

Trends in Cancer Incidence, Mortality, and Survival in Ohio

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**Department of
Health**



The James

THE OHIO STATE UNIVERSITY
COMPREHENSIVE CANCER CENTER

Introduction

The purpose of this report is to examine trends in cancer incidence, mortality, and survival in Ohio and display those trends graphically. Trends are described for the most recent 20 years of available data for all cancer sites/types combined and for each of 23 specific cancer sites/types for the following:

- Age-adjusted incidence rates (2000-2019). Note that 2020 incidence rates are shown but not included in analyses because of the substantive impact of the Coronavirus (COVID-19) pandemic on cancer screening and diagnosis.
- Age-adjusted mortality rates (2001-2020).
- Five-year relative survival probabilities for cancers diagnosed from 1996 through 2015 and followed through 2020.

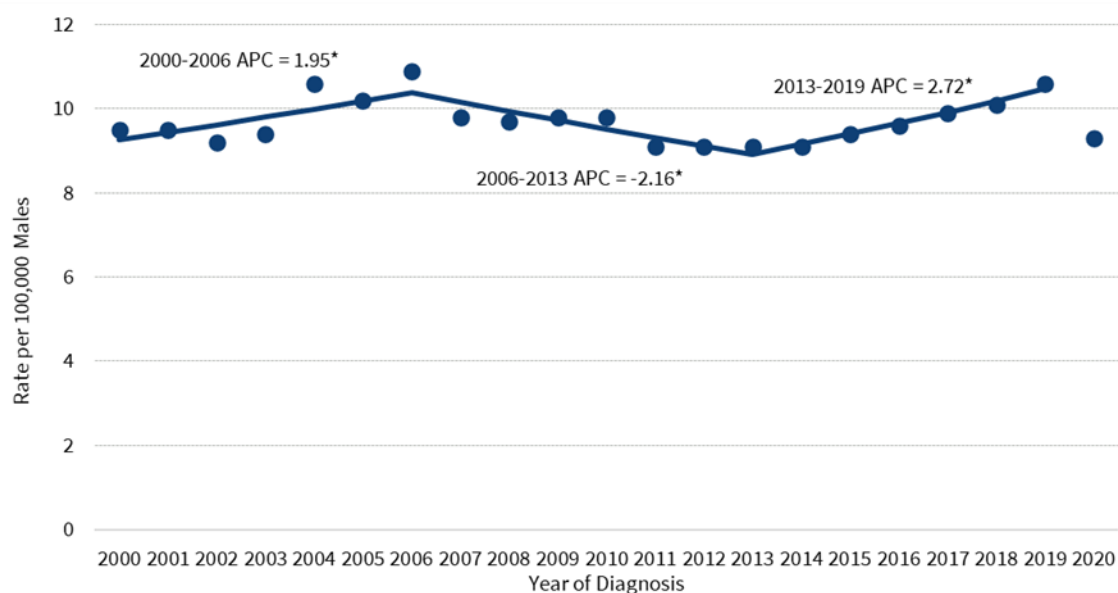
In addition, among Ohioans less than 50 years old, trends in incidence, mortality, and relative survival are described for all cancer sites/types combined and for the following specific cancer sites/types identified in the literature as possibly increasing in younger age groups: female breast, colon and rectum, liver and intrahepatic bile duct (IBD), and pancreas.

Incidence and mortality rates are expressed per 100,000 population and are age-adjusted to the 2000 U.S. Standard Population (19 age groups). Relative survival is a net survival measure representing cancer survival in the absence of other causes of death. Trends in mortality rates in which one or more years were unstable due to fewer than ten deaths are not shown (i.e., testicular cancer, female liver and IBD cancer among those less than 50).

In this report, rather than a direct comparison between yearly rates, trends over time intervals were analyzed **using Joinpoint software**. A “joinpoint” is an inflection point (or year) at which the trend changes. Joinpoint software identifies the line that fits best over the period by utilizing an algorithm that evaluates whether a multi-segmented line is a significantly better fit than a straight or less-segmented line. For analyses shown in this report, a minimum of zero and a maximum of three joinpoints were allowed for each model. Once the line segments are established, an annual percent change (APC) for each segment is calculated from the slope of the trend line and assumes a constant change from the previous year. Each APC is evaluated for statistical significance (hereafter, referred to as significant) based on the magnitude of the increase or decrease and on the number of years over which the change occurred. Reporting an APC for each joinpoint segment provides a complete characterization of the trend over time. However, a summary measure for the entire period represented by one number may be preferred. The average annual percent change (AAPC) is a method which uses the underlying joinpoint model to compute a summary measure to describe the average APCs over a period of multiple years. It is computed as a weighted average of the APCs from the model, with the weights equal to the length of the APC intervals. More detailed information about Joinpoint software is available at: [Joinpoint Trend Analysis Software](#).

