

Erie County Cancer Incidence and Mortality, 2008-2010

Epidemiology

ERIE COUNTY DEPARTMENT OF HEALTH
Public Health Preparedness Division



Erie County Cancer Incidence and Mortality, 2008-2010

April, 2013

Erie County Department of Health
606 West Second Street
Erie, PA 16507
Tel: (814) 451-6700
Fax: (814) 451-6767
Website: <http://www.ecdh.org>

Compiled by: Jeff Quirk, Epidemiologist

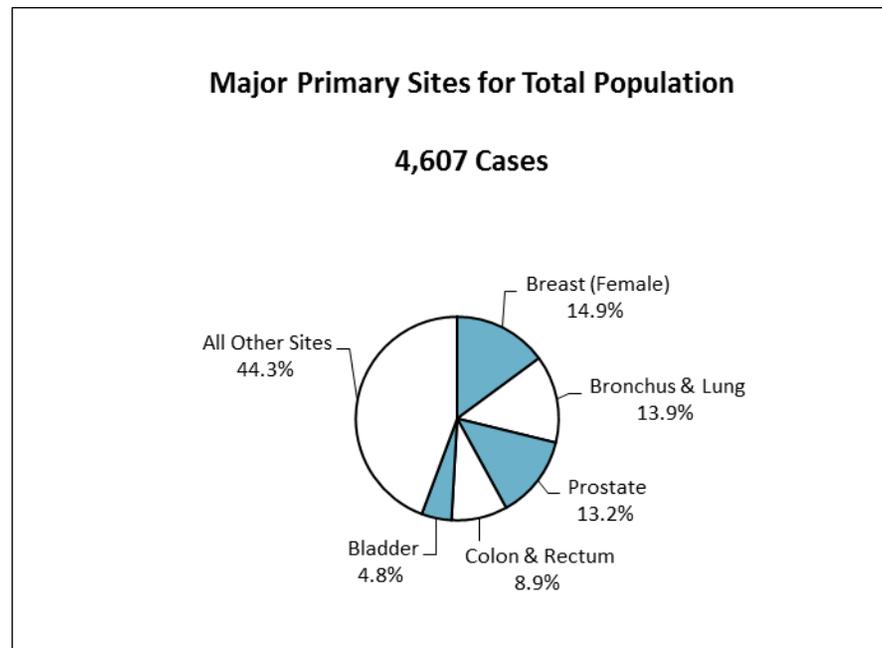
*“Our mission is to preserve, promote, and protect
the health, safety and well-being of the people and the environment in Erie County.”*

CONTENTS

Erie County Cancer Incidence, 2008-2010	4
Erie County Cancer Mortality, 2008-2010.....	8
Erie County Incidence and Mortality Trends for Selected Cancer Sites, 1990-2010.....	12
Erie County, the City of Erie, and Pennsylvania Cancer Incidence and Mortality, 2010.....	16

Erie County Cancer Incidence, 2008-2010

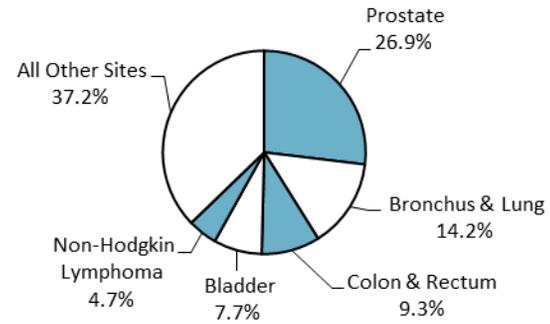
There were a total of 4,607 new cancer cases (primary invasive cancers and in situ urinary bladder cancers) diagnosed among Erie County residents, for a corresponding age-adjusted cancer incidence rate of 478.6 cases per 100,000 population. Overall, cancers were diagnosed in 2,257 (49.0%) males and 2,350 (51.0%) females. The age-adjusted incidence rates for males and females were 524.9 and 451.0 cases per 100,000, respectively. For Pennsylvania, the incidence rates were 500.5 for the total population, 566.8 for males, and 456.9 for females. With respect to race and ethnicity in Erie County, cancers were diagnosed in 4,339 (94.2%) Whites, 217 (4.7%) Blacks, 51 (1.1%) persons of Other/Unknown Race, and 48 (1.0%) Hispanics or Latinos (of any race). Erie County's five leading cancer incidence sites were: (1) female breast (14.9% of all diagnoses), (2) bronchus and lung (13.9%), (3) prostate (13.2%), (4) colon and rectum (8.9%), and (5) urinary bladder (4.8%). These sites accounted for 55.7% of all resident diagnoses.



Among Erie County males, the five leading cancer incidence sites/types were: (1) prostate (26.9% of all diagnoses), (2) bronchus and lung (14.2%), (3) colon and rectum (9.3%), (4) urinary bladder (7.7%), and (5) non-Hodgkin lymphoma (4.7%). These sites/types accounted for 62.8% of all male diagnoses. Among Erie County females, the five leading cancer incidence sites were: (1) breast (29.1% of all diagnoses), (2) bronchus and lung (13.7%), (3) colon and rectum (8.4%), (4) uterus (6.7%), and (5) thyroid (6.6%). These sites accounted for 64.5% of all female diagnoses.

