Infectious Disease and Immunization

GOAL

Prevent disease, disability, and death from infectious diseases, including vaccine-preventable diseases.

Overview

Overcoming the scourge of many infectious diseases through clean drinking water, good hygiene, vaccines, and antibiotics is one of the greatest public health successes of the twentieth century. However, without proper vigilance to maintain education and the systems that were responsible for these successes, we are vulnerable to a myriad of infections.

In addition, with inappropriate use of antibiotics in humans and animals and resulting antibiotic resistance, increasing global travels, importation of food, conglomeration of food production, and increasing threats from bioterrorism, we remain susceptible to a variety of emerging diseases. In fact, over the past two decades, deaths in the United States from infectious diseases are rising – nearly 60% from 1982 to 1992 alone, and still 22% when HIV-associated deaths are removed. Many of these are emerging diseases.

Maine is fortunate to have relatively low rates of a number of infectious diseases that plague other areas of the country or world such as tuberculosis and malaria. However, our vulnerability to emerging diseases is increasing: violations in food safety are more frequently causing foodborne illnesses, our infectious disease surveillance and response systems need strengthening, and our health systems are increasingly challenged to address infectious disease issues in Maine's increasing numbers of foreign-born residents.

With the increased threat of bioterrorism since the September 11, 2001 attacks on the United States and subsequent anthrax attacks, there is heightened awareness about vulnerabilities in our early detection, communication, and incident management systems that respond to infectious diseases. Fortunately, Congress has allocated funds to each state's health departments, including Maine's Bureau of Health in the Department of Human Services, to strengthen these systems.

PRIMARY
SECONDARY
TERTIARY

Strategies

- **Clean Drinking Water:** Ensuring clean drinking water is one of the most basic and critical strategies to reducing infectious disease transmission. Maine's public drinking water supplies are regulated and monitored, however, almost half of Maine people obtain their drinking water from private well water, and often do not routinely test their water.
- **Safe Food:** Inspections and regulations of retail and commercial food such as that found in grocery stores, warehouses, and restaurants are critical to assuring a food supply that is safe from microbial or chemical contaminants.

- **Vaccinations:** Ensuring that people and health care providers are educated about vaccines, have easy access to them, and have information systems (such as immunization registries) providing knowledge about who needs which vaccines, are all important strategies to improving vaccination rates among Maine children and adults are adequately vaccinated.

- **Infectious Disease Public Health Infrastructure:** An effective public health infrastructure assures that early detection, communication, and incident management for infectious diseases, including for bioterrorism, are helping to protect all Maine people against these threats.
- **Education:** Efforts that educate the public, and especially those in high-risk situations such as food workers, health care workers, and people who are sexually active with multiple partners, to reduce the risk of transmission are proven critical strategies to reduce infectious disease spread.
- **Medical Care:** Access to medical care, including infectious disease specialists, is important to protect all Maine people from the potential devastation of infectious diseases.

Health Disparities

(Populations at risk for infectious diseases, based on national data in *Healthy People 2010*)

- **Elders and infants/small children** (higher risk for ill effects from foodborne diseases)
- **Adolescents** (higher rates of STDs, and more susceptible to their complications)
- **Elders** (higher risk for complications from tuberculosis, influenza, or pneumococcal disease)
- **Young men who have sex with men** (higher rates of HIV than older men who have sex with men)
- **Men who have sex with men** (higher rates of HIV and other STDs)
- **Women** (more susceptible to STDs and their complications)
- **Foreign-born people** (higher rates of tuberculosis)
- **Immunocompromised people** such as people with HIV and undergoing some cancer treatments – (higher risk for ill effects from foodborne diseases, influenza, and pneumococcal diseases)
- **Sex workers** (higher rates of STDs including HIV)
- **Substance abusers** (higher rates of STDs including HIV)
- **African Americans and Hispanics** (higher rates of STDs including HIV)
- **People with low socioeconomic status** (lower vaccine rates and higher tuberculosis rates)

Objectives

Objective numbers are *Healthy People 2010* objective numbers.

- **23–14 Increase the number of geographic areas in Maine that have comprehensive epidemiology services to support essential public health services.**

  Healthy Maine 2010 Baseline: 0
  Healthy Maine 2010 Target: Regional geographic areas covering the entire state

  Currently, comprehensive epidemiology services are located centrally in the Bureau of Health and cover the entire State. This objective was added after our experiences in the wake of the September 11, 2001 attacks on the US and subsequent anthrax bioterrorism incidents. These experiences highlighted the precariousness of not having regional or local infrastructure that provides epidemiology services. Early detection of disease, communication with health care providers and the public, incident management, and recovery cannot effectively take place only from a central location.

  Fortunately, Federal funds to address bioterrorism, infectious disease outbreaks, and other public health emergencies are being used to help build epidemiology capacity in regions covering the State. Epidemiology teams, each consisting of a full-time nurse epidemiologist and a part-time physician medical officer, are being hired in each of six regions of the State. Each region is generally a county or multi-county region.

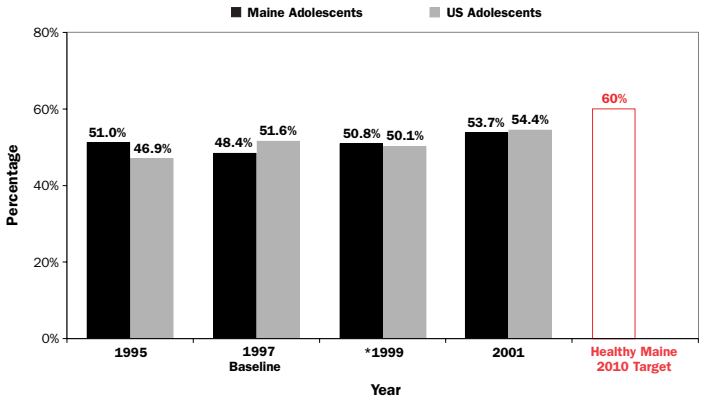
  For related information, see Access Chapter's objective "Increase the number of geographic areas in Maine that have a health improvement plan linked to Healthy Maine 2010 goals and objectives."

