

Noble County Cancer Profile

Ohio Cancer Incidence Surveillance System Ohio Department of Health

2008



Introduction

Cancer is a group of diseases characterized by the uncontrolled growth and spread of abnormal cells. In Ohio, about one of three persons will develop cancer in their lifetime. Thus, every Ohio community is affected by cancer.

The purpose of this document is to present data on demographic and socioeconomic measures; cancer incidence (new cases), including maps by census tract; cancer mortality (deaths); utilization of screening tests; prevalence of health behaviors; and stage at diagnosis for the Noble County Health District. Data for this health jurisdiction are presented at the county level to control for changes in the population served over time and for ease of data analysis and interpretation. This information can be used to develop targeted cancer prevention, early detection and control programs within the health jurisdiction to proactively address cancer concerns at the community level. *Please note: Completeness of case reporting for 2001-2005 is 87 percent in Noble County, compared to 93 percent for Ohio and should be accounted for when comparing Noble County rates to Ohio and U.S. rates.*

Demographic and Socioeconomic Profile

Table 1. Average Annual Population Estimates for Noble County by Age Group, Gender and Race, 2001-2005¹

Age Group	Gender		Race		Total ² Population
	Male	Female	White	Black	
<20	1,720	1,594	3,256	51	3,314
20+	6,282	4,462	9,766	922	10,745
40+	3,176	2,998	5,989	166	6,174
50+	1,903	2,088	3,955	24	3,991
All Ages	8,002	6,056	13,022	973	14,058

[1] Vintage 2006 postcensal estimates for July 1, 2001-2005, U.S. Census Bureau, 2007.

[2] Total population includes whites, blacks and all additional races.

- The 2001-2005 average annual population for Noble County is 14,058, of which 28 percent is age 50 and older. The risk of cancer increases with advancing age.
- The population is 57 percent male and 93 percent white. Nationally, cancer risk is lower among females compared to males and whites compared to blacks for many cancer sites/types.

Table 2. Socioeconomic Profile of Noble County with Comparison to Ohio and the US, 2000¹

Socioeconomic Measure	Noble County	Ohio	US
Median Household Income (\$)	32,940	40,956	41,994
% Families Below Poverty Level	8.3%	7.8%	9.2%
% No High School Diploma (Ages 25+)	21.4%	17.0%	19.6%
% Female-headed Households with Children <18	4.6%	7.3%	7.2%
% Uninsured ^{2,3}	13.0%	12.5%	17.3%

[1] Census 2000 Demographic Profiles, U.S. Census Bureau, Summary File 1 (SF1) and Summary File 3 (SF3).

[2] *Health Insurance Coverage in Ohio, 2004: The Roles of Public and Private Programs in Assuring Access to Health Care*. Results from the Ohio Family Health Survey. Ohio Department of Job & Family Services, March 2005.

[3] *Income, Poverty and Health Insurance Coverage in the United States: 2004*. Current Population Reports, Consumer Income. U.S. Census Bureau, 2005.

- Socioeconomic measures associated with cancer risk are presented in Table 2 for Noble County compared to Ohio and the United States. Low median household income and a high prevalence of families below the poverty level, persons with no high school diploma, female-headed households (with children <18) and uninsured are associated with an increased risk of developing and dying from cancer.



Cancer Incidence and Mortality

Table 3. Average Annual Number and Age-adjusted Rates of Invasive Cancer Cases and Cancer Deaths, by Site/Type, in Noble County with Comparison to Ohio and the US, 2001-2005¹⁻³

