



TRENDS IN MEDIAN AGE AT DEATH NEW JERSEY, 1970-2000

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Abstract

Median age at death provides a crude way to compare mortality experiences over time. Thirty-year trends in median age at death are compared here by race, sex, and underlying cause of death. As expected, median age at death has increased as a result of improvements in education, prevention, detection, and treatment for chronic and infectious diseases.

Introduction

Median age at death is a proxy for life expectancy that allows for simple trend analysis by sex, race, and cause of death. Life expectancy is a more standard measure of mortality, however calculation of life expectancy requires death, birth, infant death, and population data in its calculation. This can create difficulties when comparing causes of death over time for subgroups. The calculation of median age at death only requires death data. Trends in median age at death are consistent with trends in life expectancy at birth. For example, in 1970, life expectancy at birth was 71 and median age at death was 70. In 2000, both were 78.

Data and Methods

All data used in this analysis are from the National Center for Health Statistics' multiple cause of death files derived from death certificates of New Jersey residents who died in 1970 through 2000. Median age at death by sex, race, and leading underlying causes of death were analyzed. In this report, median age at death is the midpoint age at death for a particular sex/race/underlying cause of death combination.

Median age at death was not estimated for certain race and ethnicity groups. For these subpopulations such as Hispanics, Asians and Pacific Islanders, and American Indians and Alaska Natives, the data necessary to calculate mortality measures are unreliable. Undermeasurement of Hispanic ethnicity and of races other than white or black on death certificates is a nationwide problem. The National Center for Health Statistics (NCHS) estimates the undercount to be approximately 7 percent for Hispanics, 13 percent for Asians and Pacific Islanders, and 37 percent for American Indians, nationally.¹ Studies in New Jersey show that the crude death rate among Hispanics is approximately one-third that of the total population and the age-adjusted death rate for Hispanics is slightly more than half that of the



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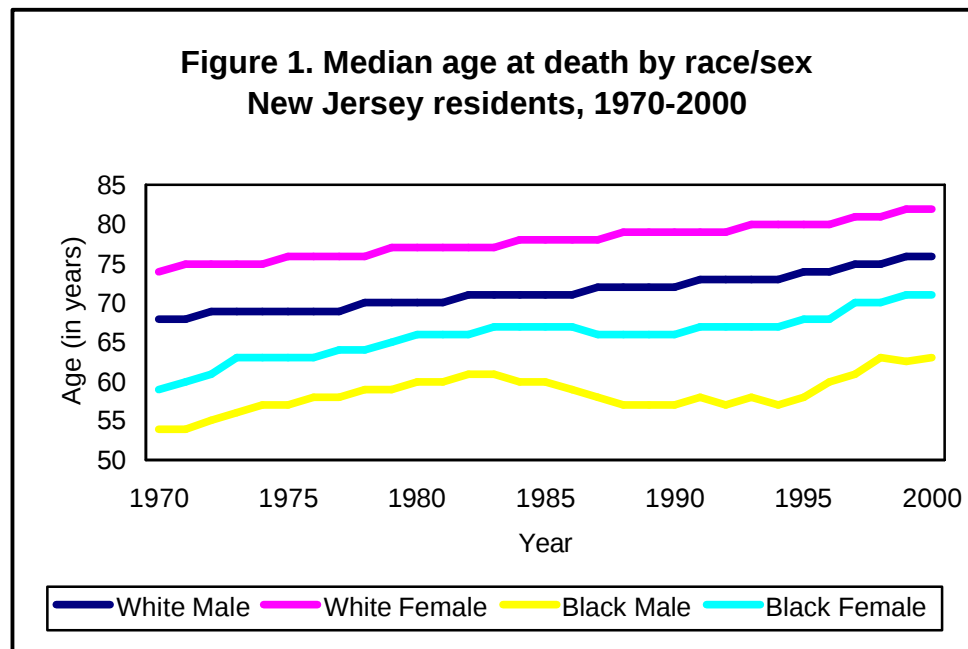
total population.² Among Asians and Pacific Islanders, the crude death rate is approximately one-sixth that of the total population and the age-adjusted death rate is about one-third that of the total population.³ Life expectancy calculations for Hispanics and for Asians and Pacific Islanders produce results higher than that of the total population.⁴

While NCHS studies show an undercount of Hispanics, Asians and Pacific Islanders, and American Indians and Alaska Natives in the Census, the undercount is thought to be less than that on death certificates.¹ Crude death rates, age-adjusted death rates, and life expectancy all require death and population data in the calculations. Since the undercounts are not of the same magnitude, calculations involving severely undermeasured deaths in the numerator and slightly undermeasured population in the denominator produce lower than expected mortality rates. The opposite effect is seen in life expectancy calculations.