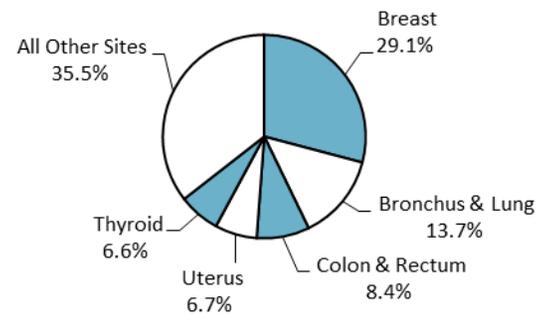
Major Primary Sites for Male Population

2,257 Cases



Major Primary Sites for Female Population

2,350 Cases



During 2008-2010, Erie County had a statistically significant lower age-adjusted incidence rate than Pennsylvania for five cancer sites: (1) all cancer sites combined, (2) colon and rectum, (3) urinary bladder, (4) liver, and (5) larynx. Erie County had a significantly higher incidence rate than Pennsylvania for only one site - the thyroid. With respect to males, Erie County had a significantly lower incidence rate than Pennsylvania for three cancer sites: (1) all cancer sites combined, (2) melanoma, and (3) liver. With respect to females, Erie County had a significantly lower incidence rate than Pennsylvania for the colon and rectum, and a significantly higher incidence rate for the thyroid.

ERIE COUNTY CANCER INCIDENCE, 2008-2010

Total Population				Male				Female			
Cancer Site/Type	# of Cases (%)	Erie Co. Rate	PA Rate	Cancer Site/Type	# of Cases (%)	Erie Co. Rate	PA Rate	Cancer Site/Type	# of Cases (%)	Erie Co. Rate	PA Rate
All Cancer Sites	4,607 (100.0)	478.6	500.5	All Cancer Sites	2,257 (100.0)	524.9	566.8	All Cancer Sites	2,350 (100.0)	451.0	456.9
Breast (Female)	685 (14.9)	132.5	128.5	Prostate	607 (26.9)	137.5	140.1	Breast	685 (29.1)	132.5	128.5
Bronchus & Lung	641 (13.9)	65.7	68.2	Bronchus & Lung	320 (14.2)	75.4	83.7	Bronchus & Lung	321 (13.7)	59.0	57.4
Prostate	607 (13.2)	137.5	140.1	Colon & Rectum	211 (9.3)	49.8	54.7	Colon & Rectum	197 (8.4)	34.8	40.8
Colon & Rectum	408 (8.9)	41.5	46.8	Urinary Bladder	174 (7.7)	40.7	44.7	Corpus & Uterus, NOS	157 (6.7)	30.0	31.7
Urinary Bladder	219 (4.8)	21.7	25.0	Non-Hodgkin Lymphoma	107 (4.7)	25.3	25.6	Thyroid	154 (6.6)	35.3	29.3
Thyroid	200 (4.3)	23.5	19.8	Kidney & Renal Pelvis	82 (3.6)	18.8	22.7	Non-Hodgkin Lymphoma	90 (3.8)	16.3	18.0
Non-Hodgkin Lymphoma	197 (4.3)	20.5	21.3	Melanoma	82 (3.6)	19.0	24.3	Melanoma	81 (3.4)	16.7	16.6
Melanoma	163 (3.5)	17.4	19.7	Oral Cavity & Pharynx	75 (3.3)	16.7	16.7	Kidney & Renal Pelvis	68 (2.9)	13.6	12.1
Corpus & Uterus, NOS	157 (3.4)	30.0	31.7	Leukemia	70 (3.1)	16.9	16.8	Pancreas	65 (2.8)	11.4	11.4
Kidney & Renal Pelvis	150 (3.3)	16.0	16.9	Pancreas	70 (3.1)	16.4	14.7	Ovary	64 (2.7)	12.8	13.2
Pancreas	135 (2.9)	13.6	12.9	Stomach	49 (2.2)	11.4	10.4	Leukemia	57 (2.4)	11.1	10.1
Leukemia	127 (2.8)	13.7	13.0	Thyroid	46 (2.0)	11.3	10.0	Urinary Bladder	45 (1.9)	8.2	10.8
Oral Cavity & Pharynx	110 (2.4)	11.3	11.2	Esophagus	36 (1.6)	8.4	10.0	Oral Cavity & Pharynx	35 (1.5)	6.5	6.5
Stomach	73 (1.6)	7.5	7.1	Liver & Intrahepatic Bile Duct	34 (1.5)	7.5	11.0	Cervix Uteri	27 (1.1)	6.2	7.7
Ovary	64 (1.4)	12.8	13.2	Brain & Other Nervous System	32 (1.4)	7.9	8.3	Brain & Other Nervous System	26 (1.1)	5.5	6.1
Brain & Other Nervous System	58 (1.3)	6.6	7.1	Multiple Myeloma	28 (1.2)	6.6	7.4	Multiple Myeloma	24 (1.0)	4.3	4.9
Multiple Myeloma	52 (1.1)	5.3	6.0	Testis	24 (1.1)	6.2	6.8	Stomach	24 (1.0)	4.3	4.4
Esophagus	51 (1.1)	5.1	5.4	Larynx	23 (1.0)	4.9	6.9	Liver & Intrahepatic Bile Duct	16 (0.7)	**	3.6
Liver & Intrahepatic Bile Duct	50 (1.1)	5.1	7.0	Hodgkin Lymphoma	14 (0.6)	**	3.7	Esophagus	15 (0.6)	**	2.1
Cervix Uteri	27 (0.6)	6.2	7.7	All Other Sites	173 (7.7)	NA	NA	Hodgkin Lymphoma	12 (0.5)	**	3.0
Hodgkin Lymphoma	26 (0.6)	3.0	3.3					Larynx	2 (0.1)	**	1.5
Larynx	25 (0.5)	2.5	3.9					All Other Sites	185 (7.9)	NA	NA
Testis	24 (0.5)	6.2	6.8								
All Other Sites	358 (7.8)	NA	NA								