- **25–11 Increase the proportion of adolescents who abstain from sexual intercourse or use condoms if currently sexually active.**

25–11a Increase the proportion of adolescents in grades 9–12 who have never had sexual intercourse.

Healthy Maine 2010 Baseline: 48.4%
Healthy Maine 2010 Target: 60%

Proportion Of Adolescents In Grades 9–12 Who Have Never Had Sexual Intercourse Maine And US 1995–2001



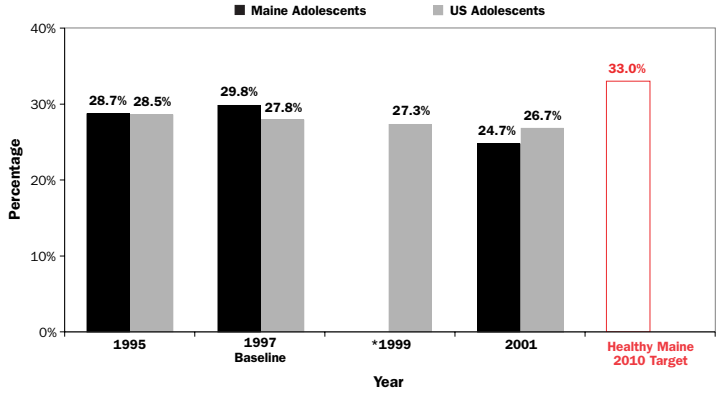
*1999 Data for Maine is Unweighted.

Source: Youth Risk Behavior Survey, Maine Department of Education. US Data: Youth Risk Behavior Survey, Centers for Disease Control and Prevention.

25–11b Increase the proportion of adolescents in grades 9–12 who have ever had sexual intercourse but who have not had sexual intercourse in the past three months.

Healthy Maine 2010 Baseline: 29.8%
Healthy Maine 2010 Target: 33%

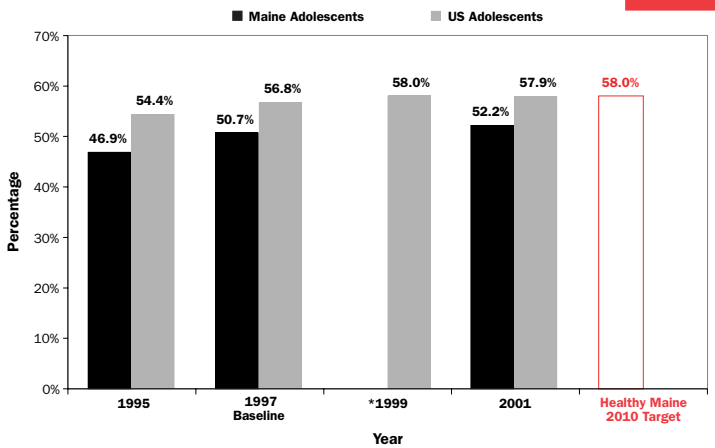
Proportion Of Adolescents In Grades 9–12 Who Have Ever Had Sexual Intercourse But Have Not Had Sexual Intercourse In The Past 3 Months Maine And US 1995–2001



*1999 Data Not Available for Maine.

Source: Youth Risk Behavior Survey, Maine Department of Education. US Data: Youth Risk Behavior Survey, Centers for Disease Control and Prevention.

Proportion Of Adolescents In Grades 9-12 Who Have Ever Had Sexual Intercourse Who Used Condoms At Last Intercourse Maine And US 1995-2001



*1999 Data Not Available for Maine.

Source: Youth Risk Behavior Survey, Maine Department of Education. US Data: Youth Risk Behavior Survey, Centers for Disease Control and Prevention.

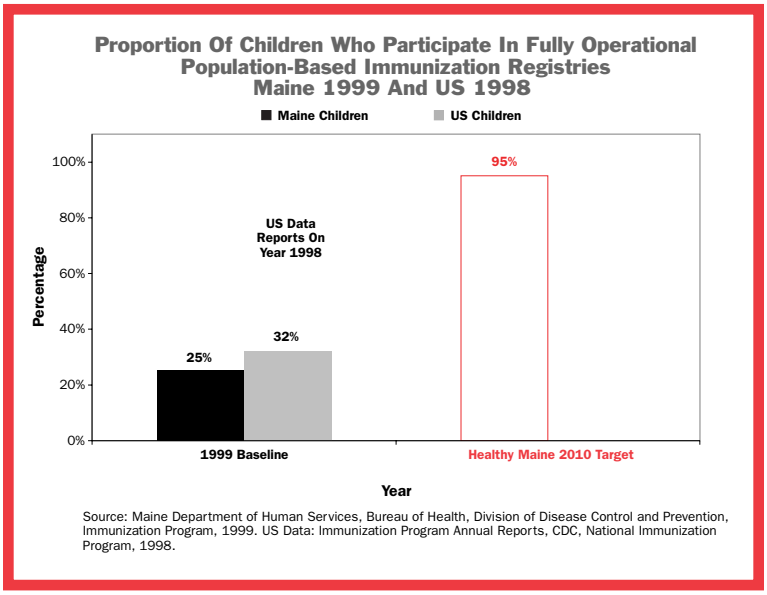
25–11c Increase the proportion of sexually active adolescents in grades 9–12 who used condoms at last intercourse.

Healthy Maine 2010 Baseline: 50.7%
Healthy Maine 2010 Target: 58%

Because young people experience a disproportionate share of STDs (including HIV) and unintended pregnancies when they engage in sexual behavior, it is particularly critical that this population group engage in behaviors that protect their health. Three major protective behaviors are targeted: abstaining from sexual intercourse (primary abstinence); reverting to abstinence for long periods of time after having had sexual intercourse in the past (secondary abstinence); and using condoms correctly every time if regular intercourse is occurring. Nationally, almost half of all sexually active adolescents did not use a condom at last intercourse, making them at very high risk for STDs and pregnancy. Therefore, while abstinence is a major focus, reaching out to help reduce risks in those adolescents who are already sexually active is also critical. Teaching comprehensive family life education that teaches abstinence and gives youth full information about reproductive health and improving access to preventive reproductive health care are two major strategies to assure our youth are making the healthiest choices possible.

