

SNAPSHOTS

. of The Human Condition on Cape Cod

Community Health Outcomes: Barnstable County, MA 1989–2000

Barnstable County (MA)
Department of Human Services
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Introduction

A healthy populace is every community's goal. How can we assure a healthy community? Perhaps a more fundamental question is, how do we know when we have achieved a health community? What are the measures that we would use to test to see how healthy our community is, and whether from year to year we are getting healthier or less healthy? Such measures would allow us to make informed decisions as to where we should strengthen our efforts to improve the health of our community.

Recent public health research has shown that overall community health can be measured by looking at just a few simple health outcomes. Three outcomes in particular have been shown to characterize a healthy community. These three health outcomes are the rates of:

- Low Birthweight deliveries--the percentage of babies being born who weigh less than 5.5 pounds at delivery,
- Infant Mortality--which measures the proportion of infants who die before reaching their first birthday, and
- Premature Mortality--a measurement relating to the age at which people die as compared to their life expectancy.

Life Expectancy:

A male born in the U.S. in 1998 can be expected to live on average to age 73.8 years, and a female to age 79.5 years. People dying before that age have not attained their life expectancy. An overall community measure of the number of years of life lost by citizens who have died prior to attaining life expectancy, a concept called "Years of Potential Life Lost" (YPLL) has been shown to be useful measure of premature mortality (see Glossary of Terms).

These three health outcomes can, when viewed across an entire community, act as an overall barometer of the social health of that community. Research has shown that there are correlations between these health outcomes and the social conditions central to the community's social fabric. Viewing these three measures over time we are able to quantify how the overall human condition—the collective quality of our lives—in our community is changing—whether it is improving, staying the same, or declining.

In this SNAPSHOT we discuss these three key outcome measures--indicators of overall community health in Barnstable County, Massachusetts.

Low Birthweight (LBW)

This year, about 2,000 babies will be born to Barnstable County mothers. Weights at delivery range from over eleven pounds down to under 500 grams. Two weight classifications are of special note; very low birth weight, newborns under 1,500 grams (3 lbs, 5 oz) are especially at risk and require extraordinary care to insure their survival. Premature babies are frequently in the very low birth weight category. Babies weighting between 1,500 and 2,500 grams (5 lbs, 8 oz) are classified as low birthweight. Low birth weight is associated with a variety of medical problems and increased risk of mortality, especially for premature infants. Low, and very low birthweight are associated with increased risk of disability, such as mental retardation, cerebral palsy, and vision and hearing disabilities.

