

Cancer in Northeastern Pennsylvania: Incidence and Mortality of Common Cancers

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*“Easing the burden of cancer in
Northeastern Pennsylvania”*



Dear Community Members,

The Northeast Regional Cancer Institute, a community-based nonprofit organization, is pleased to present this report on cancer incidence and mortality in Northeastern Pennsylvania. For more than 20 years, the Cancer Institute has worked to ease the burden of cancer by focusing on the areas of community & patient services and survivorship. The Cancer Institute invests 100% of its resources in this region.

The Cancer Surveillance Program at the Cancer Institute compiled this report using data from the organization's Regional Cancer Registry and the Bureau of Health Statistics and Research of the Pennsylvania Department of Health. Characterized in this report are cancer incidence and mortality in Northeastern Pennsylvania relative to the United States for the 23 most common cancer sites. For the purpose of this report, Northeastern Pennsylvania is made up of six counties including Lackawanna, Luzerne, Pike, Susquehanna, Wayne and Wyoming.

The Northeast Regional Cancer Institute uses the local cancer surveillance data it generates to focus the organization's community and patient services so that they may have the greatest possible impact. Similarly, we hope that the information contained in this report is helpful to you in your efforts against cancer.

Sincerely,

A handwritten signature in black ink that reads "Samuel M. Lesko". The signature is written in a cursive style with a large, stylized initial 'S'.

*Samuel Lesko, MD, MPH
Medical Director*

Table 1. Standardized incidence ratios by primary cancer site and sex, Northeastern Pennsylvania[†], 2007-2011

Primary site	Cases No.	SIR [†]		
		Both Sexes	Men	Women
All sites	23,511	107*	105*	110*
Brain	327	118*	113	125*
Breast, female	2,959	-	-	94*
Bronchus & lung	3,389	118*	131*	105
Colon & rectum	2,375	115*	114*	115*
Esophagus	313	140*	146*	119
Hodgkin's lymphoma	135	125*	118	133*
Kidney & renal pelvis	723	101	103	98
Larynx	223	150*	134*	214*
Leukemia	647	105	102	110
Liver/intra-hepatic bile duct	286	75*	74*	79*
Melanoma of the skin	776	77*	73*	81*
Multiple myeloma	279	90	103	75*
Non-Hodgkin's Lymphoma	938	98	100	95
Oral cavity & pharynx	601	117*	123*	104
Ovary	352	-	-	109
Pancreas	655	105	108	102
Prostate	2,667	-	78*	-
Stomach	354	102	108	92
Testis	124	-	127*	-
Thyroid	862	161*	135*	170*
Urinary bladder	1,234	121*	117*	131*
Uterine cervix	177	-	-	132*
Uterine corpus	893	-	-	132*

[†] Limited to Lackawanna, Luzerne, Pike, Susquehanna, Wayne and Wyoming counties.
[†] Standardized incidence ratio = observed / expected cases X 100.
* Significantly different from 100, p < 0.05.

Table 1 Summary

The five most commonly diagnosed cancer sites in northeast Pennsylvania were (starting with the most common): bronchus and lung, breast, prostate, colon and rectum, and urinary bladder.

Incidence was significantly elevated in northeast Pennsylvania for all sites combined and for 12 specific cancer sites: brain, bronchus and lung, colon and rectum, esophagus, Hodgkin's disease, larynx, oral cavity and pharynx, testis, thyroid, urinary bladder, uterine cervix, and uterine corpus.

Reported incidence was significantly lower in northeast Pennsylvania than the US rate for five sites for both sexes combined (unless otherwise noted): breast (women), liver and intra-hepatic bile duct, melanoma of the skin, myeloma (women) and prostate. Note, previous analyses suggest that cancers of the breast, prostate, skin, lymph node, and blood (e.g., leukemia) may be under reported. Caution should be used when interpreting incidence rates for these sites.

Table 2. Standardized mortality ratios by primary cancer site and sex, Northeastern Pennsylvania[¶], 2007-2011

Primary site	Deaths No.	SMR [†]		
		Both Sexes	Men	Women
All sites	8,961	105*	108*	102
Brain	189	96	99	93
Breast, female	570	-	-	93
Bronchus & lung	2,333	98	103	92*
Colon & rectum	895	112*	118*	106
Esophagus	278	135*	142*	111
Hodgkin's lymphoma	20	111	90	138
Kidney & renal pelvis	200	103	99	108
Larynx	71	127	123	142
Leukemia	367	108	107	108
Liver/intra-hepatic bile duct	231	82*	82*	82*
Melanoma of the skin	149	116	120	107
Multiple myeloma	152	90	95	85
Non-Hodgkin's Lymphoma	327	105	106	103
Oral cavity & pharynx	136	114	116	110
Ovary	220	-	-	100
Pancreas	567	104	105	103
Prostate	419	-	97	-
Stomach	186	110	108	113
Testis	8	-	267	-
Thyroid	16	59*	45*	69
Urinary bladder	234	104	107	100
Uterine cervix	55	-	-	104
Uterine corpus	156	-	-	125*

[¶] Limited to Lackawanna, Luzerne, Pike, Susquehanna, Wayne and Wyoming counties.

[†] Standardized mortality ratio = observed / expected deaths X 100.

* Significantly different from 100, p < 0.05.

Table 2 Summary

The five cancer sites resulting in the highest number of cancer deaths in northeast Pennsylvania were (starting with the most common): bronchus and lung, colon and rectum, breast (women), pancreas, and prostate.

Cancer mortality was significantly higher in northeast Pennsylvania than in the US for all sites combined and for three specific sites: colon & rectum, esophagus, and uterine corpus.

