case of locally acquired malaria in Maine in the last 50 years. Therefore, the risk of contracting malaria is highest when traveling to areas where malaria is endemic. Prophylaxis and mosquito protection measures, such as sleeping under a mosquito net, should be taken when visiting these areas.

There were four confirmed cases of malaria in Maine residents in 2006. All four individuals had reported traveling to or emigrating from African countries (Madagascar, Somalia, Uganda [2]). The species of malaria identified included *Plasmodium vivax* from Uganda, *Plasmodium falciparum* from Uganda, and *Plasmodium malariae* from Somalia and Madagascar. Two cases were reported from individuals who had been symptomatic for malaria previously and the other two individuals reported onset within one month of return from travel. Only one individual used any prophylaxis (doxycycline), but stopped taking the pills after the first dose.

Malaria by Year, Maine, 2000-2006



West Nile Virus

There were no reported human cases of West Nile virus (WNV) in Maine for 2006. Eleven out of 93 birds that were tested were positive for WNV, but none of the 500 mosquitoes pools, or five non-human mammals that were tested were positive. Dead bird and mosquito pool testing were used to monitor the risk of transmission of WNV to humans. The best way to protect oneself from WNV is to reduce the risk of being bitten by mosquitoes.

Eastern Equine Encephalitis

Eastern equine encephalitis (EEE) is a serious mosquito-borne disease that has reemerged infecting humans in New Hampshire and other neighboring states. In 2005 two horses in Maine died of EEE. There were no reported human cases of EEE in Maine for 2006, and none of the 95 birds, 489 mosquito pools, or five non-human mammals that were tested for EEE were positive.

In order to lower the chances of contracting a mosquito-borne disease, measures should be taken to prevent mosquito bites:

- Wear insect repellent. Products containing DEET, picaridin or oil of lemon eucalyptus can be applied to exposed skin, and permethrin containing products can be applied to clothing. Make sure to follow the directions when using repellents or other pesticides.
- Wear long sleeve shirts and long pants when possible or when mosquitoes are present.
- Protect babies with mosquito netting.
- When mosquitoes are especially abundant, stay indoors.
- Mosquito proof your house by fixing or installing window screens or screen doors.
- Control mosquito populations around your home by cleaning gutters, removing or emptying objects that contain still water such as old tires, old cans, and plastic tarps.
- Empty water from flower pots, pet dishes, birdbaths, rain barrels, and buckets at least once a week.

APPENDICES

APPENDIX A

Conjunctivitis Outbreak in Southern Aroostook County November 2006 – January 2007

Introduction

On December 20, 2006 Maine Center for Disease Control and Prevention (Maine CDC) was notified of an unusually large number of students with symptoms of conjunctivitis ("pinkeye") at a pre-K to 12 school in southern Aroostook County. Preliminary laboratory results suggested that illness was due to infection with the bacterium *Streptococcus pneumoniae,* which has been linked to outbreaks of conjunctivitis in Maine and New Hampshire in the past. Maine CDC, in partnership with the federal Centers for Disease Control and Prevention (federal CDC), conducted an investigation to describe the outbreak, assess the effectiveness of topical antibiotics for treatment, and to develop and evaluate control strategies.

Methods

Epidemiologists from the Maine CDC and the federal CDC worked closely with local public health leaders, community healthcare providers, and school staff to collect information about the outbreak. Hospital and laboratory records, school nurse notes, and school absenteeism records were reviewed to determine the number of conjunctivitis cases in the school and the community, dates of symptom onset, and location of cases. Outbreak control measures were immediately implemented and included the following activities: students with symptoms of conjunctivitis were to stay out of school for at least 24 hours after treatment or until symptoms disappeared; notes were sent home to parents with information on how to recognize conjunctivitis and a reminder to keep children home if they were symptomatic; desks, doorknobs, and other commonly touched surfaces at the school were disinfected daily; and hand hygiene and treatment with topical antibiotics were strongly encouraged. Eye swabs were taken from faculty and staff at the school and transported to the regional hospital laboratory where they were tested for bacteria and viruses. Samples that tested positive for *S. pneumoniae* were sent to the federal CDC in Atlanta for further testing.

