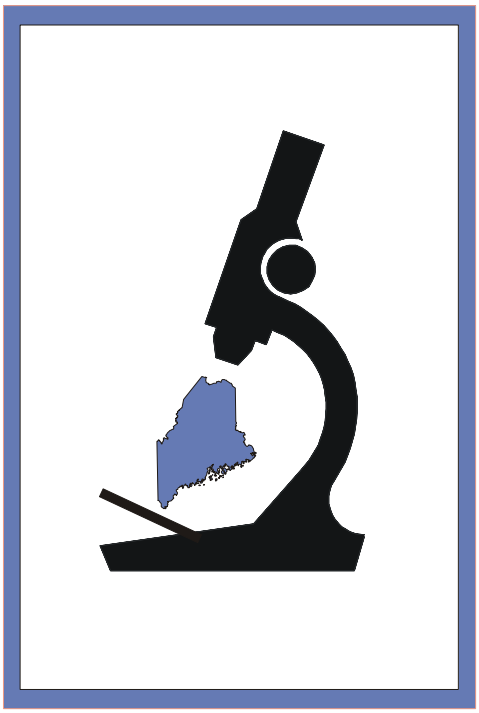
Reportable Infectious Diseases in Maine



2003 Summary

The Maine Department of Health and Human Services
Bureau of Health
Division of Disease Control

Reportable Infectious Diseases in Maine

2003 Summary

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Foreword

The **Reportable Infectious Diseases in Maine: 2003 Summary**, marks the tenth consecutive annual report published by the Division of Disease Control, Bureau of Health. It is intended to provide an overview of incidence and trends of communicable diseases of public health importance in our state. For some diseases such as HIV/AIDS and Hepatitis C, prevalence data is noted.

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 assisting the Bureau of Health to bring into focus disease conditions that impact Maine citizens and visitors. Their active and critical role in the infectious disease surveillance cycle translates into statewide policies and programs that protect our citizens and visitors from infectious disease through health promotion, disease prevention, and early detection, containment, and treatment.

We encourage our partners' continued support and vigilance in our effort to protect the people of Maine through timely, complete, and accurate infectious disease reporting. The better we are able to prevent and control naturally occurring disease now, the better positioned we'll be should an intentional introduction of an infectious disease occur.

For more information on what, when, and how to report infectious disease, please see *Appendix A (Notifiable Conditions List)* to this summary 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 citizens and visitors.

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Summary of Trends in Select Reportable Diseases
Annual Frequency and Five-Year Mean/Median, Maine 1999-2003*

Disease	1999	2000	2001	2002	2003	5-Year Mean	5-Year Median
AIDS	76	44	45	27	38	46	44
CAMPYLOBACTERIOSIS	161	149	124	140	147	142	147
CHLAMYDIA	1213	1474	1346	1801	2040	1475	1474
CRYPTOSPORIDIOSIS	31	20	20	12	20	21	20
ESCHERICHIA COLI 0157:H7	40**	32	29	39	11	30	32
GIARDIASIS	238	238	197	213	185	214	213
GONORRHEA	83**	90	141**	142	231	137	141
HANTAVIRUS (PULMONARY)	0	0	0	0	0	0	0
H. INFLUENZAE (HIB-INVASIVE)	8	2	2	2	6	4	2
HEPATITIS A	27**	23	11	9	14	17	14
HEPATITIS B (ACUTE)	5	6	7	14	6	8	6
HIV INFECTION	45	51	40	39	55	46	45
LEGIONELLOSIS	3	2	8	6	2	4	3
LISTERIOSIS	9	2	2	5	7	5	5
LYME DISEASE	90	71	108	219	175	127	108
MEASLES	0	0	0	0	0	0	0
MENINGOCOCCAL (INVASIVE)	5	10	8	7	13	9	8
MUMPS	0	0	0	0	0	0	0
PERTUSSIS	36	51	23*	21	91	44	36
RABIES (ANIMAL)	208	139	85	67	73	114	85
RUBELLA	0	0	0	0	0	0	0
SALMONELLOSIS	132	127	168**	147	132	141	132
SHIGELLOSIS	5	11**	6	10	7	8	7
STREPTOCOCCAL (GpA-INVAS)	9	12	12	20	30	17	12
SYPHILIS (EARLY)	0	1	4	3	15	5	3
TUBERCULOSIS	23	24	20	23	24	23	23
TOXIC SHOCK SYNDROME	2	2	0	1	1	1	1
YERSINIOSIS	2	3	2	0	0	1	2

* Confirmed Cases using CDC uniform reporting criteria: *Case Definitions for Infectious Conditions Under Public Health Surveillance*; Event date based on MMWR reporting year

** Inclusive of outbreak related cases

Summary of Disease Outbreaks and Clusters Investigated by the Division of Disease Control, Maine 2003

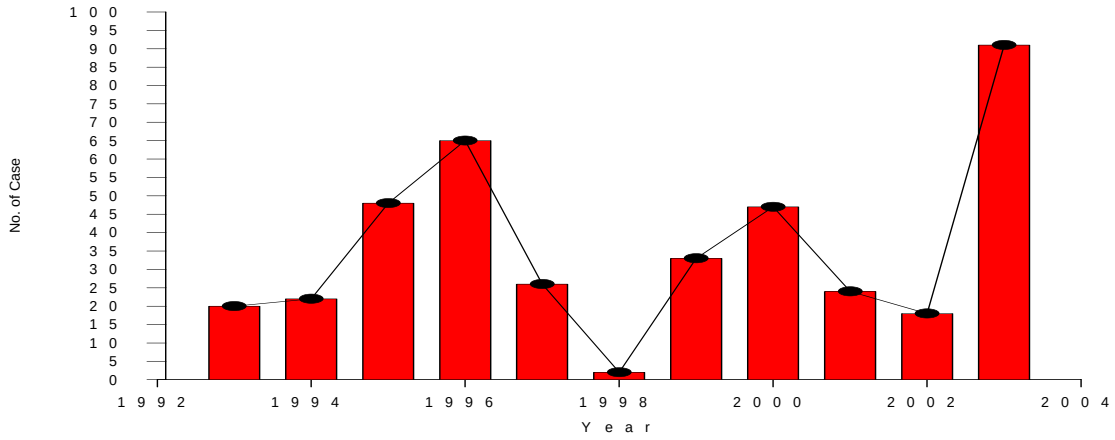
Month	County	Site	Description	Organism
January	Aroostook	Nursing Home	Gastroenteritis, 24 cases	Suspect Norwalk
January	Lincoln	Nursing Home	Gastroenteritis, 17 cases	Suspect Norwalk
January	Kennebec	Nursing Home	Gastroenteritis, 43 cases	Suspect Norwalk
January	Piscataquis	Nursing Home	Gastroenteritis, 9 cases	Suspect Norwalk
January	Lincoln	School	Gastroenteritis, 20 cases	Suspect Norwalk
January	Cumberland	Restaurant	Gastroenteritis, 100 cases	Suspect Norwalk
January	Androscoggin	Nursing Home	Gastroenteritis	Suspect Norwalk
January	Penobscot	School	Strep / Scarlet Fever, 16 cases	Confirmed Strep / Scarlet Fever
January	York	Daycare	Gastroenteritis, 4 cases	Confirmed Shigella
February	Sagadahoc/ Cumberland	Family	Gastroenteritis, 8 cases	Suspect Norwalk
February	Kennebec	School	Skin Infection. 4 cases	Confirmed varicella zoster
February	Oxford	Community	Influenza-like Illness, 27 cases	Confirmed Influenza
February	Penobscot	Nursing Home	Influenza-like Illness, 12 cases	Confirmed Influenza
February	Oxford	Nursing Home	Influenza-like Illness, 32 cases	Confirmed Influenza
March	Knox	Nursing Home	Influenza-like Illness, 5 cases	Confirmed Influenza
March	Oxford	School	Skin Infection, 3 cases	Confirmed Staph
March	Penobscot	Family	GAS, 4 cases	Confirmed Group A Strep
March	Oxford	Nursing Home	Influenza-like Illness, 22 cases	Confirmed Influenza
March	Penobscot	School	Influenza-like Illness, 78 cases	Suspect Influenza
March	Waldo	Nursing Home	Pneumonia, 8 cases	Unknown
March	Aroostook	School	Mononucleosis, 6 cases	Confirmed Mononucleosis
April	Franklin	Nursing Home	Influenza-like illness, 22 cases	Confirmed Influenza
April	Aroostook	Church Gathering	Gastroenteritis, 13 cases	Confirmed Arsenic
May	Kennebec	Family	Gastroenteritis, 11 cases	Suspect Norwalk
May	Franklin	Daycare	Gastroenteritis, 9 cases	Suspect Norwalk
May	Hancock	Individual	Respiratory Illness	Unknown
May	Hancock	School	Gastroenteritis, 2 cases	Confirmed Hepatitis A
June	Lincoln	Long Term care Facility	Skin infection, 10 cases	Confirmed Scabies
June	Somerset	Adult MR/DD Intermediate Care Facility	Gastroenteritis, 10 cases	Suspect Norwalk
June	Somerset	Birthday Party	Gastroenteritis, 11 cases	Suspect Norwalk
July	Androscoggin	Illegal Tattoos	Rash Illness, 3 cases	Confirmed *Staphylococcus aureus*
July	Somerset	Grange Meal	Gastroenteritis, 11 cases	Suspect clostridium perfringes
September	Cumberland and York	School Athletes	Skin Infections, 10 cases	Confirmed non-MRSA staph

