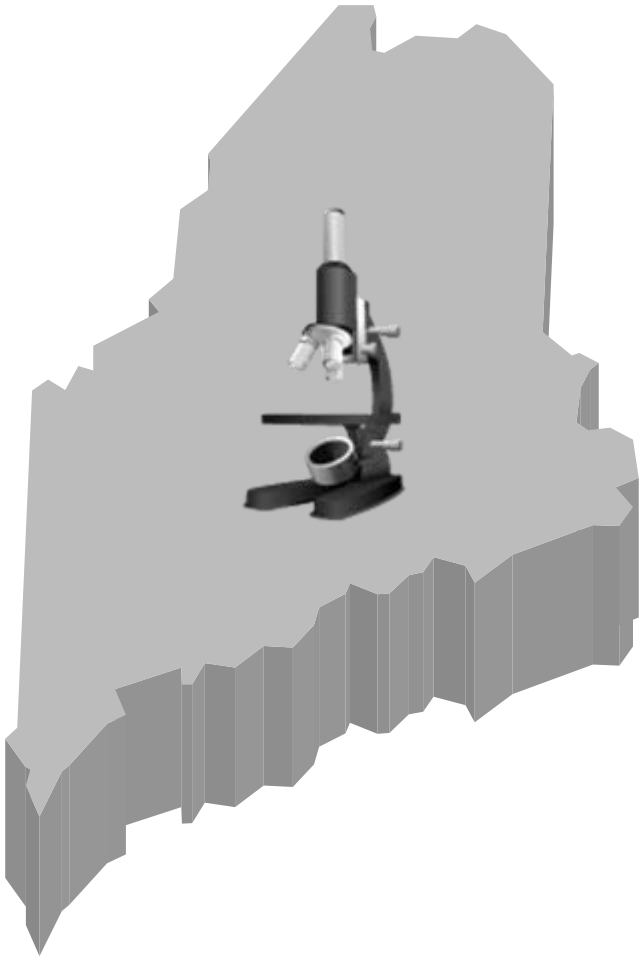
Reportable Infectious Diseases in Maine



2007 Summary

Department of Health and Human Services
Maine People Living Safe, Healthy and Productive Lives

John E. Baldacci, Governor
Brenda M. Harvey, Commissioner

Reportable Infectious Diseases in Maine

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This is the fourteenth 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. We welcome any feedback on how we can provide disease information to you, our partners.

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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.

In 2007, a total of 64 infectious diseases were nationally reportable; 71 were 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 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 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.

2007 Infectious Disease Surveillance Highlights

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

Enteric diseases - Giardiasis, campylobacteriosis, and salmonellosis were the three most commonly reported enteric infections in Maine in 2007. 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. Sixty-eight percent of cases of TB in Maine were among the foreign-born in 2007. Activities for influenza surveillance were enhanced to better prepare for a possible pandemic.

Sexually transmitted diseases – Incidence of all reportable STDs decreased through 2007, except chlamydia. Chlamydia remained the most commonly reported STD in Maine with 2,543 cases in 2007. Fifty two new cases of HIV were also reported along with 118 cases of gonorrhea and 14 cases of syphilis.

Vaccine preventable disease – Varicella and pertussis continued to be commonly reported in Maine in 2007. In contrast, most other vaccine preventable diseases were at historically low levels.

Vectorborne diseases - Lyme disease continued to be the most commonly reported vectorborne disease with 528 cases in 2007.

Zoonotic diseases - The epizootic of rabies in wildlife continued with 83 wild animals from 5 different species (raccoon, skunk, bat, fox, and woodchuck) identified as rabid in 2007. Among domestic animals, rabies was identified in three cats.

Methods

The data in this report are based on case definitions developed by the Council of State and Territorial Epidemiologists (CSTE) and adopted by the Maine Center for Disease Control and Prevention. Case definitions may change year to year. The current case definitions are available at http://www.cdc.gov/epo/dphsi/casedef/case_definitions.htm. Tables in the introduction include all cases used by the federal CDC for their weekly and annual reports. Rates are calculated by dividing the number of cases by the appropriate population from the U.S. Census estimates for each particular year and multiplying by 100,000.

Selected Reportable Diseases by Year, Maine, 2000 - 2007

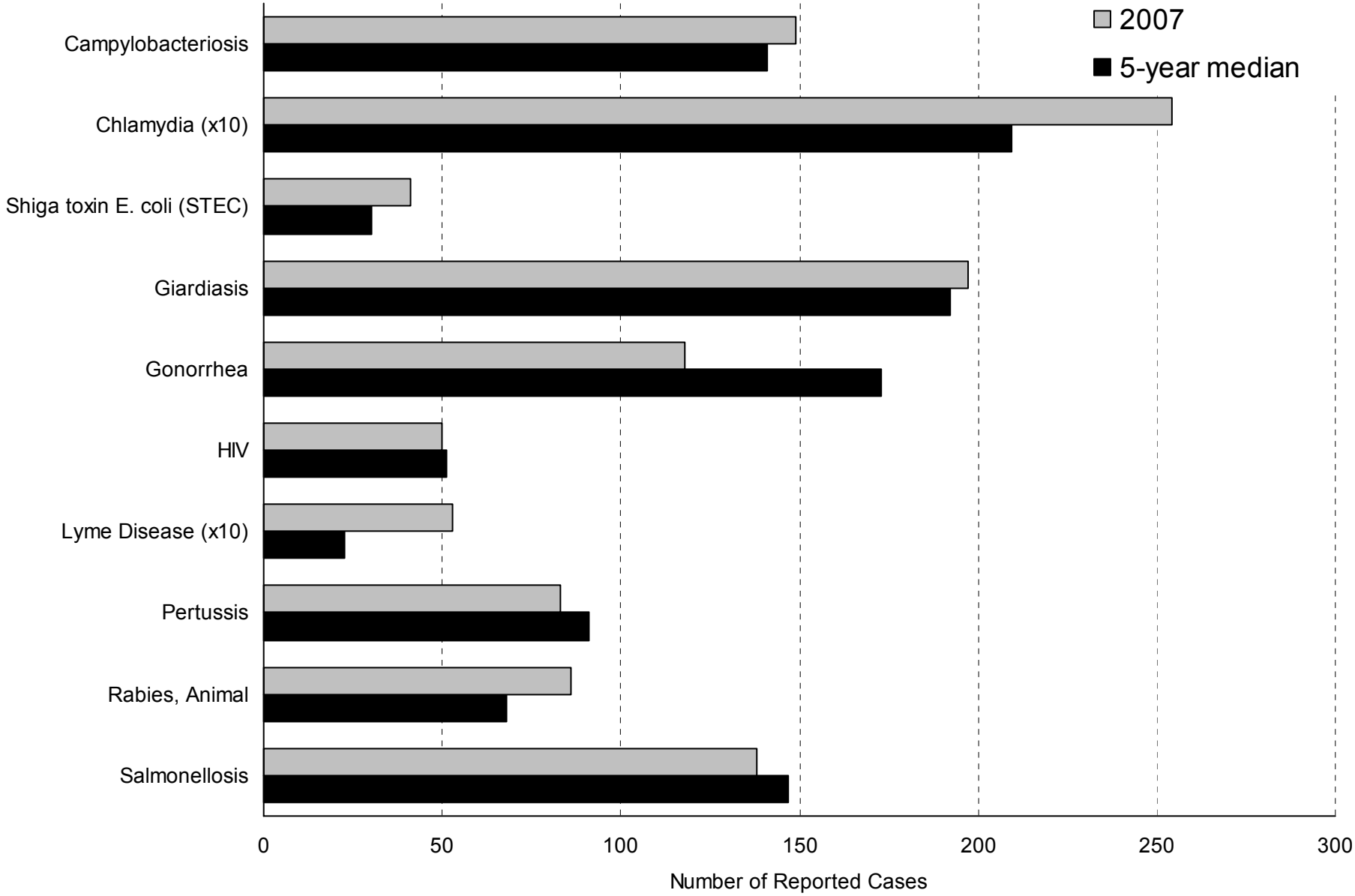
Disease	2000	2001	2002	2003	2004	2005	2006	2007
AIDS	44	45	27	50	49	23	42	38
BABESIOSIS	0	1	2	3	5	11	9	11
BOTULISM, FOODBORNE	0	0	2	0	1	0	0	0
CAMPYLOBACTERIOSIS	149	124	139	146	141	159	137	149
CHLAMYDIA	1474	1346	1801	2040	2120	2253	2304	2543
CRYPTOSPORIDIOSIS	20	20	12	20	22	30	52	56
CYCLOSPORIASIS	0	0	0	0	1	0	0	0
EHRLICHIOSIS	1	1	1	1	1	5	14	12
GIARDIASIS	238	197	212	184	155	202	192	197
GONORRHEA	90	141	142	231	214	142	137	118
H. INFLUENZAE (INVASIVE)	2	2	2	6	15	12	21	13
HEMOLYTIC UREMIC SYNDROME	0	1	3	0	2	0	6	1
HEPATITIS A	23	11	9	16	16	9	8	5
HEPATITIS B (ACUTE)	5	7	14	7	11	14	26	19
HIV INFECTION	51	40	39	55	46	58	57	52
LEGIONELLOSIS	2	8	6	2	1	7	11	9
LISTERIOSIS	2	2	5	6	8	3	6	5
LYME DISEASE	71	108	217	175	224	245	338	528
MALARIA	7	5	6	5	6	5	4	8
MENINGOCOCCAL DISEASE	10	10	9	10	12	2	9	8
MUMPS	0	0	0	0	0	2	0	24
PERTUSSIS	51	22	21	91	195	55	174	83
PSITTACOSIS	0	0	0	0	1	0	0	0
Q FEVER	0	0	0	2	0	2	4	7
RABIES (ANIMAL)	139	85	67	82	69	61	127	86
SALMONELLOSIS	127	166	147	141	108	163	161	138
SHIGA TOXIN PRODUCING E. COLI*	32	31	49	15	18	29	49	41
SHIGELLOSIS	11	6	10	7	13	15	10	14
STREPTOCOCCAL (GAS-INVASIVE)	12	12	20	28	16	14	19	28
STREP PNEUMO (DR-INVASIVE)	0	0	0	0	4	8	12	13
SYPHILIS (EARLY)	1	4	3	15	2	3	16	14
TUBERCULOSIS	24	20	23	24	20	17	16	19
TOXIC SHOCK SYNDROME	2	0	1	1	1	0	0	1
VARICELLA	1271	146	792	1012	363	318	238	366
VIBRIO SPECIES	0	1	4	3	4	2	5	0
YERSINIOSIS	3	2	0	0	0	0	0	4

*Shiga toxin producing E. coli (STEC) was a new code in 2006 that includes all previously reported enterohemorrhagic E. coli cases.

Reportable Diseases with Historically Small Numbers of Cases, Maine, 1998 - 2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	**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 (<55 yo)	NR	NR	NR	NR	NR	0	0	0	0	0	**0**
Cyclosporiasis	NR	0	0	0	0	0	1	0	0	0	**1**
Dengue Fever	0	0	0	0	0	0	0	1	4	1	**6**
Diphtheria	0	0	0	0	0	0	0	0	0	0	**0**
Encephalitis, Arboviral	0	0	1	2	0	0	1	0	0	0	**4**
Hantavirus Pulmonary Syndrome	0	0	0	0	0	0	0	0	0	0	**0**
Hepatitis C, acute	0	0	2	1	0	2	0	0	2	1	**8**
Malaria	5	3	7	5	6	5	6	5	4	8	**54**
Measles	0	0	0	0	0	0	0	0	0	0	**0**
MRSA, invasive	0	0	0	0	0	0	1	0	2	6	**9**
Mumps	0	0	0	0	0	0	0	2	0	24	**26**
Plague	0	0	0	0	0	0	0	0	0	0	**0**
Q fever	0	0	0	0	0	2	0	2	4	7	**15**
Psittacosis	0	0	0	0	0	0	1	0	0	0	**1**
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)	NR	NR	NR	NR	NR	0	0	0	0	0	**0**
Smallpox	0	0	0	0	0	0	0	0	0	0	**0**
Streptococcal, Group B, invasive, infant	0	0	2	1	5	2	1	3	1	1	**16**
Tetanus	0	0	0	0	1	0	0	0	0	0	**1**
Toxoplasmosis	NR	NR	NR	1	0	0	1	0	0	0	**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	0	0	1	0	0	0	0	0	1	0	**2**
Venezuelan Equine Encephalitis	NR	NR	NR	NR	NR	0	0	0	0	0	**0**
West Nile Virus	NR	NR	NR	NR	NR	0	0	0	0	0	**0**
Yellow Fever	NR	NR	NR	NR	NR	NR	0	0	0	0	**0**
NR=Not reportable											

Selected Reportable Diseases in Maine, 2007



Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by County, Maine, 2007

	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	9	8.4	0	0.0	0	0.0	21	19.7	1	0.9
Aroostook	0	0.0	6	8.3	8	11.1	0	0.0	7	9.7	0	0.0
Cumberland	3	1.1	30	10.9	0	0.0	4	1.5	61	22.2	4	1.5
Franklin	1	3.3	8	26.7	3	10.0	0	0.0	8	26.7	0	0.0
Hancock	0	0.0	6	11.3	1	1.9	2	3.8	9	16.9	0	0.0
Kennebec	1	0.8	18	14.9	11	9.1	0	0.0	19	15.7	1	0.8
Knox	0	0.0	2	4.9	1	2.5	0	0.0	2	4.9	0	0.0
Lincoln	0	0.0	5	14.4	5	14.4	0	0.0	3	8.6	0	0.0
Oxford	0	0.0	3	5.3	0	0.0	0	0.0	10	17.6	5	8.8
Penobscot	0	0.0	17	11.4	11	7.4	0	0.0	14	9.4	1	0.7
Piscataquis	0	0.0	1	5.8	2	11.6	0	0.0	2	11.6	0	0.0
Sagadahoc	0	0.0	6	16.5	1	2.7	0	0.0	4	11.0	0	0.0
Somerset	0	0.0	9	17.4	1	1.9	0	0.0	13	25.2	0	0.0
Waldo	0	0.0	4	10.4	3	7.8	0	0.0	4	10.4	0	0.0
Washington	0	0.0	4	12.2	1	0.0	0	0.0	3	9.2	0	0.0
York	6	3.0	21	10.4	8	4.0	6	3.0	17	8.4	1	0.5
Maine Total	11	0.8	149	11.3	56	4.3	12	0.9	197	15.0	13	1.0

Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by County, Maine, 2007

	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	0	0.0	1	0.9	2	1.9	0	0.0	21	19.7
Aroostook	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	2.8
Cumberland	0	0.0	1	0.4	3	1.1	3	1.1	1	0.4	165	59.9
Franklin	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0	1	3.3
Hancock	0	0.0	0	0.0	2	3.8	0	0.0	0	0.0	14	26.3
Kennebec	0	0.0	0	0.0	4	3.3	0	0.0	0	0.0	46	38.1
Knox	0	0.0	0	0.0	1	2.5	0	0.0	0	0.0	21	51.5
Lincoln	0	0.0	1	2.9	1	2.9	0	0.0	0	0.0	26	74.7
Oxford	0	0.0	1	1.8	1	1.8	0	0.0	1	1.8	6	10.6
Penobscot	0	0.0	1	0.7	2	1.3	1	0.7	1	0.7	7	4.7
Piscataquis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sagadahoc	1	2.7	0	0.0	1	2.7	0	0.0	0	0.0	33	90.7
Somerset	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	5.8
Waldo	0	0.0	0	0.0	1	2.6	0	0.0	1	2.6	12	31.2
Washington	0	0.0	1	3.1	0	0.0	0	0.0	0	0.0	0	0.0
York	0	0.0	0	0.0	2	1.0	2	1.0	1	0.5	172	85.4
Maine Total	1	0.1	5	0.4	19	1.4	9	0.7	5	0.4	529	40.2

Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by County, Maine, 2007

	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	0.9	10	9.4	14	13.1	7	6.6	2	1.9	0	0.0
Aroostook	0	0.0	1	1.4	2	2.8	6	8.3	3	4.2	0	0.0
Cumberland	4	1.5	13	4.7	12	4.4	34	12.3	7	2.5	5	1.8
Franklin	0	0.0	15	50.1	0	0.0	3	10.0	1	3.3	0	0.0
Hancock	0	0.0	0	0.0	4	7.5	6	11.3	1	1.9	4	7.5
Kennebec	1	0.8	9	7.4	7	5.8	12	9.9	9	7.4	0	0.0
Knox	0	0.0	1	2.5	4	9.8	0	0.0	4	9.8	0	0.0
Lincoln	0	0.0	2	5.7	1	2.9	2	5.7	2	5.7	0	0.0
Oxford	1	1.8	0	0.0	3	5.3	9	15.9	3	5.3	1	1.8
Penobscot	0	0.0	11	7.4	9	6.0	14	9.4	2	1.3	1	0.7
Piscataquis	0	0.0	1	5.8	1	5.8	2	11.6	0	0.0	0	0.0
Sagadahoc	0	0.0	6	16.5	2	5.5	3	8.2	2	5.5	0	0.0
Somerset	0	0.0	2	3.9	9	17.4	5	9.7	1	1.9	0	0.0
Waldo	0	0.0	1	2.6	11	28.6	0	0.0	0	0.0	0	0.0
Washington	1	3.1	1	3.1	2	6.1	3	9.2	2	6.1	0	0.0
York	0	0.0	10	5.0	5	2.5	32	15.9	2	1.0	3	1.5
Maine Total	8	0.6	83	6.3	86	6.5	138	10.5	41	3.1	14	1.1

Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by County, Maine, 2007

	Streptococcus, invasive Group A		Streptococcus pneumonia, invasive, drug resistant		Tuberculosis		Vibriosis	
County	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**
Androscoggin	4	3.7	1	0.9	3	2.8	0	0.0
Aroostook	2	2.8	0	0.0	1	1.4	0	0.0
Cumberland	8	2.9	7	2.5	8	2.9	0	0.0
Franklin	0	0.0	1	3.3	0	0.0	0	0.0
Hancock	2	3.8	0	0.0	0	0.0	0	0.0
Kennebec	1	0.8	0	0.0	2	1.7	0	0.0
Knox	1	2.5	0	0.0	1	2.5	0	0.0
Lincoln	0	0.0	0	0.0	0	0.0	0	0.0
Oxford	1	1.8	0	0.0	0	0.0	0	0.0
Penobscot	0	0.0	1	0.7	1	0.7	0	0.0
Piscataquis	0	0.0	0	0.0	0	0.0	0	0.0
Sagadahoc	3	8.2	1	2.7	0	0.0	0	0.0
Somerset	3	5.8	1	1.9	0	0.0	0	0.0
Waldo	1	2.6	0	0.0	0	0.0	0	0.0
Washington	0	0.0	0	0.0	0	0.0	0	0.0
York	2	1.0	1	0.5	3	1.5	0	0.0
Maine Total	28	2.1	13	1.0	19	1.4	0	0.0

Reportable HIV/STDs, Number of Cases and Rate per 100,000 Persons by County, Maine, 2007

	Chlamydia		Gonorrhea		Syphilis, Primary and Secondary		HIV	
County	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**
Androscoggin	358	335.2	24	22.5	2	1.9	3	2.8
Aroostook	77	106.9	2	2.8	0	0.0	2	2.8
Cumberland	672	244.0	37	13.4	8	2.9	17	6.2
Franklin	55	183.8	3	10.0	0	0.0	0	0.0
Hancock	71	133.3	3	5.6	0	0.0	2	3.8
Kennebec	238	197.0	4	3.3	0	0.0	7	5.8
Knox	77	188.8	1	2.5	1	2.5	1	2.5
Lincoln	51	146.6	2	5.7	0	0.0	1	2.9
Oxford	84	148.1	2	3.5	1	1.8	0	0.0
Penobscot	321	215.7	18	12.1	0	0.0	4	2.7
Piscataquis	13	75.7	1	5.8	0	0.0	0	0.0
Sagadahoc	59	162.1	4	11.0	0	0.0	0	0.0
Somerset	90	174.2	0	0.0	0	0.0	1	1.9
Waldo	55	142.8	2	5.2	0	0.0	1	2.6
Washington	36	109.9	1	3.1	0	0.0	1	3.1
York	286	142.0	14	7.0	2	1.0	12	6.0
Maine Total	2543	193.1	118	9.0	14	1.1	52	3.9

Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by District, Maine, 2007

	York District		Cumberland District		Western District		Mid Coast District		Maine	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Babesiosis	6	3.0	3	1.1	1	0.5	0	0.0	11	0.8
Campylobacteriosis	21	10.4	30	10.9	20	10.3	17	11.3	149	11.3
Cryptosporidiosis	8	4.0	0	0.0	3	1.6	10	6.6	56	4.3
Ehrlichiosis	6	3.0	4	1.5	0	0.0	0	0.0	12	0.9
Giardiasis	17	8.4	61	22.2	39	20.2	13	8.6	197	15
Haemophilus influenzae, invasive	1	0.5	4	1.5	6	3.1	0	0.0	13	1
Hemolytic uremic syndrome	0	0.0	0	0.0	0	0.0	1	0.7	1	0.1
Hepatitis A	0	0.0	1	0.4	1	0.5	1	0.7	5	0.4
Hepatitis B, acute	2	1.0	3	1.1	2	1.0	4	2.7	19	1.4
Legionellosis	2	1.0	3	1.1	3	1.6	0	0.0	9	0.7
Listeriosis	1	0.5	1	0.4	1	0.5	1	0.7	5	0.4
Lyme Disease	172	85.4	165	59.9	28	14.5	92	61.1	529	40.2
Meningococcal invasive disease	0	0.0	4	1.5	2	1.0	0	0.0	8	0.6
Pertussis	10	5.0	13	4.7	25	12.9	10	6.6	83	6.3
Rabies, animal	5	2.5	12	4.4	17	8.8	18	12.0	86	6.5
Salmonellosis	32	15.9	34	12.3	19	9.8	5	3.3	138	10.5
Shiga toxn producing *E. coli*	2	1.0	7	2.5	6	3.1	8	5.3	41	3.1
Shigellosis	3	1.5	5	1.8	1	0.5	0	0.0	14	1.1
Streptococcus, invasive Group A	2	1.0	8	2.9	5	2.6	5	3.3	28	2.1
Streptococcus pneumoniae, invasive, drug resistant	1	0.5	7	2.5	2	1.0	1	0.7	13	1
Tuberculosis	3	1.5	8	2.9	3	1.6	1	0.7	19	1.4
Vibriosis	0	0.0	0	0.0	0	0.0	0	0.0	0	0
Sexually Transmitted Diseases										
Chlamydia	286	142.0	672	244.0	497	256.9	242	160.8	2543	193.1
Gonorrhea	14	7.0	37	13.4	29	15.0	9	6.0	118	9
Syphilis, Primary and Secondary	2	1.0	8	2.9	3	1.6	1	0.7	14	1.1
HIV	10	5.0	15	5.4	2	1.0	3	2.0	47	3.6

Reportable Conditions, Number of Confirmed and Probable Cases and Rate per 100,000 Persons by District, Maine, 2007

	Central District		Penquis District		Downeast District		Aroostook District		Maine	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Babesiosis	1	0.6	0	0.0	0	0.0	0	0.0	11	0.8
Campylobacteriosis	27	15.7	18	10.8	10	11.6	6	8.3	149	11.3
Cryptosporidiosis	12	7.0	13	7.8	2	2.3	8	11.1	56	4.3
Ehrlichiosis	0	0.0	0	0.0	2	2.3	0	0.0	12	0.9
Giardiasis	32	18.6	16	9.6	12	13.9	7	9.7	197	15
Haemophilus influenzae, invasive	1	0.6	1	0.6	0	0.0	0	0.0	13	1
Hemolytic uremic syndrome	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Hepatitis A	0	0.0	1	0.6	1	1.2	0	0.0	5	0.4
Hepatitis B, acute	4	2.3	2	1.2	2	2.3	0	0.0	19	1.4
Legionellosis	0	0.0	1	0.6	0	0.0	0	0.0	9	0.7
Listeriosis	0	0.0	1	0.6	0	0.0	0	0.0	5	0.4
Lyme Disease	49	28.4	7	4.2	14	16.3	2	2.8	529	40.2
Meningococcal invasive disease	1	0.6	0	0.0	1	1.2	0	0.0	8	0.6
Pertussis	11	6.4	12	7.2	1	1.2	1	1.4	83	6.3
Rabies, animal	16	9.3	10	6.0	6	7.0	2	2.8	86	6.5
Salmonellosis	17	9.9	16	9.6	9	10.5	6	8.3	138	10.5
Shiga toxn producing *E. coli*	10	5.8	2	1.2	3	3.5	3	4.2	41	3.1
Shigellosis	0	0.0	1	0.6	4	4.6	0	0.0	14	1.1
Streptococcus, invasive Group A	4	2.3	0	0.0	2	2.3	2	2.8	28	2.1
Streptococcus pneumoniae, invasive, drug resistant	1	0.6	1	0.6	0	0.0	0	0.0	13	1
Tuberculosis	2	1.2	1	0.6	0	0.0	1	1.4	19	1.4
Vibriosis	0	0.0	0	0.0	0	0.0	0	0.0	0	0
Sexually Transmitted Diseases										
Chlamydia	328	190.1	334	201.2	107	124.4	77	106.9	2543	193.1
Gonorrhea	4	2.3	19	11.4	4	4.6	2	2.8	118	9
Syphilis, Primary and Secondary	0	0.0	0	0.0	0	0.0	0	0.0	14	1.1
HIV	9	5.2	4	2.4	2	2.3	2	2.8	47	3.6

Summary of Disease Outbreaks and Clusters Investigated by the Division of Infectious Disease, Maine, 2007

Report Date	County	Site	Illness description	Etiology
January	Oxford	Long term care facility	Gastroenteritis	Suspect Norovirus
January	Lincoln	Long term care facility	Gastroenteritis	Norovirus
January	York	Other Facility	Gastroenteritis	Norovirus
January	Washington	Other Facility	Gastroenteritis	Norovirus
January	Hancock	Long term care facility	Gastroenteritis	Suspect Norovirus
January	Waldo	School	Gastroenteritis	Suspect Norovirus
January	Cumberland	Long term care facility	Gastroenteritis	Norovirus
January	Sagadahoc	School	Gastroenteritis	Suspect Norovirus
January	York	Hospital	Gastroenteritis	Suspect Norovirus
January	Penobscot	Long term care facility	Gastroenteritis	Suspect Norovirus
January	Cumberland	Long term care facility	Gastroenteritis	Norovirus
January	Oxford	School	Gastroenteritis	Suspect Norovirus
January	Penobscot	Long term care facility	Gastroenteritis	Suspect Norovirus
January	Aroostook	Long term care facility	Gastroenteritis	Norovirus
January	Androscoggin	School	Gastroenteritis	Norovirus
January	Cumberland	Long term care facility	Gastroenteritis	Norovirus
January	Aroostook	Long term care facility	Gastroenteritis	Norovirus
January	Androscoggin	School	Gastroenteritis	Suspect Norovirus
January	Washington	Long term care facility	Gastroenteritis	Suspect Norovirus
January	Cumberland	Long term care facility	Gastroenteritis	Suspect Norovirus
January	Cumberland	Long term care facility	Gastroenteritis	Norovirus
January	Cumberland	Other Facility	Gastroenteritis	Norovirus
January	Cumberland	Long term care facility	Gastroenteritis	Norovirus
January	Hancock	Long term care facility	Lice	Lice
January	Cumberland	School	Gastroenteritis	Norovirus
January	York	Daycare	Gastroenteritis	Suspect Norovirus
January	Cumberland	Long term care facility	Gastroenteritis	Norovirus
January	Penobscot	Long term care facility	Gastroenteritis	Suspect Norovirus
January	Penobscot	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Cumberland	Long term care facility	Gastroenteritis	Norovirus
February	Somerset	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Cumberland	Long term care facility	Gastroenteritis	Norovirus
February	Somerset	School	Gastroenteritis	Unknown
February	Penobscot	School	Gastroenteritis	Suspect Norovirus
February	Franklin	School	Influenza like illness	Confirmed Influenza A/B
February	Penobscot	Long term care facility	Gastroenteritis	Norovirus
February	Oxford	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Penobscot	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Kennebec	School	Gastroenteritis	Suspect Norovirus