Notes: Newly diagnosed cancer cases (primary invasive cancers and in situ urinary bladder cancers) in 2008-2010 were classified using the International Classification of Diseases for Oncology, Third Edition (ICD-O-3). The primary site and type groupings followed the site definitions used by the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute. Incidence rates are per 100,000 population and were age-adjusted to the 2000 United States standard million population. All rate comparisons and determinations of statistically significant differences followed 95% confidence interval comparison methods for dependent and independent populations. Data were provided by the PA Cancer Registry and the Bureau of Health Statistics & Research, PA Department of Health, who disclaim responsibility for any of the content that appears in this report.

** = The number of cases is less than 20 and the corresponding rate is statistically unreliable

NA = Not Available

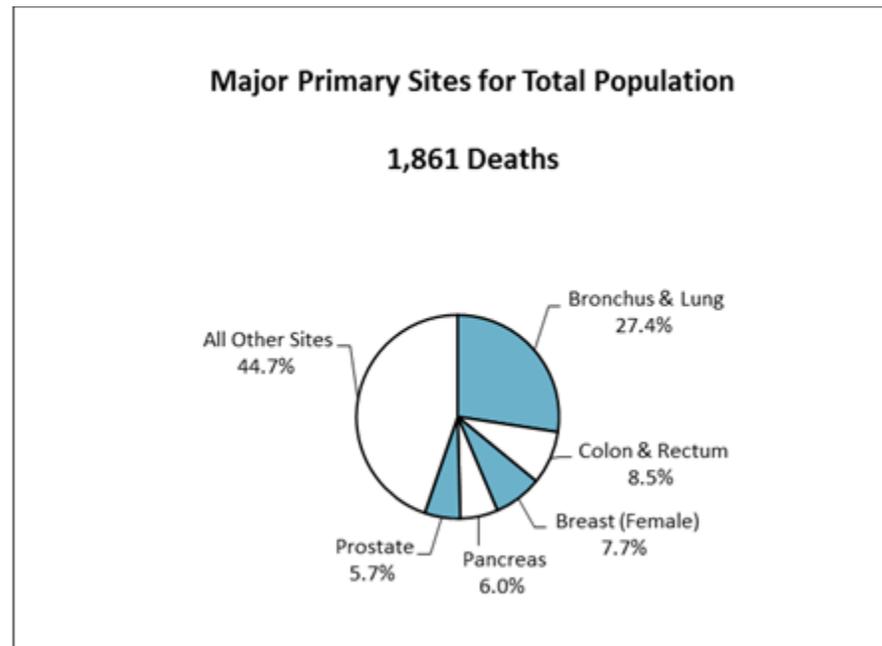


Blue = Significantly lower than the rate for PA

Red = Significantly higher than the rate for PA

Erie County Cancer Mortality, 2008-2010

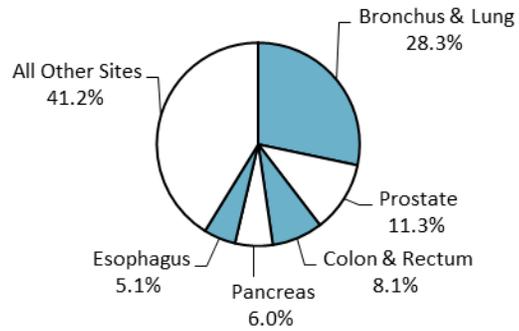
There were a total of 1,861 cancer deaths (primary malignant neoplasms) among Erie County residents, for a corresponding age-adjusted death rate of 189.1 deaths per 100,000 population. Overall, 940 (50.5%) deaths were to males and 921 (49.5%) deaths were to females. The age-adjusted death rates for males and females were 226.2 and 164.2 deaths per 100,000, respectively. For Pennsylvania, the death rates were 183.8 for the total population, 225.1 for males, and 155.8 for females. With respect to race and ethnicity in Erie County, 1,769 (95.1%) cancer deaths were to Whites, 88 (4.7%) deaths were to Blacks, 4 (0.5%) deaths were to persons of Other/Unknown Race, and 18 (2.1%) deaths were to Hispanics or Latinos (of any race). Erie County's five leading cancer mortality sites were: (1) bronchus and lung (27.4% of all deaths), (2) colon and rectum (8.5%), (3) female breast (7.7%), (4) pancreas (6.0%), and (5) prostate (5.7%). These sites accounted for over half (55.3%) of all cancer deaths.



Among Erie County males, the five leading cancer mortality sites were: (1) bronchus and lung (28.3% of all deaths), (2) prostate (11.3%), (3) colon and rectum (8.1%), (4) pancreas (6.0%), and (5) esophagus (5.1%). These sites accounted for 58.8% of all male cancer deaths. Among Erie County females, the five leading cancer mortality sites were: (1) bronchus and lung (26.5% of all deaths), (2) breast (15.6%), (3) colon and rectum (9.0%), (4) pancreas (6.1%), and (5) ovary (5.0%). These sites accounted for 62.2% of all female cancer deaths.