Cancer Site/Type	Incidence				Mortality			
	Noble County		Ohio	U.S.	Noble County		Ohio	U.S.
	Cases	Rate	Rate	Rate	Deaths	Rate	Rate	Rate
All Sites/Types	66	453.6	465.1	467.4	31	211.4	203.3	189.8
Bladder	4	25.1	21.7	21.2	<1	*	5.0	4.3
Brain and Other CNS ⁴	<1	*	6.7	6.5	<1	*	4.5	4.4
Breast (Female)	5	69.5	121.9	126.1	1	16.3	27.5	25.0
Cervix	<1	*	7.9	8.4	0	*	2.4	2.5
Colon and Rectum	10	66.5	52.9	50.6	3	17.7	20.6	18.8
Corpus Uterus	4	53.4	26.4	23.4	1	12.9	4.4	4.1
Esophagus	<1	*	5.4	4.6	<1	*	5.1	4.4
Hodgkin's Lymphoma	0	*	2.9	2.8	0	*	0.5	0.4
Kidney and Renal Pelvis	1	9.6	13.6	13.2	1	8.4	4.6	4.2
Larynx	1	8.7	4.4	3.6	<1	*	1.4	1.3
Leukemia	1	9.5	11.0	12.3	1	8.7	7.6	7.4
Liver and IBD ⁵	<1	*	4.1	6.4	1	9.8	4.3	5.0
Lung and Bronchus	10	69.7	75.0	63.9	9	63.7	60.3	54.1
Melanoma of the Skin	2	12.1	17.0	19.4	<1	*	2.6	2.7
Multiple Myeloma	1	10.0	5.0	5.6	<1	*	3.9	3.7
Non-Hodgkin's Lymphoma	2	15.3	19.1	19.5	1	8.3	7.8	7.3
Oral Cavity and Pharynx	1	6.9	9.4	10.4	<1	*	2.6	2.6
Ovary	2	29.9	12.3	13.3	1	14.4	9.0	8.8
Pancreas	1	8.3	10.6	11.5	2	11.1	10.5	10.6
Prostate	10	151.8	145.7	163.0	3	43.8	27.8	26.7
Stomach	<1	*	6.0	8.0	<1	*	3.5	4.1
Testis	<1	*	5.7	5.4	0	*	0.3	0.3
Thyroid	<1	*	7.6	9.1	0	*	0.5	0.5
Other Sites/Types	5	N.A.	N.A.	N.A.	3	N.A.	N.A.	N.A.

[1] Source of Ohio data: Ohio Cancer Incidence Surveillance System, Chronic Disease and Behavioral Epidemiology Section and the Vital Statistics Program, Ohio Department of Health, 2008.

[2] Source of U.S. data: Surveillance, Epidemiology and End Results Program, National Cancer Institute, 2008, and the National Center for Health Statistics, 2006.

[3] Rates are per 100,000 and were calculated using vintage 2006 postcensal estimates for July 1, 2001-2005, (U.S. Census Bureau, 2007). Rates are direct age-adjusted to the U.S. 2000 standard population and are gender-specific for cancers of the breast, cervix, corpus uterus, ovary, prostate and testis.

[4] Central Nervous System

[5] Intrahepatic Bile Duct

N.A. = Not Applicable

*Rates may be unstable and are not presented when the count for 2001-2005 is less than five (i.e., average annual count is <1).

- An average of 66 invasive cancer cases and 31 deaths occur among Noble County residents each year. Of these, less than one case and less than one death occur among children 0-19.
- Cancer sites/types with high numbers of cases and/or high incidence rates should be prioritized in cancer prevention and early detection programs. High mortality rates may be associated with a later stage at diagnosis, lack of access to care, inadequate treatment or other factors that should be addressed in cancer control initiatives (Tables 3-5).
- The Noble County cancer incidence rate for all sites/types combined (453.6 per 100,000) is lower than the incidence rate for the United States (467.4 per 100,000). The cancer mortality rate for all sites/types combined is higher in Noble County (211.4 per 100,000), compared to the United States (189.8 per 100,000) (Table 3).
- Tables 4 and 5 present Noble County cancer incidence and mortality rates, respectively, for white males, white females, black males and black females. For all cancer sites/types combined, white males have a higher incidence rate and white males have a higher mortality rate, compared to the other gender/race categories.

