Tuscarawas 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 Tuscarawas 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 92 percent in Tuscarawas County, compared to 93 percent for Ohio and should be accounted for when comparing Tuscarawas County rates to Ohio and U.S. rates.*

Demographic and Socioeconomic Profile

Table 1. Average Annual Population Estimates for Tuscarawas County by Age Group, Gender and Race, 2001-2005[1]

Age Group	Gender		Race		Total[2]
	Male	Female	White	Black	Population
<20	12,584	11,646	23,703	388	24,230
20+	32,138	35,281	66,511	555	67,419
40+	20,506	23,627	43,609	312	44,133
50+	13,502	16,437	29,587	214	29,939
All Ages	44,722	46,927	90,214	943	91,649

[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 Tuscarawas County is 91,649, of which 33 percent is age 50 and older. The risk of cancer increases with advancing age.
- The population is 51 percent female and 98 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 Tuscarawas County with Comparison to Ohio and the US, 2000[1]

Socioeconomic Measure	Tuscarawas County	Ohio	US
Median Household Income ($)	35,489	40,956	41,994
% Families Below Poverty Level	7.2%	7.8%	9.2%
% No High School Diploma (Ages 25+)	19.7%	17.0%	19.6%
% Female-headed Households with Children <18	5.5%	7.3%	7.2%
% Uninsured[2,3]	11.3%	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 Tuscarawas 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.

Ohio Cancer Incidence Surveillance System

Cancer Incidence and Mortality

Table 3. Average Annual Number and Age-adjusted Rates of Invasive Cancer Cases and Cancer Deaths, by Site/Type, in Tuscarawas County with Comparison to Ohio and the US, 2001-2005[1-3]