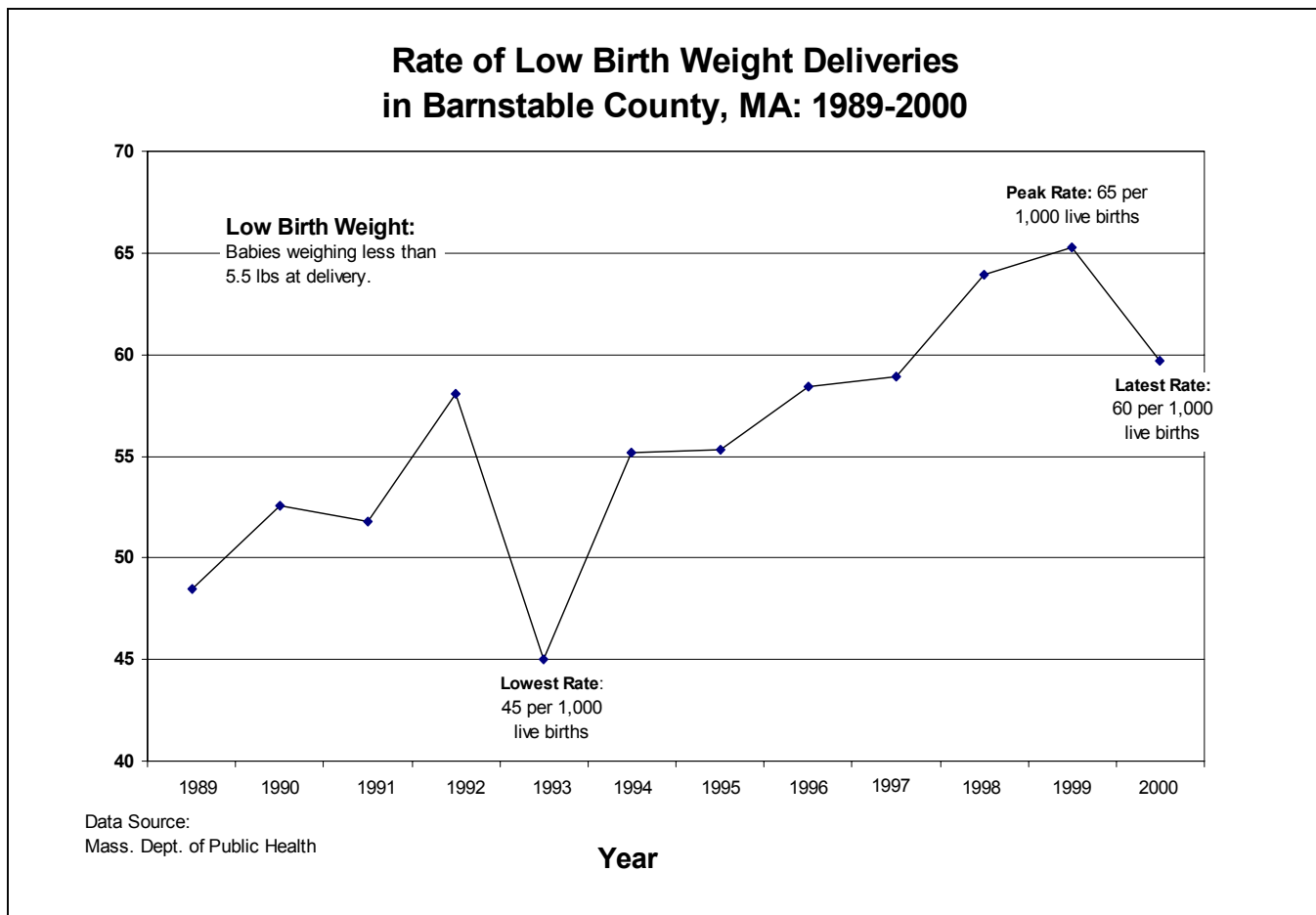
Low birthweight deliveries can in many instances be avoided by attention to the health of the mother. Several risk factors can contribute to a higher incidence of low birthweight babies. Among these are:

- Demographic characteristics, such as socioeconomic status, low level of education, nonwhite race (particularly black), childbearing at extremes of the reproductive age span, and being unmarried;

- Medical risks that can be identified before pregnancy, such as poor obstetric history, certain diseases and conditions, and poor nutritional status;
- Problems that are detected during pregnancy, such as poor weight gain, bacteriuria, toxemia/-pre-eclampsia, short inter-pregnancy interval, and multiple pregnancy;
- Behavioral and environmental risks, such as smoking, alcohol and other substance abuse, and exposure to various toxic substances;
- Health care risks of absent or inadequate prenatal care; and
- Evolving concepts of risk, such as stress, uterine irritability, certain cervical changes detected before the onset of labor, some infections, inadequate plasma volume expansion, and progesterone deficiency. (Source: Connecticut Department of Public Health, Policy, Planning and Analysis, Looking Toward 2000 – State Health Assessment, Maternal and Infant Health, Low Birth Weight <http://www.state.ct.us/dph/OPPE/sha99/hsrr2.htm>)

In Massachusetts, the rate of low birthweight deliveries has been holding steady for the past several years at 7.1%. Barnstable County in the year 2000 (the latest year for which official data are available) reported 119 LBW deliveries—yielding a rate of 6.0% or 60 per 1,000 births.

In Barnstable County, LBW deliveries have shown a steady increase over at least the past decade. There is considerable year-to-year variation in the rate, however the LBW rate in our County has increased from about 49 LBW births per 1,000 live births in 1989 to its current rate of 60 per 1,000, a rise of 22% in ten years. If Barnstable County rates continue the steep rate of increase that we have seen over the past decade, our LBW rate could be heading for a figure near 70 per 1,000 births in the next few years.