- **14–26 Increase the proportion of children who participate in fully operational population-based immunization registries.**

  Healthy Maine 2010 Baseline: 25%
  Healthy Maine 2010 Target: 95%



Source: Maine Department of Human Services, Bureau of Health, Division of Disease Control and Prevention, Immunization Program, 1999. US Data: Immunization Program Annual Reports, CDC, National Immunization Program, 1998.

Immunization registries are important tools that assist health care providers to manage and track immunization coverage of their patients. Registries keep patients' vaccine histories, identify patients who need specific vaccines, and alert providers to patients who are undervaccinated. With today's technology, this can be done with high security and confidentiality. Maine piloted its Web-based immunization information system, ImmPact, starting in 1997, and is now in the process of expanding its use Statewide.

- **14–22 Achieve and maintain effective vaccination coverage levels for universally recommended vaccines among young children.**

  Vaccines for children and adults are one of the safest and most effective ways to prevent diseases. Cost savings alone range from $2 for every dollar spent on recently approved vaccines to $24 for diphtheria, pertussis, and tetanus. Maine's childhood vaccine rates rose significantly during the 1990s, due in part to the Bureau of Health's commitment to providing all necessary childhood vaccines for free to all licensed health care providers, thereby reducing the cost barriers to parents; and due to educational and informational campaigns to educate parents and health care providers about the benefits of vaccines as well as how to increase vaccine rates. As a result of this success, the Bureau of Health's Vital Records do not have a report of a child dying in Maine from a vaccine-preventable disease in over a decade.

Maintaining and improving our excellent childhood immunization rates is a challenge since children now receive as many as 20 shots to protect against 11 potentially devastating diseases before the age of 2 years.

Estimated Vaccination Coverage Rates With Individual Vaccines Among Children 19–35 Months Of Age Maine 1994–2001

Vaccine	1994	1995	1996	1997	1998	Baseline 1999	2000	2001	Healthy Maine 2010 Target	US 1999
3 DTP/DT	97	99	98	98	99.1	97.0	95.2	97.5	99%	95.7
4 DTP/DT	82	90	91	90	91.4	86.9	88.3	91	98%	81.5
3 Polio	84	94	94	95	96.8	92.1	91.7	91.6	99%	89.3
1 MMR	91	98	95	95	93.6	92.0	94	94.9	99%	90.5
3Hib	90	95	95	96	94.4	95.9	94.2	95.4	99%	93.2
3Hep B	26	51	75	84	89.5	87.2	85.8	87.5	95%	87.6
Varicella	n/a	n/a	n/a	13	31.3	43.1	55	57.5	90%	54.6
3:3:1	n/a	94	91	91	n/a	89.3	87.9	88.4	99%	85.1
4:3:1	80	89	87	87	89	84.1	84.1	83.6	95%	77.9
4:3:1:3	n/a	87	85	84	86.3	82.9	83.3	82.4	90%	76.5
4:3:1:3:3	n/a	n/a	n/a	n/a	n/a	76.8	76	75.6	90%	71.3

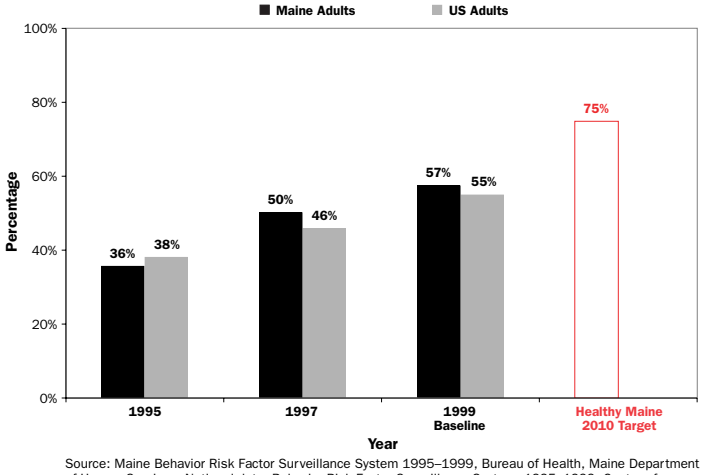
Source: Maine Department of Human Services, Bureau of Health, Division of Disease Control and Prevention, Immunization Program.

*3 **DTP/DT** refers to 3 or more doses of diphtheria, tetanus toxoids and pertussis vaccine, or diphtheria and tetanus toxoids.*
*4 **DTP/DT** refers to 4 or more doses of diphtheria, tetanus toxoids and pertussis vaccine, or diphtheria and tetanus toxoids.*
*3 **Polio** refers to 3 or more doses of poliovirus vaccine.*
*1 **MMR** refers to 1 or more doses of measles-containing vaccine, including MMR, which contains measles, mumps, and Rubella vaccines.*
*3 **Hib** refers to 3 or more doses of* Haemophilus influenzae *type b vaccine.*
*3 **HepB** refers to 3 or more doses of hepatitis B vaccine.*
***Varicella** refers to 1 dose of varicella vaccine.*
***3:3:1** refers to 3 or more doses of DTP/DT, 3 or more doses of poliovirus vaccine, and 1 or more doses of MMR.*
***4:3:1** refers to 4 or more doses of DTP/DT, 3 or more doses of poliovirus vaccine, and 1 or more doses of MMR.*
***4:3:1:3** refers to 4:3:1 and 3 or more doses of Hib.*
***4:3:1:3:3** refers to 4:3:1:3 and 3 or more doses of HepB vaccine.*

- **14–29 Increase the proportion of adults who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease.**

14–29a Increase the proportion of adults aged 65 and older who have ever had a pneumonia vaccination against *streptococcus pneumoniae*.

