



EPI Updates

Illinois Department of Public Health, Division of Epidemiologic Studies
Spring 2000

Jennifer V. Campbell, M.S.P.H., and Tiefu Shen, M.D., Ph.D

Cervical Cancer Mortality in Illinois, 1986 to 1998

The Pap smear has had a profound effect on reducing cervical cancer incidence and mortality in the decades since its introduction. Precancerous lesions and early cancers, which can be detected with the Pap smear, are nearly 100 percent curable. Thus, cervical cancer mortality could be eliminated almost entirely through appropriate screening and treatment. Although the mortality rate in Illinois mirrors the decreasing U.S. rate, further progress is needed to prevent the more than 200 cervical cancer deaths that occur each year in the state.

Table 1 shows the number of deaths attributable to cervical cancer in Illinois women.

Table 1 Number of Cervical 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	239	222	227	222	207	242	218	227	206	204	203	230	210
Race													
White	174	163	160	150	154	154	137	148	143	130	140	166	150
Black	64	56	65	71	51	83	77	73	63	72	57	60	55
Asian/other	1	2	2	1	2	4	3	3	0	2	5	4	5
Ethnicity													
Hispanic	4	8	14	10	12	13	5	11	13	8	10	19	19
Non-Hispanic	235	214	213	212	195	229	213	216	193	196	193	211	191

Source: Illinois Department of Public Health, December 1999

Table 2 shows that the rate of cervical cancer mortality decreased from 3.4 deaths per 100,000 women in 1986 to 2.7 deaths per 100,000 women in 1998. An estimated annual percentage change (EAPC) was calculated to assess the

trend. For all women in Illinois, the rate of mortality from cervical cancer decreased 1.8 percent per year (shown in the next to last column above), while U.S. mortality (last column) decreased 1.4 percent per year. Both decreases were statistically significant ($p < 0.05$).

In Illinois, white women experienced a statistically significant decrease in mortality of 1.6 percent per year ($p < 0.05$). White women in the U.S. had a 1.1 percent annual decline, which was also statistically significant ($p < 0.05$).

A 2.3 percent annual decrease was found for black women in Illinois. This change was not statistically significant. A statistically significant 3.0 percent annual decline in mortality occurred among U.S. black women ($p < 0.05$).

Annual mortality rates and an EAPC were not calculated for Asian/other women in Illinois due to the low annual case count and subsequent instability of the rates. In the U.S., Asian/other women experienced a decrease of 1.9 percent per year, which was statistically significant ($p < 0.05$).

Rates of mortality and an EAPC were not calculated for Hispanic women due to the low case count from 1986-1996. Non-Hispanic women in Illinois had a 2.0 percent annual decrease in cervical cancer mortality from 1986 to 1998. This was statistically significant ($p < 0.05$). 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 Cervical Cancer Age-adjusted Mortality Rates* and Estimated Annual Percentage Change[^] (EAPC), Females, Illinois, 1986-1998, and U.S. Mortality^{^^} EAPC, by Race and Ethnicity

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	EAPC	
														Illinois	U.S.
All Women	3.4	3.3	3.3	3.3	3.0	3.4	3.0	3.1	2.8	2.7	2.7	3.0	2.7	-1.8**	-1.4**
Race															
White	2.8	2.7	2.7	2.6	2.6	2.5	2.2	2.4	2.4	2.0	2.3	2.6	2.3	-1.6**	-1.1**
Black	7.9	7.0	7.7	8.4	6.0	9.0	8.7	7.7	6.6	7.8	5.8	6.0	5.5	-2.3	-3.0**
Asian/other	^	^	^	^	^	^	^	^	^	^	^	^	^	^	-1.9**
Ethnicity															
Hispanic	^	^	^	^	^	^	^	^	^	^	^	4.4	4.2	^	n/a
Non-Hispanic	3.5	3.3	3.2	3.3	2.9	3.4	3.0	3.1	2.8	2.7	2.8	2.9	2.6	-2.0**	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 $x = \text{calendar year}$. 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 data were found to be statistically significant at $p < 0.05$.

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