Results

Between November 20, 2006 and January 12, 2007, 78 of 431 (18%) students and 13 of 85 (17%) faculty and staff at the school reported one or more episodes of conjunctivitis. In addition, 66 episodes of conjunctivitis were diagnosed at the regional hospital among community residents not affiliated with the school. This was three times higher than the number of conjunctivitis cases diagnosed at the hospital during the same time period the previous year. The majority of cases at the school occurred among kindergarten students (46%) followed by first grade students (35%) and pre-kindergarten students (33%). Eighty three percent of 30 initial cases of conjunctivitis reported secondary spread to at least one family member. The largest number of cases in both the school and the community occurred during the fifth week of the outbreak (the week of December 18). No additional schools in Aroostook County - but three elementary schools in Penobscot County - reported an unusually high number of students and staff with conjunctivitis during the investigation time period. However, laboratory specimens were not available for testing and therefore, these reports were not investigated further.

Two of 5 students and 5 of 14 community residents from whom samples were collected tested positive for a type of *S. pneumoniae* that did not have an outer cell capsule, could not be serotyped and identical to the type found in the 2002 conjunctivitis outbreaks at schools in New Hampshire and Maine. All seven of these isolates were sensitive to antibiotics typically used to

treat bacterial conjunctivitis including erythromycin, penicillin, amoxicillin, ciprofloxacin, trimethoprim-sulfamethoxazole, and tetracycline. Two children in the community had eye cultures that were positive for *S. pneumoniae* serotype 15A that were resistant to erythromycin, clindamycin, chloramphenicol, and intermediately resistant to penicillin. These patients also grew *Haemophilus influenzae* and were both 1 month of age. Other bacteria isolated from the eyes of 7 individuals with conjunctivitis included: *Haemophilus spp*., *Moraxella catarrhalis*, and *Staphylococcus aureus*. The average age of patients who grew non-typeable *S. pneumoniae* was 8.4 years versus 1.6 years for patients who grew *Haemophilus spp*. Eye cultures performed by local physicians on 4 children who were seen in the office prior to treatment tested negative for bacterial growth and negative for viruses including adenovirus, rhinovirus, or picornavirus (enterovirus, parechovirus, and cardiovirus).

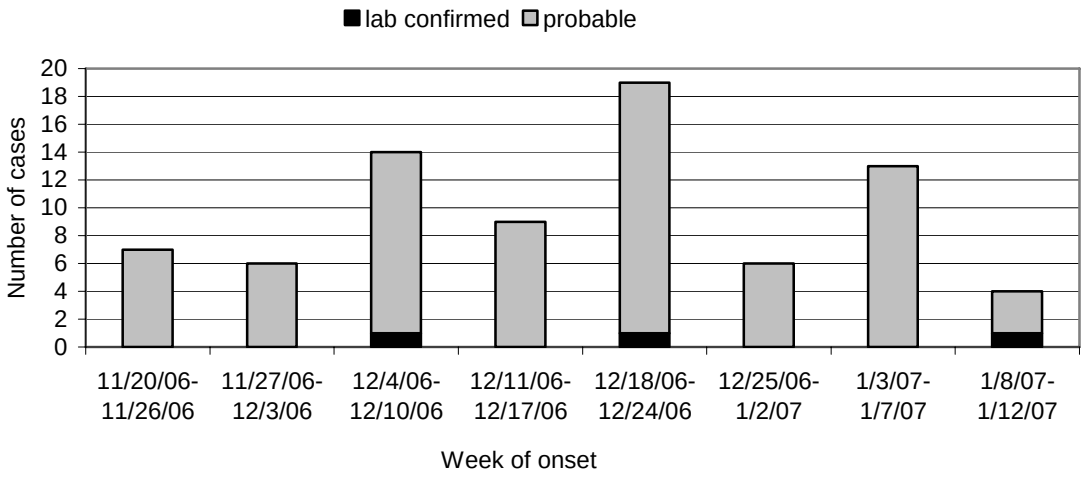
Conclusions

The data from this investigation suggest that there was likely a large community outbreak of conjunctivitis occurring at the same time as the school outbreak. This may explain why the outbreak continued in the school even after winter vacation. Although children were not in school during vacation, there was opportunity for disease transmission to occur outside of the school setting such as in families, at sporting events, and at other community gatherings.

