

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 over 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 style with a large initial 'S'.

*Samuel Lesko, MD, MPH
Medical Director*

Table 1. Standardized incidence ratios by primary cancer site and sex, Northeastern Pennsylvania[†], 2011-2015

Primary site	Cases No.	SIR [†]		
		Both Sexes	Men	Women
All sites	22,847	105*	104*	106*
Brain	320	115*	106	126*
Breast, female	2,991	-	-	95*
Bronchus & lung	3,395	120*	126*	114*
Colon & rectum	2,185	110*	113*	108*
Esophagus	335	154*	161*	130
Hodgkin's lymphoma	124	131*	136*	124
Kidney & renal pelvis	743	96	97	94
Larynx	205	135*	124*	183*
Leukemia	632	98	95	101
Liver/intra-hepatic bile duct	395	85*	89*	75*
Melanoma of the skin	902	83*	80*	88*
Multiple myeloma	298	88*	96	78*
Non-Hodgkin's Lymphoma	964	102	103	100
Oral cavity & pharynx	674	119*	119*	119*
Ovary	316	-	-	107
Pancreas	688	104	108	100
Prostate	2,321	-	84*	-
Stomach	327	90*	100	74*
Testis	104	-	111	-
Thyroid	765	132*	115	138*
Urinary bladder	1,307	129*	128*	133*
Uterine cervix	182	-	-	124*
Uterine corpus	935	-	-	137*

[†] 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 (women), bronchus and lung, colon and rectum, esophagus, Hodgkin's lymphoma, larynx, oral cavity and pharynx, thyroid (women), urinary bladder, uterine cervix, and uterine corpus.

Reported incidence was significantly lower in northeast Pennsylvania than the US rate for six sites for both sexes combined (unless otherwise noted): breast (women), liver and intra-hepatic bile duct, melanoma of the skin, myeloma (women), prostate and stomach (women). 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[†], 2011-2015

Primary site	Deaths No.	SMR [†]		
		Both Sexes	Men	Women
All sites	9,043	107*	109*	105*
Brain	186	89	79*	100
Breast, female	609	-	-	104
Bronchus & lung	2,373	105*	113*	96
Colon & rectum	851	112*	110	114*
Esophagus	318	150*	156*	129
Hodgkin's lymphoma	14	82	70	100
Kidney & renal pelvis	173	86*	76*	104
Larynx	73	135*	123	182*
Leukemia	367	109	104	114
Liver/intra-hepatic bile duct	287	85*	84*	86
Melanoma of the skin	150	115	113	117
Multiple myeloma	153	86*	91	80*
Non-Hodgkin's Lymphoma	320	107	104	109
Oral cavity & pharynx	157	121*	125*	110
Ovary	222	-	-	108
Pancreas	608	106	109	103
Prostate	389	-	94	-
Stomach	136	84*	88	78*
Testis	9	-	300*	-
Thyroid	23	82	67	94
Urinary bladder	243	103	109	90
Uterine cervix	48	-	-	91
Uterine corpus	154	-	-	113

[†] 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 six specific sites: Bronchus & lung (men), colon & rectum, esophagus, larynx, oral cavity & pharynx and testis.

Mortality in northeast Pennsylvania was significantly lower than the US rate for five sites: brain (men), kidney (men), liver/intra-hepatic bile duct, multiple myeloma (women) and stomach (women).

Table 3. Standardized incidence and mortality ratios by primary cancer site, both sexes, Northeastern Pennsylvania[†], 2011-2015

Primary site	Cases No.	SIR (95% CI*)	Deaths No.	SMR (95% CI*)
All sites	22,847	105 (104.1, 106.8)	9,043	107 (104.4, 108.8)
Brain	320	115 (102.5, 127.7)	186	89 (75.8, 101.3)
Breast, female	2,991	95 (91.1, 97.9)	609	104 (95.5, 112.0)
Bronchus & lung	3,395	120 (116.2, 124.3)	2,373	105 (100.8, 109.3)
Colon & rectum	2,185	110 (105.8, 115.0)	851	112 (104.9, 120.0)
Esophagus	335	154 (137.2, 170.1)	318	150 (133.5, 166.5)
Hodgkin's lymphoma	124	131 (107.6, 153.5)	14	82 (39.2, 125.5)
Kidney & renal pelvis	743	96 (88.9, 102.6)	173	86 (73.2, 98.9)
Larynx	205	135 (116.4, 153.3)	73	135 (104.2, 166.2)
Leukemia	632	98 (90.1, 105.3)	367	109 (97.5, 119.7)
Liver/intra-hepatic bile duct	395	85 (76.7, 93.5)	287	85 (75.1, 94.7)
Melanoma of the skin	902	83 (77.7, 88.6)	150	115 (96.2, 132.8)
Multiple myeloma	298	88 (78.2, 98.2)	153	86 (72.3, 99.6)
Non-Hodgkin's lymphoma	964	102 (95.3, 108.1)	320	107 (95.0, 118.4)
Oral cavity & pharynx	674	119 (110.3, 128.3)	157	121 (101.9, 139.7)
Ovary	316	107 (95.3, 118.9)	222	108 (94.1, 122.5)
Pancreas	688	104 (96.5, 112.0)	608	106 (97.5, 114.3)
Prostate	2,321	84 (80.6, 87.4)	389	94 (84.8, 103.6)
Stomach	327	90 (79.9, 99.3)	136	84 (69.8, 98.1)
Testis	104	111 (89.4, 131.9)	9	300 (104.0, 496.0)
Thyroid	765	132 (123.0, 141.7)	23	82 (48.6, 115.7)
Urinary bladder	1,307	129 (122.2, 136.2)	243	103 (90.4, 116.4)
Uterine cervix	182	124 (105.8, 141.8)	48	91(64.9, 116.2)
Uterine corpus	935	137 (128.5, 146.1)	154	113 (95.4, 131.1)

[†] 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 five specific sites: Bronchus & lung, colon and rectum, esophagus, larynx 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, Hodgkin's lymphoma, thyroid, urinary bladder, uterine cervix and uterine corpus. However, for several sites (Hodgkin's lymphoma, 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.

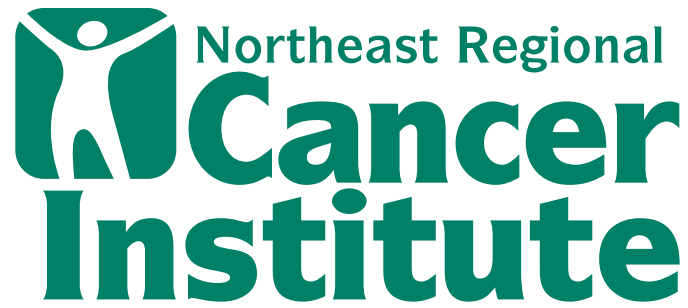
Primary Site

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 110. This means that the incidence of cancers of the colon and rectum in Northeastern Pennsylvania was 10% 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 seven 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.

Sponsoring Organizations

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