Month	County	Site	Description	Organism
September	Cumberland	Youth Facility	Skin Infections, 10 cases	Confirmed non-MRSA staph
September	Cumberland	School Athletes	Skin Infections, 6 cases	Confirmed non-MRSA staph
September	Knox	School	Meningitis and other Febrile Illnesses	Confirmed Enteroviral Meningitis
October	Knox	School	Gastroenteritis, 50 cases	Suspect Norwalk
October		School	Pediatric Pneumonia, 16 cases	Unknown
October	Aroostook	Community	Pediatric Pneumonia	Unknown
October	York	School	Pediatric Pneumonia	Unknown
October	Kennebec	Long Term Care Facility	Gastroenteritis, 40 cases	Confirmed c. difficil
December	Statewide	Statewide	Gastroenteritis, 13 cases	Confirmed Salmonella typhimurium
December	Penobscot	Youth Program	Influenza-like illness, 100 cases	Confirmed Influenza
December	Aroostook	Nursing Home	Influenza-like illness, 28 cases	Confirmed Influenza
December	Washington	Rehabilitation Center	Influenza-like illness,15 cases	Confirmed Influenza
December	Kennebec	Rehabilitation Center	Influenza-like illness, 11 cases	Confirmed Influenza
December	Aroostook	Nursing Home	Influenza-like illness, 10 cases	Confirmed Influenza
December	Androscoggin	Long Term Care Facility	Influenza-like illness, 4 cases	Confirmed Influenza
December	Penobscot	Correctional Facility	Influenza-like illness, 3 cases	Confirmed Influenza
December	Kennebec	Nursing Home	Influenza-like illness, 1 case	Confirmed Influenza
December	Piscataquis	Nursing Home	Influenza-like illness, 2 cases	Suspect Influenza
December	Franklin	Rehab Living Center	Influenza-like illness, 1 case	Confirmed Influenza
December	Oxford	Long Term Care Facility	Influenza-like illness, 2 cases	Confirmed Influenza
December	Kennebec	Rehab Living Center	Influenza-like illness, 1 case	Confirmed Influenza
December	Cumberland	Nursing Home	Influenza-like illness, 19 cases	Confirmed Influenza
December	Penobscot	Jail	Influenza-like illness, 54 cases	Confirmed Influenza
December	Penobscot	Jail	Pneumonia	Confirmed MRSA pneumonia

Vaccine-Preventable Diseases

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 in children and was associated with a high mortality rate. After vaccines against pertussis became widely available in the United States in the 1940's and 1950's, incidence of the disease declined dramatically. However, in the 1980's, incidence rates began climbing very slowly. During the last several years, incidence rates among adults and adolescents have increased significantly in many areas of the country. The reasons for these increases are not entirely clear. Many cases are occurring among middle school and high school-age adolescents, who are at the age at which childhood vaccine immunity is waning. Federal health authorities anticipate that a vaccine for booster dosing of adolescents and adults will be licensed in the next several years.



Age distribution for 2003 showed that an increased proportion of cases were occurring among adolescents and adults in Maine. Case ages ranged from 3 weeks to 60 years, with a median of 13 years. Eighteen cases were younger than 1 year old, 13 cases were between 1 and 7 years old, and 14 cases were between 8 and 12 years old. Twenty-four cases were between 13 and 19 years old, and 22 cases occurred among persons older than 19 years. No deaths from pertussis were reported in the state in 2003.

Geographically, the cases were reported from all 16 counties in the state with most of the cases reported from southern and central Maine. Disease clusters occurred in several towns and schools. The following table breaks down cases by county of residence:

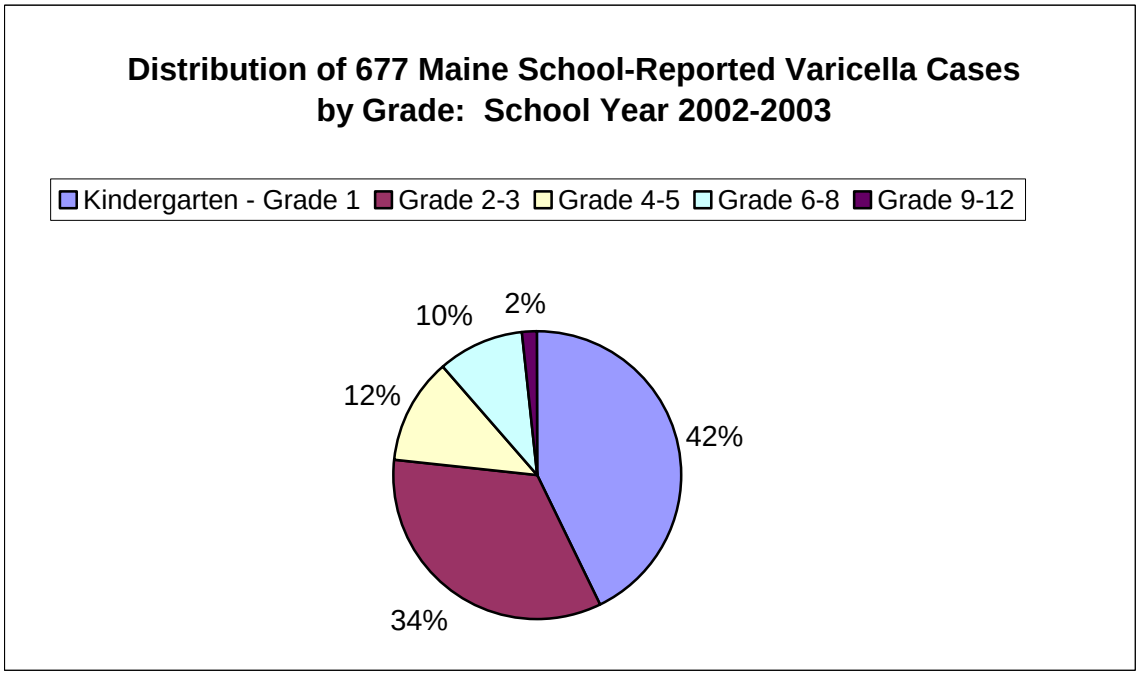
County	Number of Cases
Androscoggin	19
Aroostook	2
Cumberland	3
Franklin	8
Hancock	2
Kennebec	3
Knox	3
Lincoln	10
Oxford	1
Penobscot	16
Piscataquis	5
Sagadahoc	2
Somerset	7
Waldo	3
Washington	1
York	6

In summary, Maine saw an increase in reported pertussis case incidence throughout the state in 2003, especially among adolescents and adults. The reasons for the observed increases may include a true increase in the occurrence of disease, a result of the cyclic increases long-known to occur for pertussis, and improved recognition and reporting among health professionals. All of these factors may have played some role in this increase.

Varicella: School Year 2002-2003

Varicella (chickenpox) is a common, acute, highly infectious disease caused by the *Varicella zoster* virus. It is usually a mild childhood disease and most children recover uneventfully; however, severe complications of the disease do occur. The vaccine against varicella was licensed for use in healthy children and adults in the United States in 1995. The Maine Immunization Program started to distribute the vaccine in 1996. State law requires all students enrolled in school to be vaccinated with varicella vaccine by 2007. The implementation of the law is being phased in over several years starting with the school year of 2003-2004.

In Maine, providers report the total numbers of chickenpox cases to the Bureau of Health. The reports described here, from the school year 2002-2003, represent the last school year before the varicella vaccination law was implemented.



The school year of 2002-2003 began September 2002 and ended in mid-June 2003. During this period, 276 reports of cases and clusters (with a total of 712 individual case reports) of varicella were received. Among them 26 were from day cares, clinics, and hospitals. The rest of the reports were from 140 elementary, middle, and high schools throughout the state, which represented a little over one-third of the schools in the state.

Of the 712 total cases identified, 677 were from schools and the remaining 35 were from other institutions. Because the state law requires reporting only the number of cases by town, age was not available for all 677 cases. However, five hundred and forty-three cases were reported with school grade, and among them 232 cases from kindergarten and grade 1; 184 from grades 2-3; 65 from grades 4-5; 53 from grades 6-8; and 9 from grades 9-12. The pie chart above shows the grade distribution of the reported cases.

Most cases were reported between mid-October 2002 and mid-February 2003. Some schools reported outbreaks during this period.

This surveillance data indicates that without the vaccination requirement, varicella still poses risk for school children, especially for younger children, and mainly during autumn and winter months.

Enteric Diseases

Enteric Disease in Maine, 1999-2003

Enteric Disease	1999	2000	2001	2002	2003	5 year Mean	5 Year Median	2003 Case Rate (/100,000)
Foodborne Botulism	0	0	0	2	0	0.4	0	NA
Campylobacteriosis	161	149	124	140	145	144	145	11
Cryptosporidiosis	31	20	20	12	20	21	20	2
E. coli O157:H7	40	32	29	39	11	30	32	1
Shigatoxin E. coli (not typed)	-	-	-	19	4	NA	NA	NA
Giardiasis	238	238	197	212	184	214	212	14
Hemolytic Uremic Syndrome	0	0	1	3	0	0.8	0	NA
Hepatitis A	27	23	11	9	16	17	16	1
Listeriosis	9	2	2	5	6	5	5	0.5
Salmonellosis	132	127	168	147	142	143	142	11
Shigellosis	5	11	6	10	7	8	7	0.5
Vibrio Infections	0	0	1	4	3	2	1	0.2