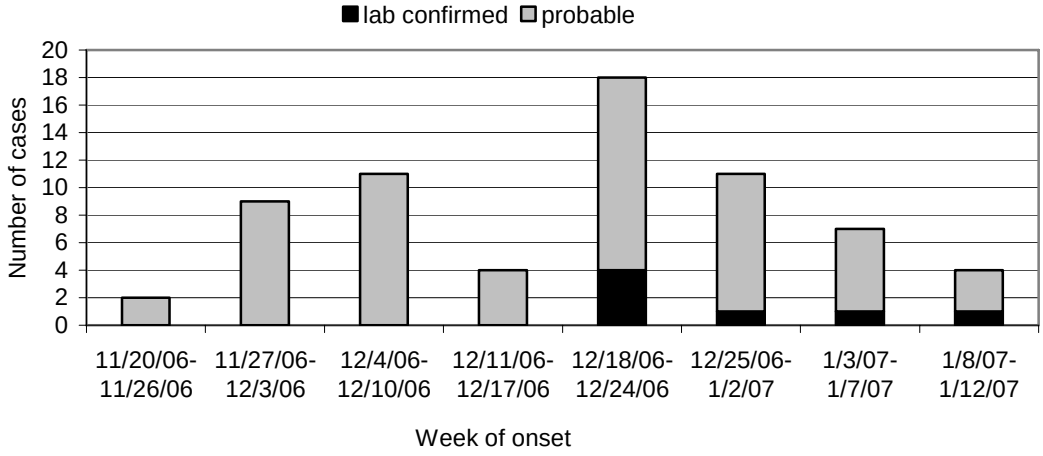
The results of this investigation combined with evidence in the literature suggest that non-typeable *S. pneumoniae* can act as a primary cause of conjunctivitis. The effectiveness of topical antibiotics in treating pneumococcal conjunctivitis and preventing spread of the illness is still unclear. Two students without obvious symptoms of conjunctivitis had *S. pneumoniae* cultured from their eyes even after 5-6 days of treatment with topical antibiotics. We were unable to collect enough eye cultures from individuals before and after treatment to research this further, but effectiveness of topical antibiotics remains a topic of interest for future studies of pneumococcal conjunctivitis.

This outbreak investigation increased our understanding of pneumococcal conjunctivitis while highlighting the need for future research, particularly on the effectiveness of outbreak control strategies such as antibiotic treatment and the use of alcohol based hand gels in the school setting. Healthcare providers are encouraged to collect bacterial and viral cultures during recognized clusters of conjunctivitis. Though the majority of *S. pneumoniae* isolates from this outbreak were sensitive to all antibiotics tested, isolates from past outbreaks (including an outbreak in Maine) were resistant to erythromycin.

Cases of conjunctivitis reported among students by week of onset, 11/20/06 - 1/12/07



Cases of conjunctivitis recorded in medical records by week of onset, 11/20/06 - 1/14/07



APPENDIX B

2006 Tick Data Collected by the Maine Medical Center Research Institute Vector-Borne Disease Laboratory

The Maine Medical Center Research Institute (MMCRI) Vector-Borne Disease Laboratory operates a tick identification service. Specimens found on people and pets in Maine are submitted from the public, with information on where the tick(s) may have been acquired.

Tick Submissions, by County, 2006

County	*Ixodes scapularis* **(Deer Tick)**	*Dermacentor variabilis* **(American Dog Tick)**	*Ixodes cookei* **(Woodchuck Tick)**	Others
Androscoggin	48	8	3	0
Aroostook	2	0	5	7
Cumberland	257	46	1	4
Franklin	6	5	5	0
Hancock	105	8	7	6
Kennebec	176	19	4	6
Knox	105	18	1	2
Lincoln	66	12	1	1
Oxford	21	10	3	1
Penobscot	71	5	6	6
Piscataquis	12	0	9	0
Sagadahoc	62	9	1	0
Somerset	32	11	2	0
Waldo	73	8	3	1
Washington	3	1	0	0
York	141	56	2	2

Note: It is important to note that this passive sampling could be influenced by a variety of extraneous factors (e.g. proximity to the laboratory, level of citizen concern about Lyme disease in an area or whether or not a particular area is already widely known to have a deer tick presence).

