

Cancer in Northeastern Pennsylvania: Incidence and Mortality of Common Cancers

Karen Ryczak, RN
Surveillance Coordinator

Samuel M. Lesko, MD, MPH
Medical Director

Northeast Regional Cancer Institute
Scranton, PA 18510
570-941-7984
karen.ryczak@scranton.edu

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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 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[†], 2012-2016

Primary site	Cases No.	SIR [†]		
		Both Sexes	Men	Women
All sites	23,054	105*	104*	106*
Brain	311	111	108	116
Breast, female	3,047	-	-	95*
Bronchus & lung	3,424	119*	126*	112*
Colon & rectum	2,166	112*	113*	111*
Esophagus	350	155*	163*	127
Hodgkin's lymphoma	121	122*	129	114
Kidney & renal pelvis	758	96	97	94
Larynx	189	123*	119	140
Leukemia	649	98	96	100
Liver/intra-hepatic bile duct	417	89*	92	81*
Melanoma of the skin	938	88*	85*	92
Multiple myeloma	326	92	97	85*
Non-Hodgkin's Lymphoma	946	98	96	100
Oral cavity & pharynx	687	120*	118*	125*
Ovary	310	-	-	107
Pancreas	690	101	104	99
Prostate	2,331	-	85*	-
Stomach	316	85*	88	79*
Testis	116	-	122	-
Thyroid	723	116*	99	122*
Urinary bladder	1,355	129*	129*	127*
Uterine cervix	194	-	-	133*
Uterine corpus	944	-	-	130*

[†] 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 10 specific cancer sites: 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. 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[†], 2012-2016

Primary site	Deaths No.	SMR [†]		
		Both Sexes	Men	Women
All sites	9,043	108*	109*	106*
Brain	198	92	86	99
Breast, female	606	-	-	105
Bronchus & lung	2,334	106*	113*	97
Colon & rectum	842	113*	109	118*
Esophagus	319	151*	158*	125
Hodgkin's lymphoma	11	79	67	100
Kidney & renal pelvis	175	88	87	92
Larynx	64	119	112	145
Leukemia	377	113*	107	120*
Liver/intra-hepatic bile duct	290	84*	86*	78*
Melanoma of the skin	151	119	126*	107
Multiple myeloma	162	92	97	86
Non-Hodgkin's Lymphoma	315	107	109	104
Oral cavity & pharynx	169	128*	130*	123
Ovary	227	-	-	113
Pancreas	615	106	106	105
Prostate	403	-	98	-
Stomach	139	87	87	88
Testis	10	-	333*	-
Thyroid	24	86	67	100
Urinary bladder	254	109	112	100
Uterine cervix	48	-	-	91
Uterine corpus	166	-	-	119*

[†] 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 eight specific sites: Bronchus & lung (men), colon & rectum, esophagus, leukemia, melanoma (men), oral cavity & pharynx, testis 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, Northeastern Pennsylvania[†], 2012-2016

Primary site	Cases No.	SIR (95% CI*)	Deaths No.	SMR (95% CI*)
All sites	23,054	105 (103.8, 106.5)	9,043	108 (105.4, 109.8)
Brain	311	111 (99.1, 123.9)	198	92 (78.9, 104.4)
Breast, female	3,047	95 (92.0, 98.7)	606	105 (96.3, 113.0)
Bronchus & lung	3,424	119 (115.4, 123.4)	2,334	106 (101.6, 110.1)
Colon & rectum	2,166	112 (107.1, 116.5)	842	113 (105.5, 120.8)
Esophagus	350	155 (138.6, 171.1)	319	151 (134.6, 167.8)
Hodgkin's lymphoma	121	122 (100.4, 144.0)	11	79 (32.1, 125.0)
Kidney & renal pelvis	758	96 (88.9, 102.5)	175	88 (75.3, 101.5)
Larynx	189	123 (105.2, 140.2)	64	119 (89.5, 147.6)
Leukemia	649	98 (90.1, 105.1)	377	113 (101.2, 123.9)
Liver/intra-hepatic bile duct	417	89 (80.0, 97.0)	290	84 (74.0, 93.2)
Melanoma of the skin	938	88 (82.4, 93.7)	151	119 (99.9, 137.9)
Multiple myeloma	326	92 (81.6, 101.5)	162	92 (77.4, 105.6)
Non-Hodgkin's lymphoma	946	98 (91.8, 104.3)	315	107 (95.3, 119.0)
Oral cavity & pharynx	687	120 (111.3, 129.3)	169	128 (108.7, 147.3)
Ovary	310	107 (94.7, 118.4)	227	113 (98.2, 127.6)
Pancreas	690	101 (93.9, 109.0)	615	106 (97.3, 114.0)
Prostate	2,331	85 (81.9, 88.8)	403	98 (88.1, 107.1)
Stomach	316	85 (75.4, 94.1)	139	87 (72.9, 102.0)
Testis	116	122 (99.9, 144.3)	10	333 (126.7, 539.9)
Thyroid	723	116 (107.6, 124.5)	24	86 (51.4, 120.0)
Urinary bladder	1,355	129 (121.7, 135.4)	254	109 (95.2, 121.9)
Uterine cervix	194	133 (114.2, 151.6)	48	91(64.9, 116.2)
Uterine corpus	944	130 (121.7, 138.3)	166	119 (101.3, 137.6)

[†] 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, oral cavity & pharynx 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, prostate, and stomach? and incidence was significantly elevated but mortality was not for Hodgkin's lymphoma, larynx, thyroid, urinary bladder, and uterine cervix. 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 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.



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.

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Moses Taylor Hospital

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