Report Date	County	Site	Illness description	Etiology
February	Aroostook	School	Gastroenteritis	Suspect Norovirus
February	Washington	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Knox	School	Gastroenteritis	Suspect Norovirus
February	Androscoggin	School	Gastroenteritis	Suspect Norovirus
February	Sagadahoc	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Oxford	Long term care facility	Influenza like illness	Suspect Influenza
February	Knox	School	Influenza like illness	Suspect Influenza
February	Cumberland	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Kennebec	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Cumberland	Long term care facility	Gastroenteritis	Norovirus
February	Cumberland	Other Facility	Gastroenteritis	Norovirus
February	Androscoggin	Long term care facility	Influenza like illness	Confirmed Influenza A/B
February	Penobscot	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Oxford	School	Influenza like illness	Confirmed Influenza A
February	Kennebec	Other Facility	Gastroenteritis	Suspect Norovirus
February	York	Long term care facility	Gastroenteritis	Suspect Norovirus
February	Cumberland	Daycare	Gastroenteritis	Rotavirus
March	Penobscot	Long term care facility	Gastroenteritis	Norovirus
March	Kennebec	School	Gastroenteritis	Norovirus
March	Sagadahoc	Daycare	Gastroenteritis	Suspect Norovirus
March	Hancock	Long term care facility	Gastroenteritis	Suspect Norovirus
March	Somerset	School	Gastroenteritis	Suspect Norovirus
March	Androscoggin	School	Influenza like illness	Suspect Influenza
March	Hancock	School	Influenza like illness	Suspect Influenza
April	Hancock	Long term care facility	Gastroenteritis	Suspect Norovirus
April	Kennebec	Long term care facility	Influenza like illness	Confirmed Influenza A
April	Somerset	School	Gastroenteritis	STEC & Cryptosporidiosis
April	Kennebec	Fitness Center	MRSA	MRSA
April	Somerset	School	Multiple symptoms	unknown
April	Franklin	Long term care facility	Influenza like illness	Confirmed Influenza A
April	Kennebec	Long term care facility	Influenza like illness	Confirmed Influenza A
April	Hancock	Event	Gastroenteritis	*Shigella sonnei*
April	Oxford	Long term care facility	Influenza like illness	Confirmed Influenza A/B
April	Kennebec	Long term care facility	Influenza like illness	Suspect Influenza
April	Androscoggin	Long term care facility	Influenza like illness	Confirmed Influenza A/B
April	Androscoggin	Long term care facility	Gastroenteritis	Suspect Norovirus
April	York	Long term care facility	Gastroenteritis	Suspect Norovirus
April	Sagadahoc	Daycare	Gastroenteritis	Suspect Norovirus
April	Knox	Long term care facility	Influenza like illness	Confirmed Influenza A
April	Aroostook	Workplace	Tuberculosis	Pulmonary Tuberculosis
May	Androscoggin	Workplace	Tuberculosis	Pulmonary Tuberculosis
July	Waldo	Event	Gastroenteritis	Unknown

Report Date	County	Site	Illness description	Etiology
July	York	Event	Gastroenteritis	*Shigella sonnei*
July	Penobscot	Event	Gastroenteritis	Cryptosporidiosis
July	Kennebec	Event	Gastroenteritis	Norovirus
July	Washington	Event	Paralytic Shellfish Poisoning	Paralytic Shellfish Poisoning
August	Cumberland	Event	Gastroenteritis	Unknown
August	Kennebec	Hospital	Gastroenteritis	Suspect Norovirus
August	Kennebec	Hospital	Gastroenteritis	Suspect Norovirus
September	Kennebec	Event	Gastroenteritis	Cryptosporidiosis
September	Sagadahoc	School	Gastroenteritis	Norovirus
September	Cumberland	Food Establishment	Gastroenteritis	*Salmonella newport*
September	Cumberland	School	Pneumonia	Mycoplasma
October	Penobscot	Food Establishment	Gastroenteritis	*Salmonella copenhagen*
November	Kennebec	School	MRSA	MRSA
November	Cumberland	School	MRSA	MRSA
December	Kennebec	Long term care facility	Gastroenteritis	Norovirus
December	Oxford	Long term care facility	Gastroenteritis	Norovirus
December	Penobscot	Long term care facility	Gastroenteritis	Norovirus
December	Waldo	Long term care facility	Influenza like illness	Confirmed Influenza A

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ENTERIC DISEASES

Campylobacteriosis

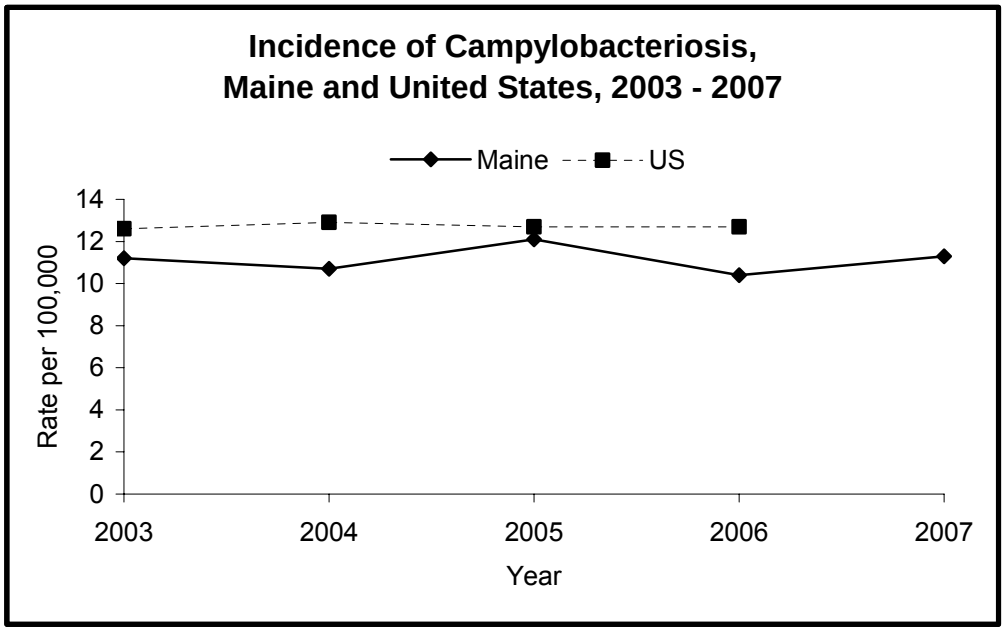
Campylobacteriosis is one of the most common infectious diseases causing diarrhea in the United States. Most human illness is caused by one strain of the bacteria called *Campylobacter jejuni*. This strain grows best at the body temperature of poultry which often carry the bacteria without becoming ill. Many cases of campylobacteriosis are associated with handling raw poultry or eating undercooked poultry meat. It is also possible for other raw foods, such as vegetables or salad, to be contaminated if the same cutting board is used for both food items and not cleaned in between preparations. Occasionally outbreaks have been traced to drinking unpasteurized milk.

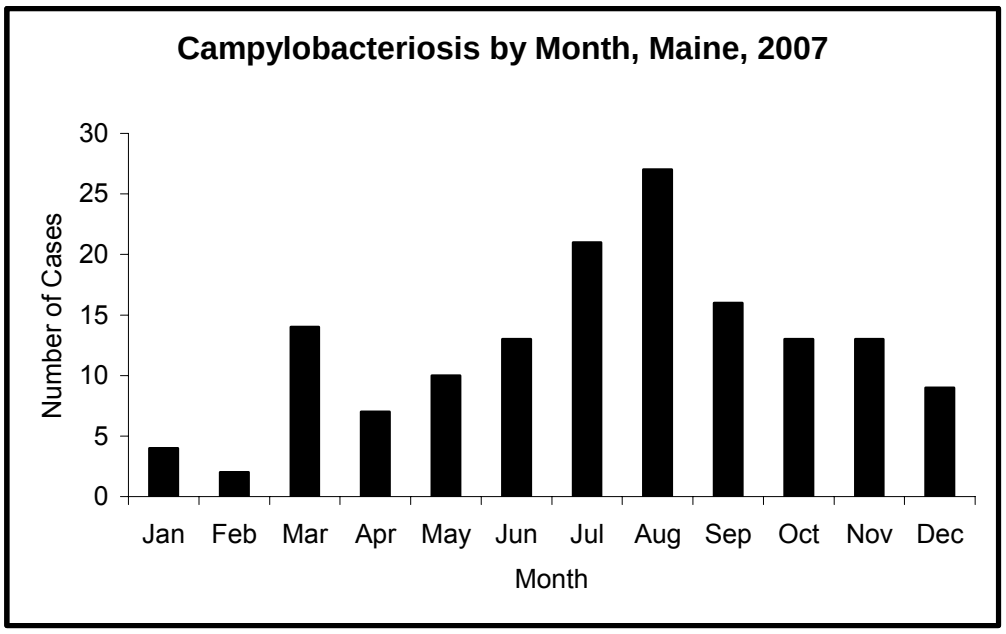
Symptoms of this disease may include diarrhea, cramping, abdominal pain and fever. Most individuals who get this infection recover within 5 to 10 days. Very rarely some individuals develop a disease called Guillain-Barre syndrome which causes temporary paralysis and requires intensive care hospitalization. It has been estimated that as many as 40% of Guillian-Barre syndrome cases are triggered by Campylobacter infection.

Maine had a total of 149 cases reported in 2007. Sixty percent of the cases were male. The median age of reported cases was 48 years old. Cases were reported from all 16 counties with the highest rates in Franklin (26.7 per 100,000 population), Somerset (17.4 per 100,000 population) and Sagadahoc (16.5 per 100,000 population). No outbreaks or clusters were identified.

Campylobacteriosis tends to occur more frequently in the summer months. The incidence rate in Maine was slightly lower than the US rate. The Healthy Maine 2010 targeted goal is 8.5 cases per 100,000 population. The 2007 Maine rate of 11.3 indicates the need for increased effort in education and prevention to reach this goal.

Methods of prevention include proper cooking of poultry and other meats and avoiding untreated water, raw milk and milk products and unpasteurized juice.


Incidence of Campylobacteriosis,
Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
14
12
10
8
6
4
2
0
2003
2004
2005
2006
2007
Year


Campylobacteriosis by Month, Maine, 2007
Number of Cases
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

Cryptosporidiosis

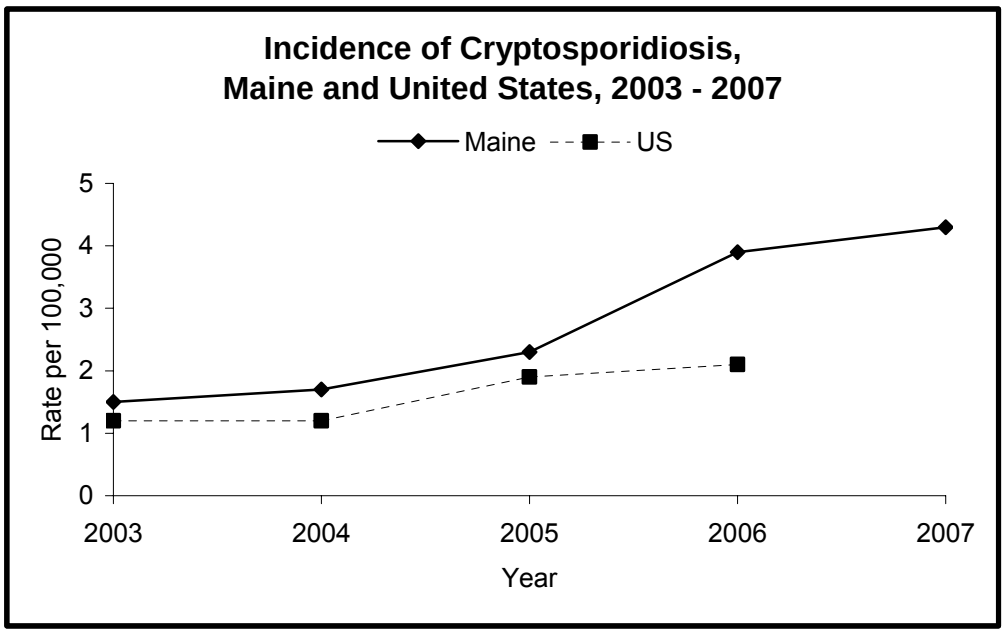
Cryptosporidiosis is an infection most frequently associated with contaminated water. In 1993, 400,000 individuals became ill in Milwaukee due to the contamination of public drinking water. In 1997 cryptosporidiosis associated with exposure to a water sprinkler fountain at a Minnesota zoo caused widespread illness.

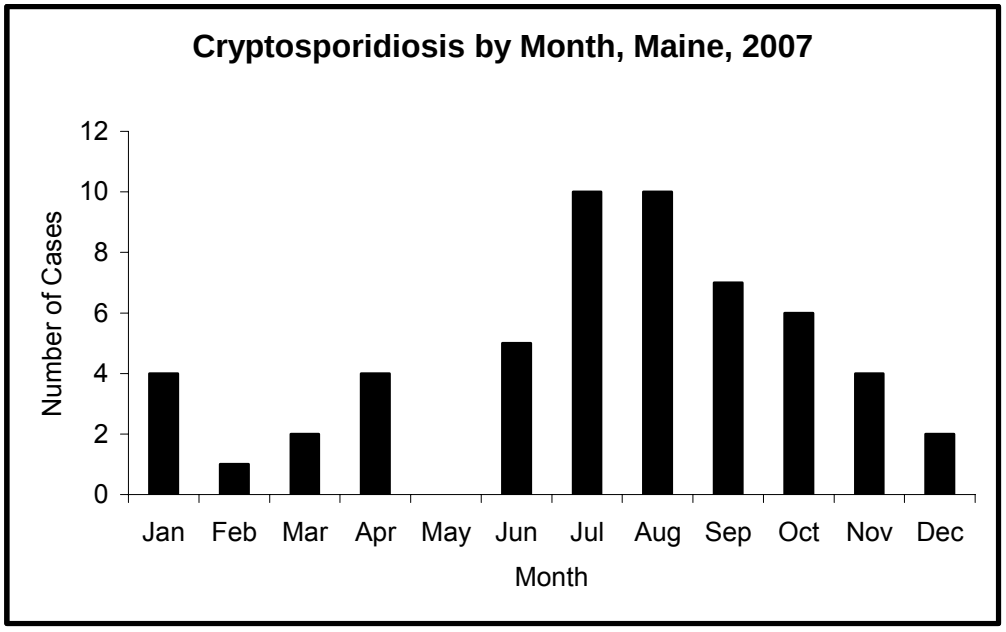
The disease is caused by a parasite which lives in the intestines of animals and infected humans. Feces containing the parasite may contaminate the ground or water sources. The parasite may live for long periods of time in the environment due to a protective outer covering. It is resistant to many chlorine-based disinfectants, increasing the risk of transmission in pool settings. If an individual who is infected swims in a pool, fecal contamination of the water may occur and result in transmission to other swimmers who ingest small quantities of water.

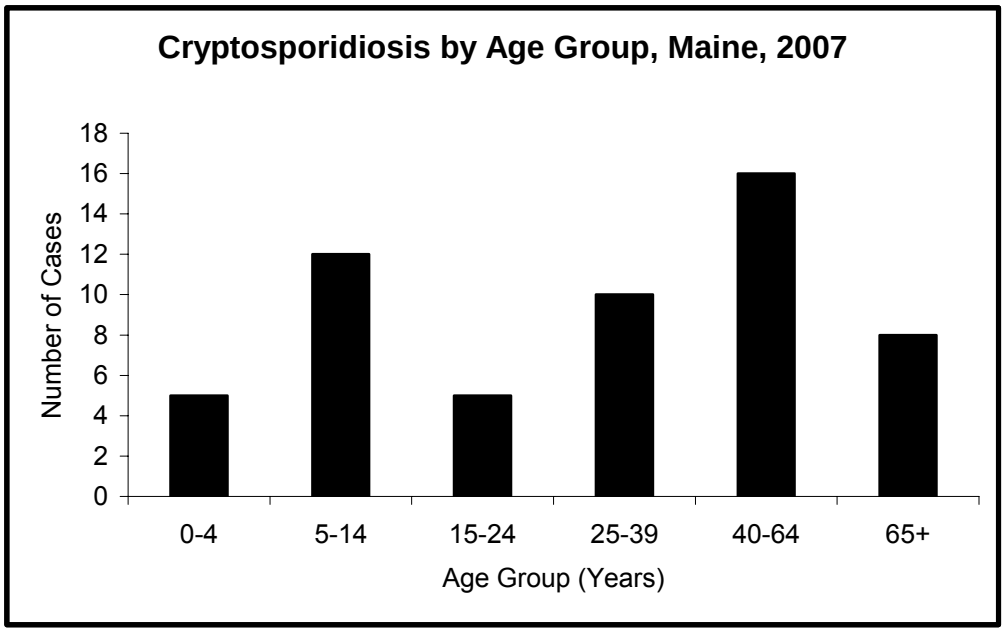
Fifty-six cases were reported in Maine in 2007. This number continues a trend of yearly increased reported cases of the illness. The median age of cases was 34 years old. Sixty-three percent of the cases reported were female. Residents of thirteen counties were reported with cryptosporidiosis with no cases reported from Cumberland, Androscoggin and Oxford counties. The highest rate of occurrence was in Lincoln County (14.4 per 100,000 population), Piscataquis County (11.6 per 100,000 population) and Aroostook County (11.1 per 100,000 population). The incidence in Maine was above the US rate possibly due to the rural and farming nature of the state. Almost 61% of the cases had some kind of animal contact.

Three small outbreaks were identified in Maine in July of 2007. There were 11 confirmed cases associated with these outbreaks. These clusters involved transmission that occurred in a school, family and swimming pool setting.

Preventive measures include the practice of good hand hygiene around farm animals and discouraging any persons from swimming when they have diarrheal illnesses.




Cryptosporidiosis by Month, Maine, 2007
Number of Cases
0
2
4
6
8
10
12
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month


Cryptosporidiosis by Age Group, Maine, 2007
Number of Cases
0
2
4
6
8
10
12
14
16
18
0-4
5-14
15-24
25-39
40-64
65+
Age Group (Years)

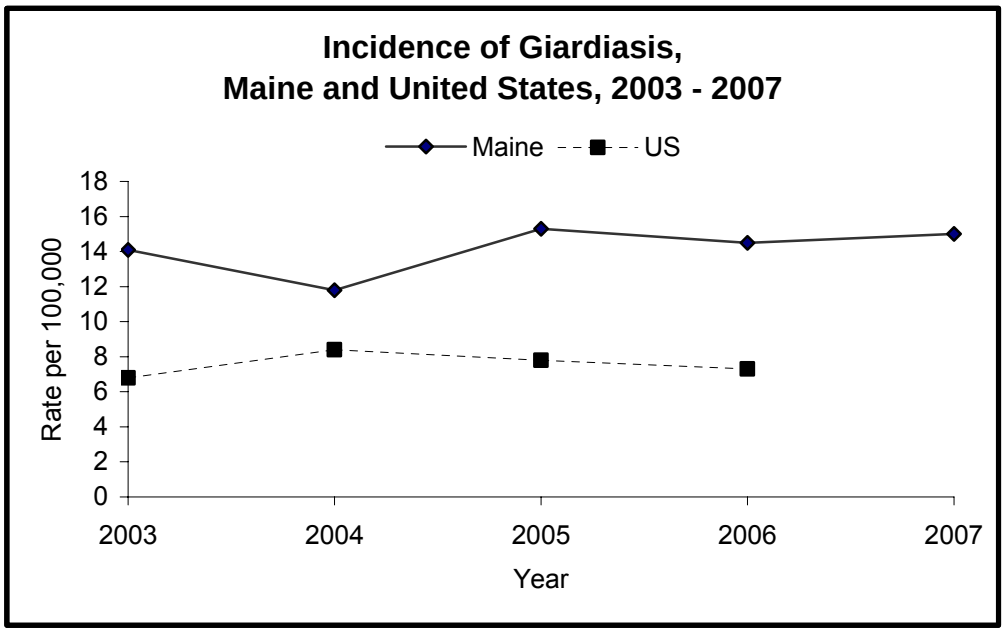
Giardiasis

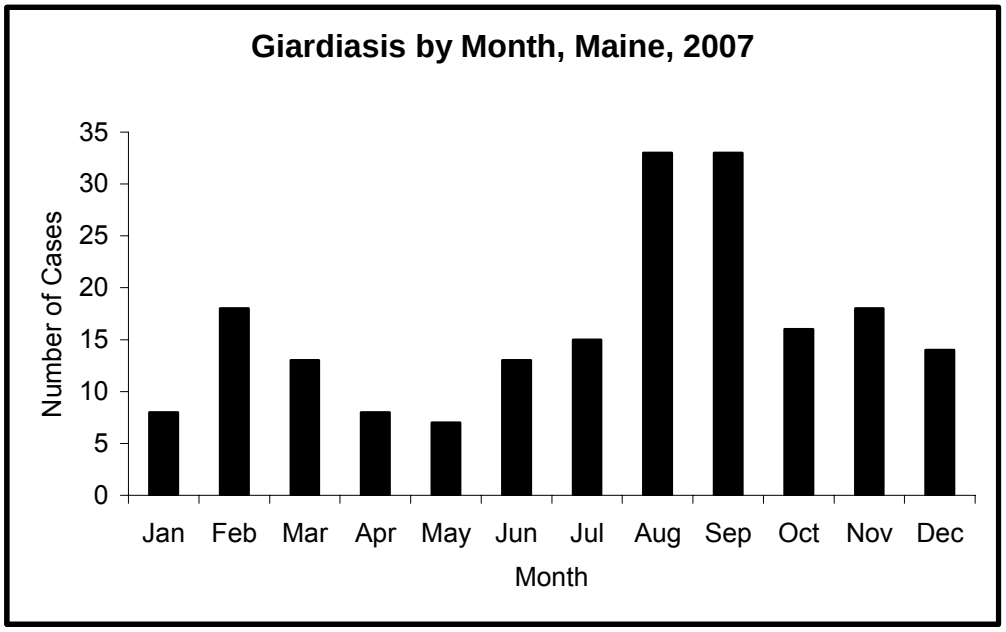
Giardiasis is sometimes known as “beaver fever” because beavers (as well as dogs, cats, horses and cows) are major reservoirs for the parasite that causes the infection. The parasite lives in the intestines of infected humans and animals and when expelled through the feces can contaminate water and ground surfaces. The beaver feces can infect ponds and streams and if hikers or others drink water in the wild without proper treatment they may become infected. Young children in child care or pool settings who are prone to sucking on toys or swallowing water are also at higher risk.

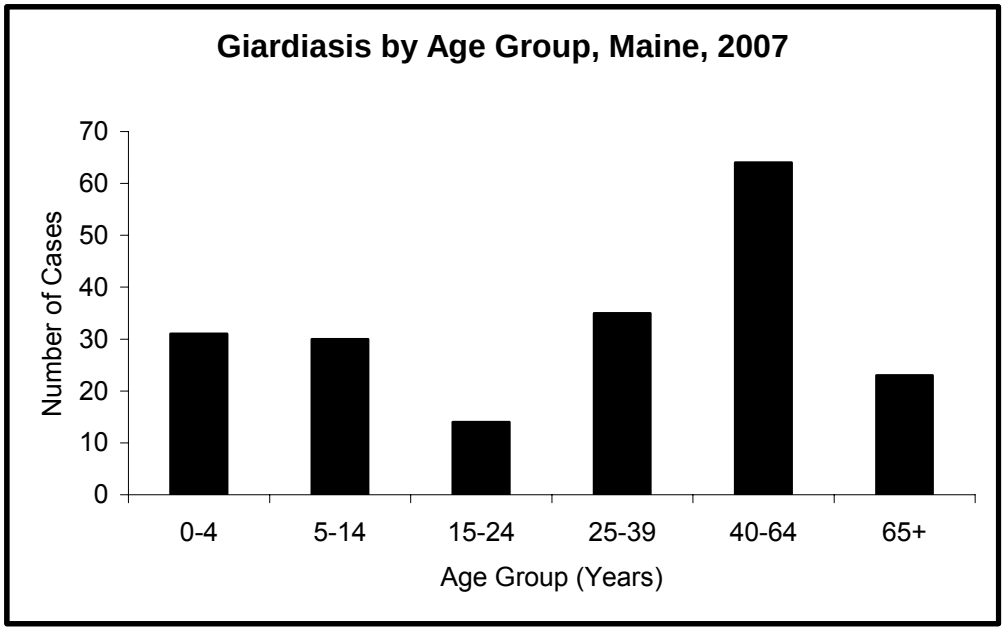
Giardiasis is the most common infectious diarrheal illness reported in Maine. There were 197 cases reported in 2007, a slight increase from 2006. All of the counties reported cases with the highest rates in Franklin (26.7 per 100,000 population), Somerset (25.2 per 100,000 population), and Cumberland (22.2 per 100,000 population).

Giardiasis tends to occur more frequently in the summer and fall months with twice the number of cases identified in August and September than other months of the year. There was a near even split by gender with fifty-one percent of cases being female. The median age was 37 years old.

Individuals can prevent this illness by not drinking from untreated water sources such as streams and lakes. Increased attention to proper sanitation and hygiene in public water recreational facilities can help to reduce the transmission of this infection.




Giardiasis by Month, Maine, 2007
Number of Cases
0
5
10
15
20
25
30
35
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month


Giardiasis by Age Group, Maine, 2007
Number of Cases
0
10
20
30
40
50
60
70
0-4
5-14
15-24
25-39
40-64
65+
Age Group (Years)

Hepatitis A

Hepatitis A is a liver disease caused by hepatitis A virus (HAV). HAV is spread from person to person by putting something in the mouth that has been contaminated with the stool of a person with hepatitis A. Poor hand washing by infected persons increases the risk of transmission. The virus spreads more easily in areas where sanitary conditions and personal hygiene practices are poor. Most infections result from exposure during international travel or contact with a household member or sexual partner who has hepatitis A. Men who have sex with men are at higher risk.

The national rate of hepatitis A has declined dramatically since 1995. In 2006, a total of 3,579 acute symptomatic cases of hepatitis A were reported nationally, (1.2 per 100,000 population), the lowest rate ever recorded**.**

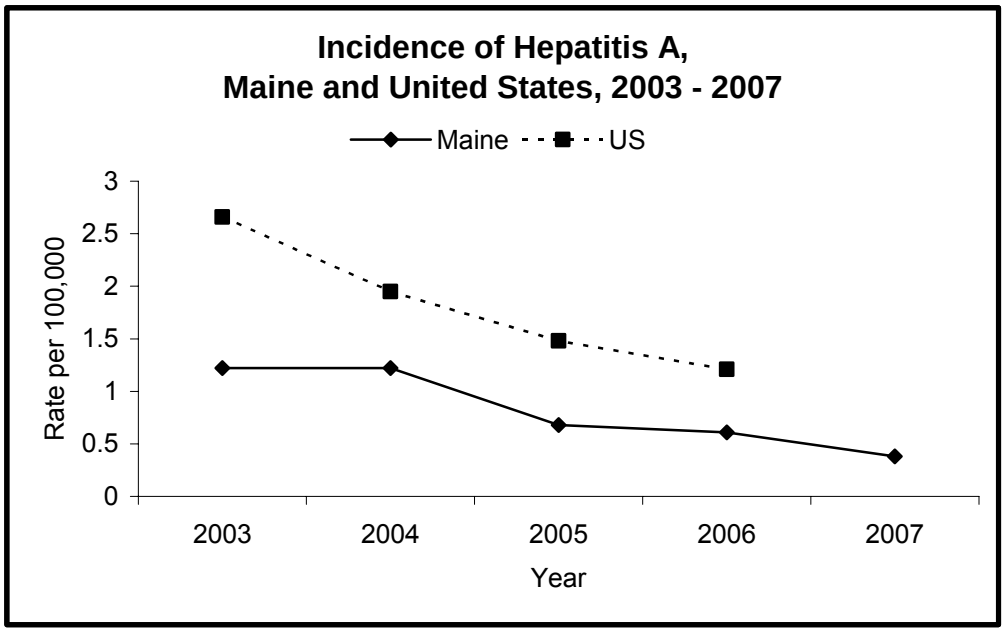
Maine's HAV rate is typically lower than the national rate. The five cases reported in Maine in 2007 account for a rate of 0.4 per 100,000. Three out of five (60%) were female. The mean age was sixty-three with a range of thirty-nine to eighty-seven years old.