As part of a program to establish the distribution of the deer tick, *Ixodes scapularis (dammini)*, the vector for the Lyme disease bacteria and other pathogens, the MMCRI Vector-borne Disease Laboratory offers free identification of ticks. Ticks will not be tested to see if they contain the bacteria causing Lyme Disease because the clinical value of this information is uncertain. A notification of the tick identification is sent to the submitter as soon as possible. The MMCRI regrets that staff limitations do not allow them to identify ticks submitted from outside the State of Maine. Check the MMCRI website (http://www.mmcri.org/lyme/meticks.html) for a description of ticks. Do not submit any ticks that may be a dog tick (*Dermacentor variabilis*). These ticks are present in overwhelming numbers, particularly in early summer, and are not effective vectors of the Lyme disease bacteria.

Why is it important to submit ticks for identification?
It is important for a physician (or a pet's veterinarian) to know what species of tick was involved in a bite. It is also important for surveillance purposes to know the type of tick and location of exposure to the tick.

How are ticks submitted?
Remove ticks by grasping them with fine tweezers as near to the skin as possible and pull gently but firmly. The barbed mouth parts may not let go easily. It may take several minutes or more. Do not handle ticks with bare hands.

Ticks should be sealed in a small, crushproof vial of 70% alcohol. The vial should be padded with absorbent paper towel and sealed in a plastic bag, and mailed along with a completed submission form to:

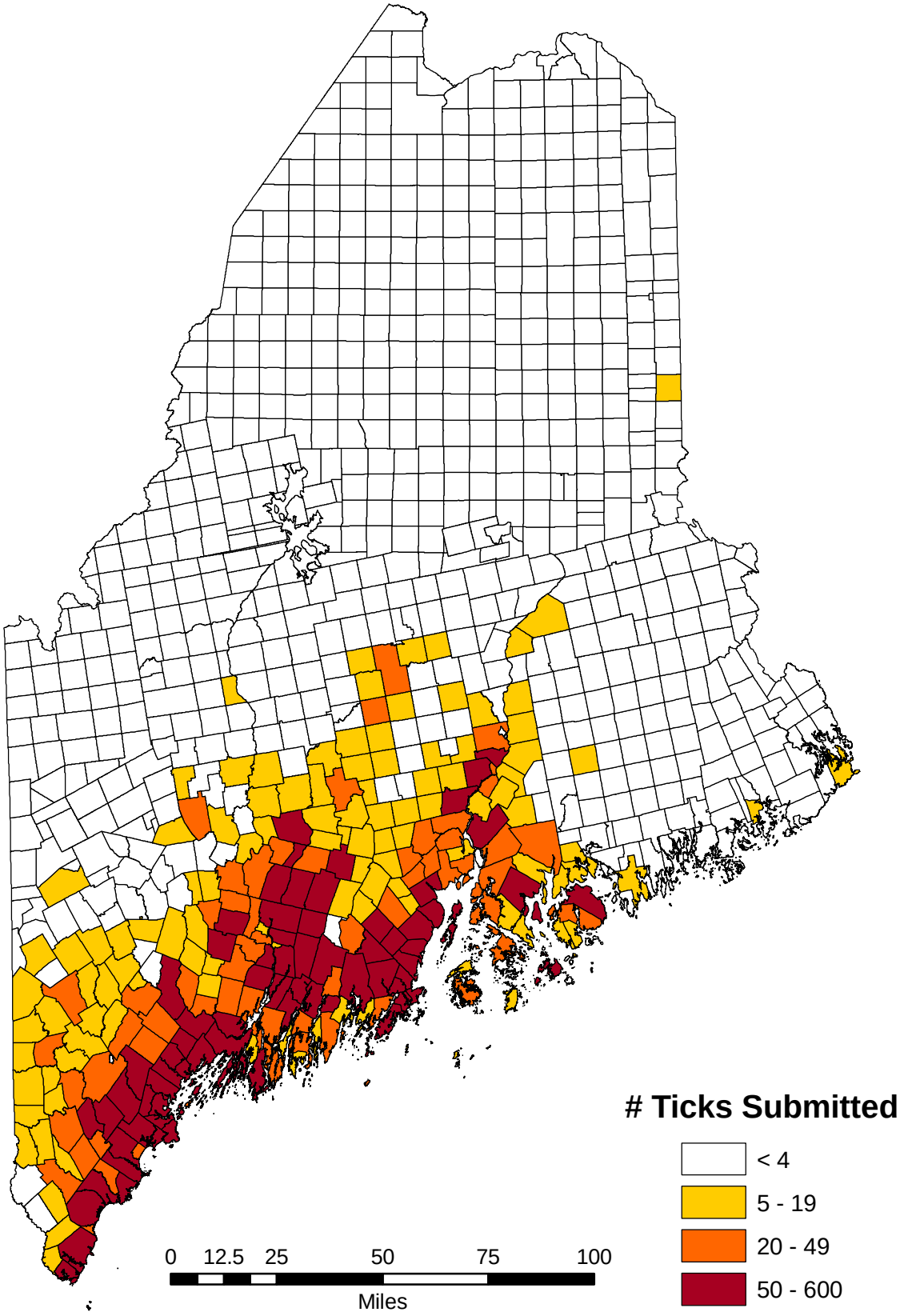
Vector-borne Disease Laboratory
Maine Medical Center Research Institute
75 John Roberts Rd., Suite 9B
South Portland, ME 04106