Median age at death is not affected by the problems that plague other mortality measurements, but the age composition of a group must be considered. The age compositions of the Hispanic and Asian and Pacific Islander populations in New Jersey are young due to selective in migration. Additionally, the high fertility rate among Hispanics, relative to non-Hispanics, results in a younger overall Hispanic population.⁵ This forces median age at death for these groups to be lower than expected. Since there is no way to adjust for this confounding, median age at death for these racial and ethnic groups cannot be validly compared to that of whites and blacks and therefore will not be examined in this report.

Results

Over the past three decades, median age at death has been rising among the total population as well as among males, females, whites, and blacks, with the exception of a brief period in the late 1980s and early 1990s when death rates due to HIV/AIDS were particularly high. (Figure 1 and Table 1).



Although the median age at death has been rising for whites, blacks, and both sexes, disparities between the races and sexes remain. The gap between males and females has increased slightly. In 1970, the median age at death for women was 6 years older than the age for men.

By 1980, the difference had increased slightly to 7 years and remained at 7 in 2000. Among whites, the gender gap was 6 years in 1970 and 2000, though it rose to 7 years in the interim. For blacks, the gender gap increased from 5 years in 1970 to 10 years in 1992-1995 before declining to 8 years in 2000 (Figure 1 and Table 1).

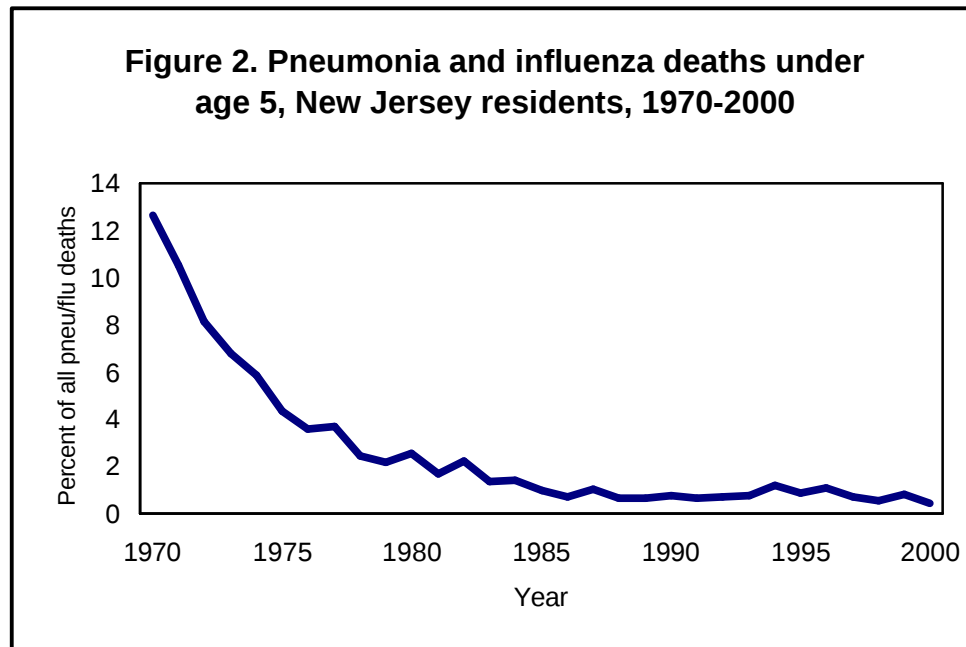
Racial differences, on the other hand, have decreased between 1970 and 2000. In 1970, the median age at death for whites was 15 years older than the age for blacks. After decreasing through the 1970s and early 1980s, it rose for the next ten years before declining again to a gap of 12 years in 2000. Among males, the racial gap decreased from 14 in 1970 to 10 in 1983 before rising to 16 in 1992-1995 and then decreasing again to 13 in 2000. For females, the gap declined from 15 years in 1970 to 10 years in 1983. It then rose through the early 1990s and stood at 11 years in 2000 (Figure 1 and Table 1).