Hepatitis A can be prevented by washing hands after using the bathroom, changing a diaper, or before preparing or eating food. Casual contact, such as in the office setting, factory setting, or school setting, does not spread the virus.

Hepatitis A can also be prevented through vaccination and immune globulin. Hepatitis A vaccine can be given to persons 12 months of age and older. The vaccine is given to protect persons from getting hepatitis A before and after exposure to the virus. The vaccine is recommended for all children at 12 months of age and for persons who are more likely to get hepatitis A or get seriously ill if they get hepatitis A. Immune globulin can be given before exposure for short-term protection against hepatitis A and for persons who have already been exposed to HAV. It must be given within 2 weeks after exposure to hepatitis A virus for maximum protection.

Hepatitis A vaccination is recommended for the following persons:

- All children at 12 months of age or before they enter school
- Persons traveling to countries that have high or intermediate rates of hepatitis A
- Men who have sex with men
- Users of street drugs (injecting and non-injecting)
- Persons who have occupational risk for infection (e.g. persons who work in a research laboratory setting)
- Persons who have chronic liver disease including hepatitis C or chronic hepatitis B
- Persons who are either awaiting or have received liver transplants
- Persons who have clotting-factor disorders
- Persons who have never had hepatitis A and who are given clotting-factor concentrates, especially solvent detergent-treated preparations
- All persons with hemophilia
- Anyone who wants to be protected


Incidence of Hepatitis A,
Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
3
2.5
2
1.5
1
0.5
0
2003
2004
2005
2006
2007
Year

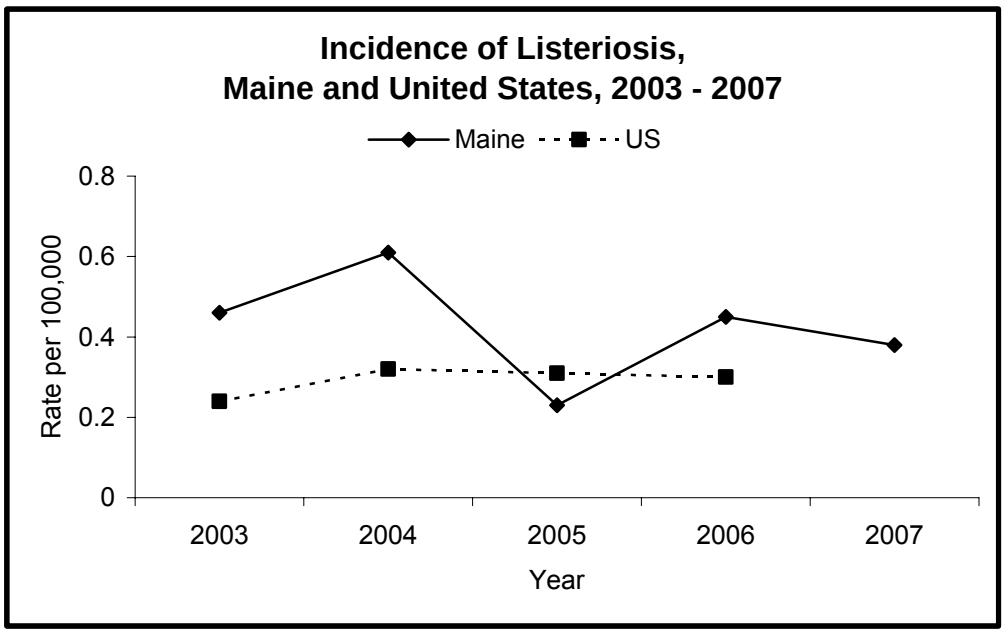
Listeriosis

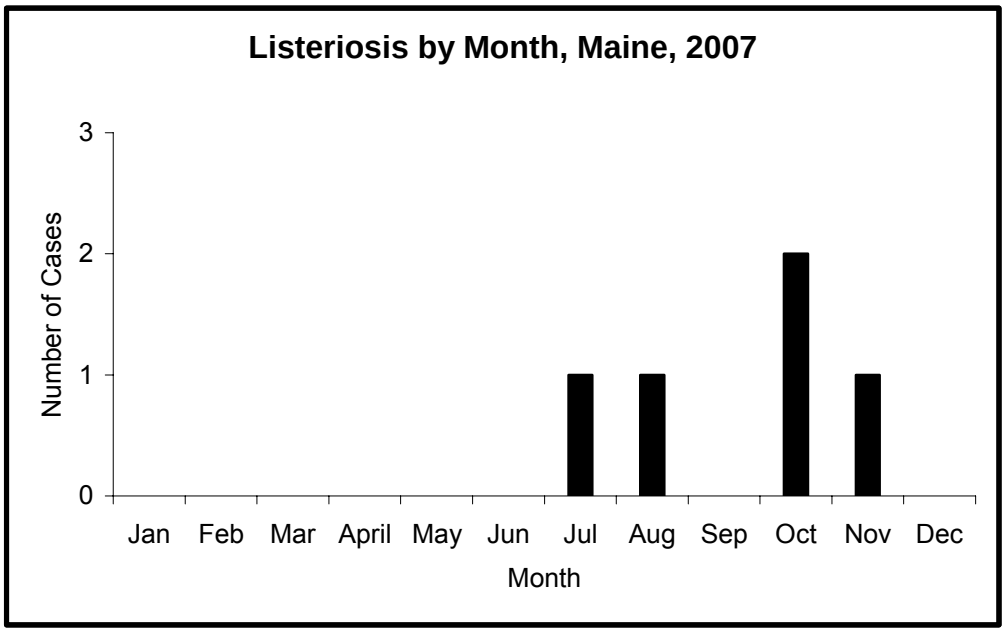
Listeriosis is a bacterial illness, caused by *Listeria monocytogenes.* Symptoms include fever, headache, nausea, fatigue and disorientation. Listeriosis infection may cause sepsis and meningitis. Listeriosis is frequently linked to ready-to-eat meats (paté), deli meats, soft cheeses and raw milk. Pregnant women and neonates are at highest risk as the infection can be acquired during pregnancy and transmitted to the fetus. Listeriosis may cause spontaneous abortion. Also at risk are the elderly and individuals with significant health conditions like cancer, diabetes, liver disease, immune system problems, or multiple medical conditions.

In 2007, five confirmed cases of listeriosis were reported to the Maine CDC. This represents an overall case rate of 0.4 per 100,000 population. Except for 2005, the rates of listeriosis in Maine have been higher than national rates for the last four years. Four (80%) of the cases were males; one case was female. The median age of cases was 74 years, with a range of 56 to 86 years.

Four of the five cases were hospitalized following symptoms of listeriosis. All cases appeared to have been unrelated. There were no outbreaks of listeriosis in Maine or cases matching national outbreaks in 2007. Cases were reported in July, August, October and November. All had at least one medical condition before diagnosis of listeriosis.

Prevention and control measures for listeriosis are the same as for other food borne diseases. *Listeria* bacteria are able to multiply in contaminated foods even during refrigeration. Poultry or meat (including hot dogs) should not be consumed without following proper cooking instructions. Raw milk or foods made from raw milk should be avoided. Pregnant women and people with weakened immune systems should avoid eating such foods as ready-to-eat meats, hot dogs, soft cheeses, and refrigerated smoked seafood.


Incidence of Listeriosis,
Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
0.8
0.6
0.4
0.2
0
2003
2004
2005
2006
2007
Year


Listeriosis by Month, Maine, 2007
Number of Cases
3
2
1
0
Jan
Feb
Mar
April
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

Salmonellosis

Salmonellosis is a gastrointestinal illness caused by *Salmonella* bacteria. Symptoms include fever, cramping, diarrhea, nausea and vomiting. This illness may be asymptomatic or invasive and may lead to an infection outside of the intestines, or a more severe infection in the bloodstream. The severity of this illness depends on the age and health of the infected person, the serotype of salmonella and the site of the infection. Salmonella bacteria are most often transmitted through ingestion of contaminated meat, poultry, eggs, unpasteurized dairy products and fresh produce.

Transmission also occurs through handling reptiles, chicks, domestic birds and pets, without thoroughly washing hands. Salmonella cases may go unreported despite clinical symptoms.

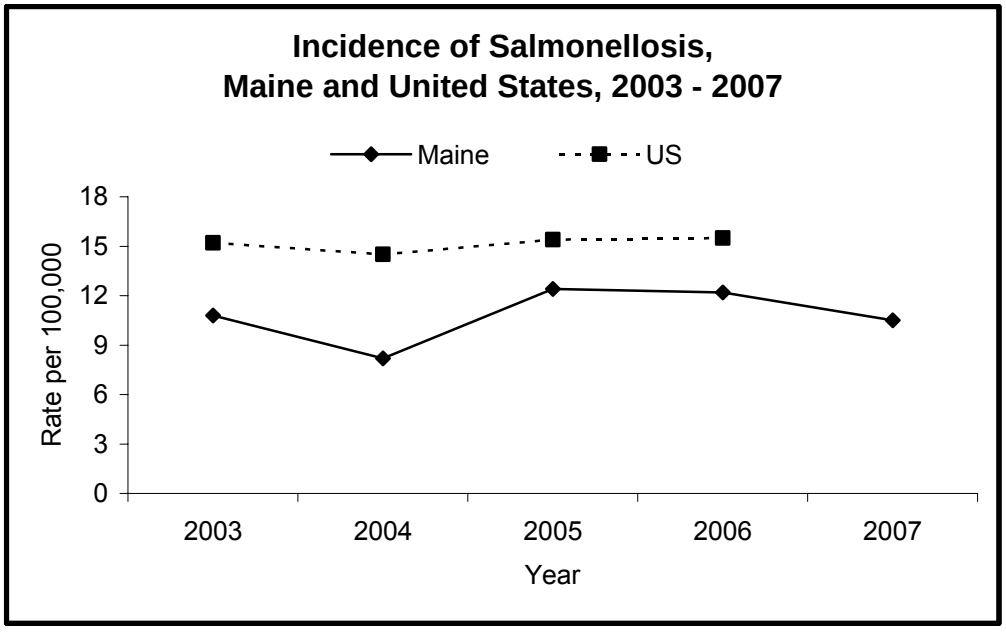
In 2007, a total of 138 salmonellosis cases were reported to the Maine CDC, 119 culture-confirmed cases and 19 probable cases (clinically compatible and epidemiologically linked cases). This represents an overall rate of 10.5 cases per 100,000 population. This rate is consistent with the previous five years and is below national rates (see graph). Eighty-three (60%) of the reported cases were female and fifty-five cases (40%) male. The median age was 41 years, with a range of 3 months to 90 years.

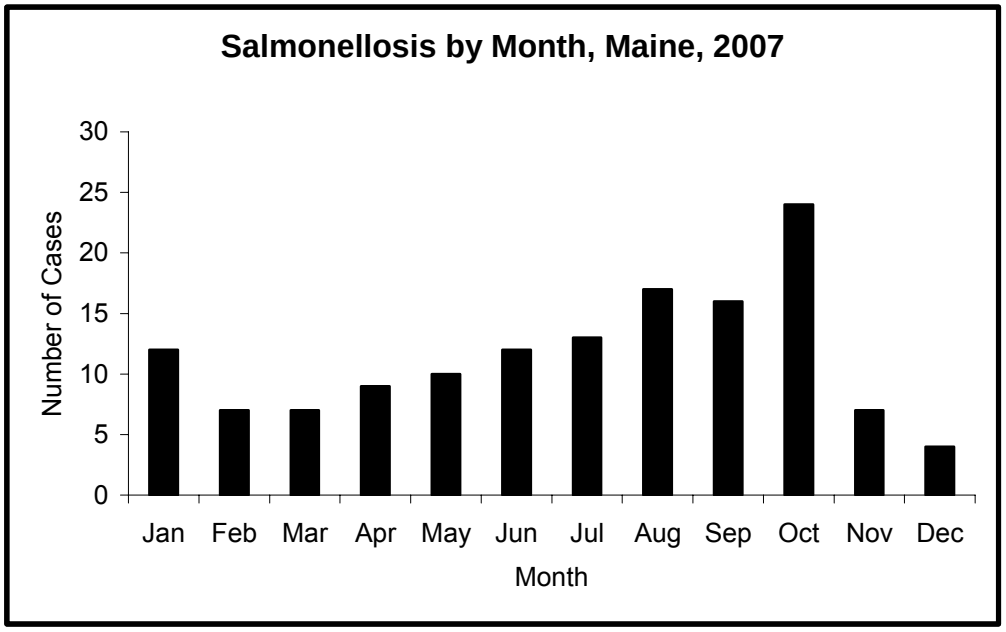
Serotypes *enteritidis*, *typhimurium* and *newport* were the three most commonly reported serotypes. There were no cases of *Salmonella typhi* (Typhoid Fever). Eighty-seven cases (70%) were from exposures within the state of Maine, three cases (2%) were from exposures in other states and twelve cases (10%) were from exposures in other countries. Twenty-two cases (18%) had no known origin of infection.

Five cases (4%) were child care attendees; 62 cases (50.8%) had contact with reptiles, birds or other animals. Five cases (3.9%) were food handlers at the onset of illness. Thirty-seven cases (30.1%) were hospitalized due to the illness.

Salmonella is more common in the summer months. The graph of cases by month shows this trend. The increase in the number of cases in September and October was due to two outbreaks.

Consumers should recognize the risk associated with consuming improperly prepared or cooked eggs, poultry, or meat, raw milk or unpasteurized dairy products and juices. Thorough washing of produce, consuming pasteurized products and following proper cooking instructions reduces this risk. Individuals having contact with reptiles (snakes, lizards, turtles, frogs, water dragons, iguanas, etc.), birds, farm animals and pets should wash their hands immediately after handling these animals. Reptiles, chicks and baby ducks are not recommended in households or childcare facilities with children under 5 years of age. All childcare, healthcare and food handlers with symptoms of Salmonellosis should have stool specimens tested and remain out of work until asymptomatic.


Incidence of Salmonellosis,
Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
18
15
12
9
6
3
0
2003
2004
2005
2006
2007
Year


Salmonellosis by Month, Maine, 2007
Number of Cases
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

Shiga toxin-producing *Escherichia coli* and Hemolytic Uremic Syndrome

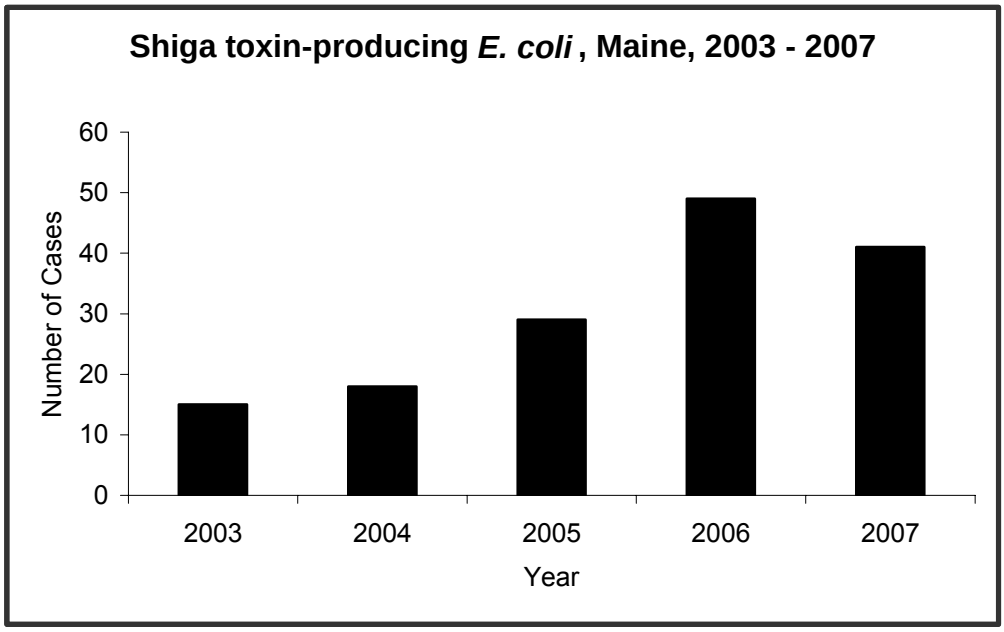
Escherichia coli are common bacteria that live in the digestive tract of healthy animals. Many *E. coli* strains do not cause disease, but some types of *E. coli*, Shiga toxin-producing *Escherichia coli* (STEC), make a toxin that can cause significant illness in humans when they ingest the bacteria. The most widely recognized STEC is *E. coli* 0157:H7. Several other *E. coli* serotypes, classified as non-0157 serogroups, also cause severe disease and constitute a large proportion of STEC.

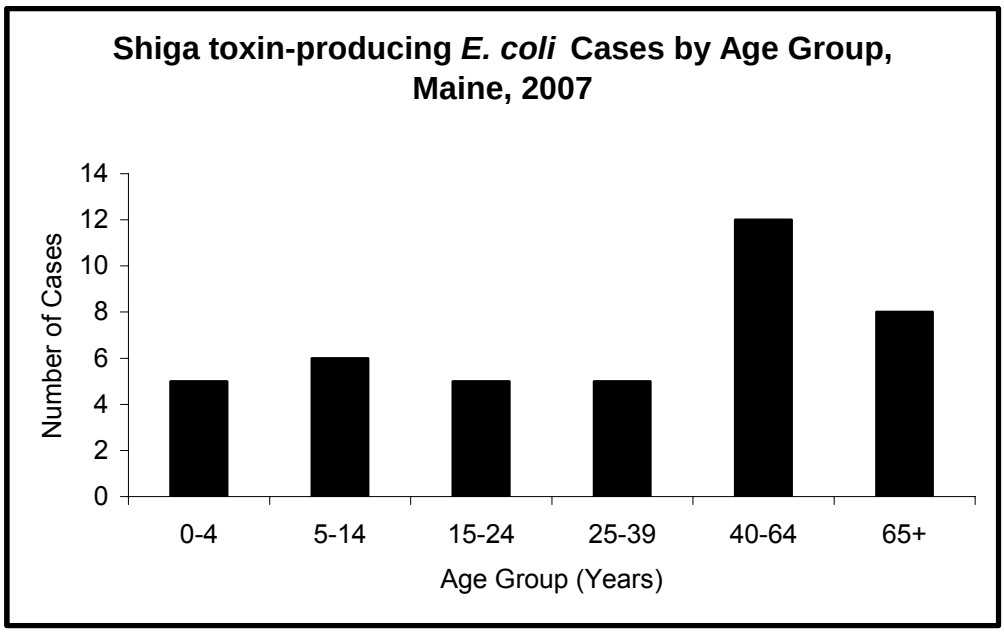
STEC infections can cause abdominal cramping, bloody diarrhea, and hemorrhagic colitis. A serious but rare complication, hemolytic uremic syndrome (HUS), which can damage red blood cells and the kidneys, is also associated with STEC infections. Transmission of STEC is usually through consumption of food or water contaminated with fecal matter. Commonly implicated food items include undercooked meats, raw vegetables, and unpasteurized products. STEC can also be passed via contaminated hands from person-to-person or through contact with farm animals.

The STEC case rate for the U.S. in 2007 was 1.7 per 100,000 population. Forty-one cases of STEC were reported to Maine CDC in 2007, resulting in a case rate of 3.1 per 100,000 population. Of the 41 cases reported, 34 were culture-confirmed cases and 7 were classified as probable cases. The median age of STEC cases was 37 years with a range of 1-83 years; the most cases occurred in adults aged 40-64. Twenty-one cases (51%) were female. The counties with the highest case rates were Knox, Kennebec, Lincoln, and Oxford. Although cases were reported in each month, the number of cases peaked in August, September, and October. Four (10%) reported travel outside of the United States before symptom onset. Thirteen (32%) of the cases were hospitalized for an average of 4 days (range 2-7 days). One (2%) of the cases developed HUS, the only reported case of HUS in Maine in 2007. No STEC-related fatalities occurred.

STEC specimens were available for serotyping for all 34 confirmed cases. Of these specimens, 15 (44%) were non-O157 serogroups and 14 (41%) were serogroup O157. Serogroup typing could not be performed on the other 5 (15%) specimens. In addition to serotyping, isolates are compared using pulsed-field gel electrophoresis (PFGE) to identify related cases. PFGE analysis identified 4 STEC clusters, none of which developed into outbreaks. One Maine case was associated with a 2007 multi-state outbreak of *E. coli* O157:H7 that was linked to packaged, frozen ground beef patties.

STEC prevention measures include: hand washing (particularly before and after cooking and after contact with animals), thoroughly cooking meats, avoiding raw dairy products and unpasteurized juices, avoiding consumption of untreated water, washing fresh fruits and vegetables, and avoiding cross-contamination of food items.


Shiga toxin-producing E. coli , Maine, 2003 - 2007
Number of Cases
60
50
40
30
20
10
0
2003
2004
2005
2006
2007
Year


Shiga toxin-producing E. coli Cases by Age Group, Maine, 2007
Number of Cases
14
12
10
8
6
4
2
0
0-4
5-14
15-24
25-39
40-64
65+
Age Group (Years)

Shigellosis

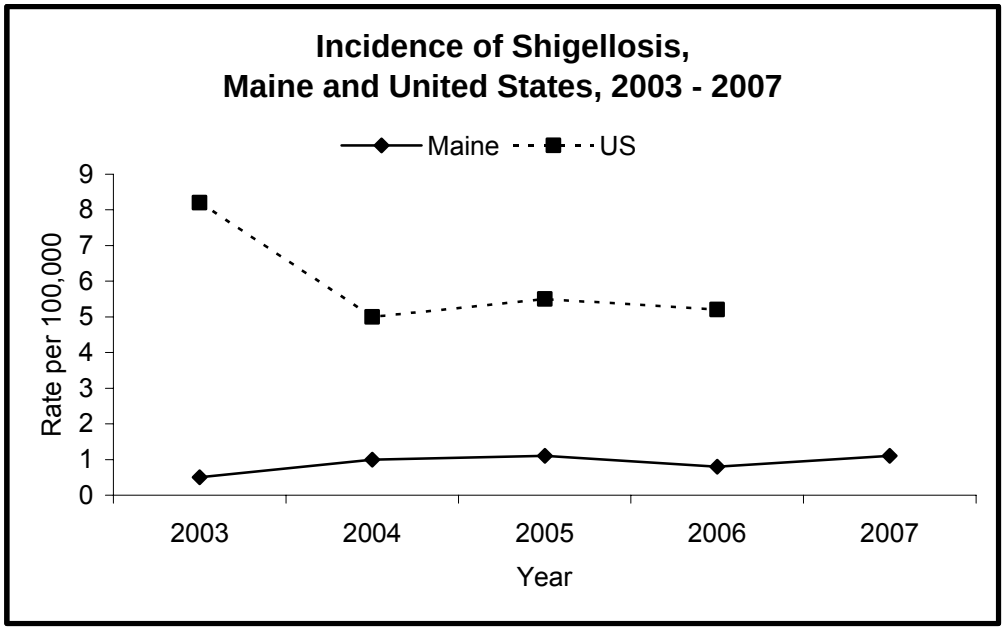
Shigellosis is a gastrointestinal illness caused by *Shigella* bacteria. Shigellosis most often causes cramping, fever and severe diarrhea. The diarrhea is often bloody. *Shigella* is highly infectious and can be easily passed from one person to another through the fecal-oral route. The increased potential for outbreaks makes reporting and case investigation a public health priority.

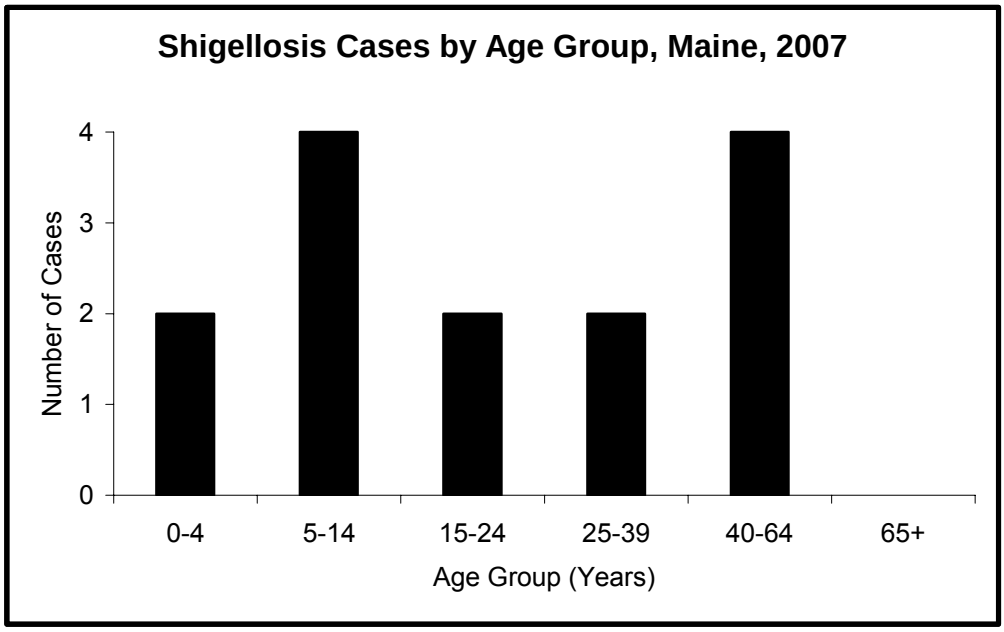
In 2007, a total of fourteen cases, ten confirmed cases and four probable cases (not laboratory confirmed but clinically compatible and epidemiologically related), were reported to the Maine CDC. This represents a case rate of 1.1 per 100,000 population. Eight of the reported cases (57%) were females and six (43%) were males. Eight of the cases had foreign travel in South America or the Caribbean. One case was infected in another state.

The median age of cases was 20.5 years, with a range of 1 to 61 years. Only one case attended child care. None of these cases were food service workers. One healthcare worker became infected while processing a stool specimen in a laboratory.

There were two clusters of cases investigated in Maine in 2007. The first included two cases in a family who traveled to Florida and the health care worker, mentioned above, who was subsequently, occupationally exposed. The second was a travel related cluster in a family who had visited Honduras.

Shigella incidence remains relatively low in Maine and below the national rates (see graph). The incidence in 2007 was consistent with the 5-year median. Cases in childcare, healthcare, or food handling are restricted from work until infection clears and there is no evidence of *Shigella* in stool specimens.