Print out the submission form from http://www.mmcri.org/lyme/lymeform.html, complete it, and mail it in with the specimen. A report of the tick's identification will be sent to the submitter as soon as possible, usually within five days. A map may also be sent to assist in the identification of the site where tick exposure occurred.

Map Caption

A map summarizing the number of *Ixodes scapularis* (deer tick) submitted per Minor Civil Division, 1989 through 2006, is attached. New towns submitting ticks in 2006 include Benedicta Twp, Embden, Kenduskeag, Machiasport, Phillips and Waterford.

Distribution of deer tick (Ixodes scapularis) submitted 1989 - 2006



APPENDIX C: Maine Notifiable Conditions List

NOTIFIABLE CONDITIONS LIST
MAINE DEPARTMENT OF HUMAN SERVICES, BUREAU OF HEALTH

Category 1: Reportable immediately by telephone on the day of recognition or strong suspicion of disease:	Category 2: Reportable within 48 hours of recognition or strong suspicion:	Laboratory Specimen Submission:
Chickenpox (varicella) ▪ Admission to hospital, any age ▪ Adults >18 years, any clinical setting Diphtheria Hepatitis A, B, and C (acute) Hepatitis, acute (etiologic tests pending or etiology unknown) Measles (rubeola) Meningococcal disease Outbreaks ▪ Foodborne (involving 2 or more persons); waterborne; and respiratory ▪ Institutional ▪ Unusual disease or illness Pertussis Poliomyelitis Rabies (human and animal) Rubella (including congenital) *Staphylococcus aureus* disease, reduced or resistant susceptibility to vancomycin Tuberculosis (active and presumptive cases) **Category 1 Diseases that are possible indicators of bioterrorism:** Anthrax Botulism Brucellosis Gram positive rod septicemia or meningitis, growth within 72 hours of inoculation in laboratory Outbreaks of unusual disease or illness Plague Q fever Ricin Poisoning Smallpox Staphylococcal enterotoxin B pulmonary poisoning Tularemia Venezuelan equine encephalitis	Acquired Immunodeficiency Syndrome (AIDS) Babesiosis Campylobacteriosis CD4 lymphocyte counts <200/ul or <14% of total lymphocytes Chancroid Chlamydia (*c. trachomatis*) (all sites) Chickenpox Chickenpox-related death Creutzfeldt-Jacob disease, <55 years of age Cryptosporidiosis Cyclosporiasis Ehrlichiosis Encephalitis, arboviral *Escherichia coli* 0157:H7 (and all other hemorrhagic *E. coli* enteritis, shiga producing *E. coli* strains) Giardiasis Gonorrhea *Haemophilus influenzae* disease, invasive, all serotypes Hantavirus pulmonary syndrome Hemolytic-uremic syndrome (post-diarrheal) Hepatitis B (chronic, prenatal) Hepatitis C (chronic) Human Immunodeficiency virus (HIV) infection* Influenza-like illness outbreaks Legionellosis Listeriosis Lyme Disease Malaria Meningitis, bacterial Meningococcal invasive disease Methicillin-resistant *Staphylococcus aureus* suspected to be community-acquired Mumps Psittacosis Salmonellosis Shiga toxin-related disease (gastroenteritis) Shigellosis Streptococcal disease, invasive Groups A and B *Streptococcus pneumoniae*, invasive disease Severe Acute