Tables 4 and 5. Average Annual Number and Age-adjusted Rates of Invasive Cancer Cases (Table 4), and Average Annual Number and Age-adjusted Rates of Cancer Deaths (Table 5), by Site/Type, Gender and Race in Noble County, 2001-2005^{1,2}

Incidence	White Male		Black Male		White Female		Black Female		Total ⁵	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
All Sites/Types	35	533.3	<1	*	28	373.2	0	*	66	453.6
Bladder	3	49.1	0	*	<1	*	0	*	4	25.1
Brain and Other CNS ³	<1	*	0	*	<1	*	0	*	<1	*
Breast	0	*	0	*	5	69.9	0	*	5	35.2
Cervix	—	—	—	—	<1	*	0	*	<1	—
Colon and Rectum	5	72.0	<1	*	5	59.5	0	*	10	66.5
Corpus Uterus	—	—	—	—	4	53.6	0	*	4	—
Esophagus	<1	*	0	*	0	*	0	*	<1	*
Hodgkin's Lymphoma	0	*	0	*	0	*	0	*	0	*
Kidney and Renal Pelvis	1	20.5	0	*	0	*	0	*	1	9.6
Larynx	1	17.4	0	*	0	*	0	*	1	8.7
Leukemia	<1	*	0	*	<1	*	0	*	1	9.5
Liver and IBD ⁴	<1	*	0	*	<1	*	0	*	<1	*
Lung and Bronchus	6	93.1	0	*	4	52.9	0	*	10	69.7
Melanoma of the Skin	<1	*	0	*	1	14.8	0	*	2	12.1
Multiple Myeloma	1	19.4	0	*	<1	*	0	*	1	10.0
Non-Hodgkin's Lymphoma	1	14.2	0	*	1	15.7	0	*	2	15.3
Oral Cavity and Pharynx	<1	*	<1	*	0	*	0	*	1	6.9
Ovary	—	—	—	—	2	30.0	0	*	2	—
Pancreas	<1	*	0	*	<1	*	0	*	1	8.3
Prostate	10	140.9	0	*	—	—	—	—	10	—
Stomach	<1	*	0	*	<1	*	0	*	<1	*
Testis	<1	*	0	*	—	—	—	—	<1	—
Thyroid	<1	*	0	*	<1	*	0	*	<1	*
Other Sites/Types	2	N.A.	0	N.A.	3	N.A.	0	N.A.	5	N.A.

Mortality	Deaths		Rate		Deaths		Rate		Deaths		Rate	
	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
All Sites/Types	17	259.0	0	*	14	176.6	0	*	31	211.4	0	*
Bladder	<1	*	0	*	0	*	0	*	<1	*	<1	*
Brain and Other CNS ³	<1	*	0	*	<1	*	0	*	<1	*	<1	*
Breast	0	*	0	*	1	16.4	0	*	1	8.2	0	*
Cervix	—	—	—	—	0	*	0	*	0	—	0	—
Colon and Rectum	1	21.6	0	*	1	12.9	0	*	3	17.7	0	*
Corpus Uterus	—	—	—	—	1	12.9	0	*	1	—	0	—
Esophagus	<1	*	0	*	0	*	0	*	<1	*	<1	*
Hodgkin's Lymphoma	0	*	0	*	0	*	0	*	0	*	0	*
Kidney and Renal Pelvis	1	18.6	0	*	0	*	0	*	1	8.4	0	*
Larynx	<1	*	0	*	0	*	0	*	<1	*	<1	*
Leukemia	<1	*	0	*	<1	*	0	*	1	8.7	0	*
Liver and IBD ⁴	<1	*	0	*	<1	*	0	*	1	9.8	0	*
Lung and Bronchus	5	72.1	0	*	5	58.1	0	*	9	63.7	0	*
Melanoma of the Skin	<1	*	0	*	<1	*	0	*	<1	*	<1	*
Multiple Myeloma	<1	*	0	*	0	*	0	*	<1	*	<1	*
Non-Hodgkin's Lymphoma	<1	*	0	*	<1	*	0	*	1	8.3	0	*
Oral Cavity and Pharynx	<1	*	0	*	0	*	0	*	<1	*	<1	*
Ovary	—	—	—	—	1	14.5	0	*	1	—	0	—
Pancreas	<1	*	0	*	<1	*	0	*	2	11.1	0	*
Prostate	3	44.0	0	*	—	—	—	—	3	—	0	—
Stomach	<1	*	0	*	<1	*	0	*	<1	*	<1	*
Testis	0	*	0	*	—	—	—	—	0	—	0	—
Thyroid	0	*	0	*	0	*	0	*	0	*	0	*
Other Sites/Types	2	N.A.	0	N.A.	1	N.A.	0	N.A.	3	N.A.	0	N.A.