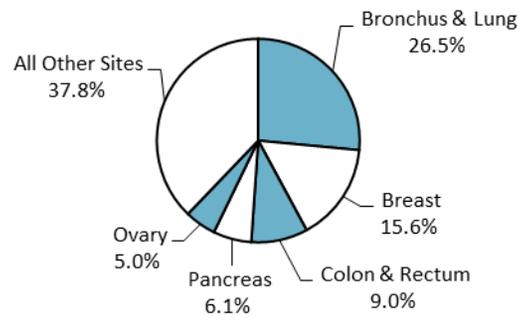
Major Primary Sites for Male Population

940 Deaths



Major Primary Sites for Female Population

921 Deaths



During 2008-2010, Erie County's total and male populations did not have any statistically significant differences (lower or higher) in age-adjusted mortality rates by cancer site/type compared to Pennsylvania's total and male populations. With respect to females, Erie County had a significantly higher mortality rate than Pennsylvania for only one site - the kidney and renal pelvis.

ERIE COUNTY CANCER MORTALITY, 2008-2010

Total Population				Male				Female			
Cancer Site/Type	# of Cases (%)	Erie Co. Rate	PA Rate	Cancer Site/Type	# of Cases (%)	Erie Co. Rate	PA Rate	Cancer Site/Type	# of Cases (%)	Erie Co. Rate	PA Rate
All Cancer Sites	1,861 (100.0)	189.1	183.8	All Cancer Sites	940 (100.0)	226.2	225.1	All Cancer Sites	921 (100.0)	164.2	155.8
Bronchus & Lung	510 (27.4)	51.8	50.0	Bronchus & Lung	266 (28.3)	63.6	65.1	Bronchus & Lung	244 (26.5)	43.3	39.3
Colon & Rectum	159 (8.5)	16.5	17.5	Prostate	106 (11.3)	26.9	22.0	Breast	144 (15.6)	26.3	23.8
Breast (Female)	144 (7.7)	26.3	23.8	Colon & Rectum	76 (8.1)	18.7	21.2	Colon & Rectum	83 (9.0)	14.4	14.6
Pancreas	112 (6.0)	11.4	11.5	Pancreas	56 (6.0)	13.4	13.3	Pancreas	56 (6.1)	9.8	10.4
Prostate	106 (5.7)	26.9	22.0	Esophagus	48 (5.1)	11.3	8.9	Ovary	46 (5.0)	8.2	8.6
Leukemia	76 (4.1)	7.8	7.5	Leukemia	38 (4.0)	9.0	10.2	Leukemia	38 (4.1)	6.6	5.6
Esophagus	62 (3.3)	6.4	4.9	Urinary Bladder	37 (3.9)	9.0	8.7	Non-Hodgkin Lymphoma	31 (3.4)	4.7	5.5
Non-Hodgkin Lymphoma	62 (3.3)	6.1	6.9	Liver & Intrahepatic Bile Duct	32 (3.4)	7.1	8.4	Kidney & Renal Pelvis	25 (2.7)	4.4	2.6
Urinary Bladder	48 (2.6)	4.6	4.8	Non-Hodgkin Lymphoma	31 (3.3)	7.4	8.9	Corpus & Uterus, NOS	23 (2.5)	4.4	4.9
Brain & Other Nervous System	46 (2.5)	4.8	4.2	Stomach	26 (2.8)	6.0	4.7	Brain & Other Nervous System	22 (2.4)	4.2	3.5
Ovary	46 (2.5)	8.2	8.6	Brain & Other Nervous System	24 (2.6)	5.7	4.9	Multiple Myeloma	16 (1.9)	**	2.7
Liver & Intrahepatic Bile Duct	45 (2.4)	4.6	5.4	Oral Cavity & Pharynx	21 (2.2)	4.9	3.6	Stomach	16 (1.7)	**	2.2
Kidney & Renal Pelvis	42 (2.3)	4.3	4.0	Melanoma	18 (1.9)	**	4.5	Esophagus	14 (1.5)	**	1.7
Stomach	42 (2.3)	4.1	3.3	Kidney & Renal Pelvis	17 (1.8)	**	5.8	Liver & Intrahepatic Bile Duct	13 (1.4)	**	2.4
Melanoma	31 (1.7)	3.2	3.0	Multiple Myeloma	15 (1.6)	**	4.2	Melanoma	13 (1.4)	**	1.9
Multiple Myeloma	31 (1.7)	3.2	3.3	Larynx	9 (1.0)	**	2.2	Urinary Bladder	11 (1.2)	**	2.3
Oral Cavity & Pharynx	25 (1.3)	2.5	2.3	Hodgkin Lymphoma	4 (0.4)	**	0.4	Cervix Uteri	11 (1.2)	**	2.2
Corpus & Uterus, NOS	23 (1.2)	4.4	4.9	Thyroid	3 (0.3)	**	0.5	Oral Cavity & Pharynx	4 (0.4)	**	1.3
Larynx	12 (0.6)	**	1.2	Testis	0 (0.0)	**	0.3	Larynx	3 (0.3)	**	0.4
Cervix Uteri	11(0.6)	**	2.2	All Other Sites	113 (12.0)	NA	NA	Thyroid	3 (0.3)	**	0.6
Hodgkin Lymphoma	6 (0.3)	**	0.4					Hodgkin Lymphoma	2 (0.2)	**	0.3
Thyroid	6 (0.3)	**	0.5					All Other Sites	103 (11.2)	NA	NA
Testis	0 (0.0)	**	0.3								
All Other Sites	216 (11.6)	NA	NA								

Notes: Underlying causes of death in 2008-2010 were classified according to the International Classification of Diseases, Tenth Edition (ICD-10). The primary site and type groupings followed the site definitions used by the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute. Death rates are per 100,000 population and were age-adjusted to the 2000 United States standard million population. All rate comparisons and determinations of statistically significant differences followed 95% confidence interval comparison methods for dependent and independent populations. Data were provided by the PA Cancer Registry and the Bureau of Health Statistics & Research, PA Department of Health, who disclaim responsibility for any of the content that appears in this report.