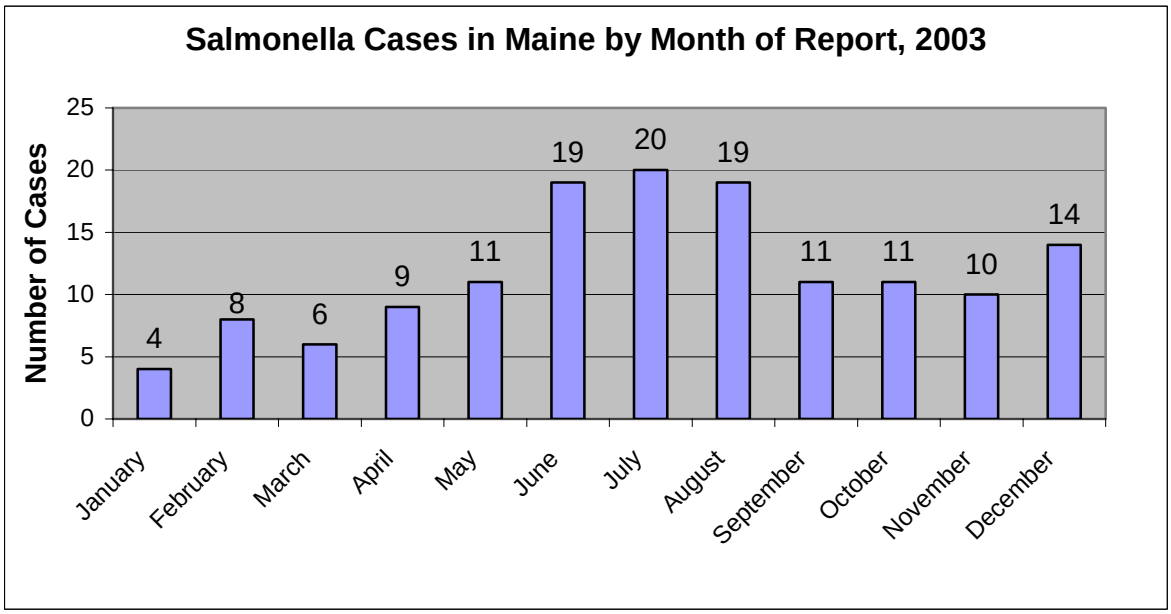
Salmonellosis

During 2003, 142 cases of culture confirmed salmonellosis infections were reported in Maine. This represents a case rate of 11 cases per 100,000. The mean number of cases reported from 1999 to 2003 is 143 and median is 142.

Demographic data include:

- **Geographic Occurrence**: Cases were related among residents of all 16 counties. Residents of Cumberland County and Penobscot County each accounted for 16% of the salmonellosis cases in Maine. This was followed by residents of Kennebec County with 14% and of York County with 12%.
- **Gender***:* Fifty-six percent of the cases were female.
- **Age:** Fifty-three of the cases were between the ages of 19 and 64 years old. Cases aged 1-year-old to 18 years old accounted for 28% of the cases and cases over 65 years old accounted for 18% of the cases.
- **Seasonality:** As illustrated in the graph below, the peak for the reporting of Salmonella cases occurred in July. The number of Salmonella cases did not significantly decrease in the later part of 2003, as is usually expected during this part of the year, because of an outbreak of *Salmonella typhimurium*.
- **Outbreaks:** Maine was affected by 3 multi-state outbreaks of Salmonella in 2003.
    - The first outbreak occurred during June and was caused by *Salmonella muenchen*. Maine had seven cases. Maine and other northeastern states with cases were involved in a case control study. Results have not been published.

- The second outbreak occurred during June and July and was caused by *Salmonella newport*. Six cases were Maine residents. Results of a multi-state case-control study have not yet been published.
- The third outbreak was caused by *Salmonella typhimurium*. This was also a national outbreak involving other northeastern states. Maine had 13 cases. In collaboration with the Centers for Disease Control and Prevention, Maine led this investigation. A case control study implicated ground beef as the source for the outbreak. A trace back of the meat was conducted. Publication of this investigation will be published in 2004.



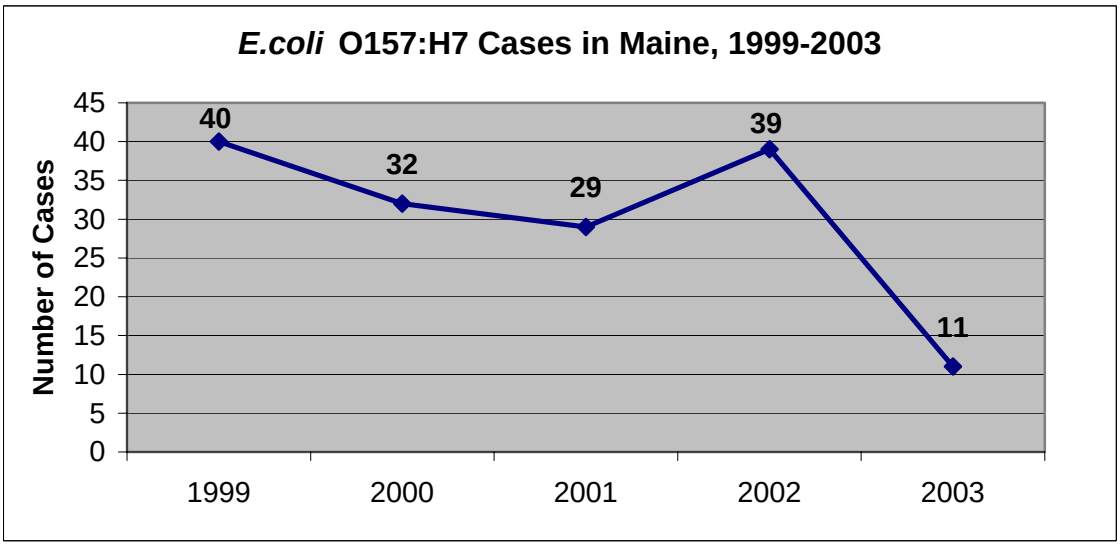
Serotyping of Salmonella isolates was conducted on samples submitted to HETL. The most frequent Salmonella serotypes in Maine for 2003 are as follows:

Serotype	Total Number	Proportion
Typhimurium (including variant Copenhagen)	43	30%
Newport	16	11%
Enteritidis	15	10%
Muenchen	8	6%
Group B Monophasic	7	5%

As noted in the table, *Salmonella thyphimurium* accounted for a significant proportion of all cases in Maine for 2003. This is primarily due to the outbreak of *Salmonella typhimurium* described above. In 2003, *Salmonella enteriditis* accounted for the largest proportion of all Salmonella cases due to an outbreak of illnesses caused by that serotype.

Escherichia coli O157:H7

During 2003, 11 cases of culture confirmed *E. coli* O157:H7 were reported in Maine. This represents a significant decrease from the 39 cases reported in 2002. The cause for the decrease in cases is unclear but the changing practice of increased shiga toxin testing and consequently decreased *E. coli* O157:H7 testing may be a contributing factor. The mean number of cases reported from 1999 to 2003 is 30 and the median is 32.



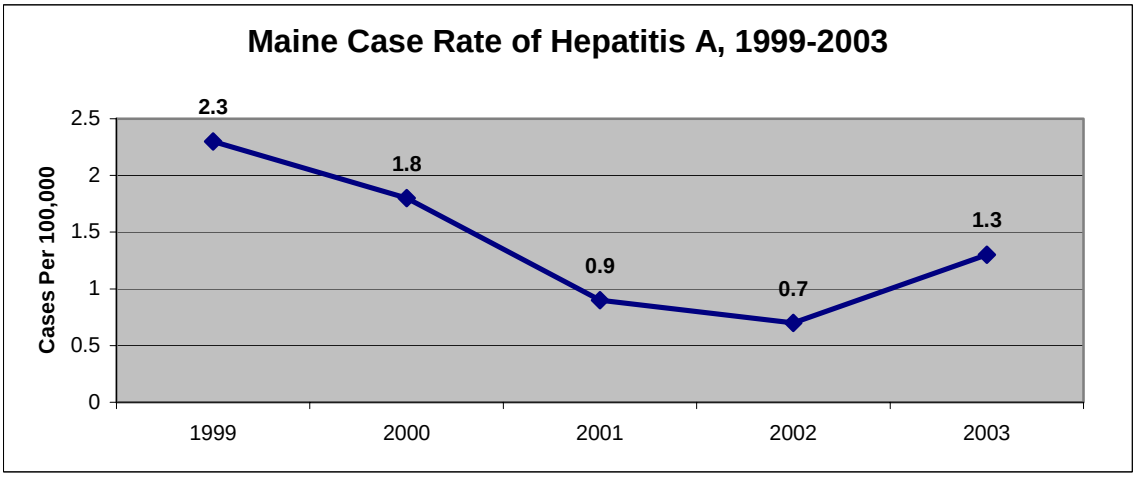
Demographic data include:

- **Geographic occurrence***:* Seven of the 16 counties in Maine reported at least one case of *E. coli* O157:H7. York County had the highest proportion with 27% (n=3) of the cases residing in that county. Androscoggin, Aroostook, Cumberland, Kennebec, Knox, and Penobscot each had at least one case residing in that county.
- **Seasonality:** Cases were reported sporadically throughout the year. Sixty-four percent of the cases were reported between the beginning of June and the middle of September.
- **Gender:** Seventy-three percent of the cases were male.
- **Age:** Children under the age of 19 years old accounted for 73% of cases. The remaining cases were between the ages of 45 and 60 years old.

During 2003, no clusters of *E. coli* O157:H7 were identified by Pulsed Field Gel Electrophoresis (PFGE) testing. PFGE testing did detect a molecular association between two cases, but there was no epidemiological evidence to support this association.

Hepatitis A

Maine experienced a 44% increase in hepatitis A (16 cases) in 2003. From 9 cases reported in 2002 this is the first increase in cases since 1999. A specific reason for this increase was not identified.