Cancer Site / Type	Incidence				Mortality			
	Tuscarawas County		Ohio	U.S.	Tuscarawas County		Ohio	U.S.
	Cases	Rate	Rate	Rate	Deaths	Rate	Rate	Rate
All Sites / Types	**453**	**425.8**	**465.1**	**467.4**	**206**	**188.6**	**203.3**	**189.8**
Bladder	23	21.0	21.7	21.2	5	4.6	5.0	4.3
Brain and Other CNS[4]	7	6.9	6.7	6.5	5	5.1	4.5	4.4
Breast (Female)	60	105.0	121.9	126.1	15	25.1	27.5	25.0
Cervix	4	8.2	7.9	8.4	1	2.4	2.4	2.5
Colon and Rectum	53	48.8	52.9	50.6	19	17.3	20.6	18.8
Corpus Uterus	18	30.9	26.4	23.4	3	5.0	4.4	4.1
Esophagus	6	5.5	5.4	4.6	4	3.7	5.1	4.4
Hodgkin's Lymphoma	3	3.5	2.9	2.8	<1	*	0.5	0.4
Kidney and Renal Pelvis	16	14.8	13.6	13.2	4	3.7	4.6	4.2
Larynx	4	3.5	4.4	3.6	<1	*	1.4	1.3
Leukemia	12	11.7	11.0	12.3	9	8.2	7.6	7.4
Liver and IBD[5]	3	2.4	4.1	6.4	5	4.2	4.3	5.0
Lung and Bronchus	66	61.0	75.0	63.9	57	52.2	60.3	54.1
Melanoma of the Skin	14	13.9	17.0	19.4	4	3.7	2.6	2.7
Multiple Myeloma	5	5.1	5.0	5.6	5	4.2	3.9	3.7
Non-Hodgkin's Lymphoma	21	20.1	19.1	19.5	11	10.2	7.8	7.3
Oral Cavity and Pharynx	9	8.3	9.4	10.4	3	2.5	2.6	2.6
Ovary	7	13.0	12.3	13.3	7	11.6	9.0	8.8
Pancreas	10	9.0	10.6	11.5	11	9.7	10.5	10.6
Prostate	62	131.9	145.7	163.0	12	27.8	27.8	26.7
Stomach	5	4.2	6.0	8.0	2	2.2	3.5	4.1
Testis	3	6.0	5.7	5.4	0	*	0.3	0.3
Thyroid	7	7.4	7.6	9.1	<1	*	0.5	0.5
Other Sites/Types	35	N.A.	N.A.	N.A.	22	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 453 invasive cancer cases and 206 deaths occur among Tuscarawas County residents each year. Of these, four cases 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 Tuscarawas County cancer incidence rate for all sites/types combined (425.8 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 lower in Tuscarawas County (188.6 per 100,000), compared to the United States (189.8 per 100,000) (Table 3).
- Tables 4 and 5 present Tuscarawas 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 black 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 Tuscarawas 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	**216**	**468.0**	**2**	**410.3**	**208**	**360.5**	**<1**	*****	**453**	**425.8**
Bladder	15	32.2	<1	*	5	8.5	0	*	23	21.0
Brain and Other CNS[3]	4	7.7	0	*	3	5.7	0	*	7	6.9
Breast	<1	*	0	*	57	101.7	<1	*	61	57.8
Cervix	—	—	—	—	4	8.3	0	*	4	—
Colon and Rectum	27	59.0	0	*	24	38.5	<1	*	53	48.8
Corpus Uterus	—	—	—	—	16	28.8	0	*	18	—
Esophagus	5	10.9	<1	*	<1	*	0	*	6	5.5
Hodgkin's Lymphoma	1	2.6	0	*	2	3.6	0	*	3	3.5
Kidney and Renal Pelvis	8	17.4	0	*	7	11.0	0	*	16	14.8
Larynx	2	4.2	0	*	1	1.9	0	*	4	3.5
Leukemia	6	12.8	0	*	5	9.2	0	*	12	11.7
Liver and IBD[4]	2	3.5	0	*	1	1.6	0	*	3	2.4
Lung and Bronchus	37	79.4	<1	*	24	40.0	0	*	66	61.0
Melanoma of the Skin	7	14.6	0	*	6	12.9	0	*	14	13.9
Multiple Myeloma	3	6.4	0	*	2	3.9	0	*	5	5.1
Non-Hodgkin's Lymphoma	10	21.3	0	*	11	19.3	0	*	21	20.1
Oral Cavity and Pharynx	5	11.4	0	*	3	5.8	0	*	9	8.3
Ovary	—	—	—	—	7	12.8	0	*	7	—
Pancreas	5	11.5	<1	*	4	6.5	0	*	10	9.0
Prostate	57	121.7	<1	*	—	—	—	—	62	—
Stomach	2	4.8	0	*	2	3.8	0	*	5	4.2
Testis	2	5.6	0	*	—	—	—	—	3	—
Thyroid	2	4.3	0	*	5	9.6	0	*	7	7.4
Other Sites/Types	16	N.A.	0	N.A.	16	N.A.	0	N.A.	35	N.A.

Mortality	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
All Sites/Types	**108**	**239.8**	**1**	**248.8**	**96**	**154.5**	**<1**	*****	**206**	**188.6**
Bladder	4	9.7	0	*	1	1.9	0	*	5	4.6
Brain and Other CNS[3]	4	8.2	0	*	2	2.9	0	*	5	5.1
Breast	<1	*	0	*	15	25.0	<1	*	16	14.6
Cervix	—	—	—	—	1	2.4	0	*	1	—
Colon and Rectum	10	22.4	0	*	9	13.7	0	*	19	17.3
Corpus Uterus	—	—	—	—	3	5.0	0	*	3	—
Esophagus	3	6.0	<1	*	1	1.7	0	*	4	3.7
Hodgkin's Lymphoma	<1	*	0	*	<1	*	0	*	<1	*
Kidney and Renal Pelvis	2	4.3	0	*	2	3.0	0	*	4	3.7
Larynx	<1	*	0	*	0	*	0	*	<1	*
Leukemia	5	12.4	0	*	4	5.8	0	*	9	8.2
Liver and IBD[4]	2	4.9	0	*	2	3.3	<1	*	5	4.2
Lung and Bronchus	36	76.5	<1	*	20	33.3	<1	*	57	52.2
Melanoma of the Skin	3	6.1	0	*	1	2.0	0	*	4	3.7
Multiple Myeloma	2	4.3	0	*	3	3.8	0	*	5	4.2
Non-Hodgkin's Lymphoma	5	11.2	0	*	6	9.5	0	*	11	10.2
Oral Cavity and Pharynx	2	3.9	0	*	<1	*	0	*	3	2.5
Ovary	—	—	—	—	7	11.8	0	*	7	—
Pancreas	5	11.1	<1	*	5	8.1	0	*	11	9.7
Prostate	12	28.1	0	*	—	—	—	—	12	—
Stomach	1	2.9	0	*	1	1.8	0	*	2	2.2
Testis	0	*	0	*	—	—	—	—	0	—
Thyroid	<1	*	0	*	<1	*	0	*	<1	*
Other Sites/Types	11	N.A.	0	N.A.	11	N.A.	0	N.A.	22	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 Tuscarawas 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 Tuscarawas County, 1996-2005[1-4]