Healthy Maine 2010 Baseline: 57%
Healthy Maine 2010 Target: 75%

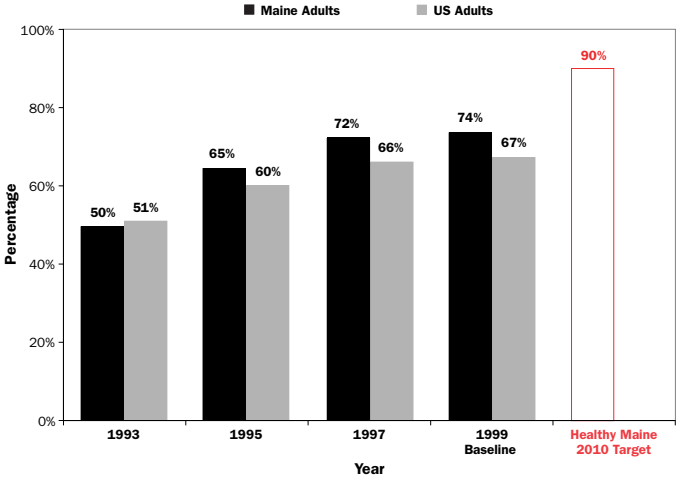


Source: Maine Behavior Risk Factor Surveillance System 1995–1999, Bureau of Health, Maine Department of Human Services. National data: Behavior Risk Factor Surveillance System, 1995–1999, Centers for Disease Control and Prevention.

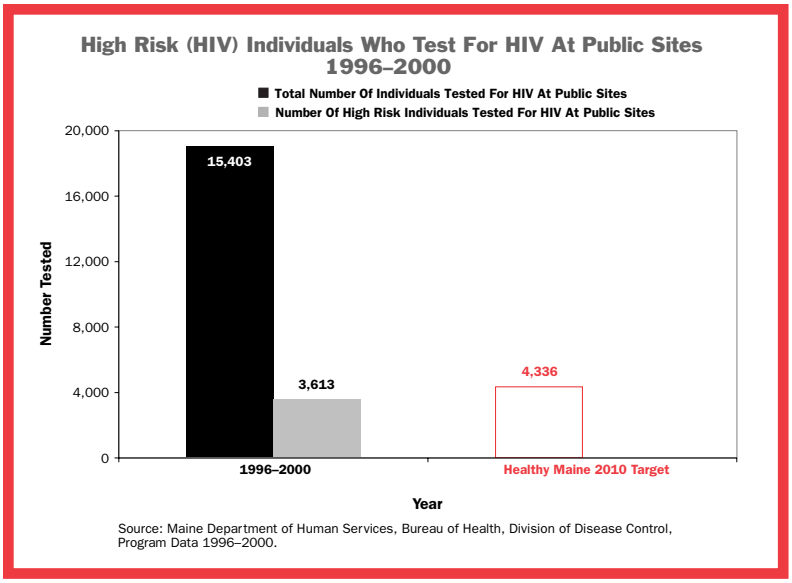
14–29b Increase the proportion of adults aged 65 and older who received a flu shot within the past 12 months.

Healthy Maine 2010 Baseline: 74%
Healthy Maine 2010 Target: 90%

Most vaccine-preventable diseases in the United States as well as in Maine occur in adults. For instance, nationally, an estimated 50,000–80,000 people die from pneumococcal disease or influenza annually. Pneumonia and influenza are typically the sixth leading cause of death among elders each year. Adults considered to be at high risk for complications from influenza and pneumococcal disease include those over the age of 65, and those with diseases or other conditions that increase their risk, including diabetes mellitus, chronic liver, lung, or cardiac disease, HIV infection, cancer, recipients of organ transplants, or immunosuppressive therapies.



Source: Maine Behavior Risk Factor Surveillance System 1993–1999, Bureau of Health, Maine Department of Human Services. National data: Behavior Risk Factor Surveillance System, 1993–1999, Centers for Disease Control and Prevention.



Source: Maine Department of Human Services, Bureau of Health, Division of Disease Control, Program Data 1996–2000.

- **13–12 (Developmental) Increase the proportion of adults in publicly funded HIV counseling and testing sites who are screened for STDs and immunized against hepatitis B.**

Healthy Maine 2010 Baseline: 3,613
Healthy Maine 2010 Target: 4,336

High-risk individuals include males who have sex with males (MSM), injectable drug users (IDU), and people with high-risk heterosexual contacts (including MSM, IDU, and people who are HIV-positive).

This objective is developmental but can be partially measured by the number of high-risk individuals being tested for HIV.

Maine has ten publicly funded HIV testing sites that offer both anonymous and confidential testing by certified HIV Prevention Counselors. Their locations are:

The Clinic	Auburn
Dayspring AIDS Support Services	Augusta
Bangor STD Clinic	Bangor
Downeast Health Services	Ellsworth, Machias, Calais
Tri-County Health Services	Farmington
ACAP – Health 1st	Presque Isle, Houlton, Fort Kent
The AIDS Project	Portland
Portland STD Clinic	Portland
Midcoast Family Planning	Rockland
The AIDS Project	Sanford

For more information on these sites, call 287-3747.

An estimated 65,000 people contract hepatitis B every year across the country, and about 70% of them have been seen in settings such as HIV testing sites in which they could have received a vaccine to prevent them from contracting this devastating disease. People at risk for HIV are usually at risk for other STDs since they share some of the causative risk behaviors such as unprotected sex, and since HIV infection itself makes one more susceptible to contracting other STDs.

