

Cancer in Northeastern Pennsylvania: Incidence and Mortality of Common Cancers

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The logo for the Northeast Regional Cancer Institute (NRCI) features the letters 'NRCI' in a bold, black, sans-serif font. A small green square is positioned at the top left of the letter 'N'.

Northeast Regional
Cancer Institute

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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 30 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, northeast Pennsylvania[†], 2015-2019

Primary site	Cases No.	SIR [†]		
		Both Sexes	Men	Women
All sites	23,823	105*	104*	106*
Brain	306	110	103	119
Breast, female	3,077	-	-	95*
Bronchus & lung	3,609	128*	125*	131*
Colon & rectum	2,187	114*	114*	115*
Esophagus	352	154*	162*	125
Hodgkin's lymphoma	117	122	124	119
Kidney & renal pelvis	850	98	99	96
Larynx	212	140*	134*	167*
Leukemia	664	98	96	100
Liver/intra-hepatic bile duct	452	88*	93	74*
Melanoma of the skin	965	91*	86*	100
Multiple myeloma	325	86*	83*	90
Non-Hodgkin's Lymphoma	972	101	101	102
Oral cavity & pharynx	720	121*	120*	123*
Ovary	265	-	-	98
Pancreas	802	112*	117*	107
Prostate	2,571	-	87*	-
Stomach	333	91	98	82*
Testis	114	-	120	-
Thyroid	691	121*	116	123*
Urinary bladder	1,374	136*	136*	136*
Uterine cervix	196	-	-	129*
Uterine corpus	947	-	-	128*

[†] 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, female breast, prostate, colon and rectum, and urinary bladder.

Incidence was significantly elevated in northeast Pennsylvania for all sites combined and for 10 specific cancer sites: bronchus and lung, colon and rectum, esophagus, larynx, oral cavity and pharynx, pancreas (men), 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, multiple myeloma, 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, northeast Pennsylvania[†], 2015-2019

Primary site	Deaths No.	SMR [†]		
		Both Sexes	Men	Women
All sites	8,874	108*	109*	108*
Brain	214	97	98	96
Breast, female	619	-	-	110*
Bronchus & lung	2,266	113*	116*	109*
Colon & rectum	805	113*	111*	114*
Esophagus	314	148*	154*	123
Hodgkin's lymphoma	10	77	88	60
Kidney & renal pelvis	182	95	98	88
Larynx	50	96	90	118
Leukemia	357	111	109	114
Liver/intra-hepatic bile duct	295	80*	85*	71*
Melanoma of the skin	141	125*	122	131
Multiple myeloma	160	92	94	91
Non-Hodgkin's Lymphoma	296	105	105	104
Oral cavity & pharynx	155	113	111	117
Ovary	195	-	-	104
Pancreas	656	108	109	107
Prostate	395	-	93	-
Stomach	158	104	98	113
Testis	5	-	167	-
Thyroid	23	82	58	100
Urinary bladder	278	119*	124*	109
Uterine cervix	51	-	-	120
Uterine corpus	182	-	-	123*

[†] 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, female breast and prostate.

Cancer mortality was significantly higher in northeast Pennsylvania than in the US for all sites combined and for seven specific sites: Female breast, bronchus & lung, colon & rectum, esophagus, melanoma, urinary bladder, and uterine corpus.

Mortality in northeast Pennsylvania was significantly lower than the US rate for cancer of the liver/intra-hepatic bile duct.

Table 3. Standardized incidence and mortality ratios by primary cancer site, both sexes, northeast Pennsylvania¹, 2015-2019

Primary site	Cases No.	SIR (95% CI*)	Deaths No.	SMR (95% CI*)
All sites	23,823	105 (103.9, 106.6)	8,874	108 (106.2, 110.7)
Brain	306	110 (97.4, 122.0)	214	97 (84.2, 110.3)
Breast, female	3,077	95 (91.8, 98.5)	619	110 (100.9, 118.2)
Bronchus & lung	3,609	128 (123.6, 132.0)	2,266	113 (108.2, 117.5)
Colon & rectum	2,187	114 (109.5, 119.1)	805	113 (104.8, 120.4)
Esophagus	352	154 (137.7, 169.8)	314	148 (131.7, 164.5)
Hodgkin's lymphoma	117	122 (99.8, 144.0)	10	77 (29.3, 124.6)
Kidney & renal pelvis	850	98 (91.1, 104.3)	182	95 (81.0, 108.6)
Larynx	212	140 (121.5, 159.3)	50	96 (69.5, 122.8)
Leukemia	664	98 (90.2, 105.1)	357	111 (99.7, 122.8)
Liver/intra-hepatic bile duct	452	88 (79.5, 95.7)	295	80 (71.2, 89.6)
Melanoma of the skin	965	91 (85.7, 97.2)	141	125 (104.2, 145.4)
Multiple myeloma	325	86 (76.6, 95.3)	160	92 (78.2, 106.8)
Non-Hodgkin's lymphoma	972	101 (95.1, 107.8)	296	105 (92.7, 116.5)
Oral cavity & pharynx	720	121 (112.0, 129.6)	155	113 (95.3, 131.0)
Ovary	265	98 (86.0, 109.6)	195	104 (89.6, 118.9)
Pancreas	802	112 (104.1, 119.6)	656	108 (99.8, 116.3)
Prostate	2,571	87 (84.0, 90.8)	395	93 (83.8, 102.1)
Stomach	333	91 (81.7, 101.3)	158	104 (87.7, 120.2)
Testis	114	120 (98.0, 142.0)	5	167 (20.6, 312.8)
Thyroid	691	121 (111.6, 129.6)	23	82 (48.6, 115.7)
Urinary bladder	1,374	136 (128.5, 142.8)	278	119 (105.3, 133.3)
Uterine cervix	196	129 (110.9, 147.0)	51	120 (89.6, 149.6)
Uterine corpus	947	128 (120.0, 136.3)	182	123 (105.1, 140.8)

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, urinary bladder 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 multiple myeloma and prostate. Incidence was significantly depressed and mortality was significantly elevated for female breast and melanoma of the skin, and incidence was significantly elevated but mortality was not for, larynx, oral cavity and pharynx, pancreas, thyroid, and uterine cervix. However, for two of these sites (larynx and uterine cervix) the number of deaths was small and the confidence intervals did not rule out the possibility of a meaningful elevation in mortality for these sites. Also, incidence and mortality were significantly lower than the US rate for cancer of the liver/intra-hepatic bile duct.

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 112. This means that the incidence of cancers of the colon and rectum in Northeastern Pennsylvania was 12% 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.



Northeast Regional
Cancer Institute

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.

Participating Health Organizations

Allied Services

Moses Taylor Hospital

Regional Hospital of Scranton

Wayne Memorial Health System

Wilkes-Barre General Hospital

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