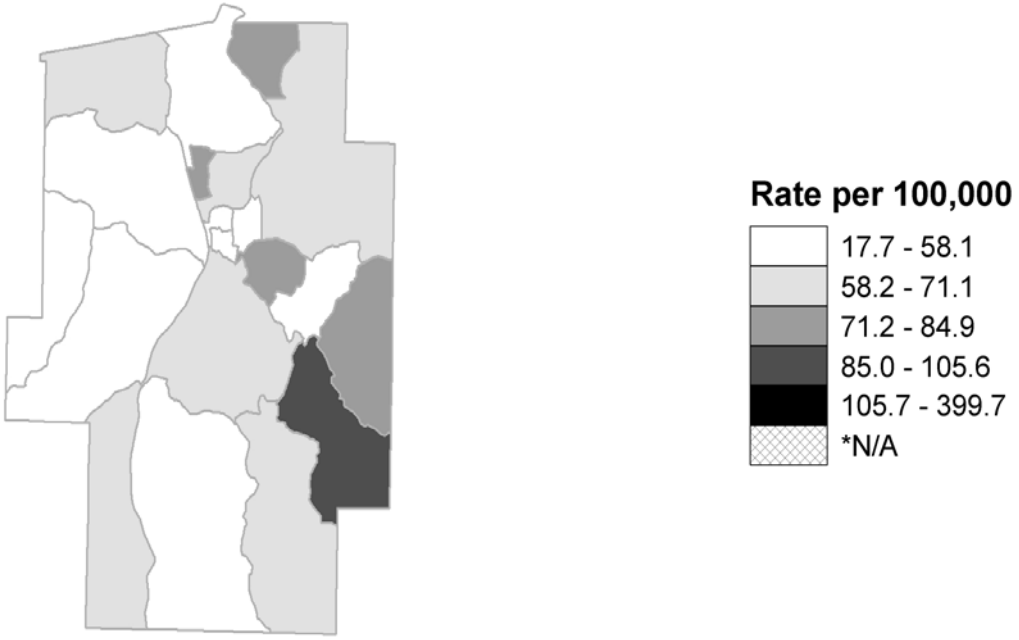


Figure 2. Average Annual Age-adjusted Incidence Rates of Invasive Colon and Rectum Cancer, by Census Tract, in Tuscarawas County, 1996-2005[1-4]

Figure 3. Average Annual Age-adjusted Incidence Rates of Invasive Female Breast Cancer, by Census Tract, in Tuscarawas County, 1996-2005[1-4]