Incidence of Shigellosis,
Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
0
1
2
3
4
5
6
7
8
9
2003
2004
2005
2006
2007
Year


Shigellosis Cases by Age Group, Maine, 2007
Number of Cases
0
1
2
3
4
0-4
5-14
15-24
25-39
40-64
65+
Age Group (Years)

MENINGITIS AND SEPTICEMIA

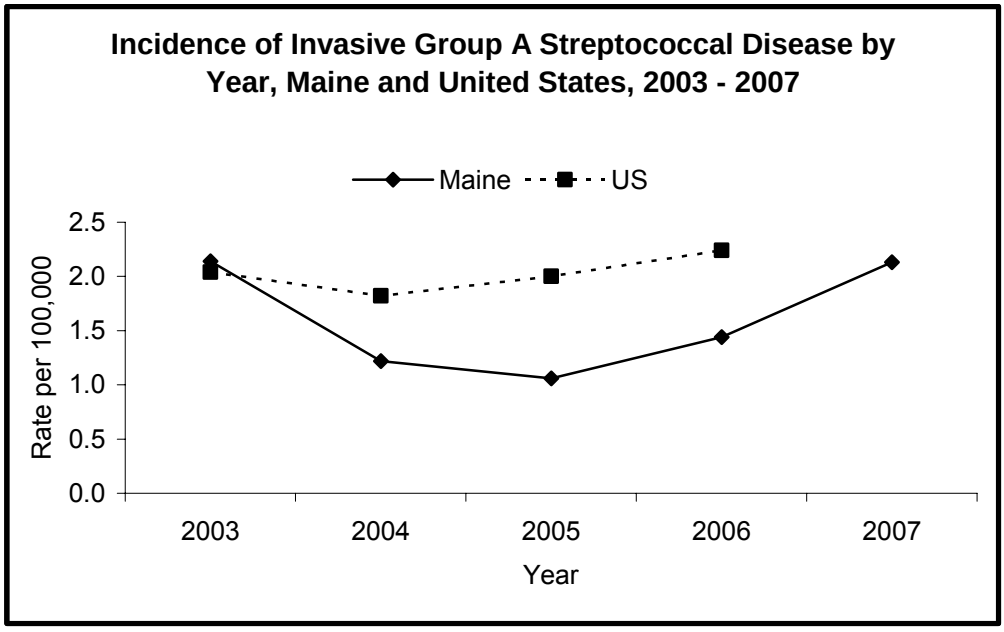
Invasive Group A Streptococcus

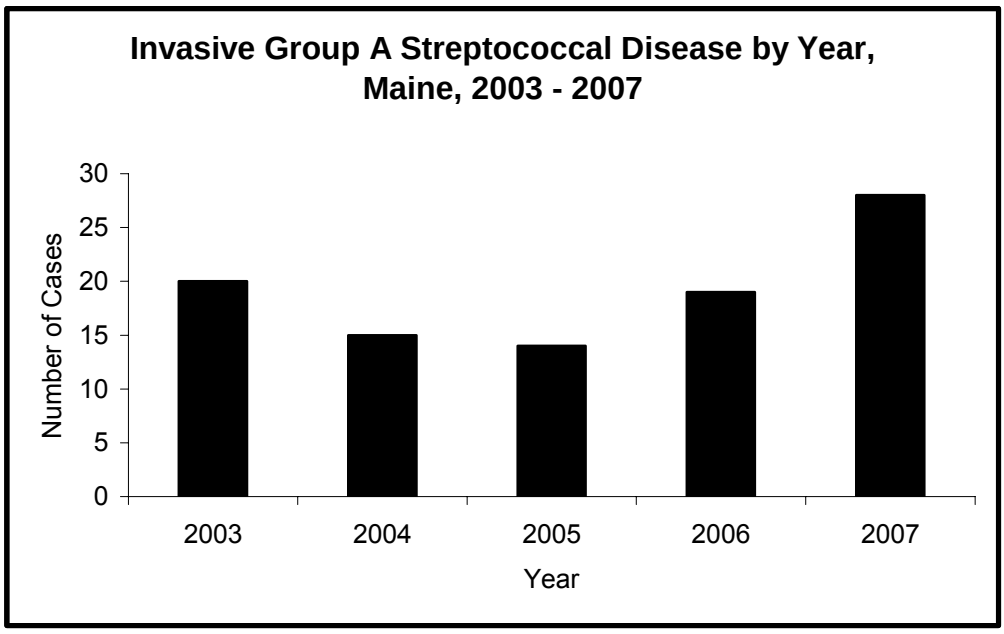
Group A Streptococcus (GAS) is a bacterium often found in the throat and on the skin that can cause either no symptoms or mild symptoms such as pharyngitis (strep throat), cellulitis (soft tissue infection) or impetigo, (skin dermatitis). Occasionally GAS can cause severe or even life-threatening conditions when the bacteria in the throat start to penetrate the pharyngeal mucous membrane and enter deeper tissues and the blood stream, causing bacteremia.

Necrotizing fasciitis, a condition that progressively destroys skin, fat and muscles, can be caused by GAS. Another example of an invasive GAS disease is Streptococcal Toxic Shock Syndrome, a rapid drop of blood pressure that causes organ failure. Invasive group A Streptococcus infections are reportable to Maine CDC and are investigated by field staff.

In 2007, 28 cases (2.0 cases per 100,000 population) of invasive Group A Streptococcus were reported to Maine CDC. The national rate for GAS was 2.2 per 100,000 population in 2006. Reported age ranged between 3 and 83 years old with a median of 60 years.

Control and prevention strategies may include targeted chemoprophylactic treatment for high risk household contacts of confirmed cases, such as those who are 65 and older or those who have other specified risk factors (HIV infection, diabetes, malignancy, injecting drug use, cardiac diseases).


Incidence of Invasive Group A Streptococcal Disease by Year, Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
2.5
2.0
1.5
1.0
0.5
0.0
2003
2004
2005
2006
2007
Year


Invasive Group A Streptococcal Disease by Year, Maine, 2003 - 2007
Number of Cases
30
25
20
15
10
5
0
2003
2004
2005
2006
2007
Year

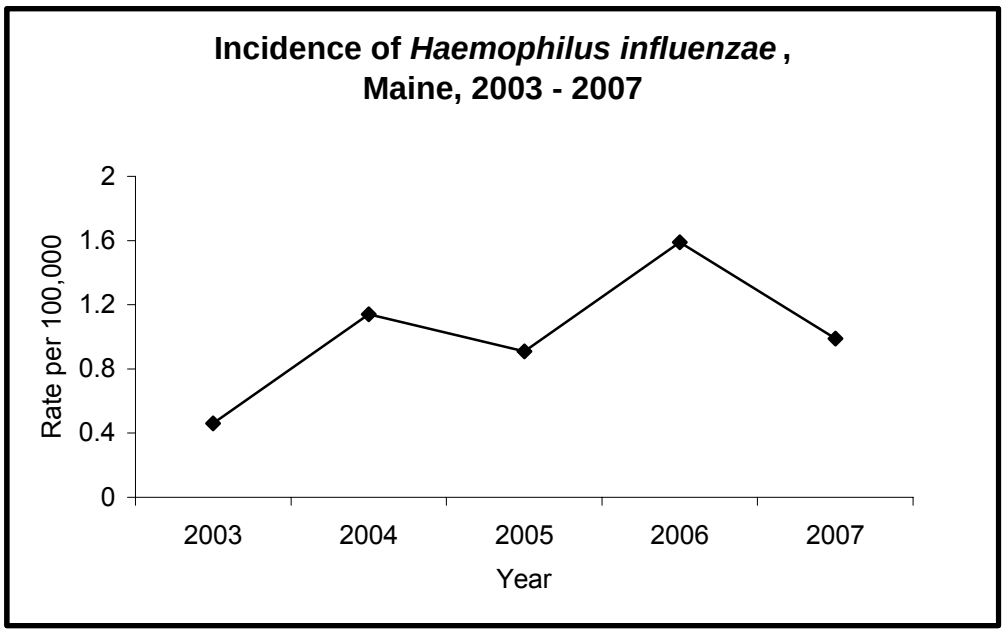
Haemophilus influenzae, invasive

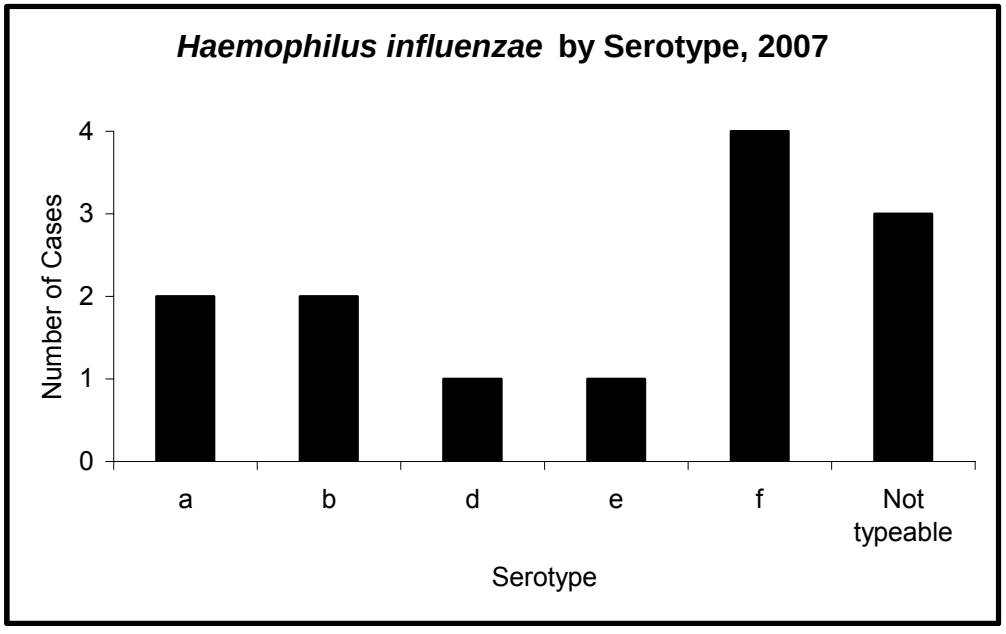
Haemophilus influenzae disease (sometimes called H. flu), is caused by the *Haemophilus influenzae* bacteria. A specific type of *Haemophilus influenzae,* called serotype B (Hib), was once the most common cause of bacterial meningitis in children. Due to widespread use of Hib vaccine in children, few cases in children less than 5 years old are reported each year. Non-serotype B infections occur primarily among the elderly and adults with weak immune systems. There are no vaccines for use against non-serotype B disease.

The *Haemophilus influenzae* bacteria spread from person to person, through airborne droplets, when an infected person coughs or sneezes. H. flu can cause severe illnesses such as meningitis, bacteremia, pneumonia and septic arthritis.

In Maine, only invasive cases, where the bacteria are found in a sterile site such as blood or cerebral spinal fluid are reportable. In 2007, 13 cases of invasive *Haemophilus influenzae* were reported. The 2007 cases ranged in age from 2 to 92 years old. Nine of the cases were greater than 60 years of age. Only one case was less than five years old, and it was non-serotype B. There was a decrease in case numbers from 2006 when 21 cases were reported.

Haemophilus influenzae serotype b (Hib) can be prevented in children through vaccination. Vaccination is recommended for all children at ages 2, 4 and 6 months or at 2 and 4 months depending on the type of vaccine available. An additional immunization is given as 12-15 months of age with either type of vaccine.


Incidence of Haemophilus influenzae ,
Maine, 2003 - 2007
Rate per 100,000
2
1.6
1.2
0.8
0.4
0
2003
2004
2005
2006
2007
Year


Haemophilus influenzae by Serotype, 2007
Number of Cases
4
3
2
1
0
a
b
d
e
f
Not typeable
Serotype

Meningococcal Disease

Neisseria meningitidis is a gram-negative diplococcal bacterium that causes meningitis and meningococcemia. The *N. meningitides* infection usually begins when the bacteria, that can be present in the throat but not cause illness, penetrates the nasopharyngeal surface and enters the blood stream.

The signs and symptoms of acute meningitis due to *Neisseria meningitidis* are indistinguishable from signs and symptoms of acute meningitis caused by *Streptococcus pneumoniae* or other pathogens.

There are at least 13 *Neisseria meningitidis* serogroups. Strains belonging to A, B, C, Y and W-135 groups cause the most disease worldwide. Serogroup B, C and Y each account for 30% of reported cases In the United States. Sixty percent of reported cases among young adults are caused by serogroup C, Y, or W-135. In infants 50% of cases are caused by serogroup B.

During 2007, eight cases of *N. meningitides* were reported to Maine CDC for a rate of 0.6 cases per 100,000 population. In 2006, Maine had nine cases reported for a rate of 0.7 cases per 100,000 population. Nationwide in 2006 1,194 cases were reported with a rate of 0.4 cases per 100,000 population.

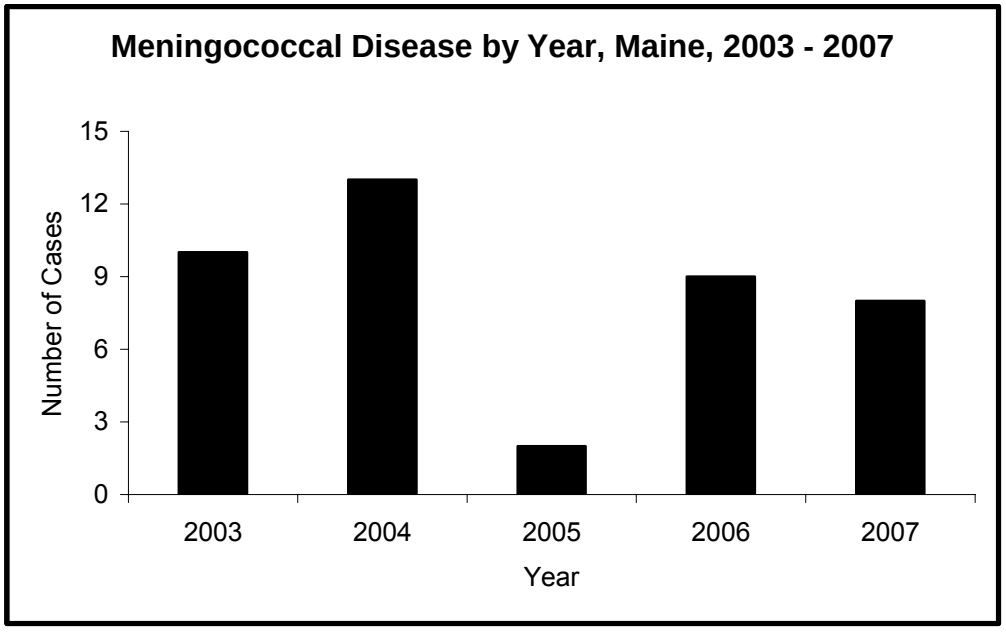
Four of the eight cases resided in Cumberland County (three serogroup B and one serogroup C). One serogroup C case resided in Oxford County, one case of serogroup Y resided in each of Androscoggin and Washington Counties and one unknown serogroup case was from Kennebec County. Age ranged from 1 to 70 years with a median of 31 years of age.

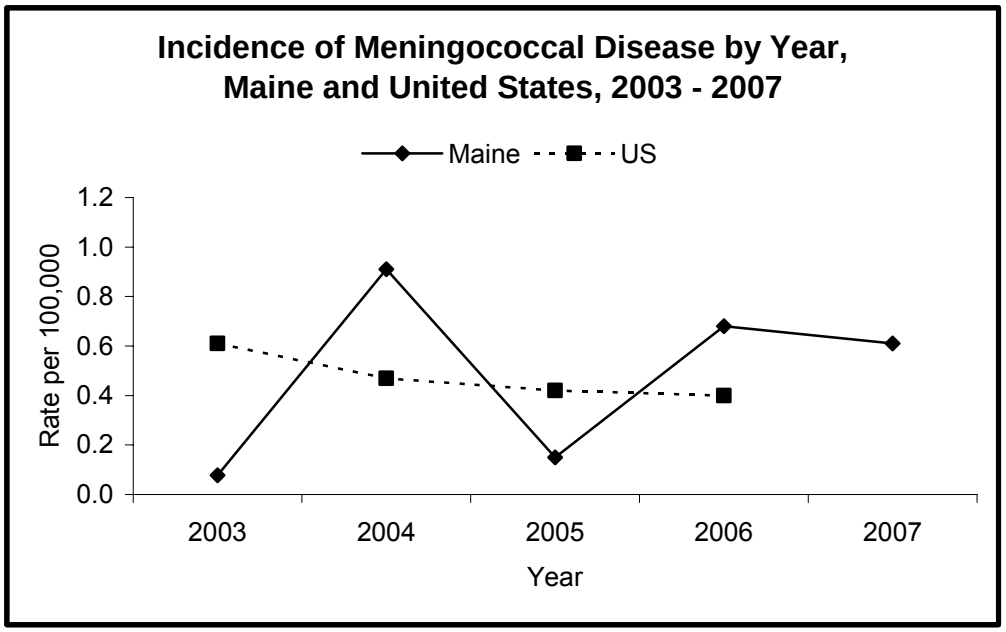
Vaccine is available for serogroups A, C, Y, and W135, the serogroups that cause the most infections in young adults. The vaccine is recommended for college students, military recruits, overseas travelers and other persons considered to be at increased risk of infection. To prevent the spread of infection from a confirmed case post exposure chemo-prophylactic treatment is recommended to persons who had been exposed to the infected individual's oral secretions.

Meningococcal Disease by Serogroup and Year, Maine, 2003-2007

Year	Serogroup						
	B	C	Y	W-135	Untypeable	Unknown*	Total
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
2007	3	2	2	0	1	0	8

*Isolate not available for serogroup testing


Meningococcal Disease by Year, Maine, 2003 - 2007
Number of Cases
15
12
9
6
3
0
2003
2004
2005
2006
2007
Year


Incidence of Meningococcal Disease by Year, Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
1.2
1.0
0.8
0.6
0.4
0.2
0.0
2003
2004
2005
2006
2007
Year

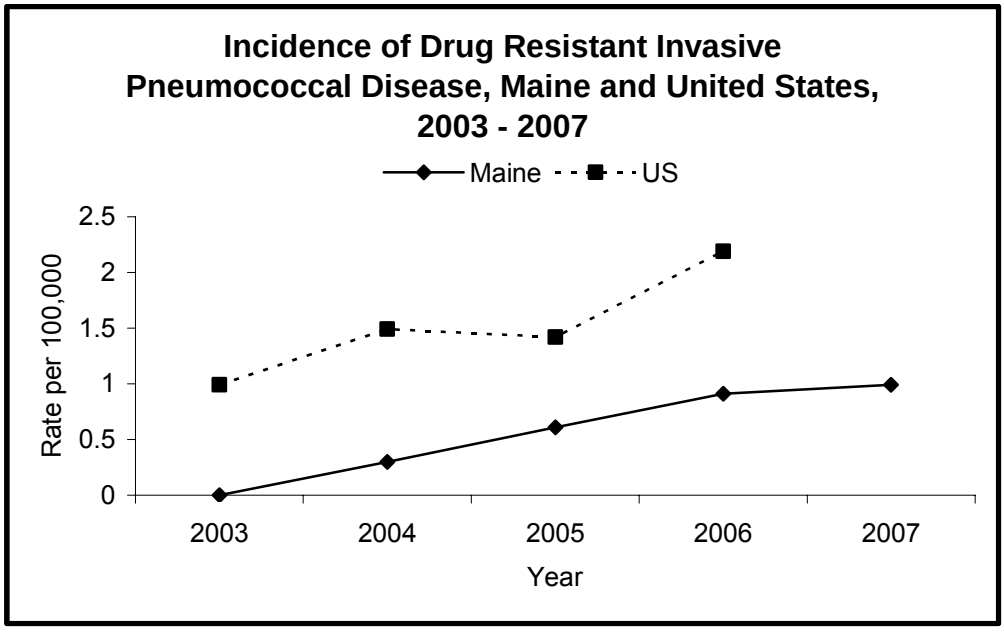
Invasive Pneumococcal Disease

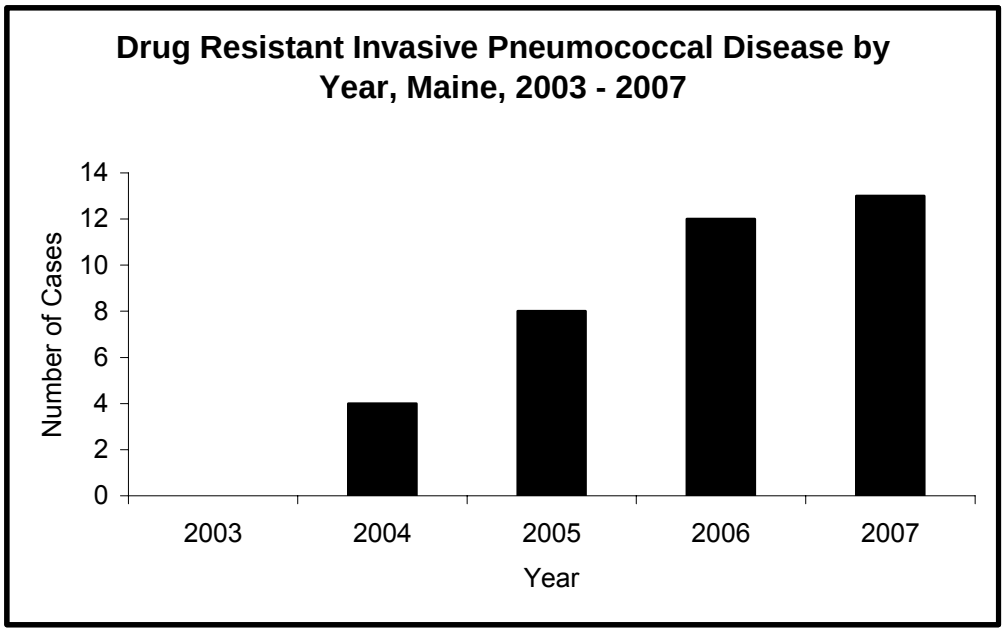
Invasive pneumococcal disease occurs when the *Streptococcus pneumoniae* bacteria infects the blood, lungs, or brain. Pneumococcal disease is transmitted from person to person through droplets when an infected person coughs or sneezes. Types of illness caused by *S. pneumoniae* include bacteremia, meningitis, and pneumonia. There are over 90 different serotypes of *S. pneumoniae*, but the majority of pneumococcal disease is caused by a few common serotypes.

Drug Resistance
Pneumococcal disease caused by drug resistant *S. pneumoniae* (defined by resistance to one or more commonly used antibiotics) is typically characterized by one of seven serotypes (6A, 6B, 9V, 14, 19A, 19F and 23F). In 2007, 13 cases of drug resistant pneumococcal disease were reported to Maine CDC, resulting in a case rate of 1.0 per 100,000 population. In 2006, 3,308 cases (2.2 per 100,000) were reported nationally. The median age of cases in Maine in 2007 was 50 years with a range of 1-90 years; most of the cases occurred in the age group ≥ 65 years. Seven (54%) of the cases were female. The counties with the highest case rates were Cumberland, Franklin, and Sagadahoc. Cases occurred throughout the year, but peaked in January and April. Eleven (85%) cases were hospitalized and 3 (23%) of the cases died. Infections caused by drug resistant *S. pneumoniae* included: 4 (31%) bacteremia, 5 (38%) pneumonia, 1 (8%) septic arthritis, and 1 (8%) bacteremia and pneumonia.

Children <5 Years of Age
In 2007, 7 cases of pneumococcal disease in children <5 years were reported to Maine CDC, resulting in a case rate of 10.0 per 100,000. The case rate for the U.S. in 2006 was 11.9. Of the 7 cases in children <5 years, 3 (43%) were drug-resistant. Five (71%) of the cases were male. Cases were reported in York, Cumberland, Sagadahoc, and Franklin counties. Six (86%) of the cases were vaccinated with the pneumococcal conjugate vaccine; vaccine status was unknown for the other case. Two (29%) of the cases were known to have underlying conditions. Three (43%) of the cases were hospitalized and no deaths occurred. Only one of the cases reported attending daycare.

Pneumococcal disease can be prevented through routine vaccination of infants and children under five with the pneumococcal conjugate vaccine (PCV7) and vaccination of adults and children over the age of two who are at high risk of infection with the pneumococcal polysaccharide vaccine (PPV23). Risk factors include adults 65 years of age or older, certain underlying conditions, persons with weakened immune systems, and those in congregate settings such as daycare and long-term care facilities.


Incidence of Drug Resistant Invasive Pneumococcal Disease, Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
2.5
2
1.5
1
0.5
0
2003
2004
2005
2006
2007
Year


Drug Resistant Invasive Pneumococcal Disease by Year, Maine, 2003 - 2007
Number of Cases
14
12
10
8
6
4
2
0
2003
2004
2005
2006
2007
Year

OTHER COMMUNICABLE DISEASES

Legionellosis

Legionellosis is a serious and sometimes fatal form of pneumonia. Bacteria found in water sources in the environment cause the disease. The bacteria can also be found in soil and potting mix. Legionellosis has two forms: Legionnaires' disease and Pontiac fever. Legionnaires' disease can have symptoms like many other types of pneumonia so it can be hard to diagnose at first. Signs of the disease include a high fever, chills, muscles aches, headaches and a cough. It is treatable with antibiotics. Pontiac fever is a milder infection that lasts from 2 to 5 days. The symptoms also include fever, headaches and muscle aches but there is no pneumonia. Symptoms go away without treatment.

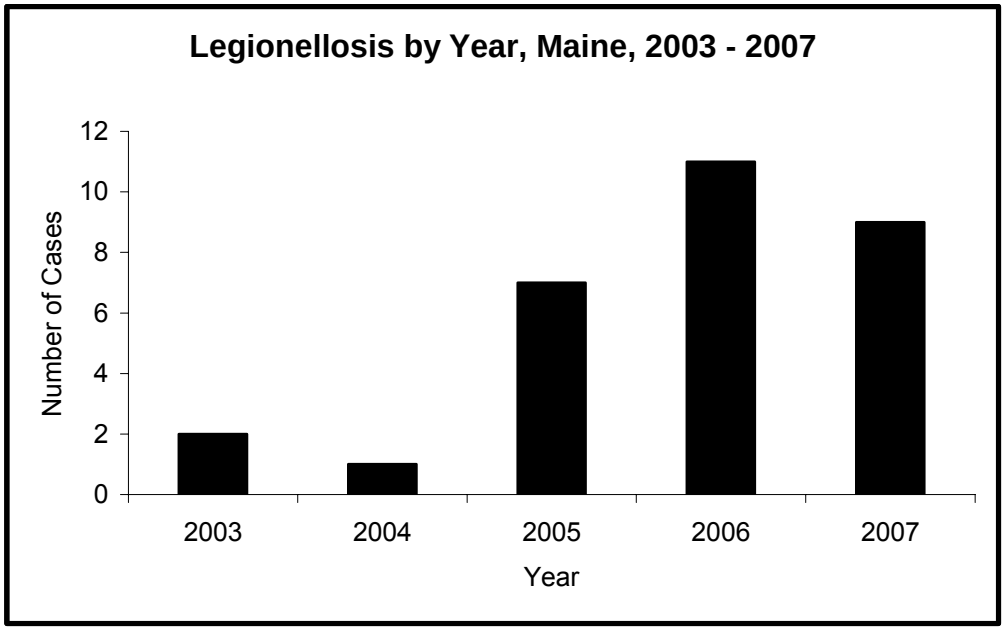
The *Legionella* bacteria are widespread in natural, industrial and recreational water sources. The bacteria grow best in warm, stagnant water. They have been found in creeks and ponds, hot and cold water taps, hot water tanks and water-cooling towers and condensers of large air-conditioning systems.