** = The number of cases is less than 20 and the corresponding rate is statistically unreliable
 NA = Not Available

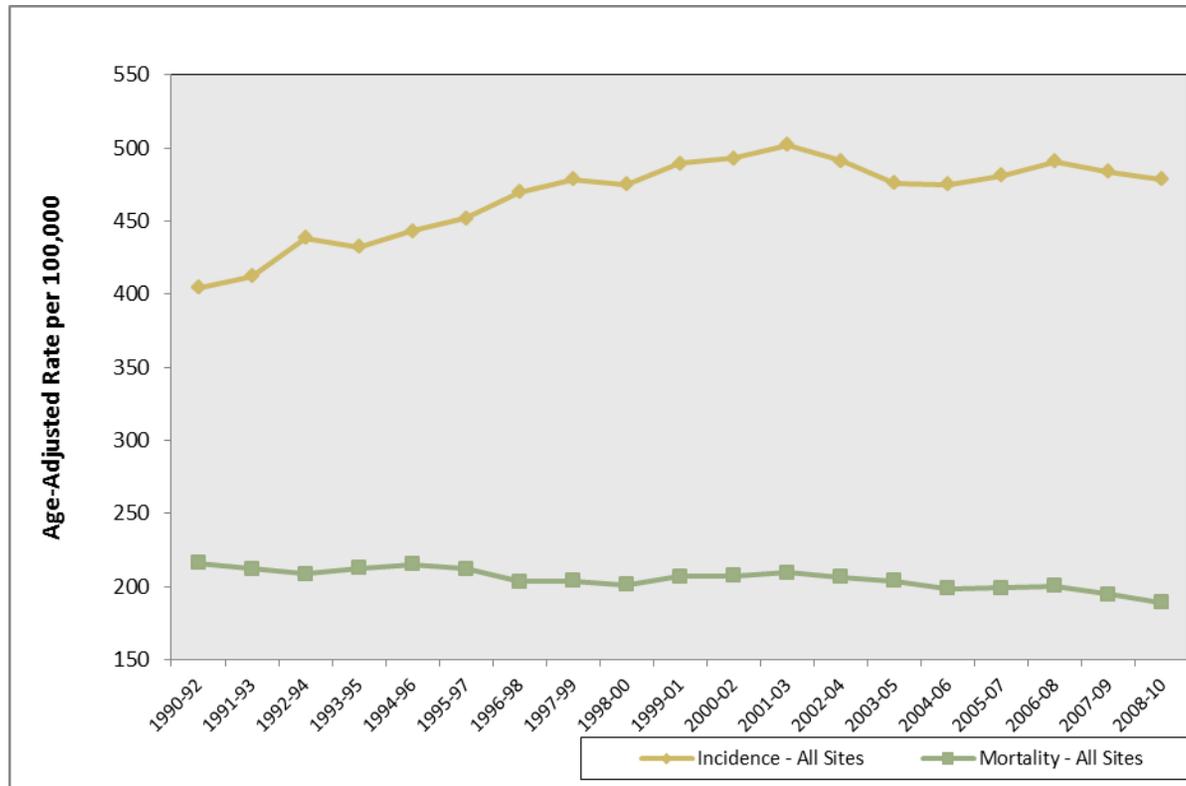
Blue = Significantly lower than the rate for PA