[1] Source: Ohio Cancer Incidence Surveillance System, Chronic Disease and Behavioral Epidemiology Section and the Vital Statistics Program, Ohio Department of Health, 2008.

[2] Rates are per 100,000 and were calculated using vintage 2006 postcensal estimates for July 1, 2001-2005, (U.S. Census Bureau, 2007). Rates are direct age-adjusted to the U.S. 2000 standard population.

[3] Central Nervous System

[4] Intrahepatic Bile Duct

[5] Total population includes whites, blacks and additional races. Data are not presented for additional races due to small numbers.

N.A. = Not Applicable

*Rates may be unstable and are not presented when the count for 2001-2005 is less than five (i.e., average annual count is <1).

Cancer Incidence Rates by Census Tract

Average annual (1996-2005) age-adjusted cancer incidence rates for Noble County, by census tract, are presented in Figures 1-4 for cancers of the lung and bronchus; colon and rectum; female breast; and prostate, respectively. These maps can help to identify areas in the county with higher rates and/or risks of developing these cancers.

Figure 1. Average Annual Age-adjusted Incidence Rates of Invasive Lung and Bronchus Cancer, by Census Tract, in Noble County, 1996-2005¹⁻⁴

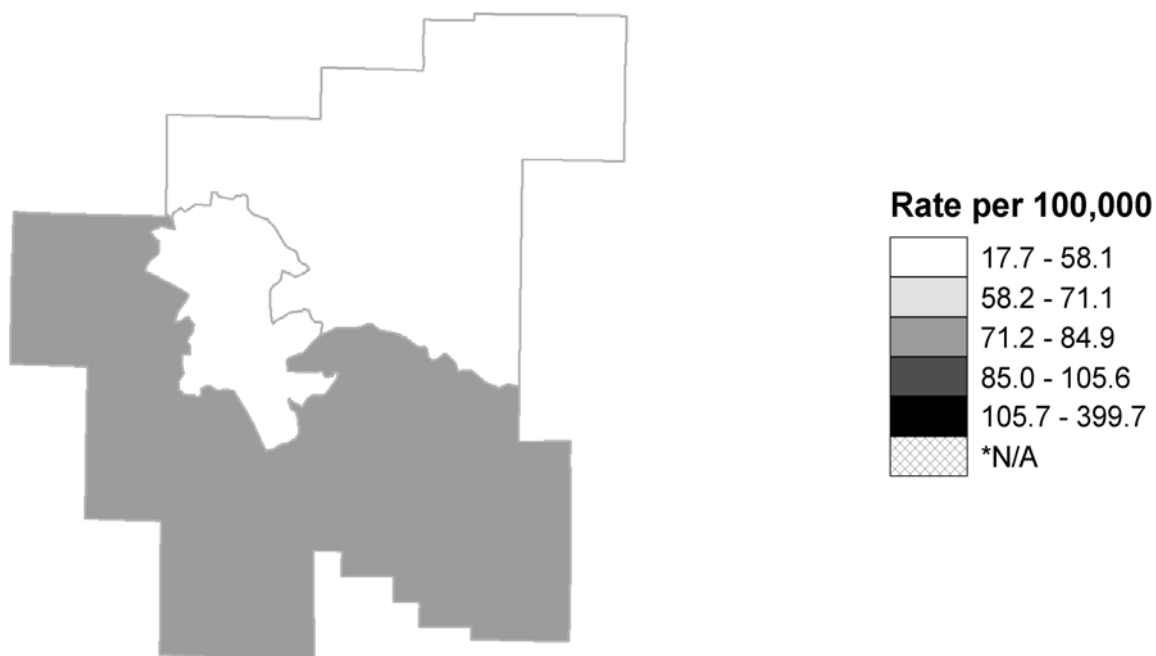


Figure 2. Average Annual Age-adjusted Incidence Rates of Invasive Colon and Rectum Cancer, by Census Tract, in Noble County, 1996-2005¹⁻⁴



Figure 3. Average Annual Age-adjusted Incidence Rates of Invasive Female Breast Cancer, by Census Tract, in Noble County, 1996-2005¹⁻⁴



Figure 4. Average Annual Age-adjusted Incidence Rates of Invasive Prostate Cancer, by Census Tract, in Noble County, 1996-2005¹⁻⁴