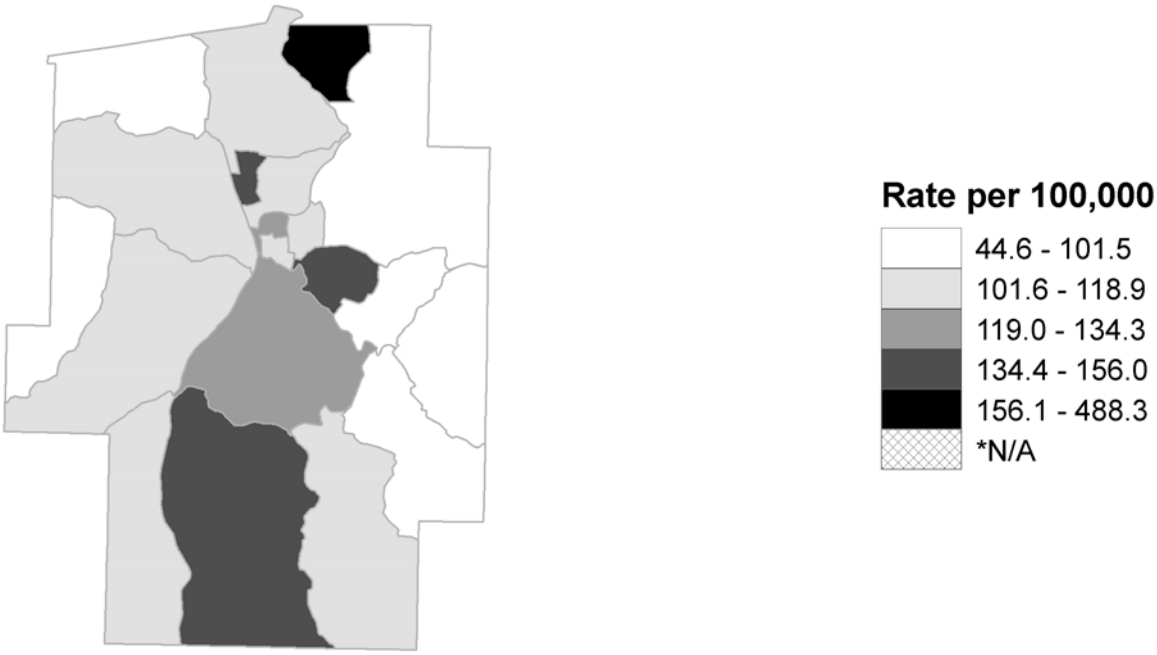
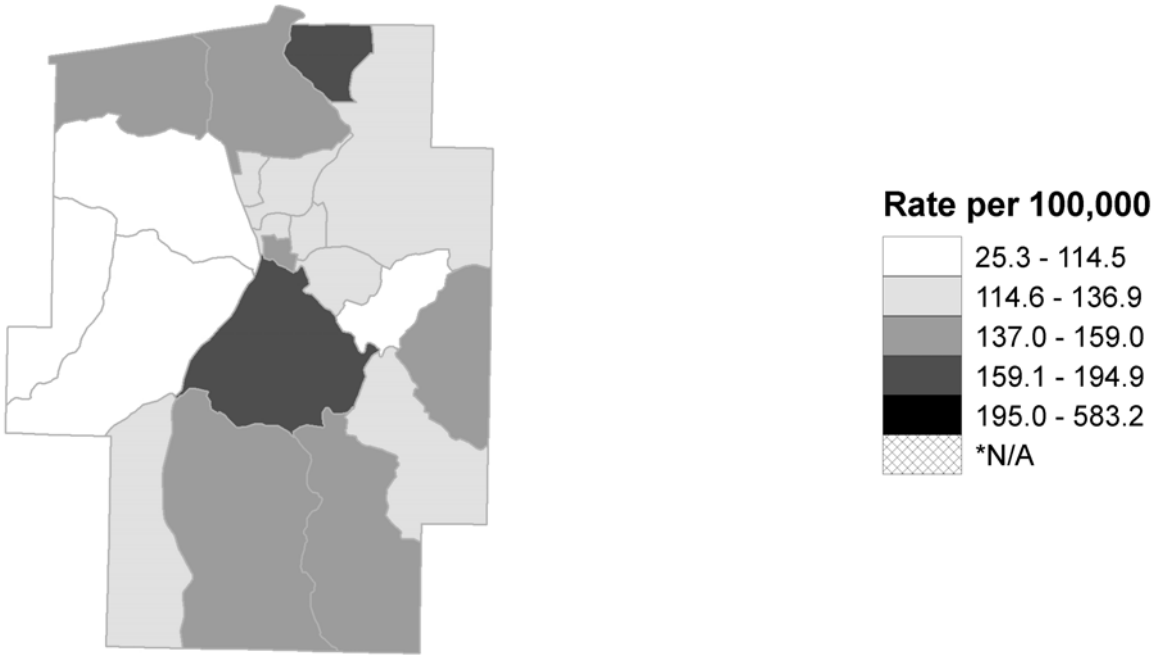