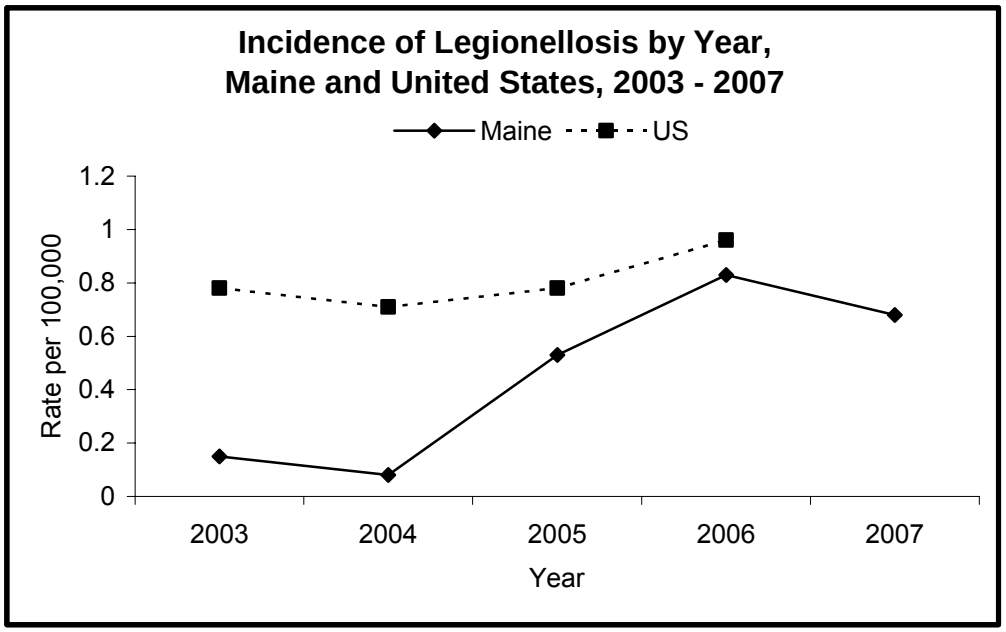
People get Legionnaires' disease when they breathe in a mist or vapor that has been contaminated with the bacteria. People can be exposed to mist-producing devices in their homes, workplaces, hospitals or other public places. The bacteria are not spread from one person to another. Anyone can get legionellosis, but the illness most often strikes middle-aged and older persons, especially those who smoke or have chronic lung disease. People whose immune systems are weakened by cancer, kidney failure, diabetes or HIV infection are also at high risk. Cases occur singly and in outbreaks.

An estimated 15,000 to 30,000 persons get Legionnaires' disease in the United States each year. Most cases occur as single, isolated cases; 23% are hospital-acquired infections and 10% to 20% can be linked to outbreaks. Pontiac fever has been recognized only during outbreaks. More illness is found in the summer and early fall, but it can happen anytime of year. Legionnaires' disease is a reportable condition in most states; because of under diagnosis and underreporting, however, only 2% to 10% of estimated cases are reported.

In 2007, 9 cases of Legionellosis were reported in Maine. These cases resided in four counties: Androscoggin, Cumberland, Franklin and York. Of the nine cases reported, the median age was 60 with a range of 51 to 76 years; 1 case was female and 8 were males; and months of onset of illness included July, September, October and November. None of these cases were identified as being a part of an outbreak.

There is no vaccine available for Legionnaires' disease. Prevention depends on good maintenance of possible sources of infection, including regular cleaning and disinfection and the application of other physical (temperature) or chemical measures to minimize growth. Applying such controls, particularly in hospitals, industrial sites, hotels and recreation centers, reduces the risk of *Legionella* contamination and prevents the occurrence of isolated cases.


Legionellosis by Year, Maine, 2003 - 2007
Number of Cases
0
2
4
6
8
10
12
2003
2004
2005
2006
2007
Year


Incidence of Legionellosis by Year,
Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
0
0.2
0.4
0.6
0.8
1
1.2
2003
2004
2005
2006
2007
Year

Invasive Methicillin-Resistant *Staphylococcus aureus* (MRSA)

Invasive Methicillin–Resistant *Staphylococcus aureus* (MRSA) is caused by a strain of the bacteria *Staphylococcus aureus* which is resistant to the antibiotic methicillin and many of the antibiotics commonly used to treat staphylococcal infections. The bacteria is obtained from a normally sterile site such as the blood, cerebrospinal fluid (CSF), pleural fluid (fluid around the lungs), pericardial fluid (fluid around the heart), surgical aspirate, bone, joint fluid, or internal body site (e.g., lymph node, brain).

Methicillin–Resistant *Staphylococcus aureus* is becoming more common in the community, usually presenting as a skin or soft tissue infection. Skin or soft tissue infections of MRSA are considered non-invasive. Non-invasive MRSA infections are frequently transmitted in households and to close contacts by exposure to drainage or infectious secretions. Persons with weakened immune systems, the elderly, and those with invasive medical devices are at increased risk of invasive MRSA infections.

During 2007, 6 cases of invasive MRSA were reported. Patient ages ranged from 48 to 95 years. Four patients were male. None of the cases were associated with an outbreak and none of the cases were known to have had MRSA previously.

Maine CDC currently monitors only invasive MRSA infections. Health care providers are encouraged to report cases of invasive MRSA or suspected outbreaks of MRSA in any setting. Epidemiologists are available to provide consultations on MRSA infections.

Providers and patients should become familiar with strategies to reduce transmission of the bacteria to others. Maine has adopted guidelines for evaluation and management of MRSA infections in outpatient settings. These guidelines and other informational materials are available on our website at: http://www.maine.gov/dhhs/boh/disease_methicillin-resistant.htm or upon request.

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 the 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.

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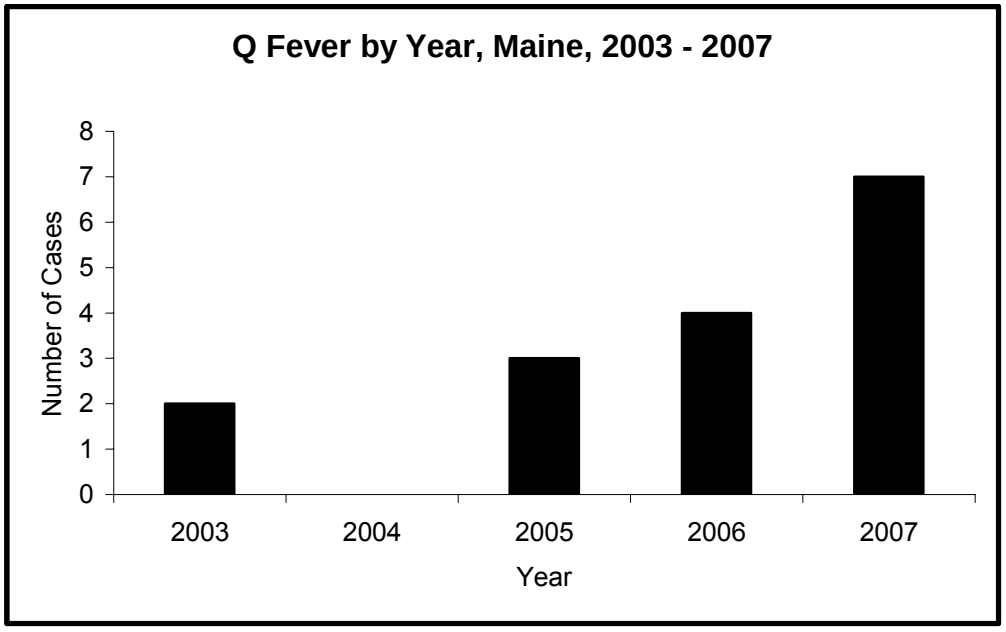
Q fever

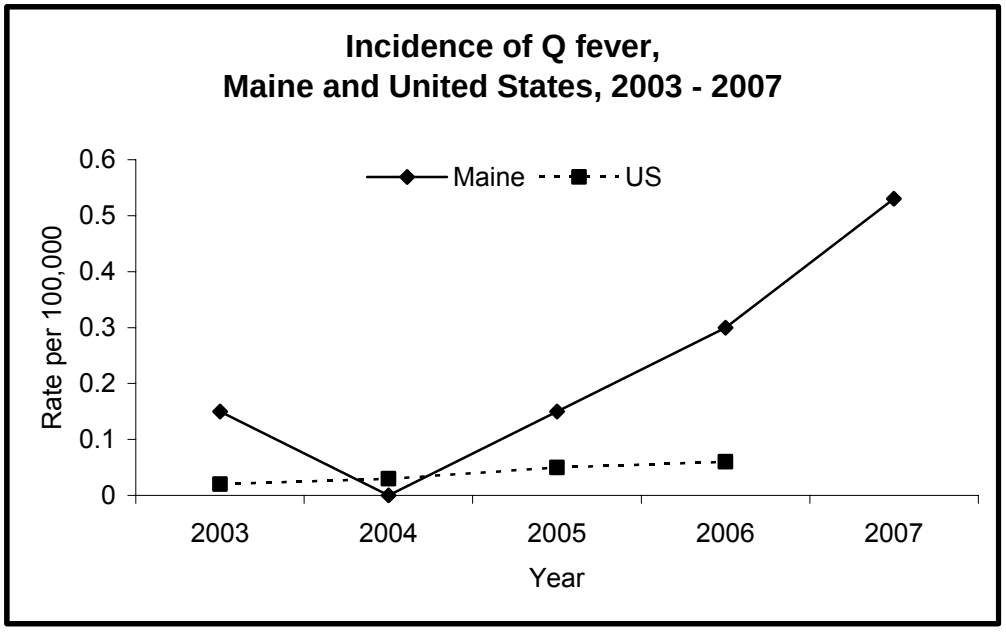
Q fever is a zoonotic disease caused by the bacterium *Coxiella burnetii*. The bacteria are found around the world. Cattle, sheep and goats are the most common sources of the infection and do not usually appear ill. People who come in contact with milk, urine, feces or birthing fluids of infected animals can develop the disease. The highest concentrations of bacteria are found in the placenta and amniotic fluids. Symptoms of acute Q fever include fever, muscle pain, weakness, malaise and headache. Severe disease can cause acute hepatitis, pneumonia, and meningitis. Some patients will have no symptoms. Chronic Q fever can cause fatal endocarditis months to years after the acute infection or a chronic fatigue-like syndrome.

Diagnostic testing for Q fever in symptomatic patients includes a fourfold or greater change in antibody titer to *Coxiella burnetii* phase II or phase I antigen in paired serum specimens collected 3-6 weeks apart. Patients with clinically compatible symptoms or who are epidemiologically linked cases with only one positive laboratory test are counted as probable cases. Patients with clinical symptoms or who are epidemiologically linked cases with two positive laboratory results with at least a four fold change in titer are considered to be confirmed cases.

In Maine, in 2007, there were a total of 7 cases, 1 confirmed and 6 probable cases. In 2006 there were a total of 4 cases, 3 confirmed cases and 1 probable case.

There is no vaccine available in the United States for Q fever. Infection can be prevented by properly disinfecting and disposing of infected animals milk, urine, feces and birthing products and fluids. Pasteurization of milk from cows, goats and sheep will inactivate the organism.


Q Fever by Year, Maine, 2003 - 2007
Number of Cases
0
1
2
3
4
5
6
7
8
2003
2004
2005
2006
2007
Year


Incidence of Q fever,
Maine and United States, 2003 - 2007
Maine
US
Rate per 100,000
0
0.1
0.2
0.3
0.4
0.5
0.6
2003
2004
2005
2006
2007
Year

Rabies

Rabies is a viral disease that affects the nervous system of humans and other mammals and is almost always fatal. Rabies in humans is rare in the United States. The vast majority of rabies cases reported each year occur in wild animals including raccoons, skunks, bats and foxes. People usually get rabies from the bite of a rabid animal. It is also possible, but quite rare, for people to get rabies if infectious material from a rabid animal, such as saliva, gets directly into their eyes, nose, mouth or a wound. Because rabies has also occurred in people who have very close contact with bats without an apparent bite, this type of contact is also considered a risk and should be followed up by a medical practitioner.

Rabies virus infects the central nervous system and causes inflammation of the brain. Early symptoms are non-specific and include fever, headache and a generalized feeling of discomfort. As the disease progresses, symptoms may include difficulty sleeping, anxiety, confusion, hallucinations, excessive drooling, difficulty swallowing and fear of water. Death usually occurs within a few days of the onset of symptoms.

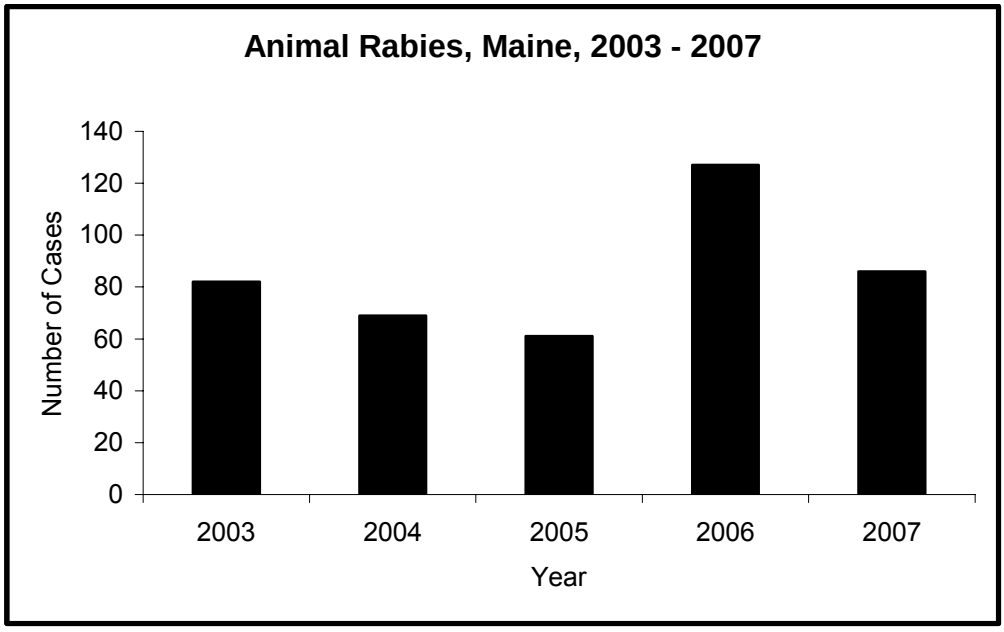
In Maine, rabies can only be confirmed at the state public health laboratory. Because the virus is present in nervous tissue and not blood like many other viruses, animal brain tissue is required. The test can only be performed after the animal is dead.

In 2006, 49 states, the District of Columbia and Puerto Rico reported 6,940 confirmed cases of rabies in animals and 3 cases in humans. (Hawaii is the only state that is rabies free). Wild animals accounted for 92% of reported cases of rabies. Raccoons were the most frequently reported rabid wildlife species (37%), followed by bats (24%), skunks (22%), foxes (6%) and other wild animals, including rodents (1%). Domestic species accounted for 8% of reported cases of rabies and included cats, dogs and cattle. Texas, Indiana and California each reported a human case of rabies.

In 2007, 15 counties in Maine reported 86 confirmed cases of rabies in animals and no cases in humans. (Franklin was the only county without a confirmed case of animal rabies in Maine in 2007). Wild animals accounted for 97% of reported cases of rabies. Raccoons were the most frequently reported rabid wildlife species (46%), followed by skunks (38%), bats (11%), foxes (5%) and woodchucks (1%). Domestic animals accounted for 3% of reported cases of rabies and included 3 cats.

The number of rabies-related human deaths in the United States has declined from more than 100 annually at the turn of the century to one or two deaths per year in the 1990's. Modern day methods to prevent the development of rabies have proven nearly 100% successful. In the United States, human deaths associated with rabies occur in people who fail to seek medical assistance, usually because they are unaware of their exposure to the disease. Medical attention for someone exposed to rabies is called post-exposure prophylaxis or PEP. PEP consists of 1 dose of rabies immune globulin and 5 doses of rabies vaccine over a 28-day period beginning as soon as possible after exposure. Current vaccines are relatively painless and are given in the arm.

Although the majority of rabies cases occur in wild animals, most humans are given rabies vaccine as a result of exposure to domestic animals. When rabies occurs in domestic animals, the risk to humans is increased. Therefore, these animals should be vaccinated to prevent them from acquiring the disease and transmitting it to humans.



Positive Rabies Results by Species and County, Maine, 2007

County	Bat	Cat	Fox	Raccoon	Skunk	Woodchuck	Total
Androscoggin	3	1	1	7	2		14
Aroostook				1	1		2
Cumberland	2		1	6	3		12
Hancock				3	1		4
Kennebec				4	3		7
Knox				4			4
Lincoln				1			1
Oxford	2		1				3
Penobscot				4	5		9
Piscataquis				1			1
Sagadahoc				2			2
Somerset		2	1	1	5		9
Waldo				2	9		11
Washington					2		2
York	2			2		1	5
Total	9	3	4	38	31		86

Tuberculosis

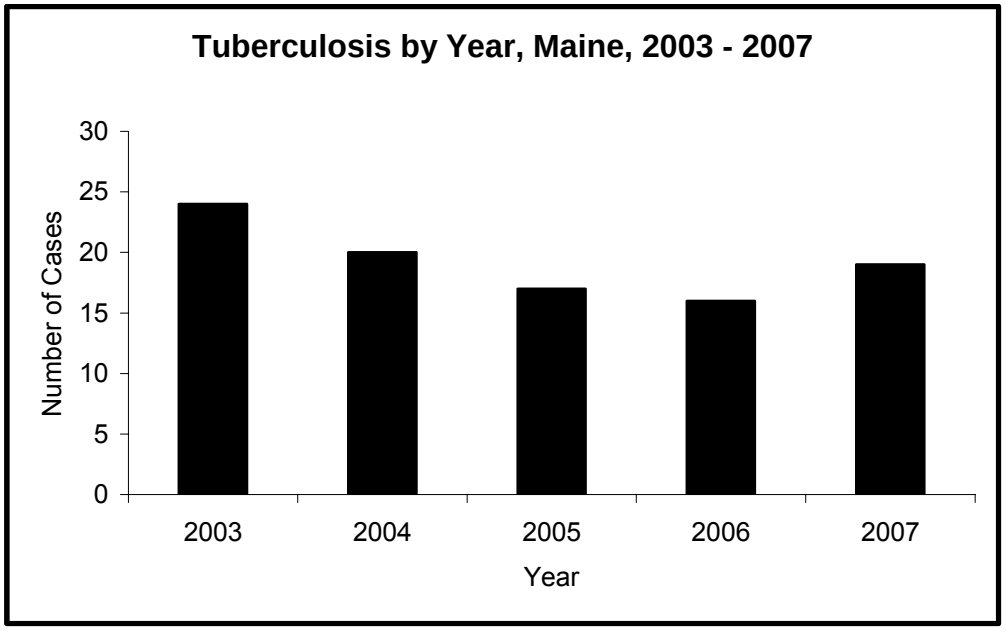
Tuberculosis (TB) is a communicable disease caused by the bacteria, *Mycobacterium tuberculosis*. It is spread through the air by airborne particles called droplet nuclei that are expelled from the lungs when a person who has infectious TB coughs, sings or sneezes. TB infection begins when the mycobacterium is inhaled into the lung and begins to multiply. Usually, the body is able to contain the infection so that disease does not develop. This is known as latent TB infection (LTBI). LTBI is not infectious to others. When TB disease does develop, it usually occurs in the lung (pulmonary TB). Pulmonary TB is usually infectious to others. When TB disease occurs outside of the lung (extrapulmonary) it is not infectious to others.

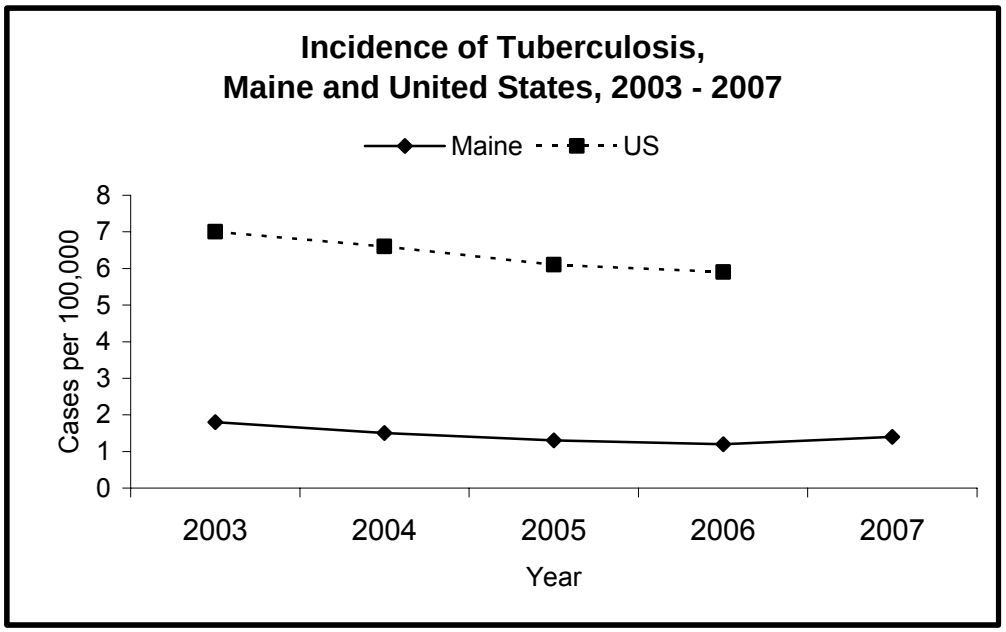
In 2007 Maine received reports of 19 cases of tuberculosis. The case rate of 1.4 per 100,000 persons is lower than the national reported rate of 4.4 per 100,000 for 2007. In Maine there were no multi drug resist (MDR) cases or extensively drug resistant (XDR) tuberculosis cases. One TB case occurred in an individual who was also infected with HIV. Fifteen of the 19 cases were pulmonary (in the lungs) cases and four were extrapulmonary cases (outside the lungs). The mean age of cases was 40 years with an age range of 5 months to 78 years. There were two pediatric cases. The majority of TB cases resided in the urban areas of the state in Cumberland and Androscoggin counties.

All of the cases were evaluated by a TB Consultant physician with advanced training in the management of tuberculosis. Maine TB cases also receive nursing case management services, including directly observed therapy (DOT). DOT is the national standard of care that is needed to prevent the emergence of drug resistant strains of TB.

Although it is not a reportable condition, Maine received 503 reports of persons with LTBI in 2007. The TB Control Program supports persons who have LTBI by providing client-centered case management services that support the efforts of affected individuals to complete treatment. Persons eligible for nursing case management services include individuals who are contacts of active cases, children, persons with history of birth in a country of high TB prevalence and persons who are at high risk for progression from latent to active disease, based on socio-economic factors or the presence of certain other medical conditions.

Maine's demographic profile includes an increase in persons over age 65 and increasing number of persons arriving from countries of high tuberculosis prevalence. In 2007, 13 (68%) of tuberculosis cases and 78% of LTBI cases were diagnosed among foreign born persons. Six (46%) of the TB cases occurred in persons who arrived in the United States between 2001 and 2007. In 2007, the TB Control Program conducted 15 contact investigations, including one international and three interstate investigations. Two work-place investigations were conducted. A total of 254 contacts were identified in Maine and 241 (95%) were evaluated.


Tuberculosis by Year, Maine, 2003 - 2007
Number of Cases
30
25
20
15
10
5
0
2003
2004
2005
2006
2007
Year


Incidence of Tuberculosis,
Maine and United States, 2003 - 2007
Maine
US
Cases per 100,000
8
7
6
5
4
3
2
1
0
2003
2004
2005
2006
2007
Year

SEXUALLY TRANSMITTED AND BLOODBORNE DISEASES

Chlamydia

Chlamydia is a common sexually transmitted disease (STD) caused by the bacterium *Chlamydia trachomatis*. Chlamydia is known as a "silent" disease, as three quarters (75%) of women and half (50%) of men will have no symptoms. Common symptoms for a woman may be vaginal discharge or a burning feeling with urination and a man might have discharge from his penis.

If chlamydia is not treated, the infection can cause serious damage to a woman's reproductive system, including infertility. Chlamydia can be passed to a child during birth. People with chlamydia can more easily contract HIV, the virus that causes AIDS. People infected with HIV and chlamydia are more likely to transmit HIV to someone else.

Chlamydia is the most frequently reported STD in Maine. In 2007, 2,543 cases were reported, 10% more than in 2006. Apart from a decrease in 2001, the number of cases has increased each year between 1996 and 2007. Since 2001, there have been between 1,346 and 2,543 cases of chlamydia reported each year, with an average number of over 2,000 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 people in 1999 to 193 cases per 100,000 people in 2007. Nationally, the rate rose from 253.0 cases per 100,000 in 1999 to 347.8 in 2006. Androscoggin, Cumberland, Penobscot and Kennebec Counties have chlamydia rates that are higher than the statewide rate.

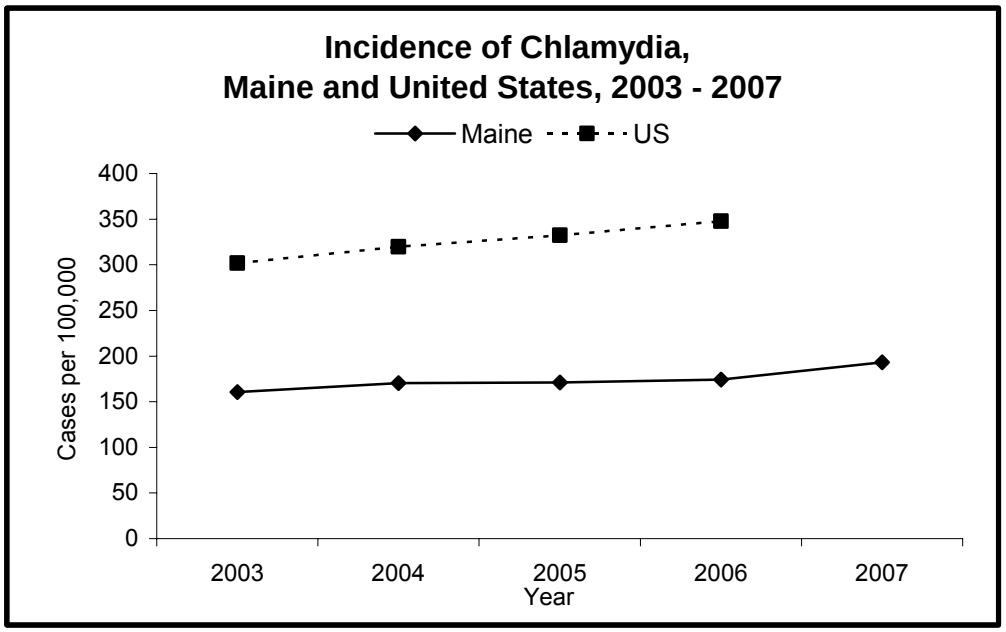
In the six years since 2002, three women have been diagnosed with chlamydia for every man, a ratio of 3:1. In 2007, 72% of all chlamydia diagnoses were in women. These data do not mean that more women are infected with chlamydia. Women are tested for the disease more often than men, and may be more likely to show symptoms of the disease.

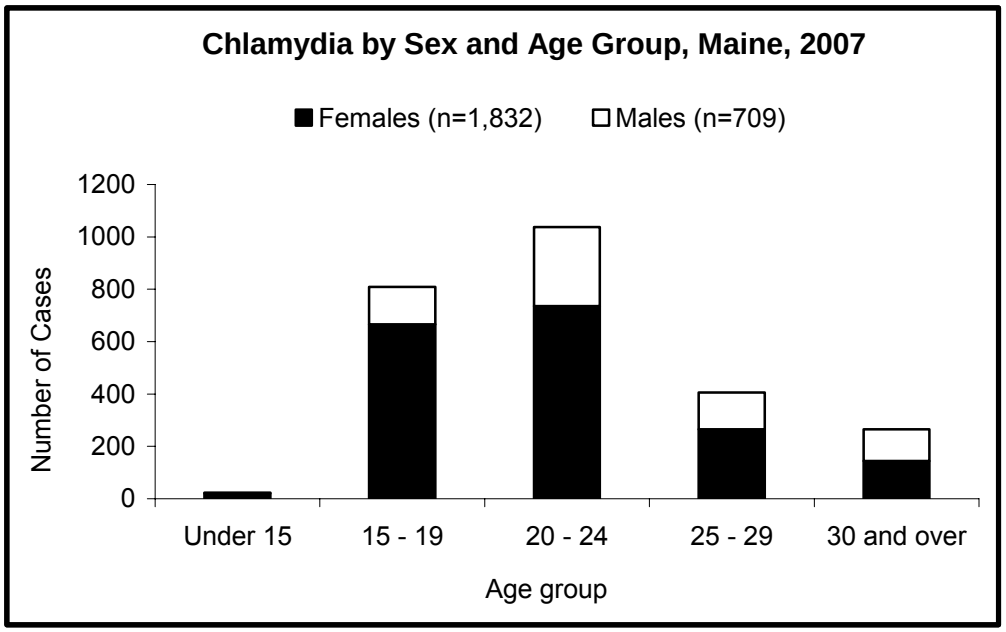
Chlamydia affects Mainers ages 15-24 in greatest numbers. Seventy-four percent (74%) of chlamydia diagnoses in 2007 were in this age group. More infection was also seen in other age groups in 2007 compared to 2006. There were twice as many cases in those over 55 years old.