- **14–1 Reduce or eliminate indigenous cases of vaccine-preventable diseases.**

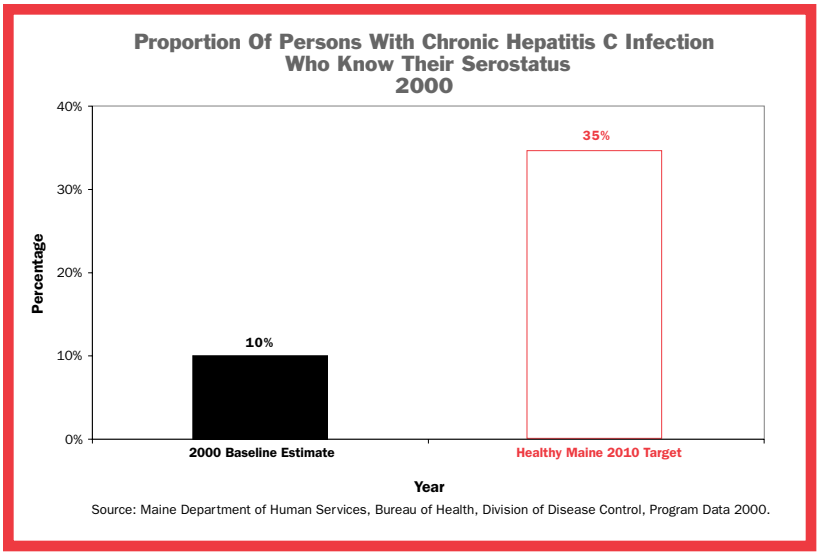
Cases Of Selected Notifiable Diseases Preventable By Vaccination, Maine, 1996–2001

Disease	1996	1997	1998	1999	2000	2001	Healthy Maine 2010 Target*
Haemophilus Influenzae (invasive)	1	5	5	8	1	1	0
Hepatitis A	26	66	20	14	11	11	3
Hepatitis B (acute)	8	6	5	1	5	7	1
Measles (Rubeola)	0	1	0	0	0	0	0
Meningococcal	15	18	8	5	7	9	2
Mumps	0	0	0	0	0	0	0
Pertussis	55	11	5	36 [1,2]	51 [1]	23 [1]	14
Rubella	0	0	0	0	0	0	0
Varicella	125	172	82	26	43	34	5

[1] Number of cases is reported from program data vs. CDC.
[2] Nine additional cases were on Campobello Island in Canada for a total of 45.
* For children age 2–18 years old.
Prepared by staff at Maine Immunization Program, Bureau of Health.

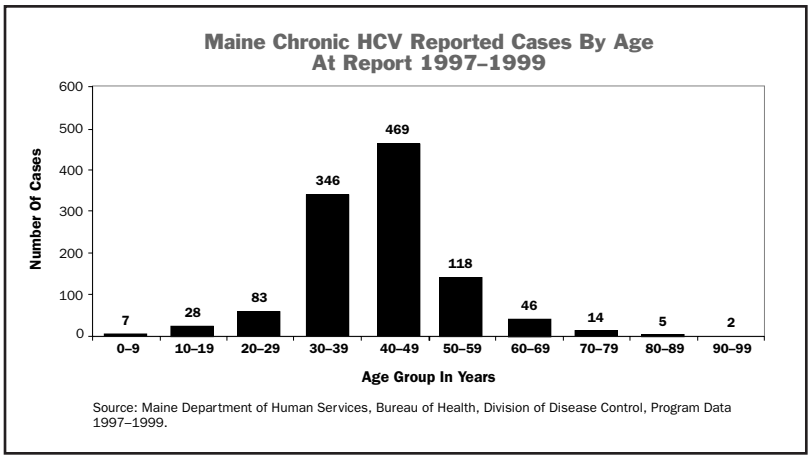
- **14–10 (Developmental) Increase the proportion of persons with chronic hepatitis C infection who know their serostatus.**

Baseline estimate = fewer than 10% of Mainers with hepatitis C (2,000 out of 15,000–20,000) know their status. Healthy Maine 2010 Target: 35%



Hepatitis C (HCV) is a bloodborne infection that is emerging as a major public health threat to the people of Maine and the US. It infects individuals of all ages, ethnic groups, and socioeconomic classes in urban and rural areas of Maine. However, 65% of those infected in Maine are men, and 70% are among those ages 30–49 years old. The two major risk factors for hepatitis C in Maine and the US are a history of sharing needles for injectable drugs (even one time) or a history of receiving a blood transfusion or blood products prior to 1992.

Currently, an estimated 15,000–20,000 Maine residents have hepatitis C. Yet, because of the slow progression of the disease and its lack of outward symptoms early on, most are unaware of their infection. Currently, fewer than 2,000 have been identified by their medical providers. Since 90% of those infected are unaware of their infection, they are missing opportunities for preventive and therapeutic care that could prevent the progression of their disease or transmission to others.



Health expenditures for hepatitis C in Maine are skyrocketing – in 1999, Maine's Medicaid Program (now MaineCare) spent over $10 million on the treatment of people with hepatitis C.

2002 RECOMMENDED ROUTINE VACCINES FOR YOUNG CHILDREN		
DTaP	Diphtheria, Tetanus, Pertussis	2, 4, 6, 15–18 months, 4–6 years
Hib	Haemophilus influenzae Type b	2, 4, 6, 12–15 months
IPV	Inactivated Polio	2, 4, 6 months, 4–6 years
MMR	Measles, Mumps, Rubella	12–15 months, 4–6 years
Varicella	Varicella (Chicken pox)	12–18 months
PCV	Pneumococcal	2, 4, 6, 12–15 months
HepB	Hepatitis B	At birth, 1–4, 6–18 months
Influenza	Influenza	If in a high-risk group or wishes immunity
2002 RECOMMENDED ROUTINE VACCINES FOR ADOLESCENTS		
Td	Tetanus Diphtheria	11–14 years, then every 10 years
Hep B	Hepatitis B	If unvaccinated
MMR	Measles, Mumps, Rubella	If did not receive 2 doses when younger
Varicella	Chicken Pox	If non-immune
PPV	Pneumococcal	If in a high-risk group
Hep A	Hepatitis A	If in a high-risk group
Influenza	Influenza	If in a high-risk group or wishes immunity
Meningitis	Meningococcal	Consider for college freshmen living in dormitories
2002 RECOMMENDED VACCINES FOR ADULTS		
Td	Tetanus Diphtheria	Every 10 years
MMR	Measles, Mumps, Rubella	If born after 1956 and non-immune
Influenza	Influenza	Annually to all adults 50 years and older Annually to adults under 50 years if at risk or who wish immunity
PPV	Pneumococcal	1–2 doses to everyone over 65
Hep A	Hepatitis A	2 doses for those at risk or wishing immunity
Hep B	Hepatitis B	3 doses for those with risk factors
Varicella	Chicken Pox	2 doses if non-immune
Meningitis	Meningococcal	If in a high-risk group