Red = Significantly higher than the rate for PA

Erie County Incidence and Mortality Trends for Selected Cancer Sites, 1990-2010

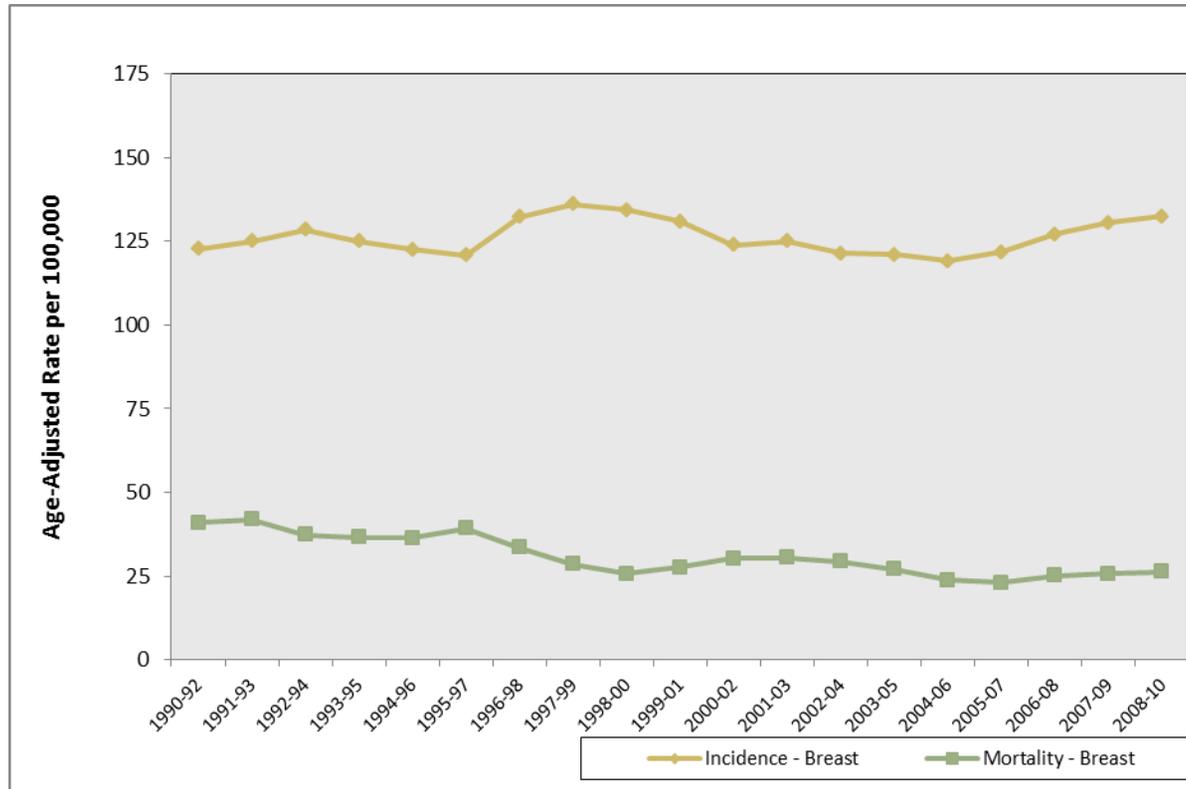
In Erie County, the age-adjusted incidence rate for cancer (all primary sites/types) rose from 404.7 cases per 100,000 population in 1990-1992 to 478.6 cases per 100,000 in 2008-2010, an increase of 18.3%. For Erie County males and females, the incidence rates increased by 11.0% and 22.4%, respectively. For Pennsylvania, the incidence rates rose by 9.7% for the total population, 0.9% for males, and 15.3% for females from 1990-1992 to 2008-2010.

In Erie County, the age-adjusted death rate for cancer dropped from 216.1 deaths per 100,000 population in 1990-1992 to 189.1 deaths per 100,000 in 2008-2010, a decline of 12.5%. For Erie County males and females, the death rates decreased by 15.9% and 11.7%, respectively. For Pennsylvania, the death rates declined by 17.2% for the total population, 20.9% for males, and 15.3% for females from 1990-1992 to 2008-2010.



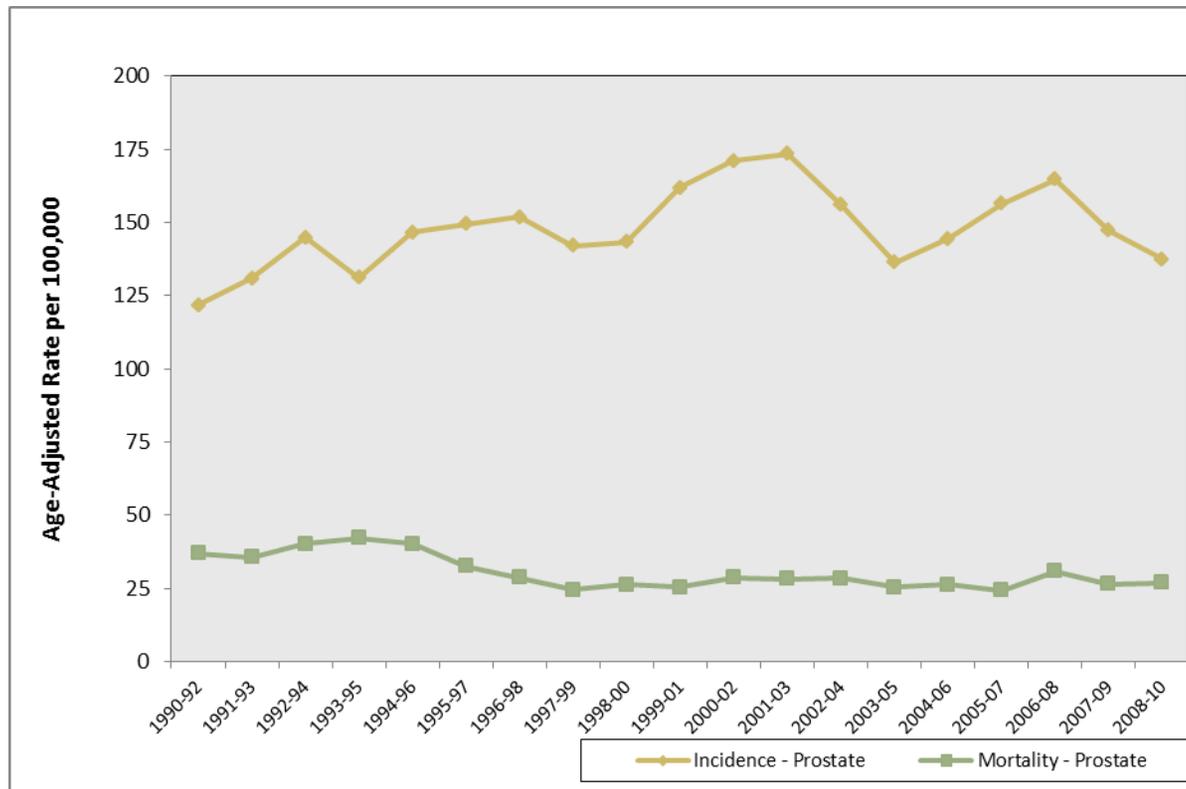
In Erie County, the age-adjusted incidence rate for female breast cancer rose from 122.7 cases per 100,000 population in 1990-1992 to 132.5 cases per 100,000 in 2008-2010, an increase of 8.0%. For Pennsylvania, the incidence rate rose by 1.7% from 1990-1992 to 2008-2010.