Demographic data include:

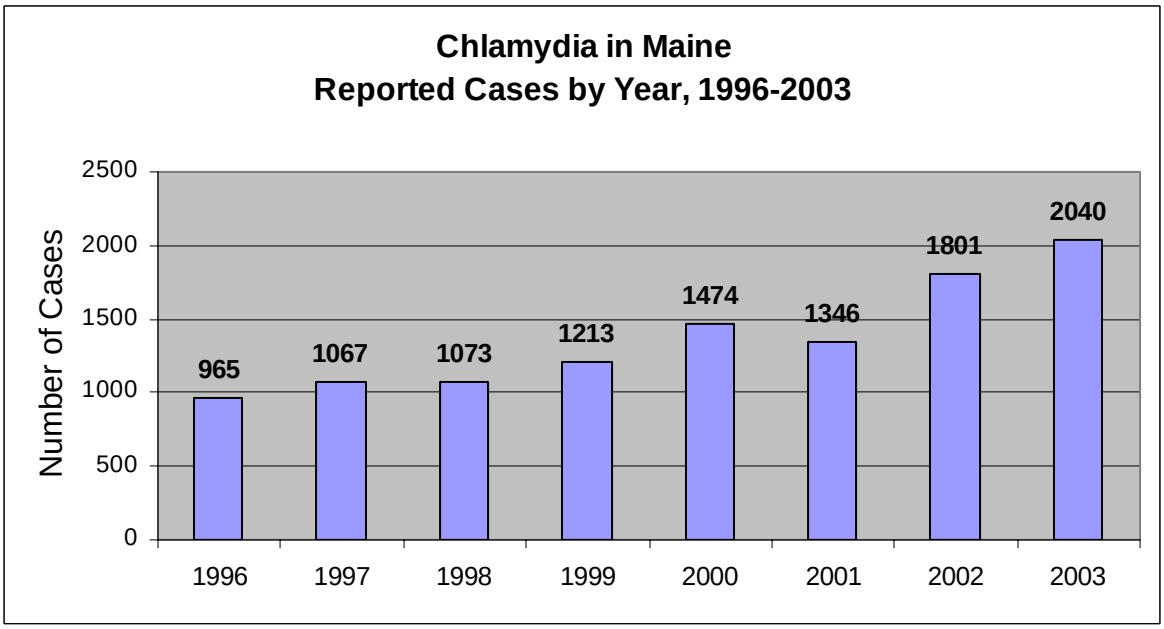
- **Geographic occurrence***:* Eight of the 16 Maine counties reported at least 1 case of hepatitis A. York County accounted for the highest proportion of cases with 4 cases or 25%. Cumberland, Franklin, Hancock, Kennebec, Knox, Somerset, and Waldo counties also reported at least one case.
- **Gender:** Sixty-three percent of the cases were male.
- **Age:** Seventy-five percent of the cases were between the ages of 22 and 51 years old. Only one case was less than 18 years old and three cases were over the age of 70 years old.

In 2003, Maine did not experience any outbreaks of hepatitis A. Individual investigations did identify a number of cases of out-of-state and out-of-country travel to areas where hepatitis A is endemic or where outbreaks of hepatitis A were occurring. This may account for up to 75% of the cases in Maine.

Sexually-Transmitted & Blood-Borne Diseases

Chlamydia

In 2003 there were 2,040 diagnosed cases of chlamydia, representing a 13% increase over the 2002 total and a 111% increase over the number of 1996 diagnoses. The figure below shows Maine chlamydia cases reported to the Bureau of Health from 1996 through 2003.



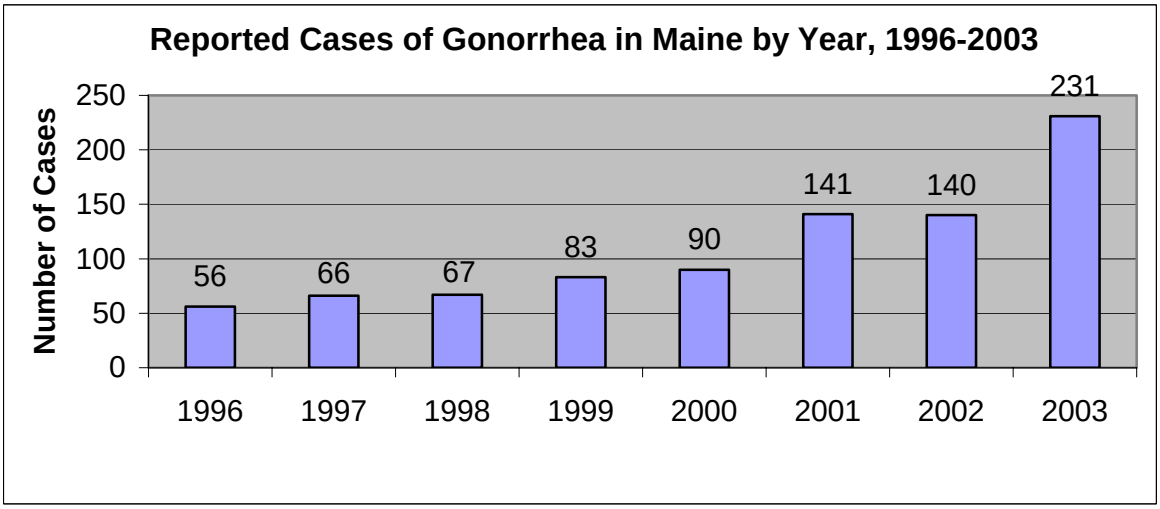
Young people are disproportionately affected by chlamydia infection. Youth aged 15 to 19 years comprised approximately 40% of chlamydia cases diagnosed in 2003. Overall, 77% of diagnoses occurred among people between 15 and 24 years old. Despite the fact that chlamydia is most often heterosexually transmitted, the majority of diagnosed cases occur among females, who accounted for almost three-quarters of reports in 2003. This is in part because males are more often asymptomatic than are females and are therefore less likely to seek care. Males are also unlikely to be screened for asymptomatic infection.

For more information about STD in Maine, visit the HIV/STD Program web site at http://www.state.me.us/dhs/boh/ddc/HIV_STD.htm.

Gonorrhea

In 2003, 231 cases of gonorrhea were diagnosed in Maine, representing a 63% increase over the 2002 total. Gonorrhea diagnoses have steadily increased during the past six years, with a

dramatic rise in 2001 that was sustained in 2002 and surpassed during 2003. The figure below shows gonorrhea diagnoses reported to the Bureau of Health between 1996 and 2003.



As with other sexually transmitted diseases, young people are disproportionately affected by gonorrhea infection. Just under half of 2003 diagnoses occurred in the 20-29 age range, and 16% were less than 20 years-old.

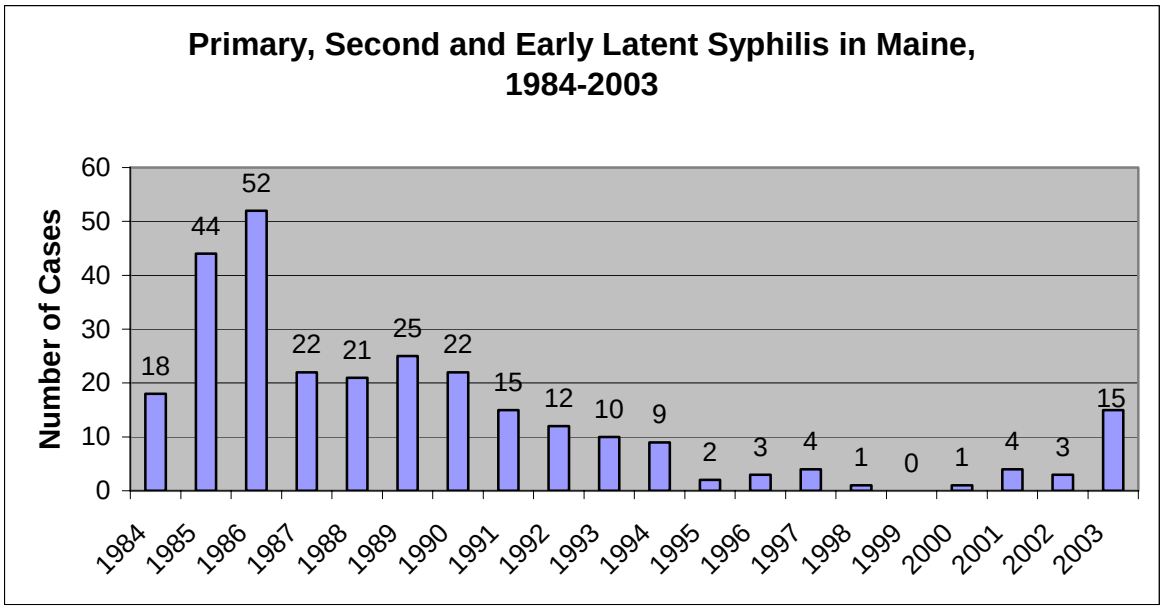
Males who have sex with males (MSM) accounted for approximately 40% of all gonorrhea cases reported in 2003. Twenty percent of MSM diagnosed with gonorrhea in 2003 were co-infected with HIV, with just under 10% of total 2003 gonorrhea diagnoses occurring among HIV+ MSM. Since gonorrhea and HIV are both transmitted sexually, an upswing in MSM gonorrhea may suggest that more gay and bisexual men are engaging in unprotected sex, and are therefore at greater risk for HIV infection. In addition, a person infected with gonorrhea or syphilis has a greater chance of becoming infected with HIV if they have sex with an HIV-positive person. Likewise, an HIV-positive person who has gonorrhea or syphilis is more likely to pass their HIV infection on to sexual partners.

For more information about STD in Maine, visit the HIV/STD Program web site at http://www.state.me.us/dhs/boh/ddc/HIV_STD.htm.

Syphilis

The figure on the following page shows primary and secondary syphilis diagnoses in Maine during the past two decades, since 1984. After peaking in the mid-1980s, syphilis steadily declined until 1999, when there were no diagnoses reported in the state.

During 2003, syphilis reemerged as an infectious disease of note in Maine, with 15 diagnoses reported. This number is greater than any annual total since 1991.



Although the number of syphilis cases is low when compared to other sexually transmitted diseases, its sudden reappearance in Maine is cause for concern. Like gonorrhea, a large proportion of syphilis diagnoses, roughly half, occurred among males who have sex with males (MSM). Some MSM diagnosed with syphilis were also infected with HIV.