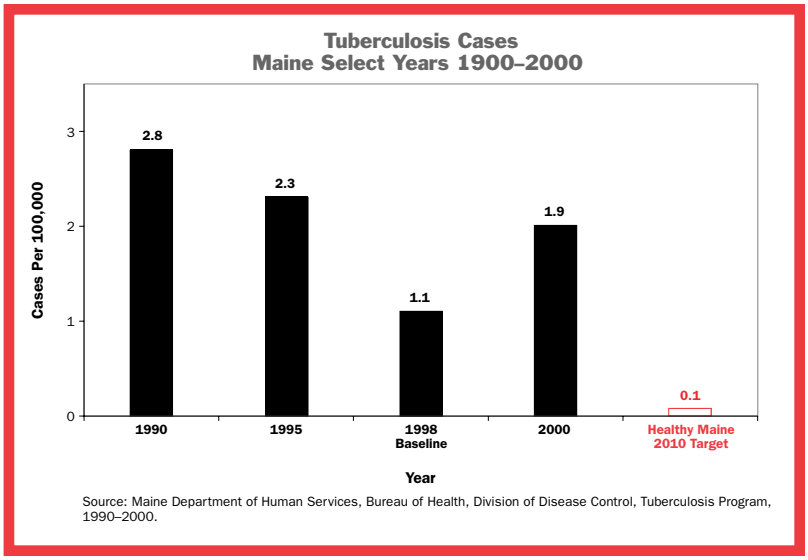
DtaP, DT, Td, IPV, MMR, Hib, Hep B, Varicella, PPV, PCV, and Influenza vaccines given to all licensed health care providers for free by the Bureau of Health, with contributions by taxpayer dollars and Maine's HMOs.

To determine high-risk groups or to obtain updated information, ask your doctor or check on the Web at: www.cdc.gov/nip/acip

- **14–11 Reduce tuberculosis.**

  Healthy Maine 2010 Baseline: 1.1
  Healthy Maine 2010 Target: 0.1

  Only 100 years ago, tuberculosis was Maine's single biggest cause of death, and now has been virtually eliminated as a cause of death here. However, cases still occur in Maine sporadically throughout the year. With steady increases in the proportion of Maine residents who were born in other countries, our vigilance in screening and initiating early treatment for tuberculosis must continue.



Source: Maine Department of Human Services, Bureau of Health, Division of Disease Control, Tuberculosis Program, 1990–2000.

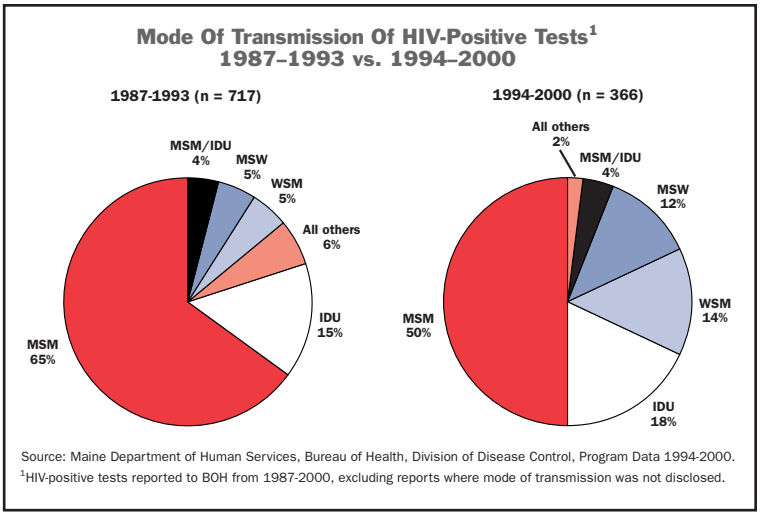
- **14–18 (Developmental) Reduce the number of courses of antibiotics for ear infections for young children.**

  Overuse of antibiotics has led to significant increases in antibiotic-resistant bacteria, including in common bacteria that cause ear infections, pneumonia, and meningitis. One of the most common sources of overuse is in the treatment of otitis media, also known as ear infections. This overuse can be reduced by not treating those infections that are determined to be only otitis media with effusion rather than acute bacterial otitis media, and by vaccinating children with a vaccine protecting them against pneumococcal bacteria, the most common bacterial cause of ear infections.

- **13–7 (Developmental) Increase the number of HIV-positive persons who know their serostatus.**

  MSM: males who have sex with males
  IDU: injectable drug users
  MSW: males who have sex with females
  WSM: females who have sex with males
  MSM/IDU: people who are both MSM and IDU

  Since 1982 more than 500 AIDS-related deaths among Maine citizens have been reported to the Bureau of Health. It is estimated that 1,200 Mainers are currently living with HIV, and overall HIV prevalence is increasing.



Source: Maine Department of Human Services, Bureau of Health, Division of Disease Control, Program Data 1994-2000.
[1]HIV-positive tests reported to BOH from 1987-2000, excluding reports where mode of transmission was not disclosed.

  In 2000, the Centers for Disease Control and Prevention estimated that up to one-third of all HIV-infected individuals in the US had not sought testing and were therefore unaware of their infection. Of those who tested HIV-positive in Maine during 2000, 35% were diagnosed with AIDS at or near the time of their HIV diagnosis, indicating that they had likely been unknowingly infected with HIV for an extended period of time. Knowledge of one's HIV status is critical, since an infected person can take steps to reduce the likelihood of transmitting HIV to others and reap the benefits of effective medical treatment available for this disease.