In Erie County, the age-adjusted death rate for female breast cancer dropped from 40.9 deaths per 100,000 population in 1990-1992 to 26.3 deaths per 100,000 in 2008-2010, a decline of 35.7%. For Pennsylvania, the death rate declined by 32.8% from 1990-1992 to 2008-2010.



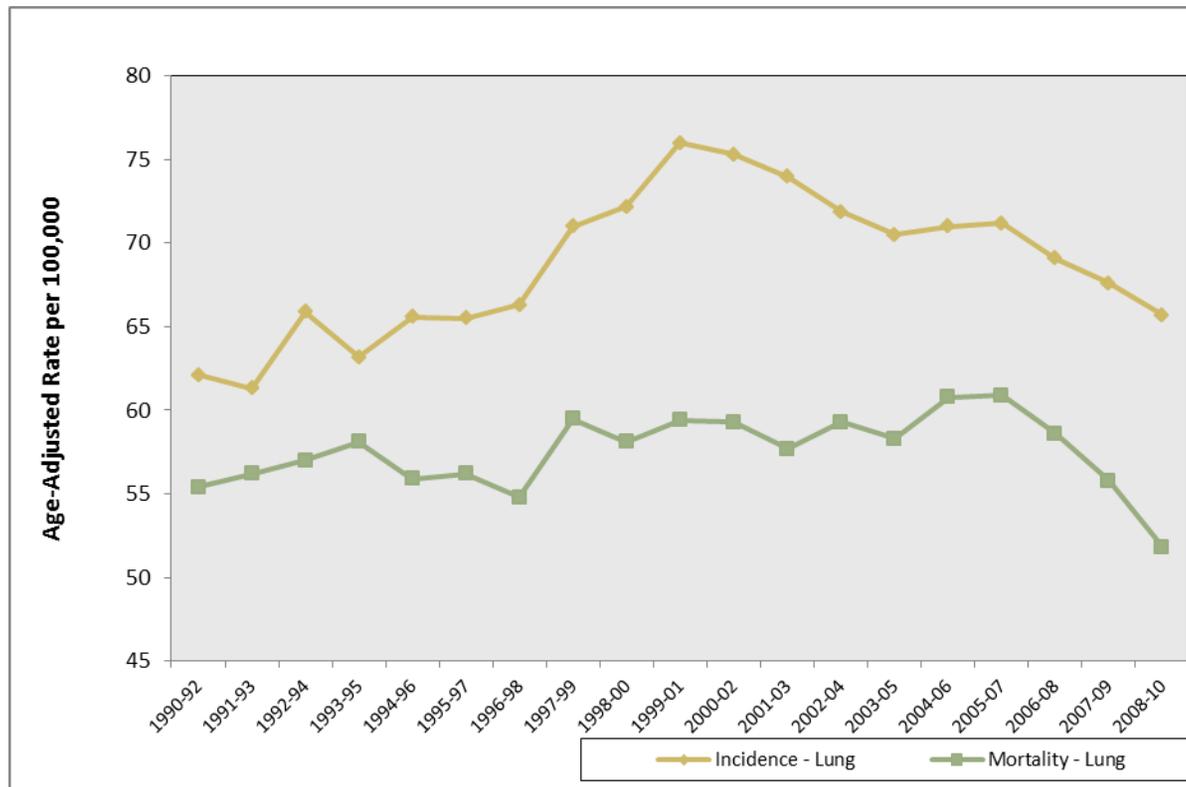
In Erie County, the age-adjusted incidence rate for prostate cancer rose from 121.8 cases per 100,000 population in 1990-1992 to 137.5 cases per 100,000 in 2008-2010, an increase of 12.9%. For Pennsylvania, the incidence rate declined by 12.7% from 1990-1992 to 2008-2010.

In Erie County, the age-adjusted death rate for prostate cancer dropped from 36.9 deaths per 100,000 population in 1990-1992 to 26.9 deaths per 100,000 in 2008-2010, a decline of 27.1%. For Pennsylvania, the death rate dropped by 42.0% from 1990-1992 to 2008-2010.



In Erie County, the age-adjusted incidence rate for bronchus and lung cancer rose from 62.1 cases per 100,000 population in 1990-1992 to 65.7 cases per 100,000 in 2008-2010, an increase of 5.8%. For Erie County males and females, the incidence rates decreased by 14.5% and increased by 33.5%, respectively. For Pennsylvania, the incidence rates rose by 7.2% for the total population, declined by 11.8% for males, and increased by 37.5% for females from 1990-1992 to 2008-2010.

In Erie County, the age-adjusted death rate for cancer dropped from 55.4 deaths per 100,000 population in 1990-1992 to 51.8 deaths per 100,000 in 2008-2010, a decline of 6.5%. For Erie County males and females, the death rates decreased by 22.2% and increased by 13.6%, respectively. For Pennsylvania, the death rates declined by 7.5% for the total population, dropped by 26.5% for males, and increased by 15.3% for females from 1990-1992 to 2008-2010.



