

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 nearly 25 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, flowing style.

*Samuel Lesko, MD, MPH
Medical Director*

Table 1. Standardized incidence ratios by primary cancer site and sex, Northeastern Pennsylvania[†], 2008-2012

Primary site	Cases No.	SIR [†]		
		Both Sexes	Men	Women
All sites	23,520	107*	105*	109*
Brain	321	114*	109	120*
Breast, female	2,989	-	-	94*
Bronchus & lung	3,413	120*	132*	106*
Colon & rectum	2,337	116*	116*	115*
Esophagus	301	135*	142*	111
Hodgkin's lymphoma	118	112	110	115
Kidney & renal pelvis	727	100	100	101
Larynx	206	137*	123*	200*
Leukemia	646	101	97	106
Liver/intra-hepatic bile duct	311	77*	75*	82*
Melanoma of the skin	797	77*	76*	77*
Multiple myeloma	291	90	103	74*
Non-Hodgkin's Lymphoma	966	100	102	98
Oral cavity & pharynx	612	116*	121*	106
Ovary	351	-	-	110
Pancreas	656	102	106	98
Prostate	2,572	-	79*	-
Stomach	349	100	110	85
Testis	122	-	124*	-
Thyroid	868	155*	137*	162*
Urinary bladder	1,252	121*	121*	120*
Uterine cervix	175	-	-	132*
Uterine corpus	898	-	-	129*

[†] 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 11 specific cancer sites: brain, bronchus and lung, colon and rectum, esophagus, 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[†], 2008-2012

Primary site	Deaths No.	SMR [†]		
		Both Sexes	Men	Women
All sites	8,948	104*	107*	102
Brain	192	96	95	98
Breast, female	569	-	-	94
Bronchus & lung	2,377	101	107*	94*
Colon & rectum	853	108*	109	108
Esophagus	285	137*	143*	115
Hodgkin's lymphoma	19	112	90	143
Kidney & renal pelvis	203	103	103	103
Larynx	71	127	116	167
Leukemia	366	106	102	112
Liver/intra-hepatic bile duct	241	80*	77*	87
Melanoma of the skin	154	118	118	119
Multiple myeloma	146	86*	91	80*
Non-Hodgkin's Lymphoma	338	109	112	105
Oral cavity & pharynx	148	121*	123	118
Ovary	211	-	-	97
Pancreas	575	103	105	101
Prostate	409	-	96	-
Stomach	166	99	101	97
Testis	8	-	267	-
Thyroid	22	81	55*	100
Urinary bladder	225	98	101	92
Uterine cervix	54	-	-	102
Uterine corpus	134	-	-	107

[†] 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, pancreas, breast (women), and prostate.

Cancer mortality was significantly higher in northeast Pennsylvania than in the US for all sites combined and for four specific sites: bronchus & lung (men), colon & rectum, esophagus, and oral cavity & pharynx.

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

Table 3. Standardized incidence and mortality ratios by primary cancer site, both sexes, Northeastern Pennsylvania[†], 2008-2012

Primary site	Cases No.	SIR (95% CI*)	Deaths No.	SMR (95% CI*)
All sites	23,520	107 (105.6, 108.3)	8,948	104 (102.2, 106.5)
Brain	321	114 (101.4, 126.3)	192	96 (82.8, 110.1)
Breast, female	2,989	94 (90.3, 97.1)	569	94 (86.2, 101.6)
Bronchus & lung	3,413	120 (115.6, 123.6)	2,377	101 (96.7, 104.8)
Colon & rectum	2,337	116 (110.9, 120.3)	853	108 (100.9, 115.4)
Esophagus	301	135 (119.7, 150.2)	285	137 (121.1, 152.9)
Hodgkin's lymphoma	118	112 (92.1, 132.7)	19	112 (61.5, 162.0)
Kidney & renal pelvis	727	100 (93.1, 107.7)	203	103 (88.9, 117.2)
Larynx	206	137 (118.6, 156.1)	71	127 (97.3, 156.3)
Leukemia	646	101 (93.3, 108.9)	366	106 (95.5, 117.3)
Liver/intra-hepatic bile duct	311	77 (68.3, 85.3)	241	80 (70.2, 90.5)
Melanoma of the skin	797	77 (71.3, 81.9)	154	118 (99.8, 137.2)
Multiple myeloma	291	90 (79.7, 100.4)	146	86 (72.0, 99.8)
Non-Hodgkin's lymphoma	966	100 (93.7, 106.3)	338	109 (97.1, 120.3)
Oral cavity & pharynx	612	116 (107.1, 125.6)	148	121 (101.8, 140.9)
Ovary	351	110 (98.2, 121.2)	211	97 (83.7, 109.9)
Pancreas	656	102 (94.1, 109.7)	575	103 (94.8, 111.7)
Prostate	2,572	79 (76.4, 82.5)	409	96 (86.3, 104.8)
Stomach	349	100 (89.3, 110.2)	166	99 (84.3, 114.5)
Testis	122	124 (102.4, 146.6)	8	267 (81.9, 451.5)
Thyroid	868	155 (145.0, 165.6)	22	81 (47.4, 115.5)
Urinary bladder	1,252	121 (114.4, 127.8)	225	98 (85.0, 110.6)
Uterine cervix	175	132 (112.1, 151.1)	54	102 (74.7, 129.1)
Uterine corpus	898	129 (120.9, 137.9)	134	107 (89.1, 125.4)

[†] 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 oral cavity & pharynx.

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, larynx, testis, thyroid, urinary bladder, uterine cervix and uterine corpus. However, for several sites (larynx, oral cavity and pharynx, testis, thyroid, uterine cervix) 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.

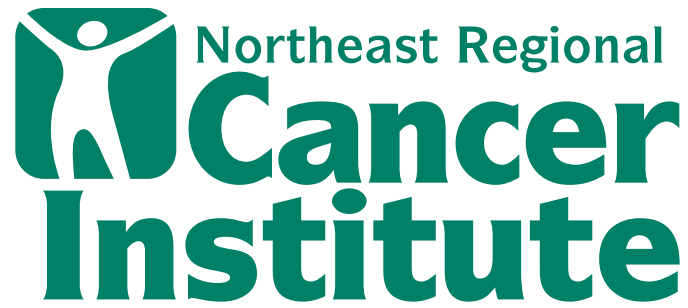
Primary Site

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.

Partner Organizations

Geisinger Community Medical Center
Geisinger Wyoming Valley Medical Center
Moses Taylor Hospital
Regional Hospital of Scranton
Tyler Memorial Hospital
Wayne Memorial Health System
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