The reemergence of syphilis in Maine during 2003 corresponds to increases in both gonorrhea and HIV diagnoses among MSM.

For more information about STD in Maine, visit the HIV/STD Program web site at http://www.state.me.us/dhs/boh/ddc/HIV_STD.htm.

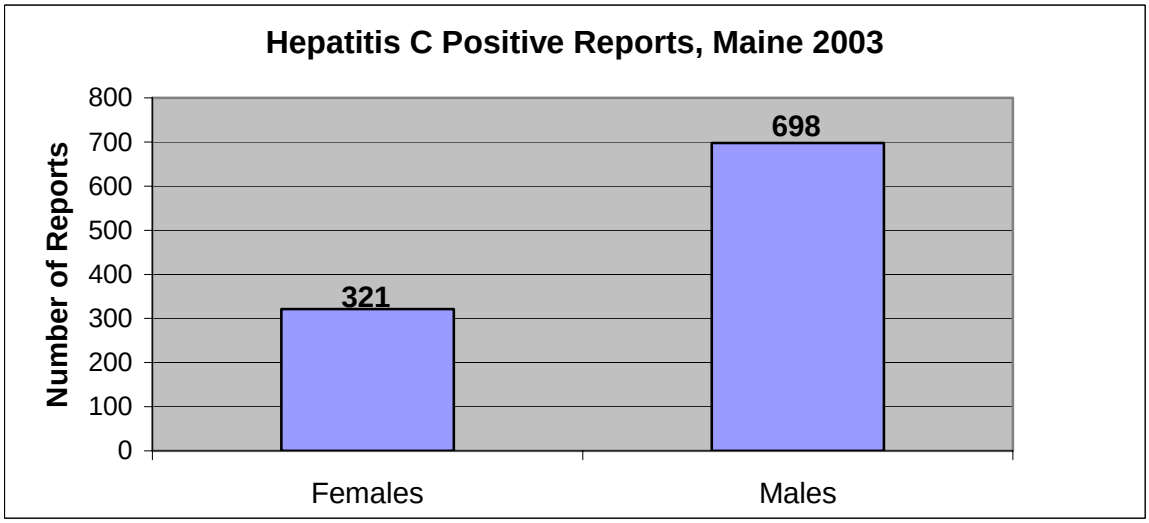
Hepatitis C Infection

Almost four million Americans have evidence of infection with the hepatitis C virus. It is the most common bloodborne infection in the United States and the leading reason for liver transplantation. Although the number of new infections per year has declined from an average of 240,000 in the 1980s to about 25,000 in 2001, the burden of disease continues to grow. Hepatitis C infects individuals of all ages, ethnic groups, and socioeconomic classes in urban and rural areas of Maine. An estimated 20,000 Maine residents have chronic hepatitis C. Because the infection is often asymptomatic and progresses slowly, most are unaware of their infection.

Since official case reporting was initiated in 1997, the Bureau of Health, Division of Disease Control has documented yearly increases in the numbers of individuals diagnosed with hepatitis C. These reports represent Maine people who tested positive for one or more hepatitis C virus [HCV] diagnostic markers. The 1,020 reports made in 2003 represent a slight decrease from the 1,248 reports made in 2002.

Due to the great burden of hepatitis C reports, it is impossible for the Bureau of Health to follow up on each individual report. In addition, because there is no test for acute hepatitis C infection, a determination of acute hepatitis C status is made only after receiving more detailed information from the medical provider. Seven cases of hepatitis C met the CDC case definition for acute hepatitis C in 2003. These cases are not included in the data listed below.

Given an overall decrease in the incidence of new hepatitis C infections in Maine and nationally, the great majority of the cases reported to the Bureau of Health are likely to represent chronic infections resulting from exposures at some time in the past, rather than newly acquired hepatitis C infections. This may be the result, in part, of HIV prevention strategies, which have served the dual purpose of preventing hepatitis C as well.



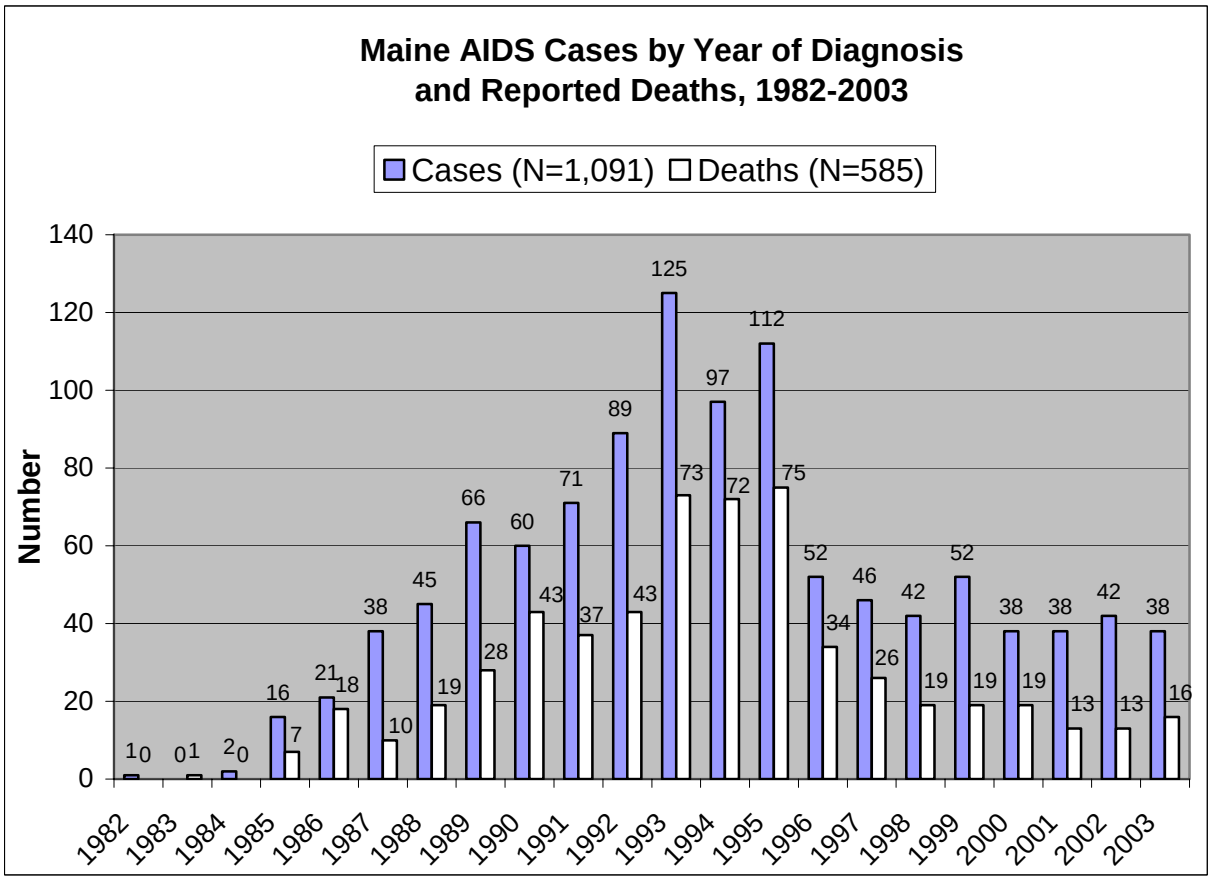
Note: In 2003, gender was not identified for one individual.

Of the 1,020 reported individuals in 2003, 31.5% were female and 68% were male. This is consistent with the gender breakdown noted in data collected between 1997-2002.

For more detailed information, please contact the Division of Disease Control Hepatitis C Coordinator, Mary Kate Appicelli at mary-kate.appicelli@maine.gov or 1-800-821-5821.

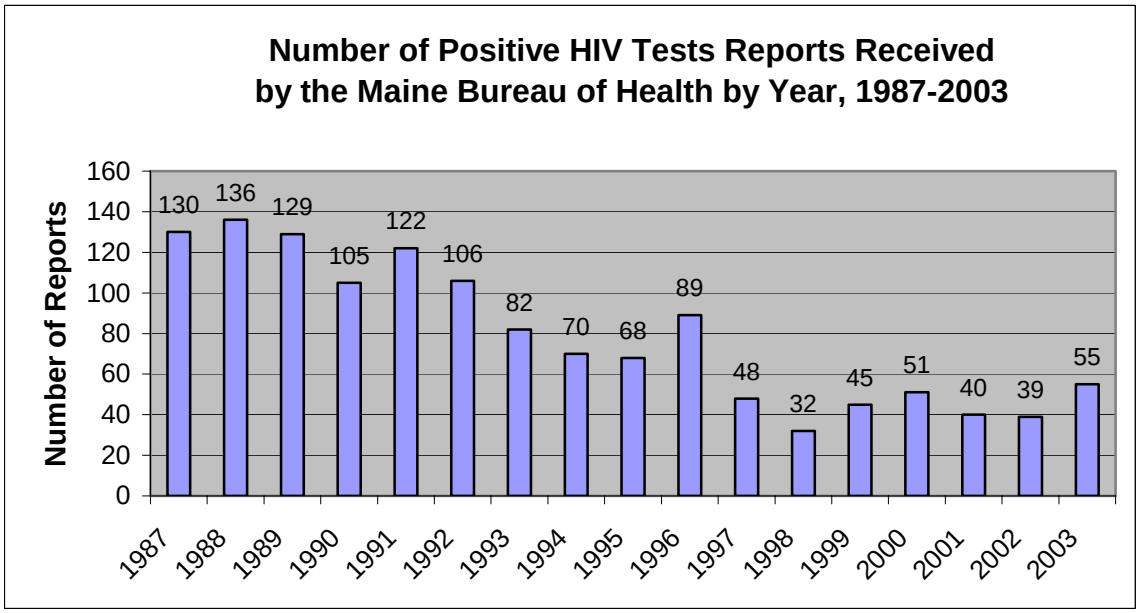
Footnote: For the purpose of this summary, a hepatitis C positive report was defined as the presence of any positive serologic marker for hepatitis C infection. These markers include anti-HCV (EIA), anti-HCV (RIBA), hepatitis C antigen (RT-PCR), or reports of HCV genotype. It should be noted that not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

HIV / AIDS



Through December 2003, 1,091 people had been diagnosed with AIDS in Maine and 585 had died from the disease. Thirty-eight people in Maine were diagnosed with AIDS in 2003 and 16 AIDS-related deaths occurred. Over time, there has been a general decline in both new AIDS diagnoses and deaths, with the number of deaths for the past three years at their lowest point since the 1980s. These declines are due in large part to widespread use of effective medical treatments for HIV disease.