Respiratory Syndrome (SARS) Syphilis Tetanus Toxoplasmosis Trichinosis Vancomycin-resistant *Staphylococcus aureus* *Vibrio* species, including Cholera West Nile virus infection Yellow Fever *Soundex patient identifier or patient name required	**Directors of Laboratories are to submit cultures of the following organisms to the Maine Health and Environmental Testing Laboratory for confirmation, typing, and/or antibiotic sensitivity including but not limited to:** *Bordetella pertussis* *Clostridium botulinum* *Clostridium tetani* *Corynebacterium diphtheria* *Escherichia coli* 0157:H7 *Francisella* species *Haemophilus influenzae,* invasive *Legionella* species *Listeria* species *Mycobacterium* species (TB complex only) *Neisseria meningitidis* *Salmonella* species, including *S. typhi* *Shigella* species *Streptococcus,* Group A, invasive only *Streptococcus pneumoniae,* invasive only *Vibrio* specie *Yersinia pestis* **Antibiotic-resistant Diseases in Special Category:** Other diseases caused by selected antiobiotic-resistant organisms are to be reported semiannually (twice each year) in aggregate form by clinical laboratories. These include: ▪ Invasive disease caused by methicillin-resistant *Staphylococcus aureus* (MRSA) ▪ Invasive disease caused by vancomycin-resistant Enterococcal species ▪ Invasive disease caused by penicillin-resistant *Streptococcus pneumoniae*

Who must report:
Health Care Providers, Medical Laboratories, Health Care Facilities, Administrators, Health Officers, Veterinarians

When to report:
- Category 1 diseases are reportable immediately by telephone on recognition or strong suspicion of disease
- Category 2 diseases are reportable by telephone, fax, or mail within 48 hours of recognition or strong suspicion of disease

What to report:
Disease reports must include as much of the following as is known:
- Disease or condition diagnosed or suspected
- Case's name, date of birth, address, phone number, occupation and race
- Diagnostic laboratory findings and dates of test relevant to the notifiable condition
- Health care provider name, address and phone number
- Name and phone number of person making the report

Complete Rules for the Control of Notifiable Conditions at http://www.maine.gov/dhs/boh/ddc/DiseaseReporting.htm

HOW TO REPORT:

TELEPHONE: 1-800-821-5821 (24 hours a day) *OR* **FAX: 1-800-293-7534 (24 hours a day)**

The Department of Human Services
Bureau of Health

October 21, 2003

APPENDIX D: Case Definitions for Infectious Conditions

Most case definitions for infectious conditions under public health surveillance in Maine are available at **http://www.cdc.gov/epo/dphsi/casedef/case_definitions.htm**

APPENDIX E: Map of Maine

Department of Health and Human Services
Maine Center for Disease Control and Prevention
State House Station #11
Augusta, ME 04333-0011

John Elias Baldacci
Governor

Brenda Harvey
Commissioner

Dora Anne Mills, MD, MPH
Director, Maine Center for Disease Control and Prevention

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