Infant Mortality

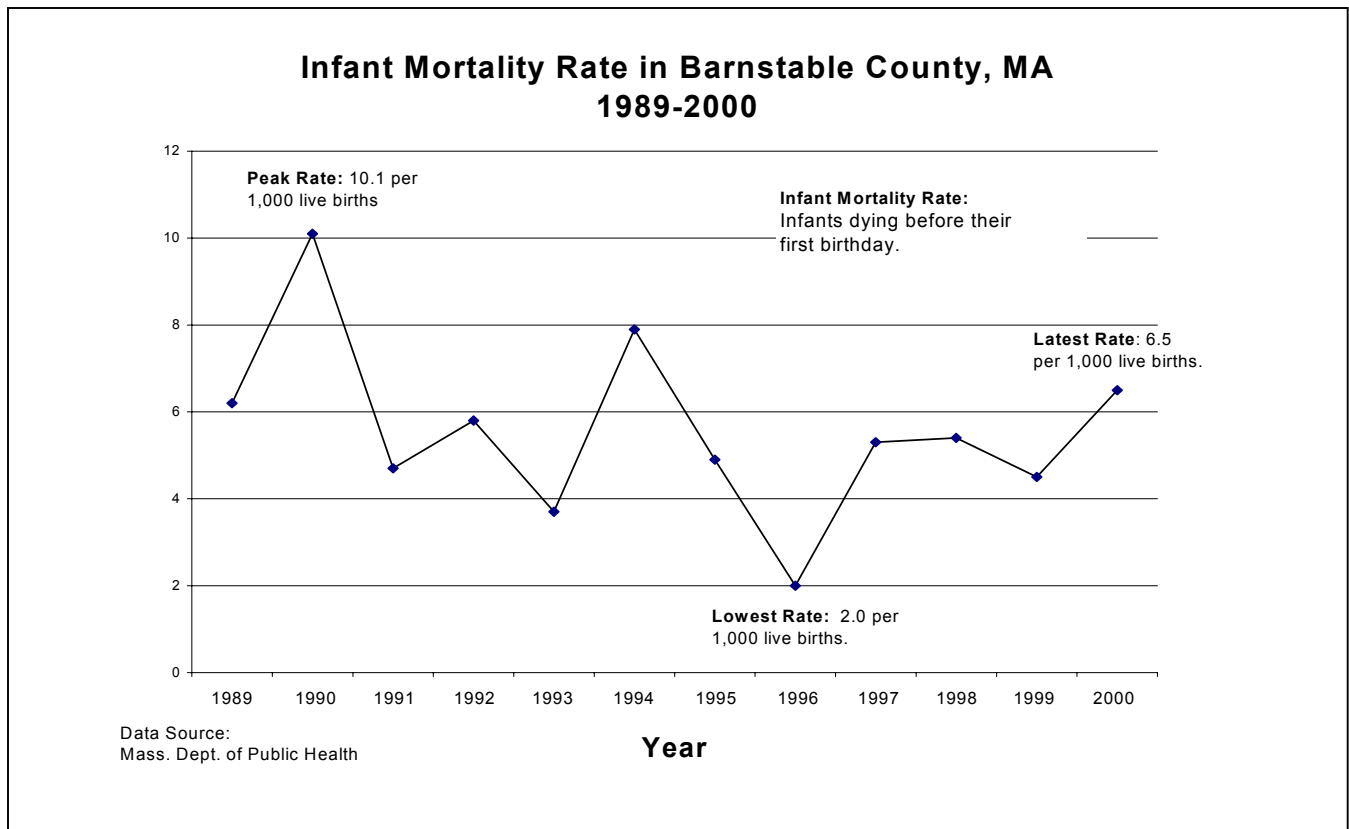
This year, between 10 and 15 Barnstable County infants will likely die before their first birthday. In the year 2000 thirteen infant deaths were reported in the County, yielding an infant mortality rate of 6.5 deaths per 1,000 births. This represents a sizable rate increase over those of the past few years, and is our highest infant death rate since 1994.

Over the past decade, on average 12.5 babies have died each year in Barnstable County before reaching their first birthday. However, in that same time period, the overall number of births has declined. Therefore the ratio of deaths to births has actually worsened, that is, proportionally more Barnstable County babies are dying in infancy now than throughout most of the 1990s.

Across Massachusetts, the infant mortality rate has been steadily declining over the past decade. The statewide rate now (year 2000) stands at 4.6 deaths per 1,000 live births, a decrease of 12% from the 1999 rate of 5.2, and a 34% decrease since 1990.

Low birthweight is closely associated with an increased risk of infant mortality, especially for premature babies. It is possible that recent improvements in infant mortality rates across the state may be more related to the efficacy of newborn intensive care units which can improve the survival rate of moderately low birthweight babies than to reduction of risk factors. Risk factors leading to infant mortality include maternal behavior and lifestyles that affect birth outcomes, such as smoking, drinking alcohol, drug use, and utilization of prenatal care.