The impact and face of HIV in Maine has evolved greatly over the past decade. Once considered an acute deadly disease, medical advances have allowed many people with HIV to maintain good health and quality of life. Since a peak in 1993 of 71 AIDS deaths, this number has declined to fewer than 20 deaths in recent years.

There have been gradual shifts in the proportions of reported risk behaviors that transmit HIV in Maine. As was the case throughout most of the US during the 1980s, HIV in Maine was most commonly transmitted through male-to-male sexual contact. Although unprotected sexual contact with males continues to be the most often reported mode of transmission in Maine, unprotected heterosexual contact and sharing needles during drug use became more common during the mid-1990s.

As with mode of transmission, the prevalence of HIV among certain races and ethnic groups in Maine has shifted over time. The beginning of the HIV epidemic was characterized by high rates of diagnosed infections among Caucasians. More recently, there have been greater proportions of HIV infections among people of color, particularly among African-American and Hispanic people. Whereas racial and ethnic minority groups made up less than 8% of HIV reports received by the Bureau of Health between 1989 and 1994, they comprise 15% of reports received after 1994.

HIV/AIDS FACTS

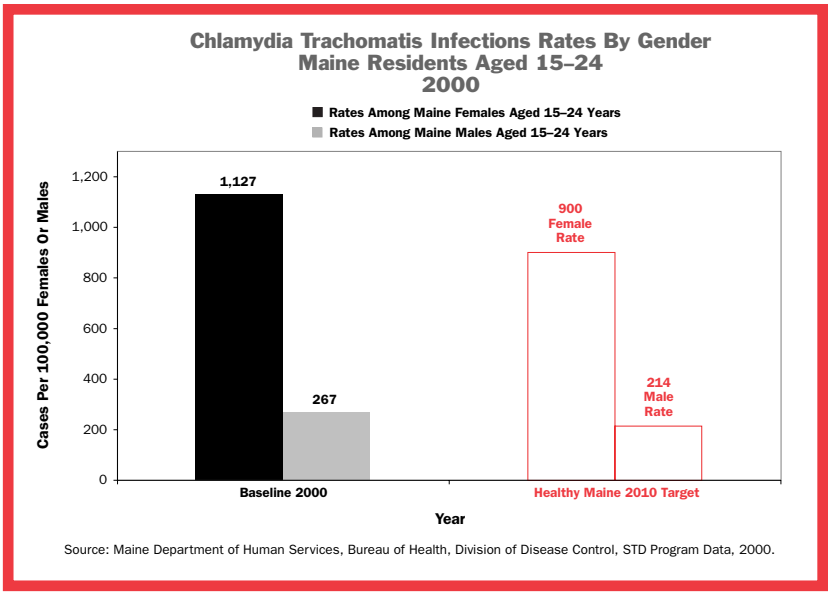
DO YOU KNOW:

- **Just over 1,000 people have been diagnosed with AIDS in Maine since 1982, and just over 500 have died.**
- **It is estimated that 1,200 people are living with HIV in Maine; about one-third do not know they have HIV.**
- **There are fewer AIDS-related deaths in Maine as well as across the country because of improved treatment. However, the incidence of HIV infection has not decreased in recent years. Therefore, the numbers of people living with HIV (prevalence) is increasing, making outreach and prevention efforts even more important and challenging.**
- **Of those in Maine living with diagnosed HIV infection:**
  - **51% are men who have sex with men**
  - **19% are injection drug users**
  - **23% are infected through heterosexual sex**
- **Nationally, half of all people with HIV infection were infected when they were under 25 years of age.**
- **There have been about 19 million deaths due to AIDS in 20 years worldwide.**

- **25–1 Reduce the proportion of adolescents and young adults with Chlamydia trachomatis infections.**

Cases per 100,000 females aged 15–24 years
Healthy Maine 2010 Baseline: 1,127
Healthy Maine 2010 Target: 900

Cases per 100,000 males aged 15–24 years
Healthy Maine 2010 Baseline: 267
Healthy Maine 2010 Target: 214



Source: Maine Department of Human Services, Bureau of Health, Division of Disease Control, STD Program Data, 2000.

Sexually transmitted diseases (STDs) are behavior-linked diseases that result from unprotected sex. Chlamydia is an STD spread person to person by close physical contact during vaginal, anal, and oral sex.

A number of factors contribute to the rapid spread of STDs. Among them:

- Many of them are asymptomatic (85% of women and 50% of men with chlamydia have no symptoms);
- There is often a lag time between infection and complications (infertility and ectopic pregnancy often show up years after chlamydia infection);
- Young women are more susceptible to some STDs (especially chlamydia);
- Secrecy about sexuality and STDs in US culture is prevalent despite a high prevalence of sexual messages and images bombarding our media.

Chlamydia among adolescents and young adults is the focus of this objective since it is the most common STD reported in Maine. With more than 1,000 cases reported each year in Maine, chlamydia disproportionately affects adolescents and young adults.

Infections Caused By Foodborne Pathogens Maine 1999

Foodborne Pathogens	1999	Healthy Maine 2010 Target
Campylobacter	13	**8.5**
Escherichia coli	3.2	**1.5**
Listeria monocytogene	0.4	**0.2**
Salmonella	10.6	**6.3**
Cyclospora cayetanensis	0	**0**
Postdiarrheal hemolyticuremic syndrome	0	**0**
Congenital Toxoplasma gondii	Data Not Available	**0**

- **10–1 Reduce infections caused by key foodborne pathogens.**

  Infections due to foodborne pathogens are on the rise for several major reasons: improper food preparation, storage and distribution practices; insufficient training of retail workers; an increasingly global food supply; and growing populations of those at risk such as elders and the immunocompromised. Many of these infections cause severe disease and are deadly, especially in high-risk populations such as children, elders, and the immunocompromised.