Although new AIDS cases and deaths continue to decline, the prevalence of people living with AIDS continues to increase. Since 1985 there have been more annual AIDS diagnoses than deaths, meaning that the overall number of people living with AIDS has continued to increase over time. At this point, there are more people living with AIDS in Maine than ever before.



In addition to AIDS diagnoses and deaths, HIV infections continue to occur in Maine. Annual totals of new HIV diagnoses declined steadily from the late 1980s and have remained relatively stable in recent years. Fifty-five new HIV diagnoses were reported during 2003. This total represents an increase over last year and is the largest number of diagnoses seen since 1996. Approximately 1,200 people are estimated to be living with HIV in Maine.

The Centers for Disease Control and Prevention (CDC) estimates that as many as one-third of Americans living with HIV are unaware of their infection. These individuals may be missing out on important medical treatments and could unknowingly infect others if they engage in risky sexual activity or share drug-injection equipment. In Maine, 46% of those testing positive between 1998 and 2002 received an AIDS diagnosis at or near the time of their positive HIV test. Since it often takes years for HIV-infected persons to progress to an AIDS diagnosis, people simultaneously diagnosed with HIV and AIDS have likely been unknowingly infected with HIV for an extended period of time.

Several key populations continue to be disproportionately affected by HIV in Maine. It is estimated that males who have sex with males (MSM) comprise close to 60% of all people living with HIV in the state; MSM made up more than two-thirds of HIV diagnoses in 2003. Injection drug users infected through sharing needles comprise approximately 20% of people living with the disease. Another 14% of infections are attributed to heterosexual contact, although this proportion could be inflated because of under-reporting of both injection drug use and male-to-male sexual contact.

For more information about HIV/AIDS in Maine, visit the HIV/STD Program web site at http://www.state.me.us/dhs/boh/ddc/HIV_STD.htm

Vectorborne Diseases

Vectorborne Disease in Maine, 1999-2003

Vectorborne Disease	1999	2000	2001	2002	2003	5 year Mean	5 Year Median	2003 Case Rate (/100,000)
Babesiosis	0	0	1	2	3	1	1	0.24
Human Granulocytic Ehrlichiosis	0	1	1	1	1	0.8	1	0.08
Lyme Disease	90	71	108	219	174	132	108	14
Powassan Infection	0	1	2	0	0	0.6	0	0
Malaria *	3	7	5	6	5	5	5	0.39

** Although 5 cases of Malaria were reported in Maine in 2003, all cases were acquired outside of the United States.*

Babesiosis

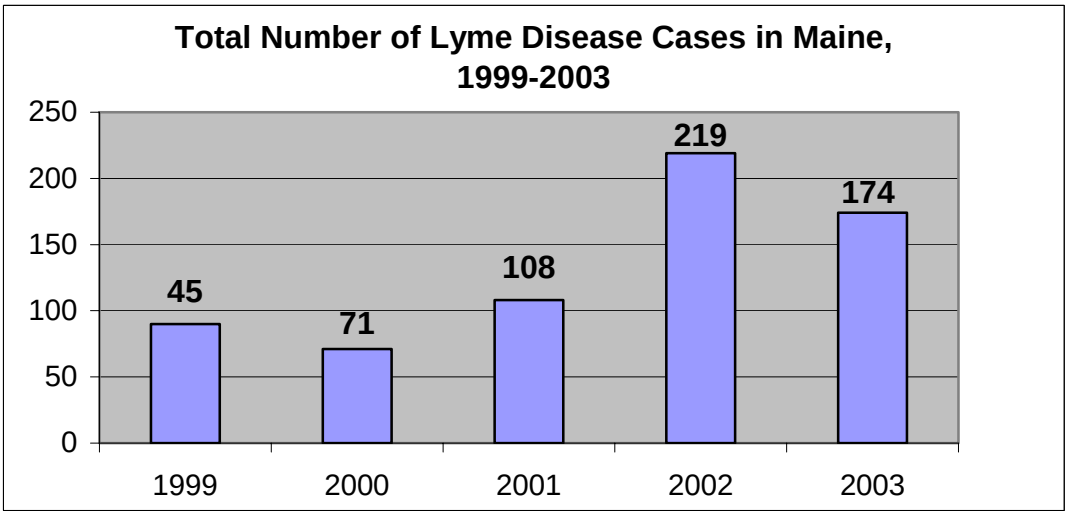
There were 3 cases of Babesiosis reported in 2003. All cases were residents of York County. The first case of endemically-acquired disease in the state was in 2001. Most cases have been York County residents.

Human Granulocytic Ehrlichiosis

Since 2000, there has been one reported case of Human Granulocytic Ehrlichiosis each year in Maine. In 2003, the reported case resided in York County.

Lyme Disease

During 2003, 175 cases of Lyme Disease that met the surveillance case definition were reported in Maine. This represents a case rate of 14 cases per 100,000 of the Maine population. This is a slight decrease in reported case from 2002 with 219 cases (case rate of 17 cases per 100,000). The mean number of cases reported from 1998 to 2002 was 132 with a median of 108 cases.



Demographic data include:

- **Geographic occurrence:** Of the 174 cases, 159 residents of Maine were believed to have acquired infection in Maine. Fifteen residents of Maine were believed to have acquired infection as a result of out-of-state travel. Of the 159 cases, 58% were residents of York County. Sixteen percent resided in Cumberland County, 7% in Knox County, and 5% in Lincoln County. The other cases were seen among residents of Androscoggin, Aroostook, Franklin, Hancock, Oxford, Sagadahoc, Waldo, and Washington counties.
- **Seasonality:** Seventy-five percent of cases reported onset of illness during the spring and summer months of May through August.
- **Gender:** Fifty-four percent of the cases were male.
- **Age:** Sixty-three percent of cases were between the ages of 19 and 64 years. Twenty-five percent were 18 years old or younger and 11% were over the age of 64.

For the past several years, more than one-half of all reported cases have been among residents of York County, especially of southern coastal areas of the county. While this phenomenon continued to be evident in 2003, there have also been steady, slow increases in cases reported among residents of eastern and central Maine. Data from the Maine Department of Conservation and from the Maine Medical Center Lyme Disease Research Laboratory provide some corollary evidence for the gradual expansion in the range of Lyme disease in Maine, through evidence of increasing numbers of deer ticks (found on humans or on domestic animals) submitted from the river valleys of central Maine in recent years.

Surveillance for human Lyme disease may help to provide a picture of overall levels and trends in disease, but is not a highly sensitive gauge of the numbers of cases that occur each year (as for many other conditions, Lyme disease – especially the early erythema migrans rash - is underreported). In addition, disease data can only give very general indications of areas of risk.

While it is clear that risk of acquiring Lyme disease is greatest in south coastal Maine, the gradually expanding geographic range of Lyme disease (and of deer ticks) highlights the importance for residents in all areas of the state to be familiar with tick bite prevention measures and for clinicians to be well-versed in Lyme disease diagnosis and management. For more

information, visit the Bureau of Health Lyme web site at:
http://www.maine.gov/dhs/boh/ddc/lyme.htm.

West Nile Virus

In 2003, there were no cases of human West Nile Virus (WNV) infection in Maine. The Maine Health and Environmental Testing Laboratory (HETL) conducted arboviral testing for 36 individuals.

Three horses and one bear were tested for WNV at HETL. All specimens were negative.

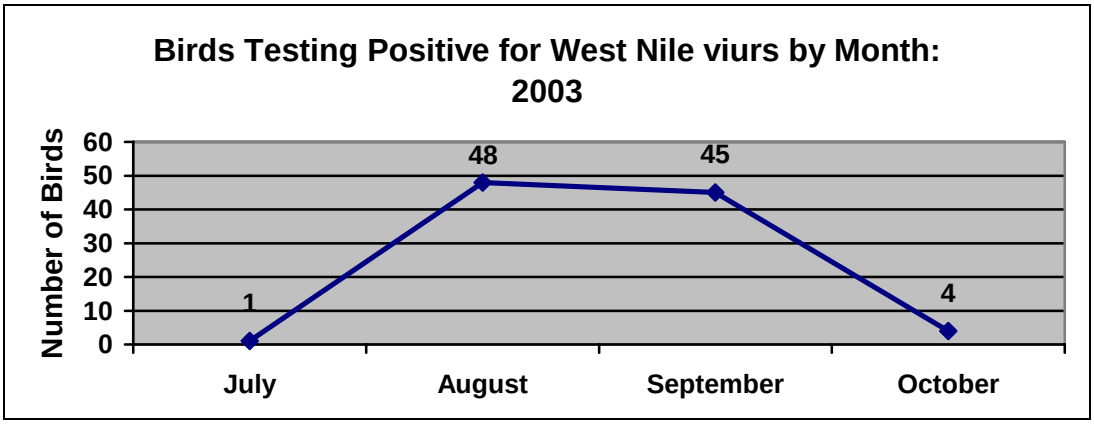
Dead birds were collected and tested as leading sentinel indicators of WNV activity. Of the 221 birds submitted, 98 tested WNV positive using PCR, 123 tested negative, and 14 were not tested due to decomposition or missing identification. Of the 98 birds testing positive, 96 were corvids (crows, blue jays, and ravens).