In the last year, chlamydia diagnoses have increased among all races and ethnicities. The greatest increase is among Hispanics, having twice as many cases, and among Blacks/African Americans, with 63% more.

Efforts to prevent the spread of Chlamydia are primarily through the Infertility Prevention Project, a federal CDC sponsored initiative, that targets testing and treatment for females 15- 24 years old and their partners. Currently free testing for females ages 15-24 is available at Family Planning and Planned Parenthood sites, numerous school based health centers and at the three STD Clinics (Bangor, Lewiston, Portland).

Follow up for prioritized Chlamydia cases includes treatment verification, disease notification, partner notification of disease and other such activities.





Gonorrhea

Gonorrhea is a sexually transmitted disease (STD) caused by the bacterium *Neisseria gonorrhoeae* that grows and multiplies in warm, moist areas. Gonorrhea can be spread through contact with the vagina, penis, mouth, or anus. Gonorrhea can also spread from a mother to her baby during childbirth. Gonorrhea does not always have symptoms. Men may feel a burning sensation while urinating, or have a discharge from their penis. Women might feel pain while urinating, or notice more discharge.

Gonorrhea is dangerous if untreated. In women, gonorrhea is a common cause of pelvic inflammatory disease, which can lead to chronic pain and infertility. In men, gonorrhea can cause epididymitis, causing painful testicles, and even infertility. 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.

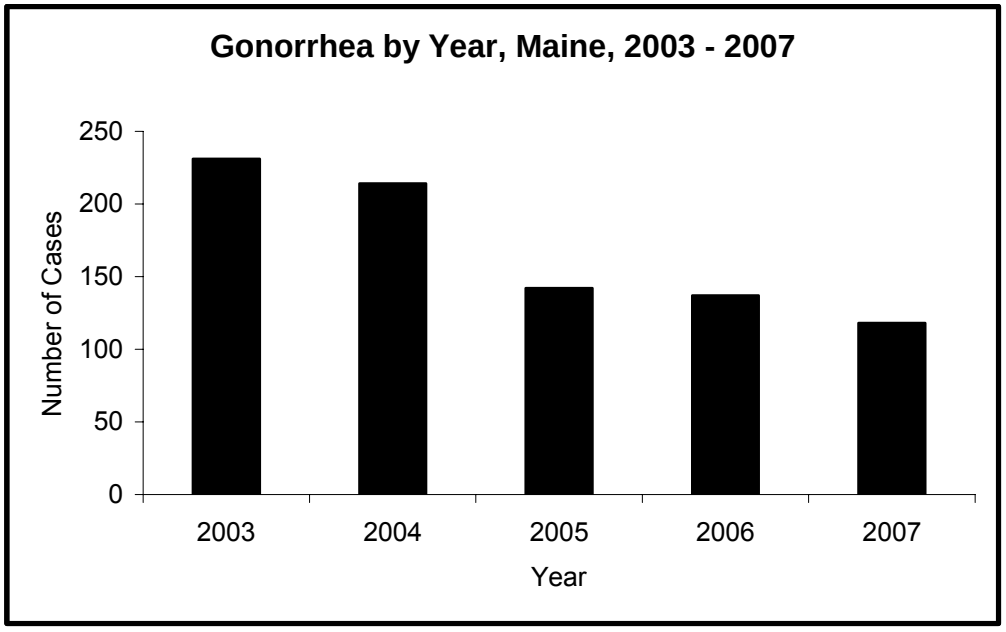
In 2007, 118 cases of gonorrhea were diagnosed in Maine, a 14% decrease from 2006. The number of cases of gonorrhea increased dramatically in 2003, to 231 cases, and has been decreasing every year since. Between 2001 and 2007, there have been between 119 and 231 cases reported each year, for an average of about 150 cases per year.

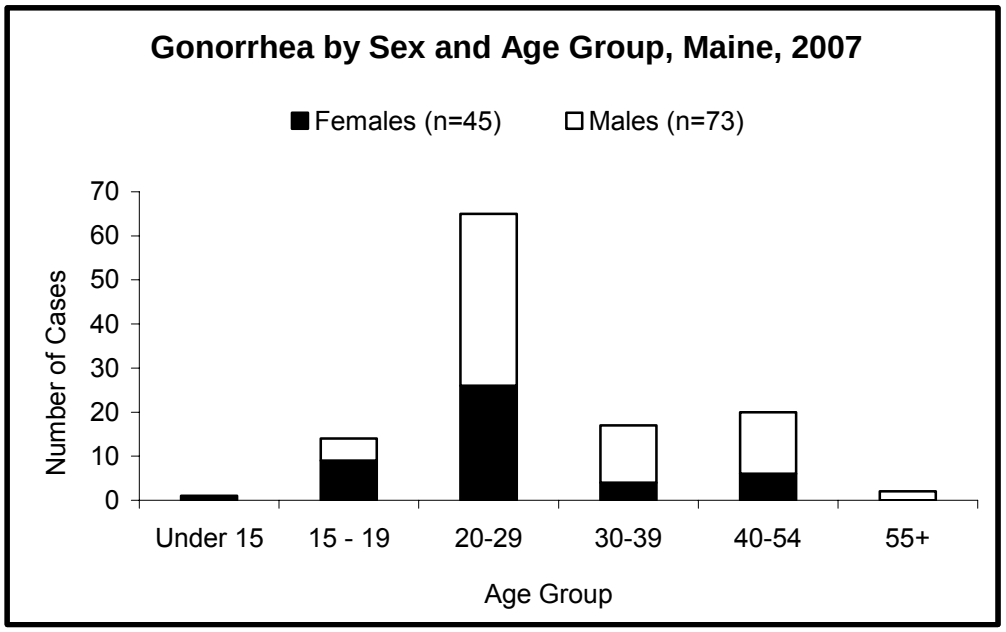
Case rates of gonorrhea have fluctuated in both Maine and the US. The Maine rate decreased from 16.2 cases per 100,000 people in 2004 to 9.0 cases per 100,000 people in 2007. The US rate, which declined from 1999 through 2004, increased to 120.9 cases per 100,000 in 2006. The US rate is more than ten times the Maine rate. Five counties, Cumberland, Androscoggin, Franklin, Penobscot, and Sagadahoc, had gonorrhea rates that were higher than the state rate.

Ninety-eight percent (98%) of gonorrhea diagnoses were among Mainers ages 15-54 in 2007; 81% were among those ages 15-39. In 2007, diagnosed gonorrhea infection decreased most significantly among ages 15-24 (-26%) and those aged 55 and older (-86%).

Males comprise approximately 62% of all gonorrhea diagnoses. In 2007, MSM accounted for 25% of cases reported. The greater proportion of male diagnoses is likely due to diagnoses among men who have sex with men (MSM).

Prevention efforts for gonorrhea have primarily focused on treatment verification and case investigation activities that includes partner follow-up for all new diagnoses. These efforts have proven successful as gonorrhea rates have decreased over the past several years. Additionally, any state sponsored testing for chlamydia includes testing for gonorrhea as the State of Maine uses a combination test. This allows for targeted testing of females 15-24 years old and their partners.


Gonorrhea by Year, Maine, 2003 - 2007
Number of Cases
250
200
150
100
50
0
2003
2004
2005
2006
2007
Year


Gonorrhea by Sex and Age Group, Maine, 2007
Females (n=45)
Males (n=73)
Number of Cases
70
60
50
40
30
20
10
0
Under 15
15 - 19
20-29
30-39
40-54
55+
Age Group

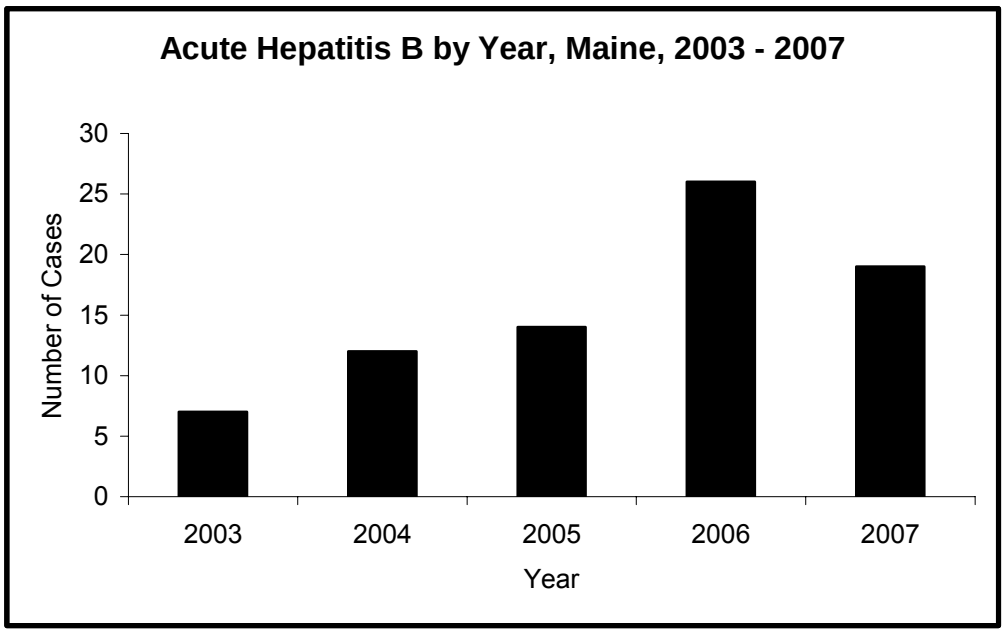
Acute Hepatitis B

Hepatitis B is caused by a virus that attacks the liver. The virus, which is called hepatitis B virus (HBV), can cause lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, and death. HBV can be transmitted through exposure to blood from an infected person (needle sticks and other sharps exposures, sharing hypodermic syringes for drug injection), through sexual contact with an infected person and from an infected mother to her child during childbirth. Sexual transmission is especially common among men who have sex with men.

In 2007 the case rate in Maine was very close to the United States case rate the year before. The 2007 case rate in Maine was 1.4 per 100,000 population and the United States case rate was 1.6 per 100,000 population in 2006. This was the lowest rate recorded in the US and represents a decline of 81% since 1990. There were nineteen cases of acute hepatitis B in Maine in 2007. Fifteen of the nineteen cases were male. The median age was fifty-nine years old. The range of ages was from twenty-four to seventy years old.

Following a noticeable increase in acute hepatitis B cases in 2006 Maine CDC's HIV, STD and Viral Hepatitis Program increased efforts in 2007 to provide educational and safe sex materials to populations at risk. In addition to delivering materials to known public sex environments, Maine CDC also posted educational materials on the internet. The Infectious Disease Epidemiology Program continued to provide education and vaccination information to individuals with acute and chronic hepatitis B and their close contacts.

Prevention, education, evaluation and surveillance continue to be the focus for Maine CDC. For women who are pregnant and infected with hepatitis B, a statewide registry has been established to assist us with primary care providers, hospital infection control professionals and the managers of labor and delivery units. The surveillance and registry helps assure the provision of proper immunization to infants born to infected mothers. Our goal is to provide universal childhood immunization for hepatitis B by vaccinating all newborn infants prior to discharge and completing the hepatitis B series by the time the child reaches 18 months of age.


Acute Hepatitis B by Year, Maine, 2003 - 2007
Number of Cases
30
25
20
15
10
5
0
2003
2004
2005
2006
2007
Year

Hepatitis C

An estimated 20,000 Maine people have been infected with hepatitis C virus (HCV). HCV is the most common bloodborne infection in the United States and the leading reason for liver transplantation among adults. Although the number of new infections per year has declined from an average of 240,000 in the 1980s to 19,000 in 2006, the burden of disease continues to grow. Because the infection is often asymptomatic and progresses slowly, most are unaware of their infection and are missing opportunities for therapeutic or preventive care.

Hepatitis C reports represent Maine people who tested positive for one or more hepatitis C virus diagnostic markers*. In 2007, the Maine CDC received 1,453 reports of persons newly identified with markers for hepatitis C infection positivity, the vast majority of whom were chronically infected. Although the 1,453 reports made in 2007 represent an increase over the 1,192 reports received in 2006, the annual total is still consistent with the number of reports received over the previous five years.

Maine CDC does not have the resources to follow up on each hepatitis C report. In addition, because there is no test for acute hepatitis C infection, and because acute infection is usually asymptomatic, acute infections frequently go unrecognized. While there were only two reported cases of acute hepatitis C that met the federal CDC case definition in 2006 and one in 2007, it is likely that many more such infections occurred in Maine.

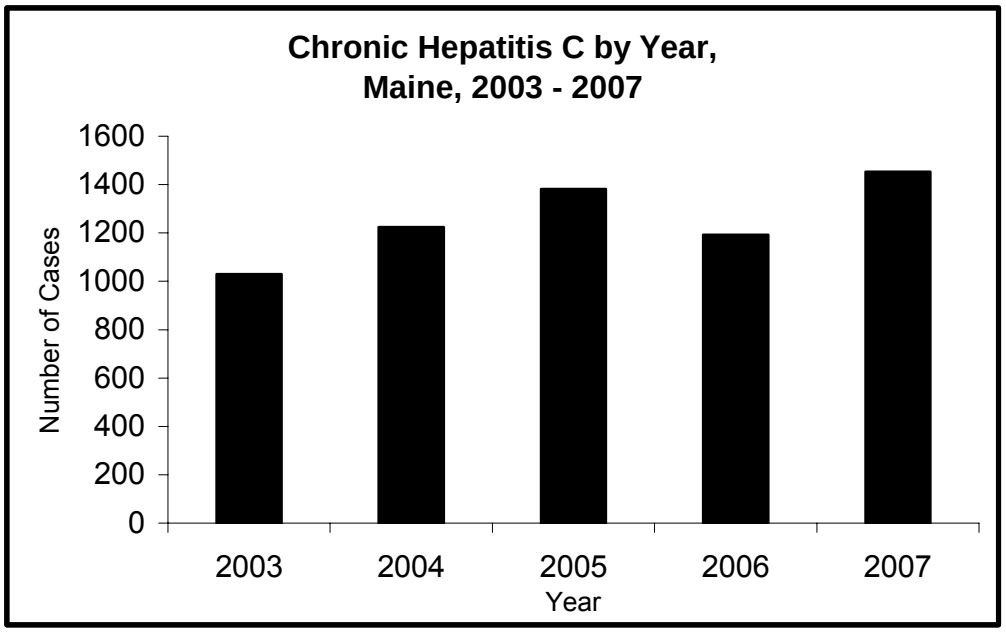
Of the 1,453 reported individuals in 2007, 37.5% were females and 62.4% were males. This was similar to data for 2006 where females represented 37 % of reports and males represented 63% of reports. Both years reflect gender breakdowns that are comparable with national statistics.

Using Maine 2006 and 2007 Census data, rates per 100,000 population were calculated for all of the Maine Districts using the 2006 and 2007 hepatitis C data. Cumberland District had the highest report rate for 2006 (152.3) and 2007 (153.6). In 2006, the Mid Coast District had the second highest rate (138.7) and Penquis District had the third highest report rate (122.3). In 2007, Penquis District had the second highest report rate (124.7) and Central District had the third highest report rate (119.4). All of the aforementioned Districts exceeded the rates for the State 2006 (90.2) and 2007 (110.3). Before drawing any conclusions from these data, it is important to consider the many factors that may contribute to differences among the Districts. These factors include: the location of hepatitis C testing sites and reporting laboratories, the location of reporting correctional facilities, the location of the Veterans Administration Hospital (which is a site for treatment of large numbers of patients), and health care providers' initiative to test and report positive results. In addition, the location of practices of liver specialists may also explain some of the differences. For persons for whom town of residence was unavailable, reporting facility town was used as a proxy.

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 alanine 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.

*A hepatitis C positive report was defined as the presence of any positive serologic marker for hepatitis C infection. These markers include anti-HCV (EIA), anti-HCV (RIBA), hepatitis C antigen (RT-PCR), or reports of HCV genotype. It should be noted that not all anti-HCV (EIA) reports were verified by supplemental assay. Also, neither EIA nor RIBA tests can distinguish between past and current infection. Reports were not cross-referenced with other state registries, but do represent unduplicated individuals reported for each year.



HIV/AIDS

HIV (human immunodeficiency virus) is the virus that causes AIDS (acquired immunodeficiency syndrome). HIV is transmitted through sexual contact (vaginal, anal, oral sex) or blood-to-blood contact (shared needles or works, blood transfusions). Also, pregnant women with HIV can pass it to their baby during pregnancy, delivery, or through breast-feeding. Some people will develop AIDS as a result of their HIV infection. A person with AIDS has an immune system that is weakened by HIV, and may become sick from other 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.

There are just over 1,200 people living in Maine with diagnosed HIV infection. Based on federal CDC estimates, there may be another 300-500 Mainers who are infected but unaware of their HIV status. The total estimate of people with HIV in Maine is approximately 1,600.

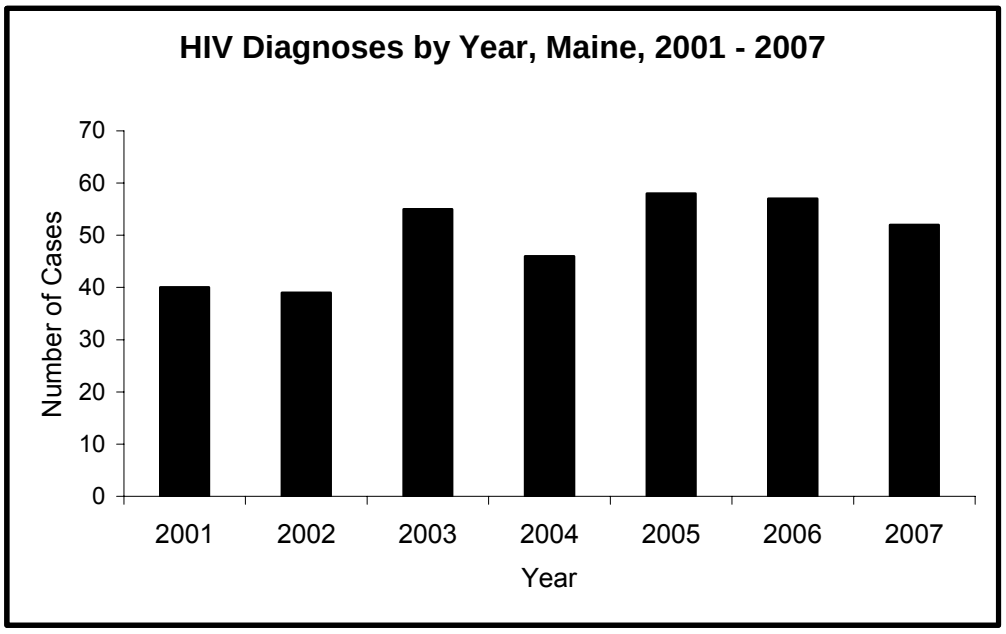
Fifty-two new HIV diagnoses were reported during 2007, including 5 females and 47 males. This is a decrease in cases from 2006, when a total of 57 cases were reported. Data since 2001 show an average of 50 new cases per year. It is important to note that many new HIV diagnoses do not represent new infections. People may have HIV for many years without knowing. During the past 5 years, 40% of Mainers diagnosed with HIV were ill enough to be classified with AIDS within one year of their initial HIV positive test, likely indicating that they'd been infected with HIV for a long while.

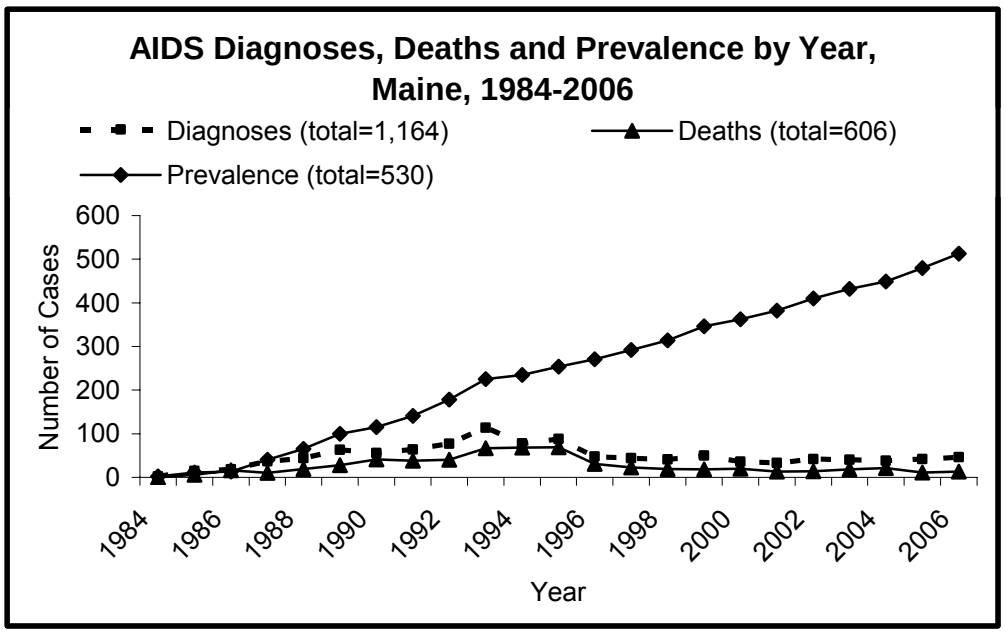
There were 38 new AIDS diagnoses in 2007 (complete AIDS data and death data are not yet available for 2007). Each year since 1985 there have been more new AIDS diagnoses than deaths, hence, the overall number of people living with AIDS has continued to increase over time. These data suggest that there are more people living with AIDS in Maine than ever before – approximately 508 persons at the end of 2006.

In comparison to the general population, two key risk groups are more 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 2007 about two-thirds (63%) of HIV diagnoses were attributed to male-to-male sexual contact, followed by heterosexual transmission with an at-risk partner (6%).

Efforts to prevent the spread of HIV are implemented throughout Maine. MSM and IDU are the populations at greatest risk, and outreach efforts including counseling, testing and referral services for HIV. There are 6 outreach and education programs in the State that reach MSM, 5 targeting IDU and 3 programs that target women who may be at risk due to their, or their partner's, behaviors. As HIV can only be transmitted from someone who has HIV, strong prevention efforts also target Mainers with HIV.

Maine has a strong system to provide medical and support service to those with HIV. Comprehensive care is offered through a network of providers throughout Maine using federal, State, and private health insurance funding. There are more than eight community-based clinics and specialty providers that can help someone with HIV.


HIV Diagnoses by Year, Maine, 2001 - 2007
Number of Cases
70
60
50
40
30
20
10
0
2001
2002
2003
2004
2005
2006
2007
Year


AIDS Diagnoses, Deaths and Prevalence by Year, Maine, 1984-2006
Diagnoses (total=1,164)
Deaths (total=606)
Prevalence (total=530)
Number of Cases
600
500
400
300
200
100
0
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
Year

Syphilis

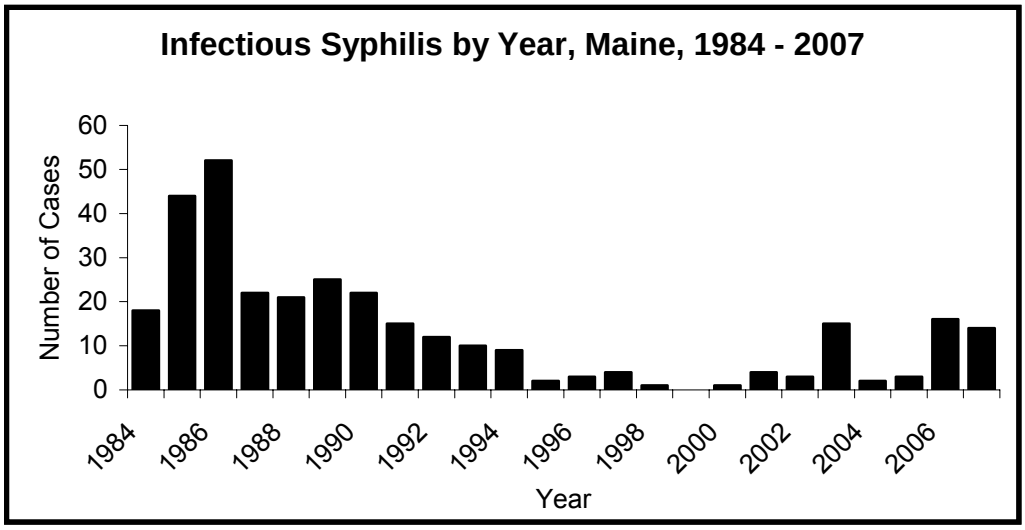
Syphilis is a sexually transmitted disease (STD) caused by the bacterium *Treponema pallidum*. It has often been called "the great imitator" because so many of the signs and symptoms of syphilis are like those of other diseases. Syphilis is primarily spread through direct contact with a primary syphilis sore. Sores typically occur on the external genitals, vagina, anus, and rectum, but are also seen on the lips, and in the mouth. Transmission primarily occurs during vaginal, anal, or oral sex. Disease transmission can occur by mode of the infectious symptoms in the secondary stage, the condylomata lata (raised moist papule) on the genital area or mucous patches in the mouth. Pregnant women with syphilis can pass it to their baby. 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.

Many people infected with syphilis reach a latent stage exhibiting no symptoms for years, yet remain at risk for later 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.

After peaking in the mid-1980s, syphilis steadily declined in Maine until 1999, when there were no diagnoses reported in the state. In the last 10 years, annual syphilis counts have remained low, with fewer than 5 cases during most years. Three exceptions were 2003, 2006 and 2007 when there were outbreaks of early syphilis. In 2003, there were 15 diagnoses, in 2006 there were 16 diagnoses and in 2007, diagnoses decreased 12.5% to 14 cases. All 2007 cases of early syphilis were males, in which 13 of the 14 self reported as men who have sex with men (MSM). The most recent increases are consistent with regional and national syphilis trends, where we are seeing significant increases of infectious syphilis.

No cases of syphilis have been diagnosed in Maine newborns for more than a decade.

Prevention and control efforts include targeted awareness messaging to community providers, specifically MSM outreach workers, specific internet sites and declaration of an outbreak which is followed by the release of a Health Alert Network (HAN) notice. Disease intervention activities for all new early syphilis diagnoses include ensuring adequate treatment for the infected, partner elicitation and notification, and concentrated efforts to identify public sex environments and clusters of disease. Recently, the State HIV, STD and Viral Hepatitis Program launched a syphilis campaign that is targeting MSM.


Infectious Syphilis by Year, Maine, 1984 - 2007
Number of Cases
60
50
40
30
20
10
0
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
Year

VACCINE PREVENTABLE DISEASES

Influenza

Influenza is a viral illness that typically occurs during the winter months. It is 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 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 2007-08 influenza season, the Maine Center for Disease Control and Prevention (Maine CDC) conducted influenza surveillance in collaboration with fifteen health care providers, five hospitals, three laboratories, and three city vital records offices during the reporting period from September 30, 2007 to May 17, 2008. This report summarizes 2007-08 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 2007-08 season, 15 health care providers reported 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. Outpatient ILI visits in Maine peaked during early March (week 10). This was slightly later than what was reported from regional sentinel provider data which showed a peak in outpatient ILI activity in New England during mid-February (week 7).