Figure 4. Average Annual Age-adjusted Incidence Rates of Invasive Prostate Cancer, by Census Tract, in Tuscarawas County, 1996-2005[1-4]



[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 Tuscarawas County with Comparison to Ohio, 2004-2007[1-3]

Cancer Screening Test	Tuscarawas County	Ohio
Mammography in Past Two Years (Age 40+)	71.9%	75.4%
Colonoscopy/Sigmoidoscopy in Past Five Years (Age 50+)	41.9%	47.5%
Prostate-specific Antigen (PSA) Test in Past Year (Age 50+)	58.0%	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)	79.9%	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.
- Tuscarawas 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; DRE in the past year; and Pap smear in the past three years (Table 6).
- Tuscarawas County compared to Ohio has a higher estimated self-reported prevalence of current smoking; 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 Tuscarawas County with Comparison to Ohio, 2004-2007[1-3]

Cancer-related Health Behavior	Male		Female		Total	
	Tuscarawas County	Ohio	Tuscarawas County	Ohio	Tuscarawas County	Ohio
Current Smoking[4]	30.0%	24.6%	29.2%	22.4%	29.6%	23.4%
Current Use of Smokeless Tobacco[5]	5.4%	5.4%	0.2%	0.2%	2.7%	2.7%
Consuming <5 Fruits/Vegetables Per Day	86.6%	83.3%	74.3%	73.7%	80.2%	78.3%
Overweight[6]	35.5%	43.0%	26.9%	29.6%	31.0%	36.2%
Obese[6]	32.9%	27.2%	31.9%	25.8%	32.4%	26.5%
No Physical Activity in Past Month[7]	25.9%	21.6%	31.4%	27.0%	28.8%	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/m^2; Obese = BMI ≥ 30.0 kg/m^2.
[7] Persons who responded "No" to the question "During the past month, did you participate in physical activities?"

* Estimates for Tuscarawas County are based on the estimated prevalence percentages for southeast Ohio, adjusted for the age- and gender-specific population proportions for Tuscarawas County. Southeast Ohio includes the following counties: Athens, Belmont, Carroll, Coshocton, 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 Tuscarawas County with Comparison to Ohio and the US, 2001-2005[1,2]

Cancer Site / Type	Tuscarawas County		Ohio		US	
	Late Stage	Unstaged / Unknown	Late Stage	Unstaged / Unknown	Late Stage	Unstaged / Unknown
Breast (Female)	29.7%	7.5%	27.3%	4.7%	29.6%	1.9%
Cervix	45.0%	20.0%	39.6%	10.5%	47.3%	4.8%
Colon and Rectum	46.2%	9.9%	48.3%	11.5%	50.2%	5.3%
Lung and Bronchus	56.2%	30.1%	64.6%	17.7%	74.0%	8.3%
Melanoma of the Skin	10.9%	18.8%	7.0%	9.6%	9.2%	2.2%
Oral Cavity and Pharynx	48.8%	14.0%	55.2%	10.3%	59.0%	5.8%
Prostate	7.7%	9.9%	9.2%	9.7%	4.2%	4.4%
Testis	46.2%	7.7%	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 Tuscarawas 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.

The Ohio Cancer Incidence Surveillance System (OCISS)
Ohio Department of Health

and

The Ohio State University Comprehensive Cancer Center —
Arthur G. James Cancer Hospital and
Richard J. Solove Research Institute

To address comments and information requests:

Ohio Cancer Incidence Surveillance System
Ohio Department of Health
246 North High Street
Columbus, OH 43215

Phone: (614) 752-2689
Fax: (614) 644-1909
E-mail: ociss@odh.ohio.gov

The OCISS is supported in part by the State of Ohio and the Centers for Disease Control and Prevention, National Program of Cancer Registries (Cooperative Agreement U58/DP000795). The contents of this document do not necessarily represent the official views of the CDC.