Table 1. Median age at death by race and sex, New Jersey residents, 1970-2000									
Year	Population								
	All Races			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1970	70	67	73	71	68	74	56	54	59
1980	73	69	76	74	70	77	62	60	66
1990	74	71	78	76	72	79	61	57	66
2000	78	74	81	79	76	82	67	63	71

The median age at death for most leading causes of disease-related death has increased over time. The median age at death from heart disease was 73 in 1970. By 2000, it had increased to 81, an 8-year gain. For cancer, the median age at death increased 7 years from 66 in 1970 to 73 in 2000. The median age at death due to stroke increased 6 years from 76 in 1970 to 82 in 2000. The definition of chronic obstructive pulmonary disease (COPD, now called chronic lower respiratory disease or CLRD) has changed somewhat over the last three decades but basically includes asthma, bronchitis, and emphysema. The median age at death from COPD rose 9 years from 70 in 1970 to 79 in 2000. The criteria for selecting diabetes as an underlying cause of death also changed over time which may affect the trend. The median age at death from diabetes rose slightly from 71 to 75 between 1970 and 2000 (Table 2).

Table 2. Median age at death by cause, New Jersey residents, 1970 and 2000			
Cause of death	1970	2000	Increase (yrs)
Heart disease	73	81	8
Cancer	66	73	7
Stroke	76	82	6
COPD/Chronic lower respiratory disease	70	79	9
Diabetes	71	75	4
Pneumonia/influenza	71	84	13
Kidney disease	64	80	16
Alzheimer's disease	83 (1994)	86	3
Cirrhosis	55	60	5
HIV disease	35 (1988)	43	8
Hypertension	75	80	5
Unintentional injuries	43	48	5
Homicide	33	29	-4
Suicide	47	45	-2

Like diabetes, the criteria for selection of pneumonia and influenza as underlying causes of death have changed over the years. However, there was a steady and large increase in the median age at death due to this cause group, from 71 in 1970 to 84 in 2000 (Table 2). The approval of drugs in 1976, 1987, and 1993 to both prevent and treat common types of influenza led to a marked decline in childhood deaths from this disease.^{6,7} In 1970, 13 percent of pneumonia and influenza deaths were children under age 5. By 2000, that percentage had decreased to 0.4 percent (Figure 2).



There was also a large increase in median age at death due to kidney disease from 64 in 1970 to 80 in 2000 (Table 2) due to a 71 percent decrease in kidney disease deaths before age 65 over the 30-year period. Diabetes and high blood pressure are leading causes of kidney disease.⁸ Changes in attitudes among medical professionals since the 1970s about kidney dialysis and transplantation for diabetics have prolonged the lives of diabetics with kidney failure.⁹ Additionally, educational programs developed by the National High Blood Pressure Education Program, which was established in 1972, have also helped to delay the onset of kidney disease.¹⁰

There was a 3-year increase in median age at death due to Alzheimer's disease between 1994 (the first year it was eligible to be ranked as a leading cause) and 2000. Median age at death for cirrhosis increased from 55 in 1970 to 60 in 2000. Median age at death from HIV disease increased steadily from 35 in 1988 (the first year it was a separate, identifiable cause of death) to 43 in 2000. The pattern in median age at death for hypertension has not been stable, but was 75 in 1970 and 80 in 2000 (Table 2).

Trends in median age at death for external causes do not follow the same increasing patterns as those for diseases. The median age at death for unintentional injuries did not increase steadily over the decades. However, in 1970 it was 43 and in 2000 it was 48. Median age at death due to homicide has not exhibited an increasing trend and was 33 in 1970 and 29 in 2000. For suicide, the median age at death was 47 in 1970 and 45 in 2000 (Table 2).

Median age at death varied greatly by gender for certain causes. In 1970, the median age at death due to unintentional injuries was 17 years higher for females than males. In 2000, it was 28 years higher, an 11-year increase in the gender gap. The gap exists because a higher proportion of male unintentional injury deaths are those which affect younger persons such as poisonings (mostly drug overdoses), drownings, and firearms-related deaths, while a large proportion of female unintentional injury deaths are falls which affect older persons. The proportions that are motor vehicle-related are basically the same for males and for females. The gap has increased because fall-related deaths have decreased faster among females than among males while poisoning deaths have increased faster among males than females. The gap increased 10 years for cirrhosis. Though the trend in age at death by homicide has been unstable, the gap increased 6.5 years due primarily to males dying younger in 2000 than in 1970. The COPD gender gap increased 6 years (Table 3).

