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Breast Cancer Mortality in Illinois Females, 1986 to 1998

Breast cancer is the second leading cause of cancer death next to lung and bronchus among women in the United States. The 1990s saw the first decrease in mortality rates; this decrease is consistent with early detection through screening mammography. Routine mammography of women over age 40 reduces the chance of dying from breast cancer by 15 percent to 30 percent. Advances are also being made in chemoprevention: administration of tamoxifen to high-risk women has been found to decrease the risk of developing breast cancer, and studies of raloxifene are ongoing.

Table 1 shows the number of deaths that occurred in Illinois from 1986 to1998.

Table 1 **Number of Breast Cancer Deaths by Race and Ethnicity, Females, Illinois, 1986-1998**

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
All Women	2,119	2,103	2,107	2,171	2,166	2,289	2,180	2,174	2,173	2,140	2,123	2,071	2,001
Race													
White	1,840	1,823	1,840	1,894	1,875	1,981	1,903	1,829	1,831	1,807	1,797	1,703	1,687
Black	272	273	257	268	285	290	264	327	317	314	306	353	290
Asian/other	6	6	9	7	3	14	9	10	22	15	15	15	21
Ethnicity													
Hispanic	28	26	31	34	28	56	44	39	42	49	50	47	44
Non-Hispanic	2,091	2,077	2,076	2,137	2,138	2,233	2,136	2,135	2,131	2,091	2,073	2,024	1,957

Source: Illinois Department of Public Health, December 1999

The age-adjusted mortality rates of breast cancer among Illinois women are shown in Table 2. Breast cancer mortality declined from 29.9 deaths per 100,000 women in 1986 to 24.2 deaths per 100,000 women in 1998. An estimated annual percentage change (EAPC) was calculated to assess the trend. Illinois women experienced a statistically significant 1.5 percent decrease in breast cancer mortality annually (shown in the next to last column above). The change for women in the U.S. (shown in the last column above) was a 1.4 percent decrease per year, which was also statistically significant ($p<0.05$).

White women in Illinois had a 1.8 percent per year decrease in breast cancer mortality and white women in the U.S. had a 1.6 percent annual decrease. Both were statistically significant ($p<0.05$).

Similar to the national pattern, black women in Illinois experience higher breast cancer mortality rates than white and Asian/other women. In addition, the mortality rate among black women in Illinois did not decrease significantly over the time period. Black women in the U.S. had a non-significant 0.3 percent increase per year.

Mortality rates were not calculated for Asian/other women from 1986-1993 due to the low case counts. Therefore, an EAPC was also omitted. In the U.S., Asian/other women experienced a 0.5 percent increase in breast cancer mortality annually. This was not statistically significant.

Hispanic women in Illinois had a 0.2 percent annual decrease in the rate of breast cancer mortality, which was not statistically significant, while non-Hispanic women in Illinois had a statistically significant 1.5 percent decrease per year ($p<0.05$). U.S. mortality rates were not available for Hispanic and non-Hispanic women to compare with Illinois rates at the time of analysis.

Table 2 Invasive Breast Cancer Age-adjusted Mortality Rates* and Estimated Annual Percentage Change^ (EAPC), Females, Illinois, 1986-1998, and U.S. Mortality^^ EAPC, by Race and Ethnicity

														EAPC	
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Illinois	U.S.
All Women	29.9	29.4	29.2	29.9	29.5	30.8	28.7	28.0	27.7	27.1	26.4	26.0	24.2	-1.5**	-1.4**
Race															
White	29.5	28.8	29.1	29.8	29.1	30.5	28.7	27.0	26.9	26.3	25.7	24.6	23.6	-1.8**	-1.6**
Black	35.2	35.0	32.1	32.7	34.8	34.3	30.7	36.5	35.4	34.6	32.5	37.5	30.2	-0.2	+0.3
Asian/other	^	^	^	^	^	^	^	^	12.1	8.9	8.0	7.2	10.4	^	+0.5
Ethnicity															
Hispanic	14.5	10.6	13.4	14.6	12.2	22.3	15.2	13.0	13.4	16.1	15.6	12.5	10.8	-0.2	n/a
Non-Hispanic	30.4	29.9	29.7	30.4	30.1	31.1	29.1	28.5	28.3	27.7	26.9	26.7	24.9	-1.5**	n/a

Sources: Illinois Department of Public Health, December 1999; National Center for Health Statistics, January 2000

*Rates are per 100,000 and are age-adjusted to the 1970 U.S. standard population.

^Estimated annual percentage change (EAPC) was determined by fitting a regression line to the natural logarithm of the rates using calendar year as a regression variable, i.e., $y= mx + b$ where $y= \ln(\text{rate})$ and x = calendar year. The EAPC was calculated as $100*(e^m - 1)$. The null hypothesis stated that the slope of the line in the above equation was equal to zero or that the rate was not changing.

^^These data were obtained from the National Center for Health Statistics; data were available from 1986 to 1997 at the time of analysis.

** These rate changes were statistically significant at $p<0.05$.

^Rates based on fewer than 15 cases were not calculated due to instability of the results.

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