[1] Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2008.
 [2] Rates are per 100,000 and were calculated using vintage 2006 intercensal estimates for July 1, 1996-1999 and postcensal estimates for July 1, 2000-2005, (U.S. Census Bureau, 2007). Rates are direct age-adjusted to the U.S. 2000 standard population.
 [3] NOTE: Large census tracts may appear to have higher rates and risks due to their size—interpret with caution.
 [4] Cut points for rate quartiles were derived from the distribution for the State of Ohio.
 *Rates may be unstable and are not presented when the count for 1996-2005 is less than five (i.e., average annual count is <1). A small number (less than 1%) of unusually high outlying incidence rates are also not presented.

Cancer Screening Tests and Health Behaviors

Table 6. Estimated* Prevalence (self-reported) of Select Cancer Screening Tests in Noble County with Comparison to Ohio, 2004-2007¹⁻³

Cancer Screening Test	Noble County	Ohio
Mammography in Past Two Years (Age 40+)	71.9%	75.4%
Colonoscopy/Sigmoidoscopy in Past Five Years (Age 50+)	41.6%	47.5%
Prostate-specific Antigen (PSA) Test in Past Year (Age 50+)	50.8%	57.5%
Digital Rectum Exam (DRE) in Past Year (Age 50+)	49.9%	54.2%
Pap Smear in Past Three Years (Age 18+, Intact Cervix)	79.8%	84.1%

[1] Source: Ohio Behavioral Risk Factor Surveillance System, Chronic Disease and Behavioral Epidemiology Section, Ohio Department of Health, 2008.

[2] The weighted percentages were adjusted to: 1) probability of selection (i.e., number of phone numbers per household adults per household and completed interviews); and 2) demographic distribution (i.e., age and gender).

[3] "Don't Know" and "Refused" responses were excluded from the analyses.

- The Healthy People (HP) 2010 objectives for cancer-related screening tests and health behaviors provide a framework for developing cancer prevention and early detection programs. The national objectives for selected tests/behaviors are: mammography screening in the past two years ≥ 70 percent; Pap smear screening in the past three years ≥ 90 percent; current smoking ≤ 12 percent; current use of smokeless tobacco ≤ 0.2 percent; and overweight and obese combined ≤ 40 percent.
- Noble County compared to Ohio has a lower estimated self-reported prevalence of having had the following screening tests: mammography in the past two years; colonoscopy/sigmoidoscopy in the past five years; PSA test in the past year; DRE in the past year; and Pap smear in the past three years (Table 6).
- Noble County compared to Ohio has a higher estimated self-reported prevalence of current smoking; current use of smokeless tobacco; consuming less than five fruits/vegetables per day; obesity; and no physical activity in the past month (Table 7).

Table 7. Estimated* Prevalence (self-reported) of Select Cancer-related Health Behaviors, by Gender, among Adults (Age 18+) in Noble County with Comparison to Ohio, 2004-2007¹⁻³

Cancer-related Health Behavior	Male		Female		Total	
	Noble County	Ohio	Noble County	Ohio	Noble County	Ohio
Current Smoking ⁴	30.7%	24.6%	29.0%	22.4%	30.0%	23.4%
Current Use of Smokeless Tobacco ⁵	5.6%	5.4%	0.2%	0.2%	3.4%	2.7%
Consuming <5 Fruits/Vegetables Per Day	86.5%	83.3%	74.2%	73.7%	81.4%	78.3%
Overweight ⁶	32.6%	43.0%	26.9%	29.6%	30.3%	36.2%
Obese ⁶	33.1%	27.2%	32.0%	25.8%	32.6%	26.5%
No Physical Activity in Past Month ⁷	23.3%	21.6%	31.6%	27.0%	26.7%	24.4%

[1] Source: Ohio Behavioral Risk Factor Surveillance System, Chronic Disease and Behavioral Epidemiology Section, Ohio Department of Health, 2008.

[2] The weighted percentages were adjusted to: 1) probability of selection (i.e., number of phone numbers per household adults per household and completed interviews); and 2) demographic distribution (i.e., age and gender).

[3] "Don't Know" and "Refused" responses were excluded from the analyses.