Sudden Infant Death Syndrome (SIDS) deaths account for a small number of infant deaths. In the eleven years from 1989 to 1999 eighteen SIDS deaths were reported in Barnstable County, accounting for about one-in-seven of all infant deaths.



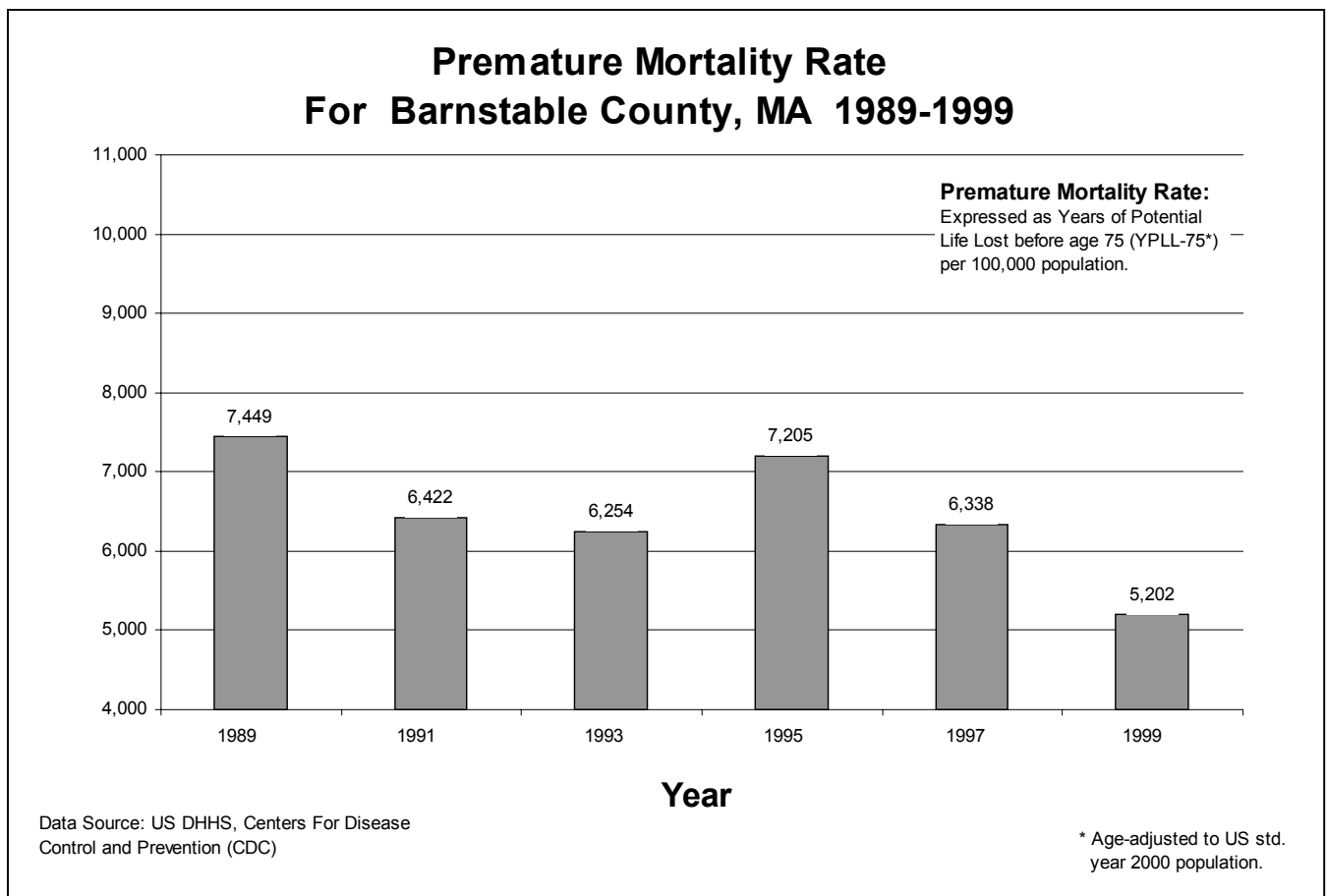
Premature Mortality

Each year approximately 2,600 Barnstable County residents die. Of these, about 18% die before reaching their 65th birthday and 36% die before their 75th birthday. This means that many Cape Codders die before attaining their actuarial life expectancy. These deaths are considered premature.