Introduction

The figure below shows the trend lines from the joinpoint model for esophageal cancer incidence among males in Ohio from 2000 to 2019, which identified joinpoints in 2006 and 2013. In the male esophageal cancer incidence example, the incidence rate significantly increased an average of 1.95% per year from 2000 to 2006, significantly decreased an average of 2.16% per year from 2006 to 2013, and significantly increased an average of 2.72% per year from 2013 to 2019. The AAPC for the entire period (2000-2019) is 0.65%.



This report includes two sets of interpretations. First, significant AAPC's reflecting changes in incidence, mortality, and survival for each 20-year period are identified. Second, for trends in which at least two line segments (i.e., at least one joinpoint) are identified, significant APCs reflecting more recent changes are shown. (Note that significant trends are noted as "recent" when they occurred over any period containing the last year examined and not containing the first year examined.) Significant AAPCs and APCs are denoted throughout this report by an asterisk (*).

Key Findings

Table 1 identifies which cancer sites/types have significant favorable (**green**) and unfavorable (**orange**) trends in incidence, mortality, and five-year relative survival for their respective 20-year time periods (2000-2019, 2001-2020, and 1996-2015) and the most recent time period (for sites that have at least one joinpoint). A trend is considered favorable if incidence or mortality rates are significantly decreasing or if five-year relative survival is significantly increasing. Conversely, trends are considered unfavorable if incidence or mortality rates are significantly increasing or if five-year relative survival is significantly decreasing. AAPCs and APCs are also shown for the overall time period and most recent time period, respectively.

Trends in incidence rates (all ages):

- Incidence rates for all cancer sites/types combined significantly increased among females and significantly decreased among males, although the AAPCs were minimal.
- The greatest increases in incidence rates from 2000 to 2019 (AAPC>2.0) occurred for liver and IBD cancer, melanoma of the skin, and thyroid cancer.
- Incidence rates significantly increased from 2000 to 2019 and/or during more recent years for eight of 19 cancer sites/types among males and 10 of 21 sites/types among females.
- The most notable differences in incidence trends between males and females occurred for esophageal cancer (significantly increased only among males) and stomach cancer (significantly decreased only among males).

Trends in mortality rates (all ages):

- Mortality rates for all cancer sites/types combined significantly decreased among both males and females from 2001 to 2020.
- For both males and females, mortality rates significantly decreased from 2001 to 2020 and/or during more recent years for many cancer sites/types, while mortality rates significantly increased for cancers of the liver and IBD, oral cavity and pharynx (only among males), pancreas, and uterus.
- The greatest decreases in mortality rates from 2001 to 2020 (AAPC>2.0) occurred for colon and rectum cancer, Hodgkin lymphoma, lung and bronchus cancer (only among males), non-Hodgkin lymphoma (only among females), and cancers of the ovary, pancreas, and stomach.
- The most notable differences in mortality trends between males and females occurred for esophageal cancer (significantly decreased only among males), laryngeal cancer (significantly decreased only among males), multiple myeloma (significantly decreased only among females), and oral cavity and pharynx cancer (significantly increased only among males).

Trends in five-year survival (all ages):

- There were significant increases in five-year relative survival for most cancer sites/types and for all cancer sites/types combined among both males and females.
- The only significant decrease in five-year survival occurred for testicular cancer in recent years.
- The greatest increases in five-year relative survival (AAPC>2.0) were observed for the following cancers: esophagus (only among males), leukemia, liver and IBD, lung and bronchus, multiple myeloma, pancreas, and stomach.
- Significant trends in five-year relative survival were similar among males and females.

Trends in incidence rates, mortality rates, and five-year relative survival among those less than 50 years old:

- Among males and females less than 50 years old, incidence rates for all cancer sites/types combined significantly increased, mortality rates significantly decreased, and five-year survival significantly increased.
 - Incidence rates for cancers of the female breast, colon and rectum, liver and IBD (only among females), and pancreas significantly increased among those less than 50 years old from 2000 to 2019.
 - There was a significant increase in the colon and rectum cancer mortality rate among males less than 50 years old from 2001 to 2020.
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Key Findings

Table 1. Significant Trends in Average Annual Percent Changes and Significant Trends in Recent Annual Percent Changes in Incidence (2000-2019), Mortality (2001-2020), and Five-Year Relative Survival (1996-2015) by Cancer Site/Type for All Ages and Selected Sites/Types for Those Less Than 50 Years Old, by Sex in Ohio