  With about 70% of all meals prepared at home and national surveys showing high prevalence of unsafe food preparation at home, one of our biggest challenges is educating the consumer in safer practices, especially pertaining to meat and poultry handling, as well as fruit and vegetable washing.

  Additionally, with about 40% of a family's food budget being spent at eating establishments in which the food is already prepared, and with evidence that these foodborne outbreaks are on the rise but difficult to detect, changing the way we inspect eating establishments and assuring that food workers are trained in food handling and using good practices pose challenges across the country. Maine currently has nine sanitarians to inspect over 12,000 establishments, which are mostly eating establishments, across the State. In the early 1990s, there were 19 such sanitarians. There appears to be an increase in the number of eating establishments in Maine in which food handlers have little background in standard US practices. Therefore, strategies are being implemented by the Bureau of Health to more efficiently utilize sanitarians' time by changing the way they inspect restaurants as well as utilizing their time to help educate food handlers.

  This objective measures the most common and/or most virulent pathogens that we are able to track. However, it is felt the most common cause of foodborne illness outbreaks are Norwalk-Like Viruses, which are not tested for by routine laboratories. CDC test results show that 93% of food samples which test negative for bacteria are positive for these pathogens. Since human feces are the reservoir for these viruses, they also can be a marker of contamination.

Key Food Safety Practices to Avoid Foodborne Illnesses:

- **Clean: Wash hands and surfaces often.**
- **Separate: Don't cross-contaminate.**
- **Cook: Cook to proper temperatures.**
- **Chill: Refrigerate promptly.**

WORK GROUP LEADER

*** Paul Kuehnert, MS, RN**
Director, Division of Disease Control
Maine DHS, Bureau of Health

OTHER SIGNIFICANT CONTRIBUTORS

* **Joan A. Blossom, RN, MSN,** Maine DHS, Bureau of Health
Sandra Dzyak, RN, Maine DHS, Bureau of Health
* **Kathleen F. Gensheimer, MD, MPH,** Maine DHS, Bureau of Health
Mark Griswold, MSc, Maine DHS, Bureau of Health
* **Sally-Lou Patterson,** Maine DHS, Bureau of Health
Steven J. Shapiro, MS, MPH, Maine DHS, Bureau of Health
Lisa Tuttle, MPH, Maine DHS, Bureau of Health

WORK GROUP

First Name	Last Name	Organization Name
Christine	Agronick	Maine HIV Prevention Community Planning
Donna	Allen	Maine DHS, Bureau of Health
Mary Kate	Appicelli	Maine DHS, Bureau of Health
Kathleen	Askland	Maine DHS, Bureau of Health
* Geof	Beckett	Maine DHS, Bureau of Health
Susan	Berry	Maine Department of Education
* Nancy	Birkhimer	Maine DHS, Bureau of Health
* Mary	Bitterauf	University of Maine at Farmington, Community Health Education
Dan	Bondeson	Maine Primary Care Association
Jan	Bondeson	Maine Primary Care Association
Elizabeth	Branski	Community Health Program, University of Maine at Farmington
Sally	Bryant	League of Women Voters
* Mary-Anne	Chalila	Bangor Health and Welfare
Wendy	Chaston	Town of Appleton Selectman
* Luanne	Crinion	Maine DHS, Bureau of Health
* Robert	Downs	Harvard Pilgram Health Care
Monique	Dutil	Lewiston Health Department
* Charles	Dwyer	Maine DHS, Bureau of Health
* Joni	Foster	Maine Department of Education
Holly	Gartmayer	Regional Medical Center Lubec
Robin	Gautier	Regional Medical Center at Lubec
Barbara	Ginley	Maine Migrant Health Program
Diane	Greslick	Saint Joseph's College
* Ellen	Grueblett	University of Maine at Farmington
* Jennifer	Gunderman-King	Maine DHS, Bureau of Health
DeEtte	Hall	Maine Department of Education
* Gloria	Hall	Lewiston Health Department
Betsy	Hart	University of New England
Joanne	Iennaco	Saint Joseph's College
James	Jacobsen	Maine DHS, Bureau of Health
* Robert	Kleckner	Anthem Blue Cross Blue Shield
Julie	Knight	Saint Joseph's College

First Name	Last Name	Organization Name
Wendie	Lagasse	Eastern Maine Medical Center, Community Wellness Service
Lynne	Lamstein	Maine Department of Labor
* Virginia	Lewis	Maine Primary Care Association
Cindy	Look	Maine DHS, Bureau of Health
* Larry	Losey	CIGNA Healthcare of Maine
Sharon	Martin	Saint Joseph's College
* Paul	Moffit	Maine DHS, Bureau of Health
Michelle	Mosher	Maine DHS, Bureau of Health
Ellie	Mulcahy	Maine DHS, Bureau of Health
Nathan	Nickerson	Portland Public Health Division
Karen	O'Rourke	Maine Center for Public Health
Judy	Peary-Adams	Community Health Program, University of Maine at Farmington
Juan	Perez-Febles	Maine Department of Labor
Kristine	Perkins	Maine DHS, Bureau of Health
Bonnie	Post	Maine Primary Care Association
Bill	Primmerman	Maine Department of Education
Roger	Richards	Maine Department of Education
Debra	Robertson	Community Health Program, University of Maine at Farmington
Tammy	Rolfe	Maine DHS, Bureau of Health
* Roanne	Seeley	Maine Department of Education
* Sid	Sewall	Maine Medical Asessment Foundation, Kennebec Pediatrics
Stephen	Shannon	University of New England, College of Osteopathic Medicine
* Christopher	Stenberg	The Barbara Bush Children's Hospital
Stephanie	Swan	Maine Department of Education
* Diane	Theriault	Association of Practitioners in Infection Control
Carl	Toney	University of New England
Clough	Toppan	Maine DHS, Bureau of Health
Debra	Wigand	Maine DHS, Bureau of Health
* Bob	Woods	Maine DHS, Bureau of Health

** Members who attended half-day Healthy Maine 2010 Infectious Disease Priority Area Work Group meeting.*