ERIE COUNTY, THE CITY OF ERIE, & PENNSYLVANIA CANCER INCIDENCE & MORTALITY, 2010

	Total Population					Male Population					Female Population					White Population					Black Population				
	County Cases	Rate	City Cases	Rate	PA Rate	County Cases	Rate	City Cases	Rate	PA Rate	County Cases	Rate	City Cases	Rate	PA Rate	County Cases	Rate	City Cases	Rate	PA Rate	County Cases	Rate	City Cases	Rate	PA Rate
Incidence																									
All Cancer Sites	1,578	488.0	516	500.5	490.2	750	514.9	249	547.4	550.0	828	473.3	267	469.5	450.0	1,481	486.5	436	492.6	485.1	79	580.9	70	594.5	523.6
Breast (Female)	242	138.4	68	123.6	124.9						242	138.4	68	123.6	124.9	231	140.3	59	126.4	125.4	10	**	9	**	138.1
Bronchus & Lung	220	67.5	78	77.1	66.0	109	76.6	37	84.7	79.8	111	60.5	41	68.9	55.9	212	68.5	71	80.4	65.3	8	**	7	**	87.2
Prostate	203	135.0	60	131.0	132.8	203	135.0	60	131.0	132.8						190	133.5	49	123.2	116.0	12	**	10	**	182.6
Colon & Rectum	129	38.9	48	44.5	43.7	66	44.8	22	48.0	50.2	63	33.5	26		38.4	122	38.7	41	43.2	43.8	5	**	5	**	45.9
Urinary Bladder	84	24.9	31	29.1	24.9	67	45.7	26	55.7	44.0	17	**	5	**	10.9	81	25.3	30	32.7	25.8	0	**	1	**	14.0
Thyroid	71	24.7	18	**	20.3	21	15.4	3	**	10.3	50	34.0	15	**	29.8	68	25.7	15	**	21.6	2	**	2	**	14.6
Non-Hodgkin Lymphoma	60	19.2	21	20.3	20.7	28	20.4	9	**	24.6	32	17.3	12	**	17.6	54	18.6	17	**	20.9	4	**	4	**	15.6
Melanoma	60	19.9	20	19.8	20.5	30	20.7	8	**	24.9	30	19.8	12	**	17.6	58	20.9	19	**	21.1	1	**	1	**	**
Corpus & Uterus, NOS	60	34.1	20	36.9	32.0						60	34.1	20	36.9	32.0	57	34.9	18	**	32.9	2	**	2	**	28.4
Pancreas	54	15.7	20	19.0	13.2	26	17.2	7	**	14.9	28	14.4	13	**	11.8	48	14.5	15	**	12.8	4	**	3	**	20.2
Mortality																									
All Cancer Sites	617	184.9	235	210.0	180.1	309	217.0	114	245.2	222.1	308	162.6	121	180.6	156.4	586	184.6	209	211.8	179.4	29	238.3	24	225.9	231.9
Bronchus & Lung	173	52.6	62	57.5	48.7	91	63.8	30	67.1	63.1	72	44.2	32	49.5	38.2	169	53.9	59	62.0	48.6	4	**	3	**	62.2
Breast (Female)	48	24.4	24	35.7	23.3						48	24.4	24	35.7	23.3	43	23.4	20	35.0	23.0	5	**	4	**	33.0
Colon & Rectum	45	14.0	16	**	17.0	19	**	8	**	26.2	26	13.4	8	**	14.5	44	14.4	15	**	16.9	1	**	1	**	22.9
Pancreas	38	11.1	15	**	11.7	15	**	4	**	13.5	23	11.5	11	**	10.1	35	10.7	13	**	11.6	2	**	1	**	13.8
Prostate	32	23.9	11	**	21.2	32	23.9	11	**	21.2						31	23.9	10	**	19.3	1	**	1	**	56.0
Leukemia	25	8.1	8	**	7.1	12	**	4	**	9.4	13	**	4	**	5.5	22	7.4	6	**	7.4	3	**	2	**	6.3
Urinary Bladder	22	6.5	7	**	4.8	18	**	5	**	8.9	4	**	2	**	2.2	20	6.2	5	**	5.0	2	**	2	**	3.9
Non-Hodgkin Lymphoma	21	6.2	12	**	6.7	9	**	4	**	8.4	12	**	8	**	5.3	21	6.5	12	**	6.8	0	**	0	**	5.3
Esophagus	21	6.1	9	**	4.8	16	**	8	**	8.2	5	**	1	**	2.1	20	6.1	8	**	5.0	1	**	1	**	4.3
Liver & Intrahepatic Bile Duct	19	**	9	**	5.5	14	**	8	**	8.1	5	**	1	**	3.3	16	**	6	**	5.1	3	**	3	**	10.1

Notes: Newly diagnosed cancer cases (primary invasive cancers and in situ urinary bladder cancers) were classified using the International Classification of Diseases for Oncology, Third Edition (ICD-O-3). Underlying causes of death were classified according to the International Classification of Diseases, Tenth Edition (ICD-10). The primary site and type groupings followed the site definitions used by the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute. Incidence and death rates are per 100,000 population and were age-adjusted to the 2000 United States standard million population. Data were provided by the PA Cancer Registry and the Bureau of Health Statistics & Research, PA Department of Health, who disclaim responsibility for any of the content that appears in this report.

** = The number of cases is less than 20 and the corresponding rate is statistically unreliable