Massachusetts Deaths 2012

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Executive Summary

Introduction:

In order to meet the needs of our many stakeholders and to deliver timelier data, the 2012 Massachusetts Death report has a new more compact format. In contrast to recent reports, this report contains a brief summary of deaths to Massachusetts residents in 2012. The report also includes comparisons to recent years with important trends being noted. The Top 10 Causes of Death are summarized in table form. Finally, four special topics have been selected for deeper discussion: Disparities, Injuries/Opioid Poisonings, Premature and Amenable Mortality, and HIV/AIDS.

The intent of presenting these data in a new format is to make these data available to decision-makers and the public as quickly as possible. By simplifying the report and focusing on highlights, this report and future reports can be delivered more quickly.

This 2012 Massachusetts Death report is targeted to the general public, the legislature, and the press. A separate Data Brief (Massachusetts Deaths 2012: Data Brief) has been prepared with extensive tables cross-tabbed by cause of death, geography, demographics, and time. The data brief is targeted to researchers, academics, and all others who wish to examine a more detailed presentation of these data. It includes the bulk of the material contained in previous reports but offer little commentary other than the methodologies for computing the statistics presented.

Summary of 2012 Deaths:

Massachusetts mortality continues to compare favorably with the U.S. and there are continued declines in many of the leading causes of death. Most death rates in Massachusetts were lower than those of the US including those for heart disease, stroke, chronic lower respiratory disease, unintentional injuries, homicide, suicide, Alzheimer's disease, chronic liver disease, HIV/AIDS, infant mortality, and diabetes.

In 2012, the age-adjusted death rate of 669.2 deaths per 100,000, reached another all-time low. The rate has been declining at an average of 1.8% per year since 2000. For the third year in a row, the death rate for Blacks is not statistically different from the rate of Whites (701.8 vs. 681.0 deaths per 100,000). The rate for Asians was the lowest for all groups at 372.4 followed by Hispanics1 (484.9 deaths per 100,000).

Given the all-time low death rate, it is not surprising that people in Massachusetts are living longer than ever before. Life expectancy was also at an all-time high in Massachusetts (80.9 years) in 2012. A baby girl born in Massachusetts in 2012 could expect to live to be 83, and a baby boy could expect to live to be 79 years old.

[1] There are well-known difficulties in calculating accurate mortality rates for Massachusetts' smaller populations such as Asians, Native Americans and Hispanics. Arias E. Quality of race and Hispanic origin reporting on death certificates in the United States. Presented at the 2004 NCHS Data Users Conference. Washington, DC, July 14, 2004. Available at: http://www.cdc.gov/nchs/ppt/duc2004/arias.pps.

Despite improvements in the death rate for most causes, poisonings (particularly opioid poisonings) reached an all time high in 2012. Opioids, including heroin, oxycodone, morphine, codeine, and methadone, were associated with the vast majority of poisoning deaths (74%). As in past years, falls were the second leading cause of injury deaths. In 2012, the number of fall-related deaths increased by 9% from 2011 (642 vs. 588).

In 2012, 10% of all deaths and 26% of premature deaths (i.e., deaths to individuals under the age of 75) were categorized as “amenable to health care”. In other words, these deaths may have been prevented with timely and effective health care. Since 2002, the amenable mortality rate has declined 4.1% per year in Massachusetts. For Blacks, the reduction has been 4.9% per year. For Hispanics, it is 4.2% per year. For Asians, the rate is 2.7%. The rate for Whites declined at 4.8% per year between 2002 and 2008 but has recently slowed to a rate of decline of only 2.5% since 2008.

The top 10 causes of death are shown in the table below, with comparisons to the years 2000 and 2009. As in recent years, cancer is the leading cause of death in terms of absolute numbers and also when adjusted for the age of the population. Heart disease is the second leading cause of death. Seven of the 10 leading causes of death were lower than in both 2000 and 2009. Notable decreases since 2000 are a 35% decrease in the death rate for heart disease and a 44% decrease in the death rate for stroke. Also notable is the 56% drop in deaths since 2000 where HIV or AIDS is listed as the underlying cause of death. In contrast, the death rate for injuries of all causes (including opioids and falls) increased by 19% since 2000.