Hospital inpatients

Inpatient surveillance for respiratory illness admissions in Maine was conducted in collaboration with five hospitals. During the 2007-08 season, four hospitals reported the number of patients admitted to the hospital and the number of those patients admitted for influenza or pneumonia using admitting diagnoses. One hospital reported the number of patients admitted to the hospital from the emergency department and the number of those patients admitted for respiratory illness using chief complaint. Hospital admissions for influenza, pneumonia, or respiratory illness were highest from late February through late March (weeks 9-12).

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 2007-08 season, a total of 82 outbreaks of influenza were reported in Maine, an increase from the 2006-07 season when 13 outbreaks were reported. Of these outbreaks, 66 were in long-term care facilities, 11 in schools, and 5 in acute care facilities. Outbreaks occurred in all regions of the state. All but two 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 and influenza positive isolate subtyping. HETL reported the number of specimens received for respiratory virus testing and the number positive for influenza A (H1), A (H3), A (subtype unknown), and influenza B by specimen collection date. During the 2007-08 season, 527 respiratory specimens were tested by HETL for influenza. Of the specimens tested for influenza, 164 (31.1%) were positive for influenza (5 for influenza A [H1], 39 for influenza A [H3], 4 for influenza A [subtype unknown], and 116 for influenza B).

Two reference laboratories submitted weekly reports of laboratory-confirmed influenza by culture or reverse-transcriptase polymerase chain reaction (RT-PCR) and number of specimens negative by final test result date. During the 2007-08 season, a total of 2,736 respiratory specimens were submitted for viral testing to these laboratories. Of these, 918 (33.6%) specimens were positive for influenza (389 for influenza A and 529 for influenza B).

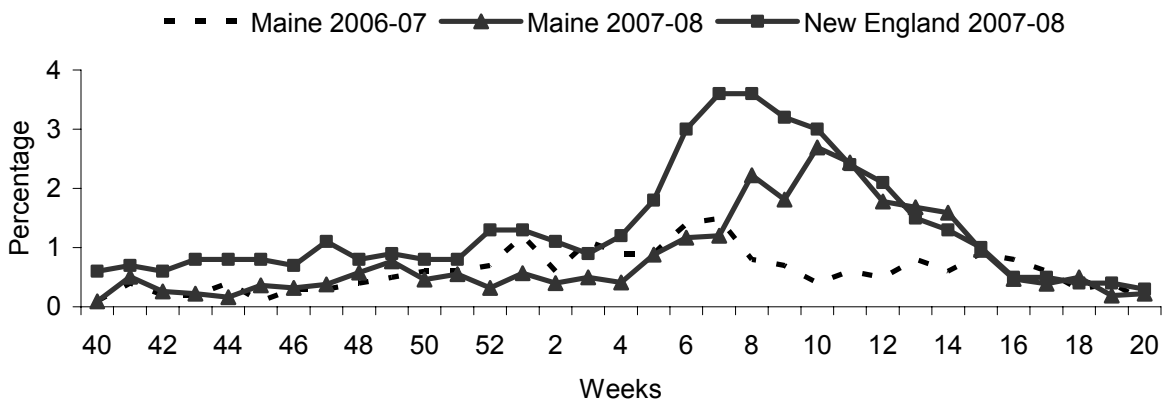
Death Certificates

The vital records 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 2007-08 season, a total of 1,957 deaths were reported by the vital records offices. Of these deaths, 210 (10.7%) were attributed to pneumonia or influenza. Pneumonia and influenza-attributable deaths peaked during mid-March (week 11).

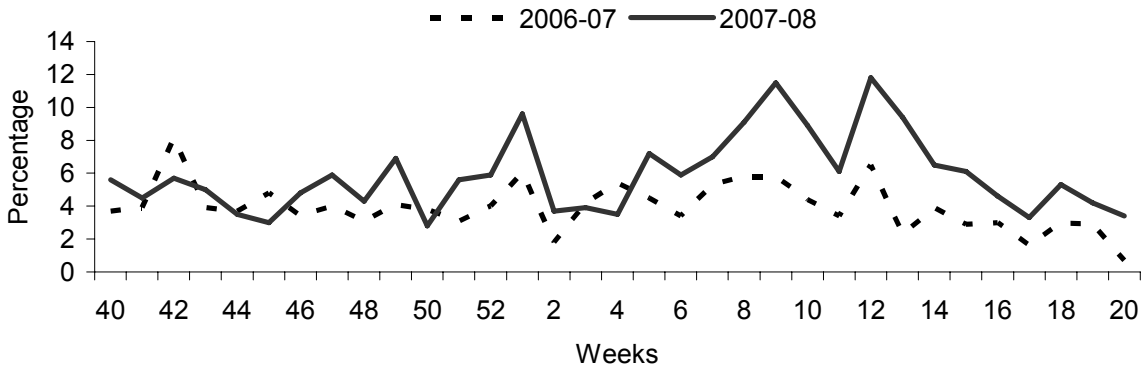
Pediatric Fatalities

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. One influenza-associated pediatric death was reported in Maine during the 2007-08 season.

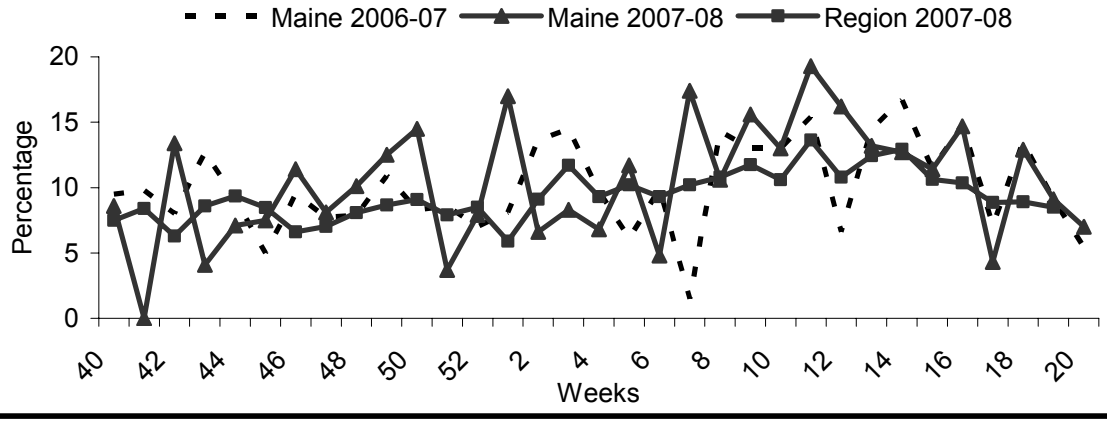
Outpatient Visits for Influenza-like Illness, Maine, 2006 - 2008

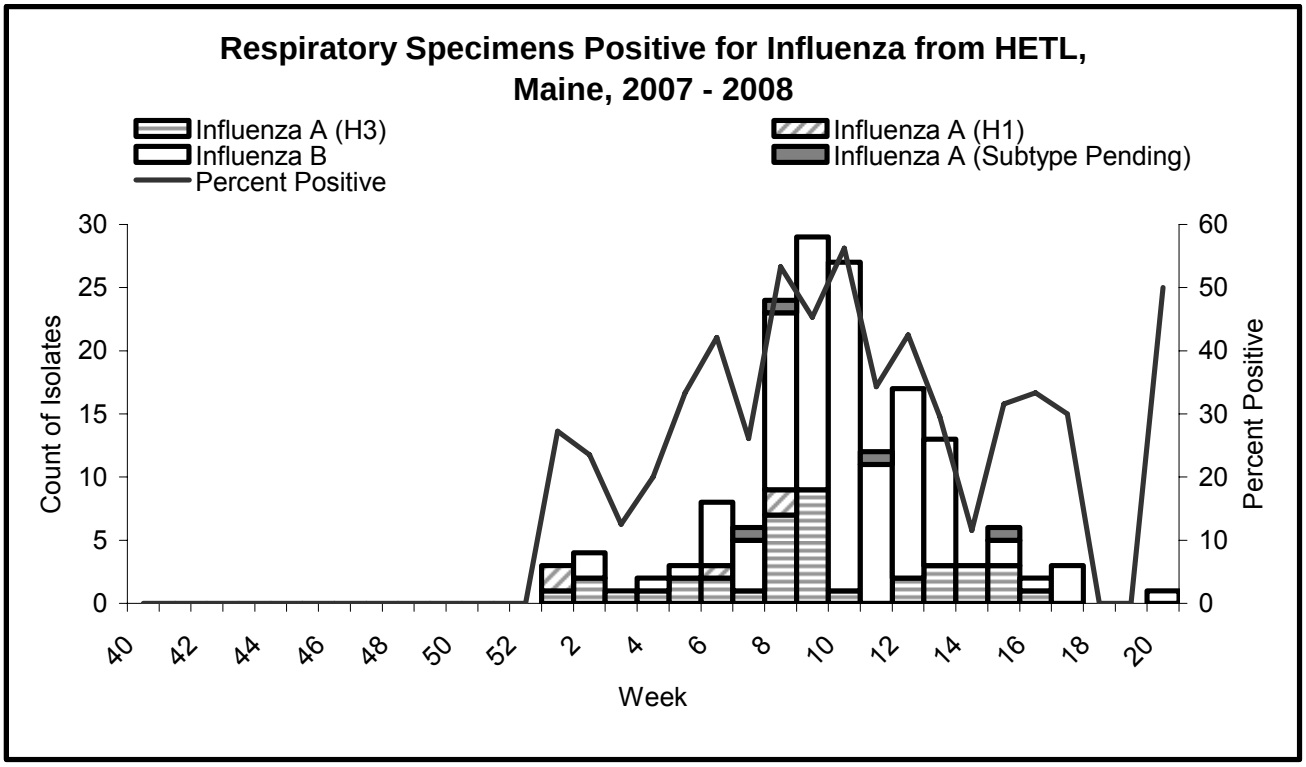


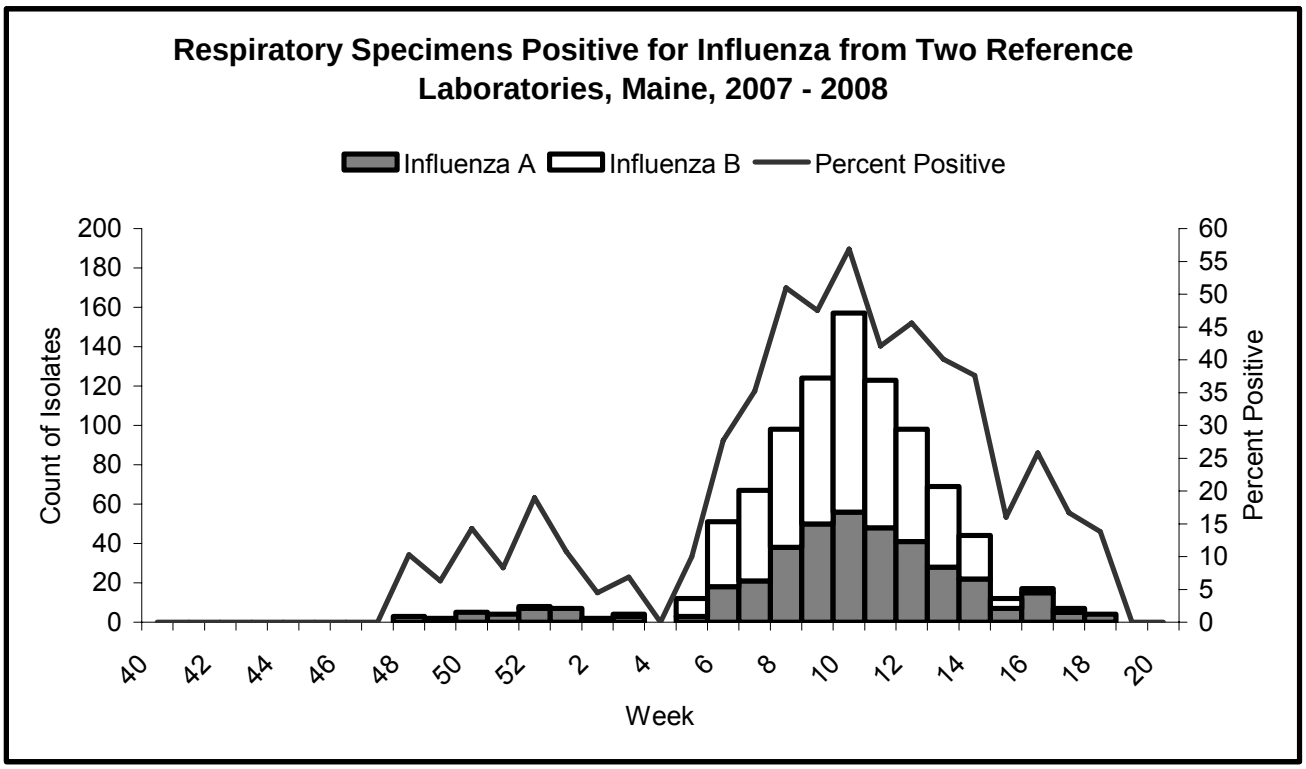
Hospital Admissions due to Respiratory Illness, Maine, 2006 - 2008



Percentage of Deaths Attributable to Pneumonia and Influenza, Maine, 2006 - 2008




Respiratory Specimens Positive for Influenza from HETL, Maine, 2007 - 2008
Influenza A (H3)
Influenza B
Percent Positive
Influenza A (H1)
Influenza A (Subtype Pending)
Count of Isolates
Percent Positive
Week
0
5
10
15
20
25
30
0
10
20
30
40
50
60
40
42
44
46
48
50
52
2
4
6
8
10
12
14
16
18
20


Respiratory Specimens Positive for Influenza from Two Reference Laboratories, Maine, 2007 - 2008
Influenza A
Influenza B
Percent Positive
Count of Isolates
Percent Positive
Week
0
20
40
60
80
100
120
140
160
180
200
0
5
10
15
20
25
30
35
40
45
50
55
60
40
42
44
46
48
50
52
2
4
6
8
10
12
14
16
18
20

Mumps

Mumps is a viral systemic disease. The virus replicates in the upper respiratory tract and in the regional lymph nodes. The disease then spreads via the circulatory system to distant organs, but the most frequently involved are the salivary glands, particularly the parotid.

Mumps incubation period is between 16-18 days. The first symptoms of mumps are non-specific and may include myalgia, anorexia, malaise, headache and low-grade fever. Parotitis usually occurs within the first two days. Swelling of the parotid gland is the most common manifestation of mumps and occurs in 30-40% of infected individuals. Parotitis can be one or two-sided with any combination of single or multiple salivary glands being affected. Approximately one third of infected individuals do not display salivary gland swelling, and in some of those cases the disease manifests itself as respiratory tract infection. Symptoms improve after a week and tend to resolve within ten days.

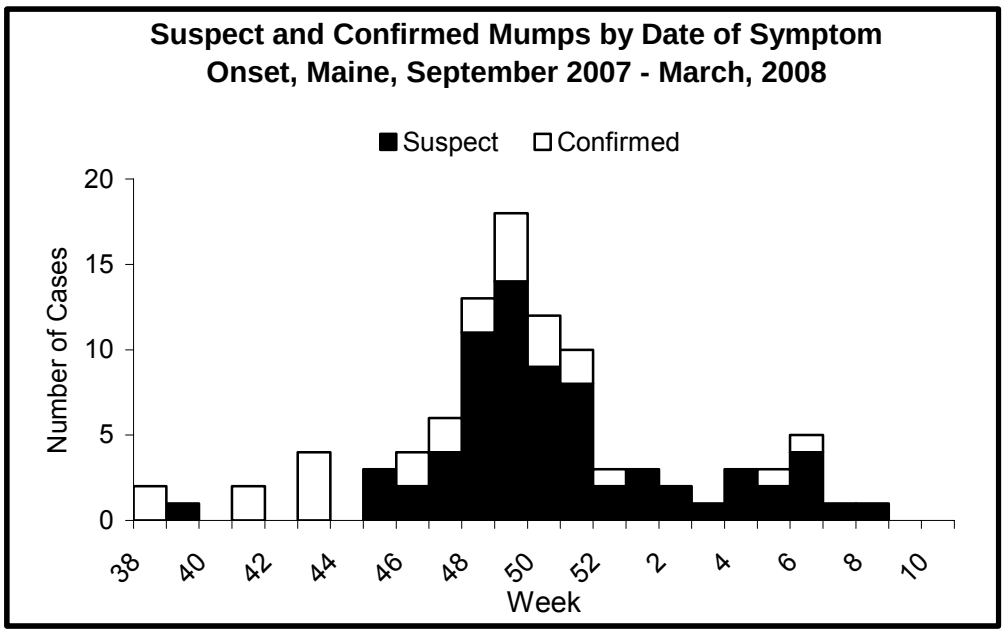
Among the unimmunized, mumps is primarily a childhood disease. Mumps infection in adults is often more severe and most mumps deaths, although rare, occur among adults. Orchitis is the most prevalent complication among adult males (50%). Other mumps complications are oophoritis (5% of adult women), pancreatitis, deafness and myocarditis.

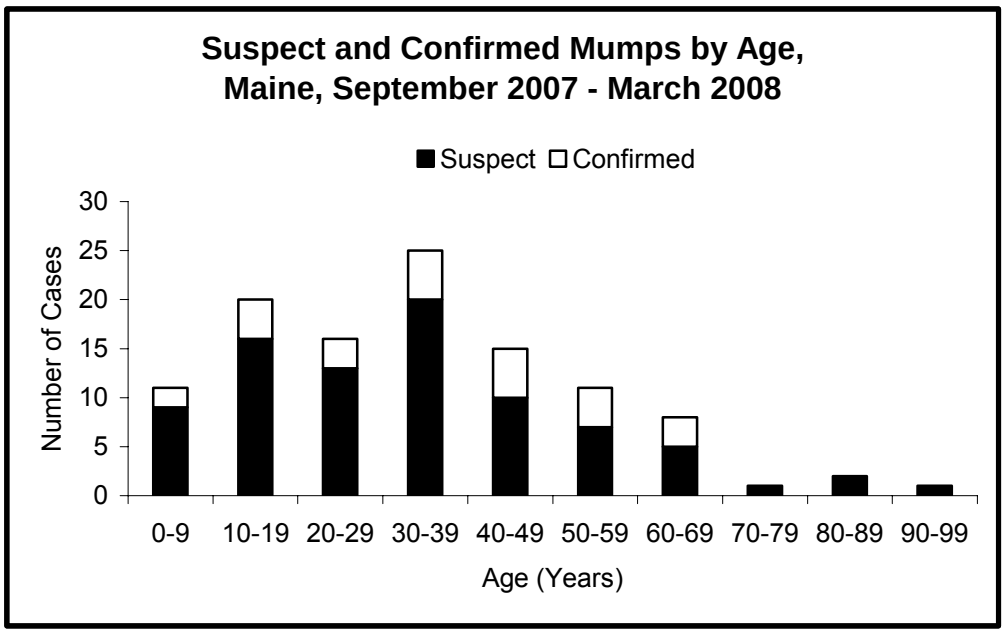
Mumps is spread through airborne transmission and through contact with saliva and infected droplet nuclei.

Patients with mumps are infectious for up to nine days after the onset of illness and should be excluded from social events, school or employment activities for that period of time. Vaccination of under-immunized and unimmunized individuals has been shown to reduce the risk of transmission of the disease.

In 2006, several states experienced an epidemic of mumps that began among college students in Iowa in December and involved at least 12 additional states and resulted in spread to several thousand people. Also, Canada is experiencing an epidemic of mumps that started among university students in Nova Scotia and spread as far west as Vancouver.

Starting in September 2007, Maine experienced an outbreak of mumps which was characterized by patients with a mean age of 34 years. In total, 26 confirmed cases and 74 suspect cases were identified. There were reported cases on 3 college campuses, but only one had an identifiable cluster (n=4). Six people were hospitalized. Thirty-one percent of those affected were vaccinated with a two-dose series of MMR. A large proportion of cases (38%) were missing vaccination information, which is not surprising given the older age of the patients.


Suspect and Confirmed Mumps by Date of Symptom Onset, Maine, September 2007 - March, 2008
Suspect
Confirmed
Number of Cases
0
5
10
15
20
38
40
42
44
46
48
50
52
2
4
6
8
10
Week


Suspect and Confirmed Mumps by Age, Maine, September 2007 - March 2008
Suspect
Confirmed
Number of Cases
0
5
10
15
20
25
30
0-9
10-19
20-29
30-39
40-49
50-59
60-69
70-79
80-89
90-99
Age (Years)

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 included an outbreak that affected western, midcoast and southern counties.

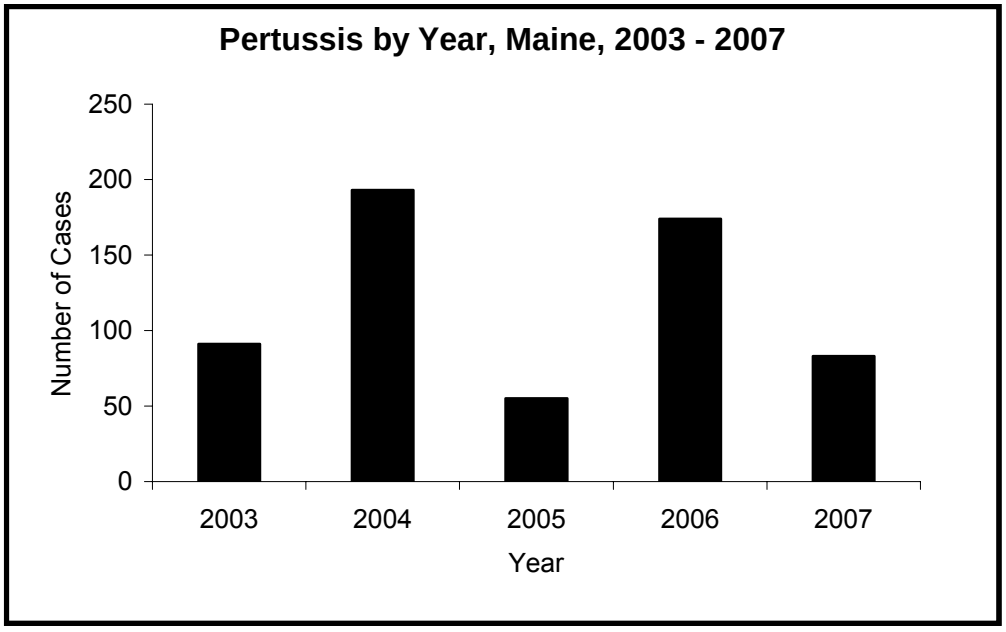
All cases were designated as confirmed or probable pertussis using the CDC case definition. The average annual incidence rate for Maine 2000-2007 was 6.9 per 100,000.

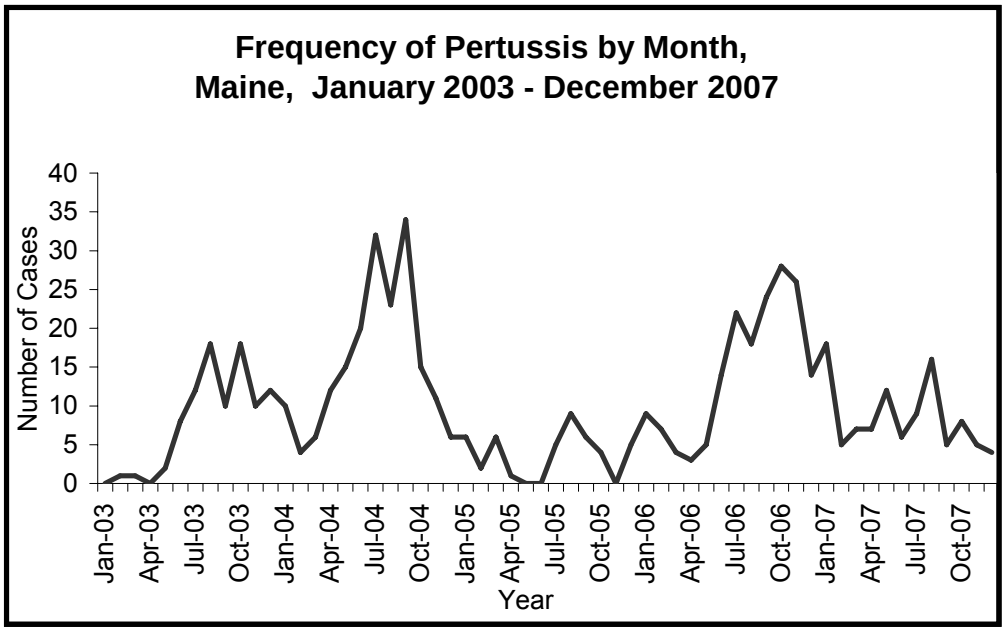
A look at the time distribution of cases shows an increase of reported cases in the second half of 2006 and into early 2007. Cases were reported in all counties of Maine except Hancock and Oxford Counties in 2007. Twenty-eight percent of the cases were reported from Cumberland and York counties.

A comparison of Maine and US DTaP vaccination rates indicates that Maine's population other than for a small segment completes the vaccination series necessary for protection against pertussis. The age distribution analysis indicates that the case numbers are highest amongst adolescents who, being exposed at school, have waning immunity. Children aged 5-9 years had the second highest number of cases in 2007. Many in this group may be the siblings of adolescents with pertussis. Transmission of pertussis to infants remains of great concern, as this group is 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 adults 11-64 years old and Boostrix ® (GlaxoSmithKline) for use in adolescents 10-18 years of age). 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 a reduction of the number adolescent cases of pertussis 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, 2003 - 2007
Number of Cases
250
200
150
100
50
0
2003
2004
2005
2006
2007
Year


Frequency of Pertussis by Month,
Maine, January 2003 - December 2007
Number of Cases
40
35
30
25
20
15
10
5
0
Jan-03
Apr-03
Jul-03
Oct-03
Jan-04
Apr-04
Jul-04
Oct-04
Jan-05
Apr-05
Jul-05
Oct-05
Jan-06
Apr-06
Jul-06
Oct-06
Jan-07
Apr-07
Jul-07
Oct-07
Year

Varicella (Chickenpox)

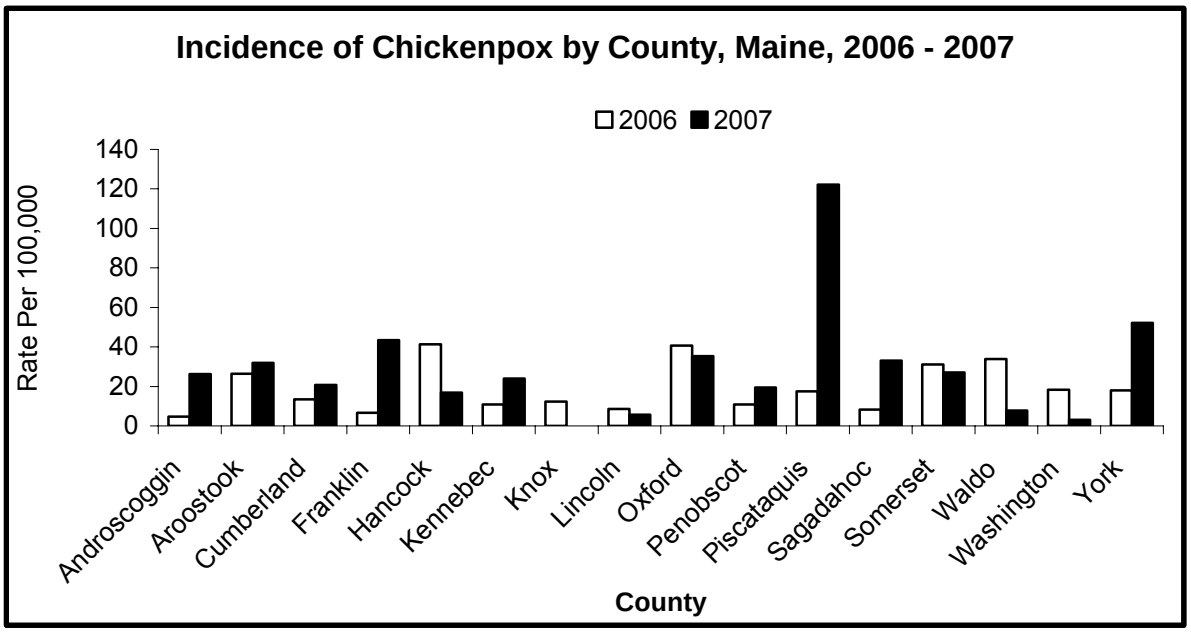
Chickenpox is a highly contagious viral disease with humans being the only source of infection.