[4] Persons who reported smoking at least 100 cigarettes in their lifetime and currently smoke every day or some days.

[5] Persons who reported currently using smokeless tobacco every day or some days.

[6] Overweight = body mass index (BMI) of 25.0-29.9 kg/m²; Obese = BMI ≥ 30.0 kg/m².

[7] Persons who responded "No" to the question "During the past month, did you participate in physical activities?"

* Estimates for Noble County are based on the estimated prevalence percentages for southeast Ohio, adjusted for the age- and gender-specific population proportions for Noble County. Southeast Ohio includes the following counties: Athens, Belmont, Carroll, Coshoccon, Gallia, Guernsey, Harrison, Hocking, Jackson, Jefferson, Lawrence, Meigs, Monroe, Morgan, Muskingum, Noble, Perry, Tuscarawas, Vinton and Washington.

Stage at Diagnosis

Table 8. Percentage of Cancer Cases by Stage at Diagnosis for the Leading and Screenable Sites/Types of Cancer in Noble County with Comparison to Ohio and the US, 2001-2005^{1,2}

Cancer Site/Type	Noble County		Ohio		US	
	Late Stage	Unstaged/Unknown	Late Stage	Unstaged/Unknown	Late Stage	Unstaged/Unknown
Breast (Female)	32.4%	5.9%	27.3%	4.7%	29.6%	1.9%
Cervix	0.0%	0.0%	39.6%	10.5%	47.3%	4.8%
Colon and Rectum	44.4%	7.4%	48.3%	11.5%	50.2%	5.3%
Lung and Bronchus	58.0%	20.0%	64.6%	17.7%	74.0%	8.3%
Melanoma of the Skin	20.0%	6.7%	7.0%	9.6%	9.2%	2.2%
Oral Cavity and Pharynx	80.0%	0.0%	55.2%	10.3%	59.0%	5.8%
Prostate	7.7%	5.8%	9.2%	9.7%	4.2%	4.4%
Testis	0.0%	0.0%	25.6%	4.2%	28.1%	1.3%

[1] Source of Ohio data: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2008.

[2] Source of U.S. data: Surveillance, Epidemiology and End Results Program, National Cancer Institute, 2008.

- Cancer stage at diagnosis is the extent or spread of the tumor from the site of origin. The stages, in order of increasing spread, are *in situ*, local, regional and distant. Screening programs should target cancers with high proportions of late-stage tumors, or those diagnosed at regional or distant stage, to increase the probability of survival.
- Cancers may be reported unstaged or with an unknown stage. High proportions of unstaged/unknown stage cancers may indicate poor data quality or incomplete reporting and should be accounted for when comparing proportions by stage. Thus, reporting of high-quality stage data is key to developing appropriate cancer early detection programs.

Conclusion

Cancer concerns at the community level often arise due to lack of knowledge of the true burden of cancer and the risk factors that contribute to this disease. This profile has identified cancer sites/types and populations with high incidence and mortality rates and late stage disease, as well as high-risk health behaviors. This information can be used by the Noble County Health District and other cancer-related organizations to develop targeted cancer prevention, early detection and control programs to help reduce the burden of cancer in the community.

Sources of Data and Additional Information

- **Ohio Cancer Incidence Surveillance System:**
http://www.odh.ohio.gov/ODHPrograms/svio/ci_surv/ci_surv1.aspx
- **U.S. Census Bureau:** <http://www.census.gov>
- **Ohio Vital Statistics Program:** <http://www.odh.ohio.gov/vitalstatistics/vitalstats.aspx>
- **Surveillance, Epidemiology and End Results (SEER) Program:** <http://www.seer.cancer.gov>
- **Ohio Behavioral Risk Factor Surveillance System:**
<http://www.odh.ohio.gov/odhPrograms/svio/behrisk/behrisk1.aspx>
- **National Cancer Institute:** <http://www.cancer.gov>
- **American Cancer Society:** <http://www.cancer.org>

Technical Notes:

- Ohio cancer incidence data for 2001-2005 were the most recent and complete data available at the time of publication.
- Rates for county health departments, Ohio and the United States were calculated using 2001-2005 postcensal population estimates, whereas rates for city health departments were calculated using the 2000 census population.

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