Several factors may account for the generally favorable numbers in Massachusetts. These include our high quality health care, higher than average socioeconomics, and high education levels compared to other states. Nonetheless, pockets of disparities still persist with higher death rates for certain causes of death for some racial groups, for the poor, for those with lower levels of education, and for those who live in certain geographical areas. The disparities have remained relatively constant in recent years. For detailed information on these disparities, please refer to the separate Data Brief (Massachusetts Deaths 2012: Data Brief).

Top Ten Causes of Death

Leading Causes of Death, MA: 2000, 2009, 2012									
	2000			2009			2012		
Cause	Rank	Number of Deaths	Age Adjusted rate per 100,000	Rank	Number of Deaths	Age Adjusted rate per 100,000	Rank	Number of Deaths	Age Adjusted rate per 100,000
Cancer	2	14,006	206.9	1	13,042	174.0	1	12,850	166.7
Heart Disease	1	15,313	218.0	2	12,233	155.0	2	11,586	141.3
All Injuries combined	5	2,386	35.9	3	2,920	41.4	3	3,053	42.6
Chronic Lower Respiratory Disease	4	2,911	41.9	5	2,546	33.6	4	2,520	32.3
Stroke	3	3,645	51.2	4	2,552	32.2	5	2,360	28.7
Alzheimer's Disease	7	1,427	19.7	6	1,690	20.6	6	1,711	20.1
Influenza & Pneumonia	6	2,110	29.3	7	1,335	16.8	7	1,356	16.3
Nephritis	9	1,230	17.6	8	1,267	16.1	8	1,267	15.7
Ill-defined conditions-signs and symptoms	13	490	7.1	11	617	8.2	9	1,120[1]	14.3
Diabetes	8	1,353	19.7	9	995	13.1	10	1098	13.9

[1] This category is often dependent on additional information from the Office of the Chief Medical Examiner. The 2012 death file had a higher proportion of such cases than previous years. This may account in part for the increase seen in 2012.

Special Topics

1. Disparities

Racial and ethnic health disparities in the United States were first documented and reported in 1985 in a landmark report issued by U.S. Health and Human Services Secretary, Margaret Heckler. The report identified differences in health outcomes for racial and ethnic American populations; differences that result in these populations having poorer health than White, non-Hispanic Americans. Even with significant improvements in health and health services over the decades health and healthcare disparities continue to exist and, in some cases, continue to grow for racial and ethnic groups, the poor and other at-risk populations. (U.S. Office of Minority Health in its National Stakeholder Strategy for Achieving Health Equity Report, 2011).

The term health disparities refers to population-specific differences in the presence of disease, health outcomes, quality of health care, and access to health care services that exist across racial, ethnic, low-income, and other groups.[2]

Thanks in part to a focus on preventive medicine and advances in medical care and technology, Massachusetts residents and Americans as a whole are healthier and living longer, however, health and healthcare disparities continue to exist and in some cases even to grow. Racial and ethnic groups, the poor and other at-risk populations are most affected.

These disparities are costly in both personal and financial terms. According to a 2009 study by the Joint Center for Political and Economic studies, eliminating health disparities for minorities would have reduced direct medical care expenditures by $229.4 billion over a three-year period. The same study noted that 30.6% of direct medical care expenditures for African Americans, Asians, and Hispanics were excess costs due to health inequalities.

These excess costs affect all Americans. Nearly two dollars in every five of excess costs are born by private insurance plans. Individuals and families paid another one-quarter in out-of-pocket payments which is more than Medicare and Medicaid combined.

Though the MA 2012 Death report reveals that, for the third year in a row, the death rate for Blacks was not statistically different from the rate of Whites (701.8 vs. 681.0 deaths per 100,000), Hispanics, Blacks, and Asians had a higher proportion of deaths occurring at younger ages than Whites. Thirty-four percent (34%) of White deaths occurred at 74 years and younger; whereas, 67% of Hispanic deaths, 59% of Black deaths, and 47% of Asian deaths occurred under 75 years of age.

In addition, Blacks and Hispanics continued to be disproportionally affected by homicide: the rate for Blacks was 11 times higher than that of Whites, and the homicide rate for Hispanics was four times higher.

It is also important to note that this is not “simply” a racial or ethnic problem. Disparities also exist by gender, sexual orientation, age, education, income, and geography.

[2] http://www.ncsl.org/research/health/health-disparities-overview.aspx

According to the 2012 Death report, the death rate for those with a high school education or less was more than three times higher than the rate for those with 13 years of education or more. The age-adjusted premature mortality rate for those living in areas with the greatest poverty (≥ 20% below poverty) was more than four times higher than the rate for those living in the most affluent areas (<5% below poverty).