Table 3. Median age at death by sex for selected causes New Jersey residents, 1970 and 2000				
<i>Cause of death</i>	<i>Male</i>		<i>Female</i>	
	<i>1970</i>	<i>2000</i>	<i>1970</i>	<i>2000</i>
Unintentional injuries	37	43	54	71
Cirrhosis	55	57	54	66
Homicide	33.5	29	28	30
COPD	71	78	67	80

There were also major changes by race for certain causes of death. While median age at death for blacks is still the same or younger than for whites for all leading causes of death, some large improvements were made for particular causes. In 1970, the median age at death due to pneumonia and influenza was 34 years younger for blacks than whites. In 2000, it was only 9 years lower than the median age among whites, a 25-year decrease in the gender gap. In 1970, 39 percent of black pneumonia and influenza deaths were children under age 5. Only 8 percent of white deaths were in that age group. By 2000, the percentage of black pneumonia and influenza deaths which were under age 5 had decreased to 3 percent. For whites, it had decreased to 0.2 percent. The gap for cirrhosis decreased from 12 years to 3 years. The gap for unintentional injuries decreased 5.5 years from 16.5 years to 11 years (Table 4). The gap remains large because a higher proportion of black unintentional injury deaths are poisonings (mostly drug overdoses) which affect younger persons while a large proportion of white unintentional injury deaths are falls which affect older persons. The proportions that are motor vehicle-related are basically the same for whites and for blacks.

Table 4. Median age at death by race for selected causes New Jersey residents, 1970 and 2000				
<i>Cause of death</i>	<i>White</i>		<i>Black</i>	
	<i>1970</i>	<i>2000</i>	<i>1970</i>	<i>2000</i>
Pneumonia/influenza	73	85	39	76
Cirrhosis	57	60	45	57
Unintentional injuries	46.5	52	30	41

Large differences were also observed for some causes of death by race and sex. Among white females, the median age at death due to cirrhosis increased 13 years while there was no increase among white males. The median age at death due to unintentional injuries increased 15 years for white females and only 4 years for white males. Among blacks, the median age at death due to pneumonia and influenza increased 7.5 years more for females than males. Black

females' median age at death due to unintentional injuries increased 16 years while the increase for males was 10 years. Among black males, the median age at death due to cirrhosis increased 11 years while there was no increase among white males. The median age at death due to pneumonia and influenza increased 33 years for black males and only 10 years for white males. Similarly, for females, it increased 40.5 years among blacks and 11 years among whites (Table 5).

Table 5. Increase in median age at death by race and sex for selected causes New Jersey residents, 1970 and 2000				
<i>Cause of death</i>	<i>White</i>		<i>Black</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
Pneumonia/influenza*	10	11	33	40.5
Unintentional injuries	4	15	10	16
Cirrhosis	0	13	11	**
*Pneumonia/influenza figure for black females is based on 1971 and 2000 data.				
** Fewer than 100 deaths per year.				

Discussion

Median age at death is increasing for whites, blacks, and both sexes. Throughout the 30-year period studied, median age at death for females remained above that of males. Additionally, females are making slightly greater strides than males, widening the gap by one year. Though the median age at death among blacks remains lower than that of whites, the gap is narrowing. Median age at death is increasing for all major disease-related causes of death, but the same cannot be said of external causes of death (injuries, homicides, and suicides). New vaccines and treatment improvements have caused major increases in median age at death for certain causes, such as pneumonia/influenza and kidney disease, while other causes of death have experienced more moderate gains. For some causes of death, such as cirrhosis and COPD, the median age at death for females increased much more than for males. Similarly, for particular causes, such as pneumonia/influenza and cirrhosis, the black median age at death increased much more than that of whites. While all of these improvements are encouraging, more needs to be done to narrow the gap between whites and blacks. Also, more must be done to prevent unintentional injuries, as well as homicides and suicides, which affect a disproportionate amount of younger persons.

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