Thirty-seven mosquito pools were tested for WNV in 2003. Twenty-two pools were from Brunswick and 15 pools were from Portland. Of the 22 Brunswick samples, 2 tested positive for West Nile Virus. Both positive samples from Brunswick were of mixed species including: *Oc. canadensis*, *Oc. cantator*, and *Oc. japonicus* in one pool and *Ae. vexans* and *Ae. cinereus* in the other. All samples from Portland tested negative.

As illustrated in the tables below, 88% of the positive birds were found in the southern Maine counties of York and Cumberland. Twelve of the 16 counties in Maine had at least one bird that tested positive. As illustrated in the graph, most of the positive birds were found in July and August.

County Positive Bird Was Found, 2003

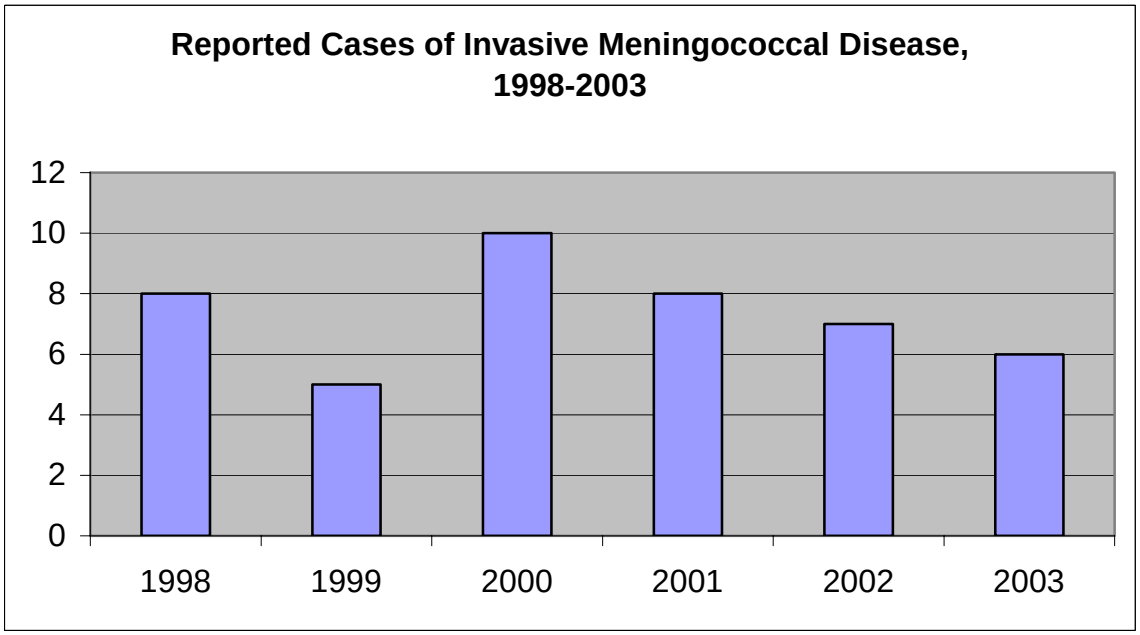
County	Number of positive birds
Androscoggin	7
Cumberland	39
Franklin	2
Hancock	5
Kennebec	7
Knox	2
Lincoln	2
Penobscot	6
Piscataquis	1
Somerset	2
Waldo	1
York	24


Birds Testing Positive for West Nile viurs by Month: 2003
Number of Birds
60
50
40
30
20
10
0
1
48
45
4
July
August
September
October

Other Infectious Diseases

Invasive Meningococcal Disease

During 2003 there were 6 cases of invasive meningococcal disease reported to the Bureau of Health (case rate of 0.5 per 100,000 population). This is consistent with the estimate rate for the United States population as a whole.



The mean number of cases reported annually in Maine from 1997 to 2002 was 8, with a range of 5 to 18 cases. Onset in 2003 cases occurred in February (one case), March (three cases) April (one case) and September (one case).

In 2003, four meningococcal cases (57%) had bacteremia without another focus of infection, two had meningitis (29%) and one had epiglottitis.

The Maine Health and Environmental Testing Laboratory reported the distribution of the year 2003 case serogroups as follows: three cases of Group B, three cases of Group C and one case that was untypable.

The mean age for 2003 cases was 24 years with a median of 16 years (and a range of 2 months to 75 years of age).

Four Maine counties (Aroostook, Knox, Kennebec, Cumberland) each reported one case of invasive meningococcal disease during 2003 and York County reported two cases.

None of the six invasive meningococcal disease cases in Maine during 2003 were epidemiologically linked.

Rabies in Animals

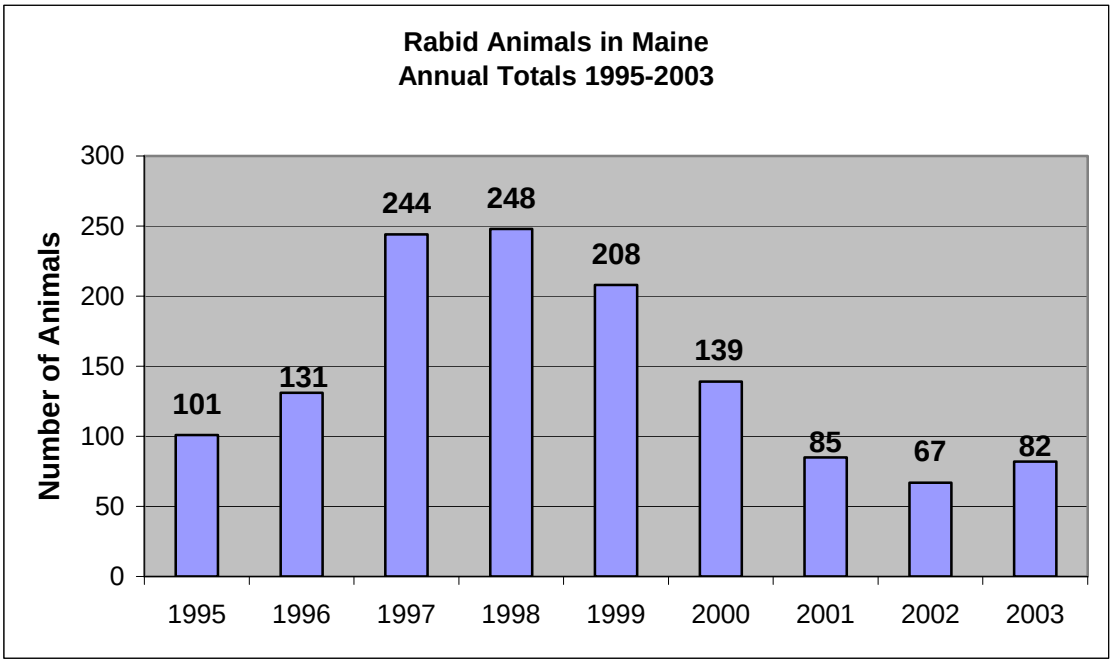
A total of 82 animals tested positive for rabies in 2003 as illustrated in the table below. Eleven of Maine's 16 counties had at least one positive animal identified in 2003. These results were biased by the fact that testing of wildlife species for rabies occurs only when there is contact with humans or domestic animals therefore more rabies testing occurs in the more highly populated counties. Cumberland County had the most positive animals with 27% of the total followed by Androscoggin and Kennebec (23%); Oxford (7%); York (6%); Franklin (5%); Hancock and Sagadahoc (3%); and Lincoln, Penobscot, and Waldo Counties (1% in each). Knox, Piscataquis, Somerset and Washington Counties had no animals testing positive for rabies this year and Aroostook County continues to be the only county in Maine that has not yet had a positive raccoon tested since the raccoon strain of rabies entered the state from the south in 1994.

Rabid Animals Identified by Species and County

January 1, 2003 through December 31, 2003

County	Raccoon	Skunk	Fox	Bat	Woodchuck	Horse	Bobcat	Dog	TOTAL (%)
Androscoggin	11	6		1	1				19 (23%)
Aroostook									0 (0%)
Cumberland	9	5	5	2			1		22 (27%)
Franklin	1	1		1	1				4 (5%)
Hancock	1	1							2 (3%)
Kennebec	9	8		1				1	19 (23%)
Knox									0 (0%)
Lincoln						1			1 (1%)
Oxford	2	3		1					6 (7%)
Penobscot		1							1 (1%)
Piscataquis									0 (0%)
Sagadahoc	2								2 (3%)
Somerset									0 (0%)
Waldo				1					1 (1%)
Washington									0 (0%)
York	2	1		2					5 (6%)
TOTAL (%)	37 (46%)	26 (32%)	5 (6%)	9 (11%)	2 (2%)	1 (1%)	1 (1%)	1 (1%)	82

The raccoon continues to account for the majority of infected animals (46% of total rabid animals detected) followed by the skunk (32%), bat (11%), and fox (6%). In 2003 rabies was detected in one dog and one horse, although no domestic animals tested positive for rabies in 2002. The 82 total number of rabid animals detected this year was up from the previous year when 67 positive animals were detected. Although the trend of the past several years has been declining since rabies reached a peak in Maine during 1998 with 248 positive animals, there was an increase in the number of positive animals detected in 2003 from the previous year.