Closing the Gap

The solutions to addressing persistent disparities are complex.

We know that health, quality of life, and longevity are determined by genetic, social, behavioral, and environmental factors. The conditions in which we are born, live, learn, age, work, play, and receive healthcare all impact wellbeing and years of life lived. In order to improve health disparities, DPH has focused on connecting clinical and community efforts.

In 2012, Massachusetts legislation[3] mandated the formation of a Prevention and Wellness Trust Fund (PWTF), a program designed to improve health, reduce health care costs, and reduce health disparities by addressing chronic health conditions.

The PWTF currently funds nine community-clinical partnerships throughout the Commonwealth. Each partnership must implement programs, policy, systems, and environmental change strategies in their communities to address priority health conditions: pediatric asthma, hypertension, tobacco, and falls among older adults. Grantees are also able to address up to five additional chronic health conditions, including substance abuse, obesity, diabetes, oral health, and mental health as a co-morbid condition.

Communities funded by the PWTF are some of the most racially and ethnically diverse areas in the Commonwealth with high percentages of people living below the federal poverty level. As a group, these communities have a higher than average burden for all priority and optional health conditions targeted by PWTF.

Data collected as part of this initiative is used to identify populations at highest risk for adverse health outcomes, determine gaps in service, and monitor program effectiveness.

The PWTF focuses on linking clinical and community organizations; creating health-promoting environments through policy, systems, and environmental change; and continuously examines detailed data for evaluation and program improvement.

2. Injuries/ Opioid Poisonings: A Public Health Crisis

Poisonings, most of which are drug overdoses, continued to be the leading cause of injury deaths in Massachusetts. Opioids, including heroin, oxycodone, morphine, and codeine, are the agents most associated with poisoning deaths.

In 2012, 711 Massachusetts residents died from opioid poisoning. This represents an 800% increase over the past 25 years, and 10% increase from 2011, when 645 deaths resulted

[3] (Chapter 224: An Act Improving the Quality of Health Care and Reducing Costs through Increase Transparency, Efficiency and Innovation)

from opioid poisoning. This 2011 figure also represents a 16% increase from 2010, when 555 people died.

Eighty percent of poisoning deaths are unintentional and for every unintentional opioid death, it is estimated that there are seven nonfatal opioid events treated in acute care hospitals in Massachusetts[4]. Poisonings took the lives of nearly three times more people in the Commonwealth than motor vehicle accidents.

The risk of opioid-related death has increased dramatically for every population group and every type of community in the state, affecting Massachusetts residents from every age, racial, economic, and geographic group. Opioid poisoning deaths occur in poor urban areas and in affluent suburbs. Whites are more likely to die from opioid poisoning than Blacks or Hispanics.

Opioids are prescribed to relieve pain from injury, trauma, surgery, chronic pain, and other conditions such as cancer. They also affect regions of the brain that produce euphoria and can produce significant side effects, including constipation, nausea, mental clouding, and respiratory depression, which can sometimes lead to death.

From 1991 to 2009, U.S. prescriptions for opioid analgesics increased almost threefold, to more than 200 million[5]. While these medications are crucial for pain management, their wide availability may also result in leftover pills in family medicine cabinets, increasing opportunities for abuse. Most abusers report that they were abusing their own medications, or they were using medications prescribed to friends and relatives.

When prescription medications become difficult to obtain or too expensive, many users turn to heroin as an alternative. Widely available and relatively inexpensive, heroin is a highly addictive opiate that acts on the same areas of the brain as prescription opioids. Nevertheless, the number of people who die from prescription opioids exceeds the number of those who die from heroin and cocaine combined.

Prescription Monitoring Program (PMP)

The Massachusetts Department of Public Health operates a number of programs and services designed to prevent and treat opioid poisonings and educate health care providers and the general public about this growing problem. Given the dramatic increase in the use of prescription opioids, this report will focus on just one - the Massachusetts Prescription Monitoring Program (MA PMP).

MA PMP compiles prescription information from all Massachusetts pharmacies and from out-of-state mail order pharmacies that deliver to patients in Massachusetts. The MA Online PMP is a secure website that can be utilized by authorized providers to retrieve the most recent twelve months' of dispensed prescription histories (Schedule II - V) on their patients. Use of the MA PMP by prescribers can enable the early identification of behaviors suggestive of drug misuse, abuse or diversion.