Premature mortality (including infant mortality) derives from many causes. The primary reasons for premature death are disease, accidents, suicide, substance abuse, homicide and legal intervention, war, and natural disasters. The major diseases contributing to early death include; HIV/AIDS, cancer, heart disease, chronic liver disease and cirrhosis, stroke, respiratory conditions, diabetes mellitus, cerebrovascular diseases, and pneumonia/influenza. Infant deaths, while a component of premature mortality represent a very small percentage of early deaths.

The rate of premature mortality is most commonly measured by calculating the “years of potential life lost” (YPLL) due to deaths before a certain age, such as age 65, age 75, or to life expectancy. YPLL to age 65 is sometimes considered as a loss of years from a normal working life (years of *productive* life lost) and is useful in the evaluation of the economic impact of mortality, while YPLL until life expectancy may be considered as a loss of years from the overall life span. Age 75 is a common age for the calculation of statewide YPLL.

YPLL inherently emphasizes premature mortality by giving a larger computational weight to younger deaths and by not counting deaths of persons older than the cut-off age. The advantage of YPLL over the more familiar health measure crude mortality is that the large number of deaths occurring in older people will weight the crude mortality statistic. Over the past decade premature mortality rates have been gradually declining in Barnstable County.



Glossary of Terms

LOW BIRTHWEIGHT

Low Birthweight: a live birth reported at less than 2,500 grams (5 lbs, 8 oz).

Low Birthweight Rate: total number of low birthweight babies per 1,000 live births.

Percent Low Birthweight: percentage of all live births that are low birthweight.

Very Low Birthweight: a live birth reported at less than 1,500 grams (approx. 3 lbs).

Related Terms:

Live Birth: the complete expulsion or extraction from the mother of a product of human conception, irrespective of the duration of pregnancy which, after such expulsion or extraction, breathes or shows any evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been severed or the placenta is attached. (Source: New Hampshire Vital Statistics Report, 1997, State of New Hampshire, Department of Health and Human Services)

Premature Birth: less than 37 weeks gestation based on a clinical estimation of the date of conception.

INFANT MORTALITY

Infant Mortality: death of a child under one year of age.

Infant Mortality Rate: annual number of deaths under one year of age per 1,000 live births occurring during the year.

Related Terms:

Neonatal Mortality Rate: annual number of deaths under 28 days of age per 1,000 live births occurring during the year.

Postneonatal Mortality Rate: annual number of deaths at age 28 days and older but less than one year per 1,000 live births occurring during the year.

PREMATURE MORTALITY

Premature Mortality: the death of a person occurring before he/she attains a certain age. Typically measured in “Years of Potential Life Lost” (YPLL).

Years of Potential Life Lost (YPLL): a measure of premature mortality that reflects the impact of deaths occurring in years preceding a conventional cut-off year of age, sometimes age 65 or age 75, or before life expectancy.

YPLL to age 65 may be considered as a loss of years from a normal working life (years of *productive* life lost) and is useful in the evaluation of the economic impact of mortality, while YPLL until life expectancy may be considered as a loss of years from the overall life span. The YPLL calculation inherently emphasizes premature mortality by giving a larger computational weight to younger deaths and by not counting deaths of persons older than the cut-off age. The advantage of YPLL over the more familiar health measure crude mortality is that the large number of deaths occurring in older people will weight the crude mortality statistic. (Sources: New Hampshire Vital Statistics Report, 1997, State of New Hampshire, Department of Health and Human Services and U.S. Department of Health and Human Services; Public Health Reports, Public Health Rep 1998; 113: 55-61, Using YPLL in health planning, 1998).

YPLL Rate: years of potential life lost before a conventional cut-off age per 100,000 population. For purposes of comparisons over time and between groups with different age structures YPLL rates are age-adjusted.

Related Terms:

Age-adjustment: age-adjustment accounts for changing age distribution in a group over time and for dissimilar age distributions between groups (e.g., a high percentage of elderly residents). Age-adjustment to the same standard population (commonly standard Year 2000) allows meaningful comparisons of rates over time and between groups.

Crude Mortality Rate: total number of deaths per 100,000 population.

Life Expectancy: average number of years of life remaining to a person at a particular age. Varies by race, sex, and other characteristics. Example: A U.S. male born in 1998 can be expected to live, on average, to age 73.8 years, a U.S. female, on average, will live to age 79.5 years.