Rabies Post Exposure Prophylaxis (PEP)

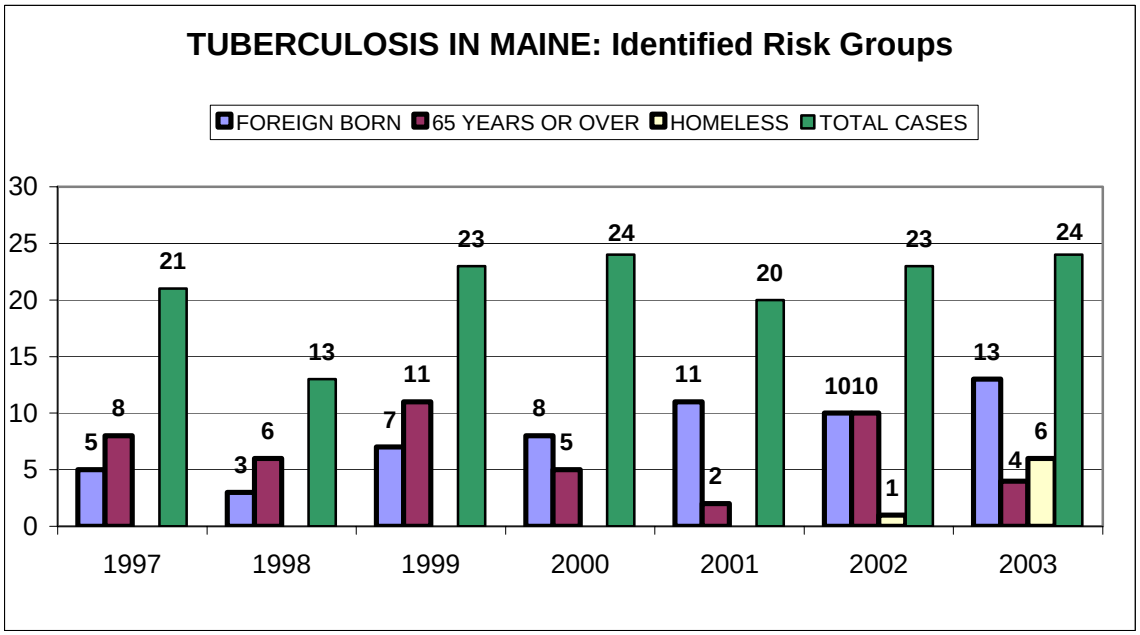
A total of 42 persons were reported to have been treated with rabies post exposure prophylaxis (PEP) following contact with a rabid or suspect rabid animal in 2003. Eighteen persons (43%) were treated following exposure to a bat, eight following exposure to a dog (19%), six following exposure to a cat (14%), two following exposure to a raccoon (5%) and others following exposure to an unidentified (unknown) animal.

Of the 42 persons treated with rabies post exposure prophylaxis, all but one were recommended to be prophylaxed following the guidelines established by the Centers for Disease Control and Prevention for determining exposure*. This compares to 98% of persons with exposure to a rabid or suspect rabid animal that were appropriately treated with PEP in 2002 and 78% appropriately treated in 2001. The most common reason for inappropriate treatment is lack of accurate information. The Division of Disease Control is available 24-hours a day/7-days a week for consultation in determining whether or not an exposure to an animal warrants PEP. Exposure issues are usually complicated and depend upon whether the animal can be captured and quarantined or tested.

*CDC. Human Rabies Prevention – United States, 1999, Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR; 48. No. RR-1

Tuberculosis (TB)

Maine has traditionally been an area of low TB prevalence and has surpassed the Healthy People 2010 goal of 3.5 per 100,000. In comparison to the declining national case rate, Maine's case rate is increasing (case rate = 1.6 in 2001 to case rate = 2 in 2003). The increase is due to factors that include: an increasing refugee and second migrant population; an increasing number of homeless individuals moving into Maine's urban areas; and an aging population.



The increasing foreign-born population in Maine is comprised primarily of recent arrivals from areas of high TB prevalence. The increase is primarily affecting two urban areas in Maine: Lewiston and Portland. Maine's case rate, reflects this demographic shift, with 54% of cases in 2003 occurring among foreign-born individuals, compared to 30% in 1999.

The City of Portland, Maine's largest urban center, is the city of residence for more than 300 homeless individuals. The city provides shelter, medical and social services support services to homeless individuals through a constellation of medical and social services programs, including the Health Care for the Homeless Program. In addition, substance abuse treatment and transitional housing services are provided to homeless adults in Portland by community-based nonprofit and charitable organizations. The availability of these services has attracted increasing numbers of homeless individuals to Portland. The homeless population in the City has increased by nearly 20% over the past five years. In 2002, an outbreak of TB occurred in this population.

Between 2002 and December of 2003, seven cases of active pulmonary TB were diagnosed among homeless men in Portland. Five of the cases were linked by DNA fingerprinting and by

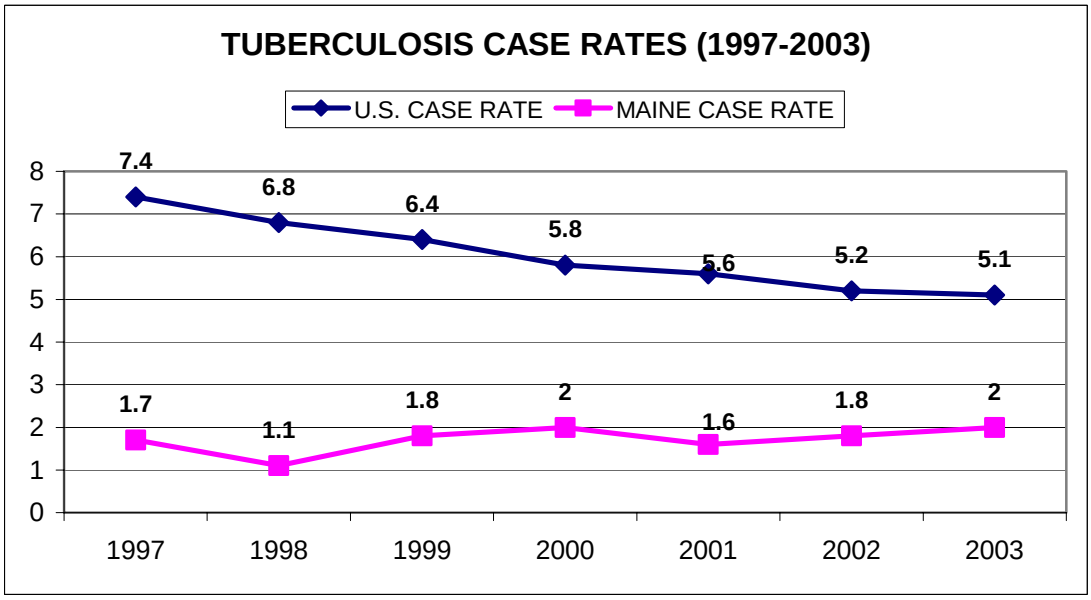
residence at a homeless shelter or the county jail. More than one thousand contacts to the seven cases were identified. Locating and evaluating members of this marginalized, transient population was enormously resource and time-intensive. Staff at the Bureau of Health and the Portland Public Health Division continue to locate and evaluate exposed contacts. The two health departments have mobilized the resources of Maine's statewide public health nurses' and TB Consultant's network, corrections staff and shelter providers, to locate, screen and evaluate contacts and to ensure that all infected contacts are completely evaluated and treated. The TB program has worked to develop guidelines for TB prevention in homeless shelters and to educate medical providers to "Think TB" when evaluating high risk individuals who present with symptoms consistent with tuberculosis. It is likely that additional transmission has occurred and that new outbreak-related cases will be diagnosed in the future.

Maine's elderly population has increased in the past decade. United States census data indicates that in the past decade, Maine's population over age 65 has increased from 13% to 14% compared to the national proportion of individuals over 65 (12%). The elderly remain Maine's second highest risk group, comprising 25% of cases in 2003. As the elderly population increases, Maine's TB Control Program (TBC) will need to continue to support the medical community to ensure prompt diagnosis and complete and effective treatment.

The largest proportion of active disease cases, 18 (75%) were pulmonary and 6 (25%) were extrapulmonary. One patient was co-infected with HIV disease. There were no cases of multi-drug resistant TB. Eighty nine percent of cases completed therapy.

In 2003 the age range for active cases was 19 to 83. 66% of the cases were between the ages of 30 and 59. The highest proportion of cases (33%) occurred among 30-39 year olds.

75% (n =18) of the 2003 active cases were male, and 25% (n = 06) were female.



Six Maine counties reported at least one case of active TB disease during 2003. Cumberland County had the highest case rate of 6.8 per 100,000 of the population. This increase (from 1.6 in

2001) was due to the outbreak of tuberculosis among Portland's homeless population and to the increasing numbers of foreign-born individuals in Portland.

Appendix A — Reportable Diseases

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

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

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

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

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

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

HOW TO REPORT:

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

The Department of Human Services
Bureau of Health

October 21, 2003

Appendix B - CDC Case Definition for Infectious Conditions

Case Definitions for Infectious Conditions Under Public Health Surveillance

"State and local public health officials rely on health-care providers, laboratories, and other public health personnel to report the occurrence of notifiable diseases to state and local health departments. Without such data, trends cannot be accurately monitored, unusual occurrences of diseases might not be detected, and the effectiveness of intervention activities cannot be easily evaluated.

In the United States, requirements for reporting diseases are mandated by state laws or regulations, and the list of reportable diseases in each state differs. In October 1990, in collaboration with the council of State and Territorial Epidemiologists, CDC published Case Definitions for Public Health Surveillance (MMWR 1990;39[No. RR-13]), *which, for the first time, provided uniform criteria for reporting cases."*[1]

In 1997, this uniform criteria was updated for state health department personnel to use when reporting the nationally notifiable infectious diseases. Maine's morbidity data presented in this annual summary is based on this uniform criteria. While the 1997 CDC report is too lengthy to be included in this summary, it can be reviewed in it's entirety at the CDC website: Centers for Disease Control and Prevention Website: **http://www.cdc.gov**

[1] CDC. Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR 1997; Vol. 46:[No. RR-10]1-56.

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John Elias Baldacci
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Commissioner

Dora Anne Mills, MD, MPH
Bureau Director

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