[4] MA DPH Injury Surveillance Program.
[5] (Research Letter) *Characteristics of Opioid Prescriptions in 2009*. JAMA, April 6, 2011—Vol 305, No. 13: 1299-1300.

As of July 2014, nearly 54,000 prescribers, dispensers, and law enforcement participants had been enrolled to use the system. Providers use the PMP as a clinical decision-making tool, use it to ensure patient safety, and are able to identify questionable activity by some patients that might be demonstrating addictive behaviors.

The Department of Public Health's Drug Control Program (DCP) analyzes PMP data to determine prescribing and dispensing trends. It also provides educational information to health care providers and the general public; and case information to regulatory and law enforcement agencies.

3. Premature and Amenable Mortality

Premature mortality [6] is a measure of unfulfilled life expectancy and is defined as the age adjusted death rate for persons under 75 years of age. Premature Mortality (PMR) is considered an excellent, single measure of the health status of a population, since the vast majority of deaths to persons ages 75 years and older are due to chronic conditions associated with aging.

In 2012, premature deaths (deaths before age 75) accounted for 37% of all deaths in the state. Overall PMR decreased by 3.1% a year for the period of 2002-2009 and has remained stable since then, with no significant changes from 2009 - 2012.

A subset of premature mortality is "amenable mortality" which is defined as deaths that may have been prevented with timely and effective health care. Among those deaths included in this category are breast, cervical, and skin cancer, as well as bacterial infections, diabetes, cardiovascular and cerebrovascular disease, Ischemic heart disease, and complications of common surgical procedures[7].

Amenable mortality rates have been declining at 4.1% per year since 2002. In 2012, 10% of all deaths and 26% of premature deaths were amenable to health care.

These rates have been declining for racial and ethnic groups as well: at 4.9% per year for Blacks, 4.2% per year for Hispanics, and 2.7% per year for Asians. The rate for Whites had been declining at 4.8% per year for the period of 2002 to 2008 and it is now declining at a rate of 2.5% since 2008. Despite these declines, the amenable mortality rate for Blacks is 1.4 times higher than the rate for Whites (99.2 vs. 70.4) in 2012.

Several studies have found that variations in premature and amenable mortality appear to be closely related to socioeconomic conditions[8], including environmental conditions, housing, education, stress, higher rates of smoking, substance abuse, violence, obesity, and lack of access to care.

PMR for those living in areas with the greatest poverty (≥ 20% below poverty) was more than 4 times higher than the rate for those living in the most affluent areas (<5% below

[6] Carstairs V, Morris R. Deprivation and Health in Scotland. Aberdeen, Scotland: Aberdeen University Press, 1991.
[7] Nolte E and McKee CM. Measuring the Health of Nations: Updating An Earlier Analysis. Health Affairs; 2008; 27(1): 58-71.
[8] Mackenbach JP, Bouvier-Colle MH, Jougla E. "Avoidable" mortality and health services: A review of aggregate data studies. J Epidmiol Commun Health 1990;44:106-11.

poverty). For amenable mortality, the rate for those living in areas with the greatest poverty was 5 times higher than the rate for those living in the most affluent areas.

4. HIV/AIDS

At the height of the HIV/AIDS epidemic, transmission of HIV infection was continuing nearly unabated, and deaths attributable to HIV/AIDS were nearing 1,000 per year (981 in 1994.) Since that time, the combination of advances in medical treatment, public policy, improved access to care, and ongoing education have resulted in tremendous progress.

Massachusetts has seen steady declines in HIV transmission (a 44% reduction in new diagnoses of HIV infection between 2000 and 2010). Death rates from HIV/AIDS have also dropped substantially. In 2012, 100 deaths listed HIV or AIDS (or an AIDS-defining condition) as an underlying cause of death. This represents a 56% reduction since 2000.

Deaths among persons with HIV/AIDS (all causes) in 2012 totaled 208, making HIV/AIDS the cause of death for only 48% of all deaths among this population. In other words, persons with HIV/AIDS who have recently died are more likely to have had a non-HIV/AIDS-related cause of death. In the early days of the HIV/AIDS epidemic, deaths among younger individuals with HIV/AIDS were common; in 2012, only 18% of HIV/AIDS-attributed deaths occurred among persons under the age of 45.