Mortality in northeast Pennsylvania was significantly lower than the US rate for three sites: bronchus & lung (women), liver/intra-hepatic bile duct, and thyroid.

Table 3. Standardized incidence and mortality ratios by primary cancer site, both sexes, Northeastern Pennsylvania[†], 2007-2011

Primary site	Cases No.	SIR (95% CI*)	Deaths No.	SMR (95% CI*)
All sites	23,511	107 (105.7, 108.4)	8,961	105 (102.6, 107.0)
Brain	327	118 (105.6, 131.3)	189	96 (82.7, 110.2)
Breast, female	2,959	94 (90.5, 97.3)	570	93 (85.8, 101.1)
Bronchus & lung	3,389	118 (113.9, 121.9)	2,333	98 (94.1, 102.0)
Colon & rectum	2,375	115 (110.1, 119.4)	895	112 (104.8, 119.5)
Esophagus	313	140 (124.8, 155.9)	278	135 (119.1, 150.8)
Hodgkin's lymphoma	135	125 (103.9, 146.1)	20	111 (62.4, 159.8)
Kidney & renal pelvis	723	101 (94.0, 108.8)	200	103 (88.4, 116.8)
Larynx	223	150 (130.0, 169.3)	71	127 (97.3, 156.3)
Leukemia	647	105 (97.1, 113.3)	367	108 (96.6, 118.6)
Liver/intra-hepatic bile duct	286	75 (66.4, 83.8)	231	82 (71.4, 92.5)
Melanoma of the skin	776	77 (71.4, 82.2)	149	116 (97.0, 134.1)
Multiple myeloma	279	90 (79.7, 100.9)	152	90 (76.1, 104.9)
Non-Hodgkin's lymphoma	938	98 (91.4, 103.9)	327	105 (93.5, 116.2)
Oral cavity & pharynx	601	117 (107.8, 126.5)	136	114 (95.1, 133.5)
Ovary	352	109 (97.6, 120.4)	220	100(86.4, 112.7)
Pancreas	655	105 (96.8, 112.8)	567	104 (95.7, 112.8)
Prostate	2,667	78 (75.3, 81.3)	419	97 (87.7, 106.3)
Stomach	354	102 (91.1, 112.3)	186	110 (94.2, 125.9)
Testis	124	127 (104.3, 148.8)	8	267 (81.9, 451.5)
Thyroid	862	161 (150.7, 172.2)	16	59 (30.2, 88.3)
Urinary bladder	1,234	121 (114.1, 127.6)	234	104 (91.1, 117.9)
Uterine cervix	177	132 (112.6, 151.6)	55	104 (76.4, 131.2)
Uterine corpus	893	132 (123.4, 140.8)	156	125 (105.2, 144.4)

[†] Limited to Lackawanna, Luzerne, Pike, Susquehanna, Wayne and Wyoming counties.

* Confidence interval.

Figures in **bold font** are significantly different from 100.

Table 3 Summary

Cancer incidence and mortality were significantly elevated in northeast Pennsylvania for all sites combined and at three specific sites: colon and rectum, esophagus, and uterine corpus.

Some notable disparities between incidence and mortality include: incidence was significantly depressed but mortality was not significantly different from U.S. rates for breast (women), melanoma, and prostate, and incidence was significantly elevated but mortality was not for cancers of the brain, bronchus and lung, Hodgkin's lymphoma, larynx, oral cavity and pharynx, testis, urinary bladder, and uterine cervix. However, for several sites (Hodgkin's lymphoma, larynx, oral cavity and pharynx, testis) the number of deaths was small limiting the ability of these data to detect significant elevations in mortality for these sites.

Confidence Interval

The standardized incidence and mortality ratios described in this report are point estimates of cancer incidence and mortality in Northeastern Pennsylvania compared to the United States. Although these are the best estimates of cancer experience in Northeastern Pennsylvania, it is important to recognize the potential for uncertainty in these estimates due to random or sampling error or variability. The size of the uncertainty in these ratios is reflected in confidence interval. The 95% confidence interval is the range of values that will include the true ratio 95% of the time. Compared to narrow confidence intervals, wider confidence intervals reflect greater uncertainty in value of the true ratio.

Primary Site

The cancer cases in this report were examined by primary site. The primary site is the tissue or organ where the cancer was shown to originate as evidenced by microscopic examination of tissue, radiologic examination (x-ray, CT scan, or MRI), endoscopy (e.g., colonoscopy), or clinical examination.

Standardized Incidence and Mortality Ratios

The incidence ratios in this report (Tables 1 & 3) are the calculated best estimates of the incidence of each cancer in Northeastern Pennsylvania relative to the corresponding incidence in the United States and take the age and racial make-up of the population into account. Similarly, mortality ratios (shown in Tables 2 & 3) compare cancer mortality rates in NEPA to the United States mortality. These ratios are calculated by dividing the number of cancer cases (or deaths) that actually occurred in Northeastern Pennsylvania by the number of cases (or deaths) expected if Northeastern Pennsylvania had exactly the same cancer risk (or mortality) as the United States. The ratios shown in Tables 1-3 are expressed as a percentage of the corresponding United States rate. For example, the standardized incidence ratio (SIR) for colon and rectal cancer, shown in Table 1, was 115. This means that the incidence of cancers of the colon and rectum in Northeastern Pennsylvania was 15% higher than the same figure for the United States.

This report uses data provided by the Bureau of Health Statistics and Research, Pennsylvania Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.



The Northeast Regional Cancer Institute is a nonprofit community-based agency serving 7 counties in northeast Pennsylvania with offices located in Scranton and Wilkes-Barre. Focusing on surveillance, community and patient services, and hospital and practice support services, the Cancer Institute invests 100% of its resources locally.

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