Person-to-person transmission occurs primarily through direct contact with respiratory tract secretions of infected individuals and is transmitted occasionally via airborne route. The incubation period of varicella is 14-16 days with a range from 10 to 21 days. Chickenpox is infectious 1-2 days before to 4-5 days after the onset of the rash or until all the lesions have crusted over. Mandatory vaccination for varicella started in Maine as of 2003 and is now a requirement for school admission.

There were 366 cases of chickenpox reported in 2007 compared with 222 in 2006.

In 2006, ACIP recommended that a second dose of varicella vaccine be administered to all children, with the first dose administered at 12-15 months and a second dose administered at 4-6 years. A two-dose series was also recommended for those not previously vaccinated.

Varicella vaccine is a live attenuated viral vaccine. Studies place the effectiveness of one dose of the varicella vaccine above 70%. A two-dose series is estimated to be more than 90% effective in preventing infection. Breakthrough infection has been reported in vaccinated individuals.



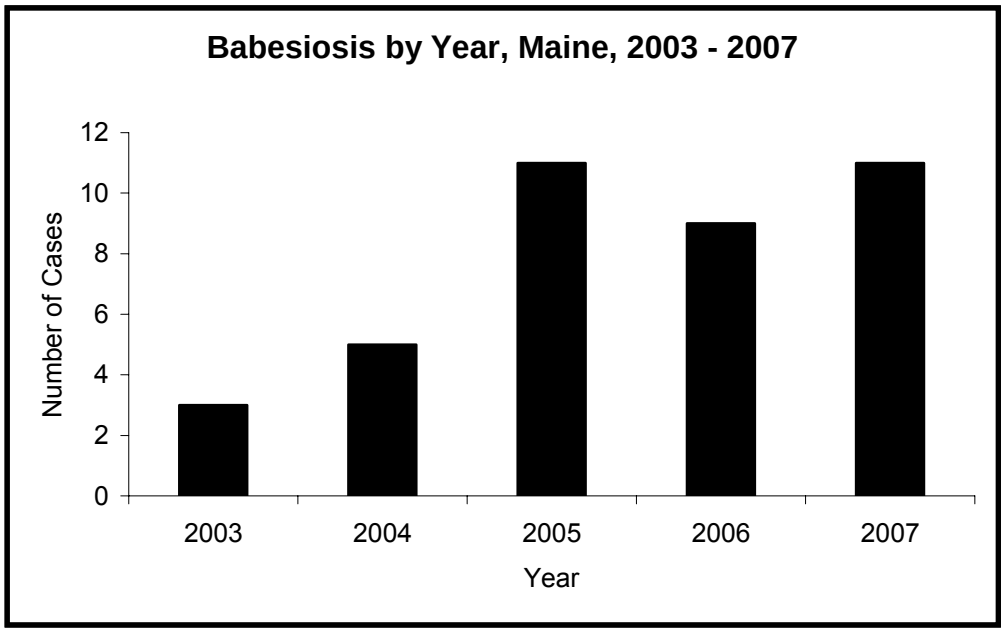
VECTORBORNE DISEASES

Babesiosis

Babesiosis is caused by protozoa that are carried by ticks. Many individuals that get the disease do not have symptoms. Serious symptoms can occur, especially in immunosuppressed individuals or people who are co-infected with Lyme disease.

There were 11 confirmed cases of babesiosis reported in Maine for 2007. The majority of the individuals lived in York and Cumberland Counties, but there were two cases further inland (Kennebec and Franklin Counties). The infection in Franklin County was attributed to an out-of-state exposure to the disease. The remaining three counties have recorded high deer tick populations, which was the suspected cause for most of the infections. Only one individual appeared to have been exposed to babesiosis through other risk factors such as blood transfusions. The remaining cases were attributed to a tick bite. Those cases who were suspected of being from a tick exposure had a date of onset between May and August. The number of cases has doubled every year from 2001 to 2005, except in 2006 when the number of confirmed cases decreased.

To avoid contracting babesiosis, use insect repellents (DEET or permethrin containing products) according to directions, and check for ticks regularly. If an engorged tick is found, it should be identified or saved for later identification if symptoms occur to determine if it is a tick capable of carrying Babesiosis.



Lyme disease

Lyme disease is caused by a bacterium, *Borrelia burgdorferi* that is transmitted to a person through the bite of an infected deer tick *(Ixodes scapularis*). Symptoms of Lyme disease include the formation of a characteristic expanding rash (erythema migrans) at the site of a tick bite 3-30 days after exposure. This rash occurs in 80% of patients. Fever, headache, joint and muscle pains, and fatigue are also common during the first several weeks. Later features of Lyme disease can include arthritis in one or more joints (often the knee), Bell's palsy and other cranial nerve palsies, meningitis, and carditis (AV block). Lyme disease is rarely, if ever, fatal.

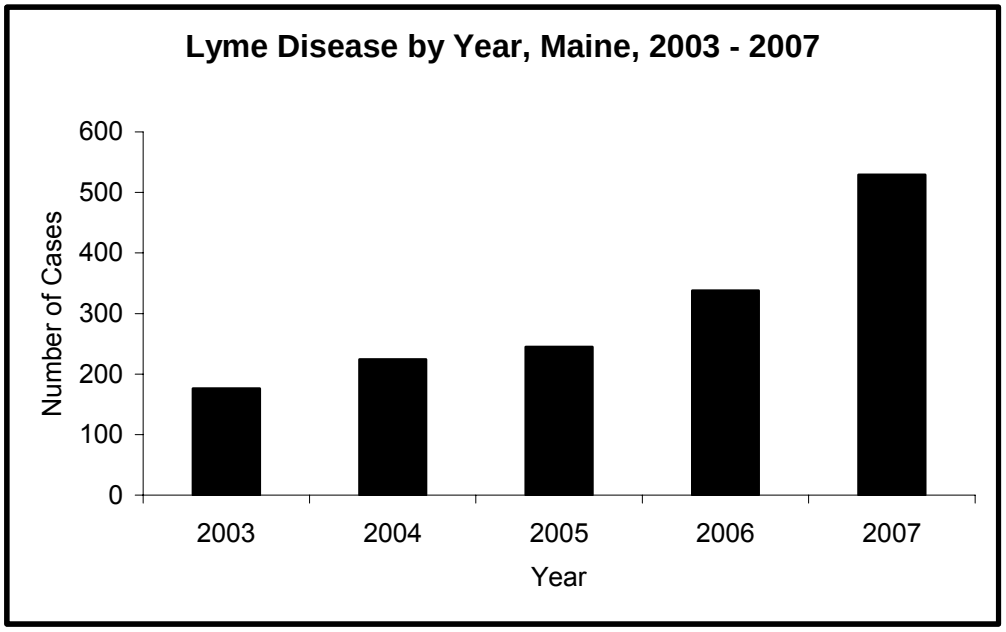
In the United States, highest rates of Lyme disease occur across the eastern seaboard (Maryland to Maine) and in the upper Midwest (northern Wisconsin and southern Minnesota), with the onset of most cases occurring during the summer months. In endemic areas, deer ticks are most abundant in wooded, grassy, and brushy areas ("tick habitat"), especially where deer populations are large.

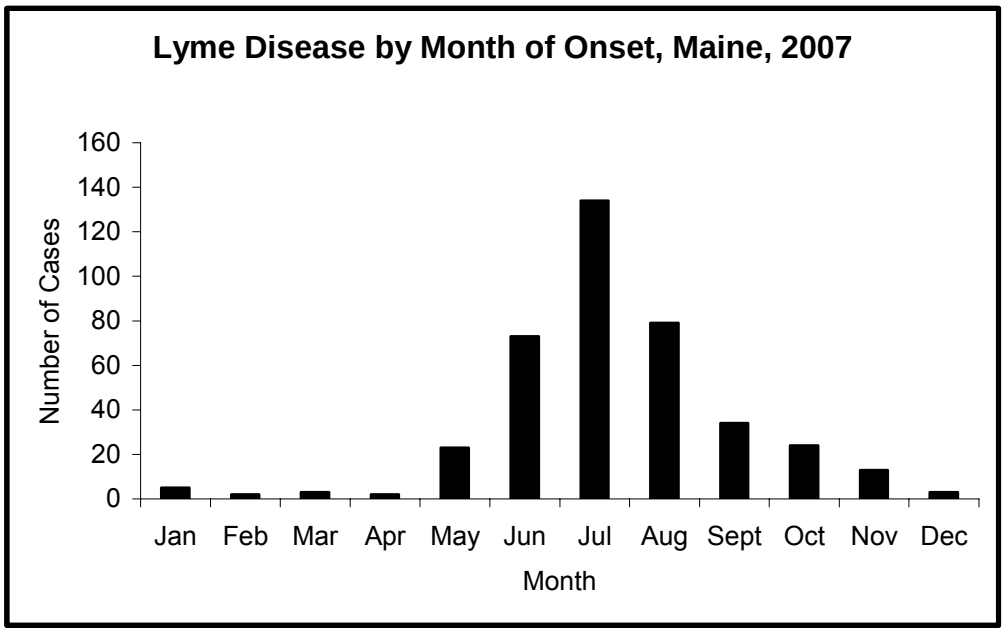
The first documented case of Maine-acquired Lyme disease in a state resident was diagnosed in 1986. Since 2003, when 175 cases were confirmed, the numbers of reported cases have increased each year, doubling between 2005 and 2007. During the 1990's the great majority of Lyme disease cases were residents of south coastal Maine, principally in York County. In recent years, however, disease incidence has increased steadily in the Midcoast, and in the Kennebec and Androscoggin river valleys.

In 2007, 529 cases of Lyme disease were confirmed among Maine residents. This is the greatest number of cases ever reported in Maine and represents a 57% increase over the 338 cases confirmed for 2006 and more than twice the number of cases that were reported for 2005 (245). The largest proportion of cases were reported among residents of York County (33%) and Cumberland County (31%), but the numbers of cases have increased in many areas, especially in the mid-coast, and in Kennebec and Androscoggin Counties.

Fifty four percent of cases were male and 46% were female. As has been true in Maine during previous years (and is also the case nationally) incidence was highest among school-age children (5-14 years) and middle age adults (40-65 years). Almost three-quarters (72%) of cases had onset during June, July, or August. Twenty-six persons (5% of all cases) were reported to have been hospitalized with Lyme disease. This is consistent with rates reported during previous years.

Currently, there is no human vaccine for Lyme disease. Personal protective measures include avoiding tick habitat, use of DEET-containing tick repellents, wearing long sleeves and pants, and daily tick checks and tick removal after being in tick habitat (ticks must be attached > 36 hours to transmit Lyme disease). Persons who have been in tick habitat should consult a medical provider if they have unexplained rashes, fever, or other unusual illnesses during the first several months after exposure. Possible community approaches to prevent Lyme disease include landscape management and control of deer herd populations.


Lyme Disease by Year, Maine, 2003 - 2007
Number of Cases
600
500
400
300
200
100
0
2003
2004
2005
2006
2007
Year


Lyme Disease by Month of Onset, Maine, 2007
Number of Cases
160
140
120
100
80
60
40
20
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Oct
Nov
Dec
Month

Anaplasmosis (Human Granulocytic Ehrlichiosis)

The symptoms of anaplasmosis (HGE) include achy body, headache, fever and malaise.

There were two confirmed cases (clinically compatible illnesses that were confirmed by the laboratory) of anaplasmosis and seven probable cases (consistent with symptoms but with only one lab test) from Maine in 2007. The two confirmed cases were male while the seven probable cases included three females and four males. One probable case of anaplasmosis was simultaneously a probable case for Human Monocytotropic Ehrlichiosis (HME). Anaplasmosis is transmitted by the bite of the deer tick, one of the most common ticks in Maine.

The best way to prevent infection is to take measures to protect against tick bites. Checking for ticks after visiting a tick-infested area is an important way to reduce the risk of contracting anaplasmosis. Also, wearing repellents such as DEET or permethrin, applied properly according to the directions, is a good way to protect oneself against ticks.

Human Monocytotropic Ehrlichiosis

The symptoms of Human Monocytotropic Ehrlichiosis (HME) are similar to anaplasmosis.

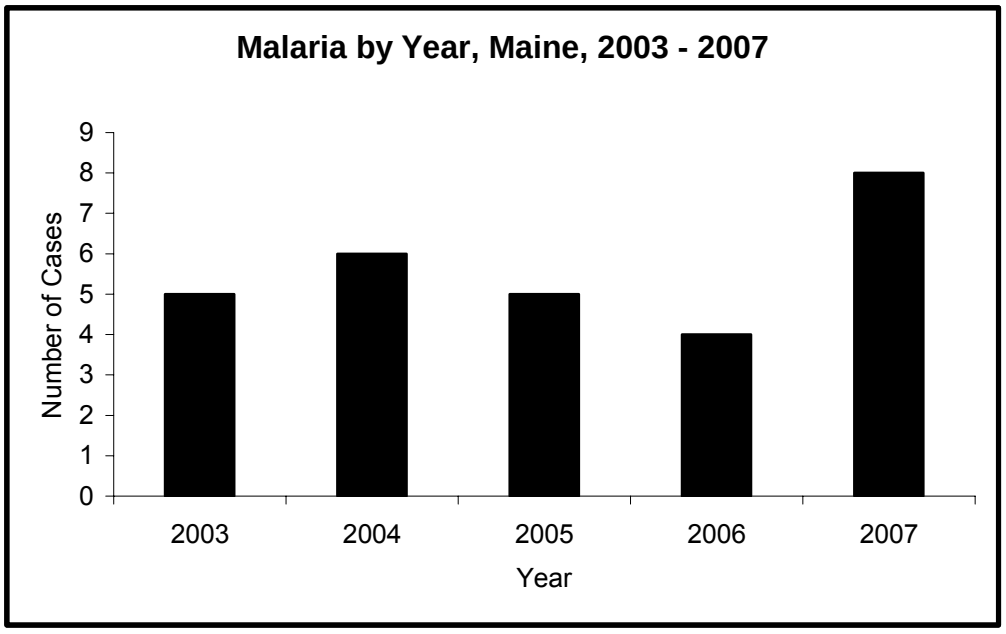
There were no confirmed cases (clinically compatible illnesses that were confirmed by the laboratory) of HME for Maine in 2007, however, there were three probable cases (consistent with symptoms but with only one lab test). Two of the probable cases were female. One of the probable cases was also a probable case for HGE. Transmission of HME is most likely due to the bite of a lone star tick, a tick that is rarely found in Maine.

To lower the risk of contracting HME, appropriate measures should be taken to reduce the chances of acquiring tick bites, especially when visiting southeastern states. Precautions include wearing repellents containing DEET or permethrin, as well as thoroughly checking for ticks in the evening.

Malaria

Malaria is a serious, sometimes fatal disease caused by protozoa (parasites) 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, and prophylaxis and mosquito protection measures, such as sleeping under a mosquito net, should be taken when visiting these areas.

There were eight confirmed cases of malaria in Maine for 2007. Four of the eight cases had previous history of malaria within 12 months of onset. Six of the eight cases had reported traveling or emigrating from African countries (Kenya [2], Nigeria, Central African Republic, Uganda and Ghana). One case reported emigrating from India and one case had traveled to Papua New Guinea. Due to the known resistance of malaria in Papua New Guinea to chloroquine the patient took Malarone (atovaquone and proguanil hydrochloride), but still became ill. The only other person to take chemoprophylaxis (mefloquine) traveled to Ghana.



West Nile Virus

There were no reported human cases of West Nile virus (WNV) in Maine for 2007. Mosquito pool testing was used to monitor the risk of transmission of WNV to humans, but none of the 1,056 pools tested were positive for WNV. West Nile virus is still assumed to be established in the state, so protective measures should be taken in the summer and fall. The best way to avoid 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. There were no reported human cases of EEE in Maine for 2007, and none of the 1,056 mosquito pools that were tested for EEE were positive. In 2005 two horses in Maine died of EEE, and in 2007 New Hampshire had a human case that lived only 10 miles from the Maine boarder Therefore, it is not safe to assume there is no risk for acquiring EEE in Maine. Proper measures should be taken to avoid transmission during the summer and fall months.

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 bad.
- Protect babies with mosquito netting.
- When mosquitoes are especially bad, 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, plastic tarps and similar things.
- Empty water from flower pots, pet dishes, birdbaths, rain barrels, and buckets at least once a week.

APPENDICES

APPENDIX A

Outbreaks

In 2007, two in-state outbreaks of Salmonellosis were identified by use of pulsed-field gel electrophoresis (PFGE) molecular matching, case finding and routine epidemiologic investigations.

The first outbreak occurred during the months of September and October. Ten cases of *Salmonella newport* were identified in patrons who consumed poultry products at a restaurant in Southern Maine. The first two cases were identified by PFGE. Patrons with symptoms were encouraged to be tested for *Salmonella* infection. All but one employee were tested for *Salmonella* infection and all employees were interviewed. Employee specimens were negative for *Salmonella* infection. A national epidemiological information exchange, Epi-X, was utilized to promote case finding. A Health Alert Network message was issued to health care providers in Southern Maine. Of the ten cases, eight were confirmed *Salmonella newport* and two were probable cases. Two patterns, four cases to each, were identified in the outbreak. There were no national PFGE matches. No cases were hospitalized and there were no deaths. No cases were identified or reported after October. The restaurant and poultry supplier were inspected. After a complete Hazard Analysis At Critical Care Points (HAACCP) inspection of the restaurant, food service workers were encouraged to take ServSafe, a standardized food service course.

The second outbreak occurred in October. Thirteen cases (five confirmed and eight probable cases) of *Salmonella typhimurium var5*, formerly *Salmonella copenhagen*, were identified in customers of a Eastern Maine convenience market offering deli and prepared take-out foods. The first case in this outbreak was hospitalized and reported knowledge of additional cases. The market was inspected by the Maine Department of Agriculture and an epidemiological investigation begun. Standard questionnaire was used to interview twenty individuals; cases, household members and meal companions. Register receipts were used to further identify cases. Four of the five confirmed cases were hospitalized. The investigation suggested a connection between a combination poultry and produce salad. The inspection of the market revealed violations in cleaning, hand washing and the potential for cross contamination of foods. The food service workers undertook a thorough cleaning of the market and were instructed on safe food service practice. No further cases were reported.

APPENDIX B

2007 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, 2007

County	*Ixodes scapularis* **(Deer Tick)**	*Dermacentor variabilis* **(American Dog Tick)**	*Ixodes cookei* **(Woodchuck Tick)**	Others
Androscoggin	58	7	0	6
Aroostook	2	1	1	1
Cumberland	271	38	2	6
Franklin	7	51	5	0
Hancock	123	5	5	8
Kennebec	128	7	2	2
Knox	46	2	1	5
Lincoln	43	3	1	0
Oxford	29	10	4	2
Penobscot	86	13	19	2
Piscataquis	12	4	2	0
Sagadahoc	61	7	0	2
Somerset	36	15	2	1
Waldo	61	3	8	3
Washington	10	1	0	0
York	111	13	1	2
Unspecified	14	5	2	0

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:

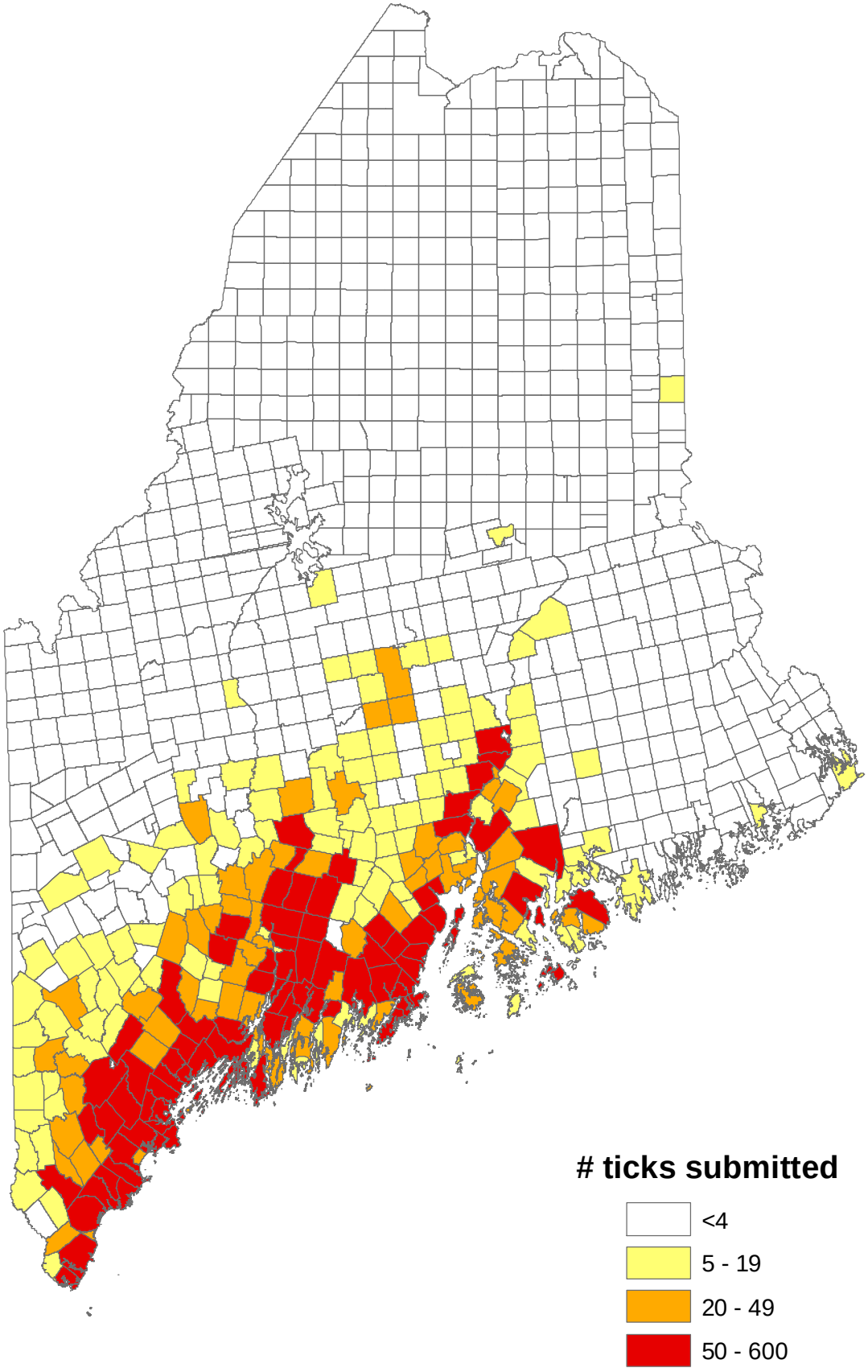
Vector-borne Disease Laboratory
Maine Medical Center Research Institute
75 John Roberts Rd., Suite 9B
South Portland, ME 04106

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. The public may address questions to the laboratory's email address: ticklab@mmc.org.

Map Caption

A map summarizing the number of *Ixodes scapularis* (deer tick) submitted per Minor Civil Division, 1989 through 2007.

Distribution of deer ticks (Ixodes scapularis) submitted 1989 - 2007



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

APPENDIX C: Maine Notifiable Conditions List

NOTIFIABLE CONDITIONS LIST

Maine Department of Health and Human Services
Center for Disease Control and Prevention

Conditions in **BOLD** must be reported *immediately* All others must be reported in 48 hours

Reportable Disease or Condition		Laboratory Specimen Submission
Acquired Immunodeficiency Syndrome (AIDS)	Malaria	Directors of laboratories are to submit cultures or clinical specimens for the following to the *Maine Health and Environmental Testing Laboratory* for confirmation, typing and/or antibiotic sensitivity:
Anthrax	**Measles**	
Arboviral Infection	Meningitis (bacterial)	
Babesiosis	**Meningococcal Invasive Disease**	
Botulism	**Mumps**	
Brucellosis	Paralytic Shellfish Poisoning	
Campylobacteriosis	**Pertussis**	
Carbon Monoxide Poisoning, including	**Plague**	
- Clinical signs, symptoms or known exposure consistent with diagnosis of carbon monoxide poisoning and/or: a carboxyhemoglobin (COHb) level ≥5%	**Poliomyelitis**	
	Psittacosis	
	Q Fever	
Chancroid	**Rabies (human and animal)**	
Chlamydia	Rabies Post-Exposure Prophylaxis	
Chickenpox (Varicella)	**Ricin Poisoning**	
Creutzfeldt-Jakob disease, <55 years of age	Rocky Mountain Spotted Fever	
Cryptosporidiosis	**Rubella (including congenital)**	
Dengue	Salmonellosis	
Diphtheria	**Severe Acute Respiratory Syndrome (SARS)**	
E. coli, Shiga toxin-producing (STEC) disease including E. coli: 0157:H7	Shigellosis	
Ehrlichiosis	**Smallpox**	
Giardiasis	Staphylococcus aureus, Methicillin-Resistant (MRSA) invasive,	
Gonorrhea	**Staphylococcus aureus with resistance (VRSA) or intermediate resistance (VISA) to Vancomycin isolated from any site**	
Haemophilus influenzae disease, invasive, include all serotypes	**Staphylococcal enterotoxin B**	
Hantavirus, pulmonary syndrome	Streptococcal invasive disease, Group A	
Hemolytic-uremic syndrome (post-diarrheal)	Streptococcal invasive disease, Group B	
Hepatitis A, B, C, D, E (acute)	Streptococcus pneumoniae, invasive disease	
Hepatitis B (chronic, and/or perinatal)	Syphilis	
Hepatitis C (chronic)	**Tetanus**	
Hepatitis, acute (etiologic tests pending or etiology unknown)	Toxoplasmosis	
Human Immunodeficiency Virus (HIV), including:	Trichinosis	
- Confirmed, positive antibody tests	**Tuberculosis (active and presumptive cases)**	
- Viral load tests, all results	**Tularemia**	
- CD4 lymphocyte counts, all results	**Unusual or increased case incidence, critical illness, unexplained death(s) of any suspect infectious disease**	
Influenza-associated pediatric death	Vibrio species, including Cholera	
Influenza-like illness outbreaks	**Viral Hemorrhagic Fever**	
Influenza A, Novel	**Venezuelan equine encephalitis**	
Legionellosis	Yellow Fever	
Leptospirosis	Yersiniosis	
Listeriosis		
Lyme Disease		

Acid-Fast Bacillus
Bacillus anthracis
Bordetella pertussis
***Brucella* species**
Clostridium tetani
Clostridium botulinum
Corynebacterium diphtheriae
Coxiella burnetii
Escherichia coli, Shiga toxin-producing
Haemophilus influenzae
Human Immunodeficiency Virus
***Influenza* virus, Novel**
Listeria monocytogenes
***Mumps* virus**
Mycobacterium tuberculosis
Neisseria meningitidis
***Rabies* virus**
Ricin Poisoning
***Rubella* virus**
***Rubeola* virus**
Salmonella species
SARS Coronavirus
Shigella species
Toxoplasma gondii
***Variola* virus**
Vibrio species
Yersinia pestis

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

When to report:

- Conditions in **BOLD** are reportable immediately by telephone on recognition or strong suspicion of disease
- All others 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
- Patient'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/dhhs/boh/ddc/disease_reporting.htm

Disease Reporting
24 Hours A Day
7 Days A Week

Telephone
1-800-821-5821

Fax
1-800-293-7534

APPENDIX D: 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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