The pattern of deaths among persons with HIV/AIDS now begins to resemble those of older population and individuals with other behavioral risk factors.

Medical Advances in Treatment

Prior to 1997 and the advent of highly active antiretroviral therapy (HAART), a combination of conditions commonly resulted in severe illness and death among persons with HIV/AIDS. Due to a HIV's ability to compromise the immune system, a range of opportunistic bacterial, viral, and fungal infections, cancers, as well as HIV-related wasting often resulted in life-limiting illness. While medications for HIV infection became available as early as 1986 with the introduction of AZT and other classes of anti-HIV medications, it was an era of combination therapy--the use of multiple classes of medications to reduce viral replication--that began to alter the rate of death related to HIV infection.

These medical advances shifted the focus of programs sponsored by federal, state, and local public health authorities. With effective treatments available, it became more urgent to help all persons living with HIV to learn of their infection status and enter sustained medical care. Existing outreach and behavioral prevention programs added routine HIV screening activities, and supported referrals to care to their service mix. Case managers, who previously spent a great deal of their time assisting their clients to meet basic needs and often planning for end-of-life care, shifted to a greater health system navigation role. Medical case management became a larger component of the Department's funded service system, consisting of nurse managers helping to coordinate patients' complex primary and specialty care to maximize medical benefits. Prior investments in short-term hospice care shifted to coordinated approaches to supporting the housing and social service needs of persons with HIV/AIDS, who were now looking at extended lifespans.

Public Policy

A series of public policy advances in Massachusetts during the last decade helped maximize the benefits of improved treatments for HIV/AIDS.

The cost of HAART combination therapies could range into the tens of thousands of dollars per year, and uninsured individuals were especially challenged to find the means to access them. Federal Medicaid rules limited coverage for single childless individuals to those with severe disabilities, in these instances, to a diagnosis of AIDS. Low-income individuals could not receive Medicaid coverage for their medical care until they were severely ill with AIDS.

In 2001, through an 1115 waiver from the federal CMS, Massachusetts became the first state in the nation to successfully expand its Medicaid coverage to persons with non-AIDS HIV infection meeting certain income requirements (<200% FPL). This change in policy greatly expanded access to HAART.

With the passage of state health reform legislation in 2006, an even larger proportion of persons with HIV obtained health insurance. This was especially significant for those earning 201-300% FPL and eligible for subsidized coverage.

The state HIV Drug Assistance Program (HDAP) shifted its approach from the direct purchase of medications to the more cost-effective supplementing of health insurance premiums and medication co-payments. This ensured access to comprehensive HIV care for more patients. Coupled with long-term investments in building the HIV care system at community health centers and other safety-net health institutions, Massachusetts became the first state to essentially guarantee access to HAART for all residents living with HIV infection.

It is now well documented in the literature that effective suppression of HIV viral loads (helping patients achieve undetectable levels of HIV in their blood) has a direct impact on the likelihood of viral transmission. Since 2000, Massachusetts has documented steady declines in new HIV diagnoses, even as the Commonwealth greatly expanded testing and screening for HIV infection.

People with HIV/AIDS in Massachusetts are now benefitting from access to comprehensive services such as infectious disease testing and screening, effective medications, and a range of supportive services. These factors, coupled with near-universal health insurance access, are enabling people with HIV/AIDS to maintain health and have a reasonable expectation of a normal life span.

Maintaining the state HIV/AIDS prevention and care system remains a high priority if these gains are to be sustained or improved upon in the future.

Summary

Massachusetts mortality continues to compare favorably with the U.S. In 2012, declines continued for most major causes of death. Cancer continues to be the leading cause of death in Massachusetts. For the third year in a row, the death rate for Blacks was not statistically different from the rate of Whites, however disparities in mortality continue to exist among racial, economic, and other groups. Given the all-time low death rate, it is not surprising that people in Massachusetts are living longer than ever before.

The death rate for unintentional poisonings (particularly opioid poisonings) reached an all time high in 2012. The number of falls-related deaths also increased by 9% from 2011.

Any single measure of mortality has limitations. However by examining these data, it is possible to identify issues that are responsive to systematic public health approaches to health promotion and disease prevention.

For more detailed information on 2012 deaths in Massachusetts, please refer to Massachusetts Deaths 2012: Data Brief.

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