	Incidence				Mortality				Survival			
	Male		Female		Male		Female		Male		Female	
	2000-2019 AAPC	Recent Period APC	2000-2019 AAPC	Recent Period APC	2001-2020 AAPC	Recent Period APC	2001-2020 AAPC	Recent Period APC	1996-2015 AAPC	Recent Period APC	1996-2015 AAPC	Recent Period APC
All Ages:												
All Sites/Types	-0.43		0.33		-1.65		-1.39		0.77		0.83	
Bladder												
Brain and Other CNS											1.15	
Female Breast				0.76			-1.79				0.52	0.46
Cervix												
Colon and Rectum	-1.93		-2.01	-2.71	-2.46		-2.53		0.49		0.50	
Esophagus	0.65	2.72					-1.17		2.54			
Hodgkin Lymphoma					-3.69		-5.03		0.38		0.47	
Kidney and Renal Pelvis	1.88		1.94	0.70	-1.34		-1.44		1.44		1.66	
Larynx	-1.35		-1.16		-1.87							
Leukemia					-1.18		-1.26		2.19		2.20	
Liver and IBD	3.15	2.29	4.15		1.97		2.71		5.41		6.02	
Lung and Bronchus	-1.57	-2.00		-0.45	-3.04	-5.48	-1.72	-3.65	2.52	5.45	2.24	7.75
Melanoma of the Skin	3.00		2.65			-2.17		-2.62	0.63	2.47	0.47	0.86
Multiple Myeloma	1.36		0.59				-1.47		3.88		4.18	
Non-Hodgkin Lymphoma					-1.88		-3.06		1.85	0.91	1.74	0.73
Oral Cavity and Pharynx	1.91		1.54			1.81			1.92		1.07	
Ovary			-1.64	-2.94			-2.26				1.09	
Pancreas	1.67		1.60		0.83		0.50		2.39	5.55	4.26	7.57
Prostate	-1.51				-2.40				0.11			
Stomach	-0.91	-3.59			-3.13		-2.87		3.11		3.56	
Testis										-0.22		
Thyroid	5.23	2.39	4.83						0.64		0.21	
Uterus			1.06				1.23					
Ages Less than 50 Years:												
All Sites/Types	0.68		0.33		-1.73		-1.58		1.11		0.71	0.66
Female Breast			0.59				-1.97				0.45	
Colon and Rectum	2.54		2.12		1.77				1.19		1.31	
Liver and IBD	-1.85		2.76		-1.94				2.55		2.22	
Pancreas	1.34		1.65						5.06		4.66	14.76

Green indicates significant favorable trend (i.e., significant decrease in incidence or mortality, significant increase in survival).
 Orange indicates significant unfavorable trend (i.e., significant increase in incidence or mortality, significant decrease in survival).
 CNS = Central Nervous System.
 IBD = Intrahepatic Bile Duct.

Average Annual Percent Change of Cancer Incidence Rates

Figure 1a. Average Annual Percent Change of Cancer Incidence Rates in Ohio, 2000-2019

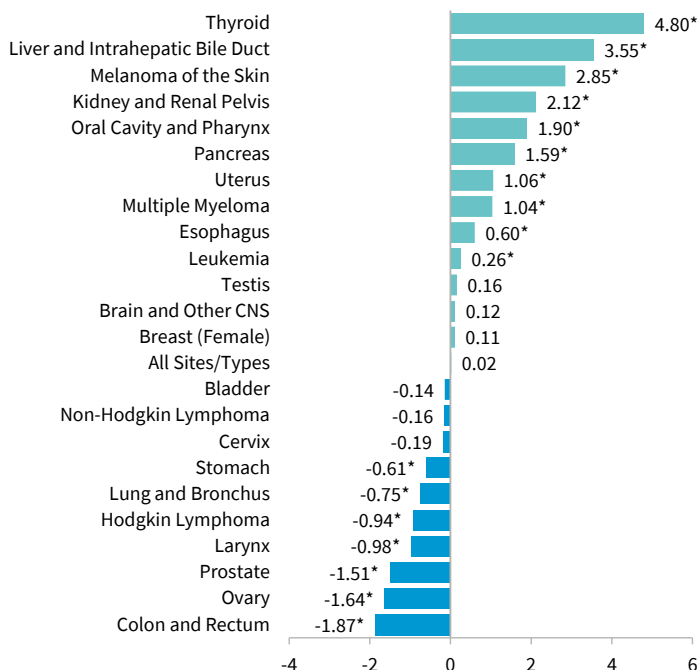


Figure 1b. Average Annual Percent Change of Cancer Incidence Rates Among Males in Ohio, 2000-2019

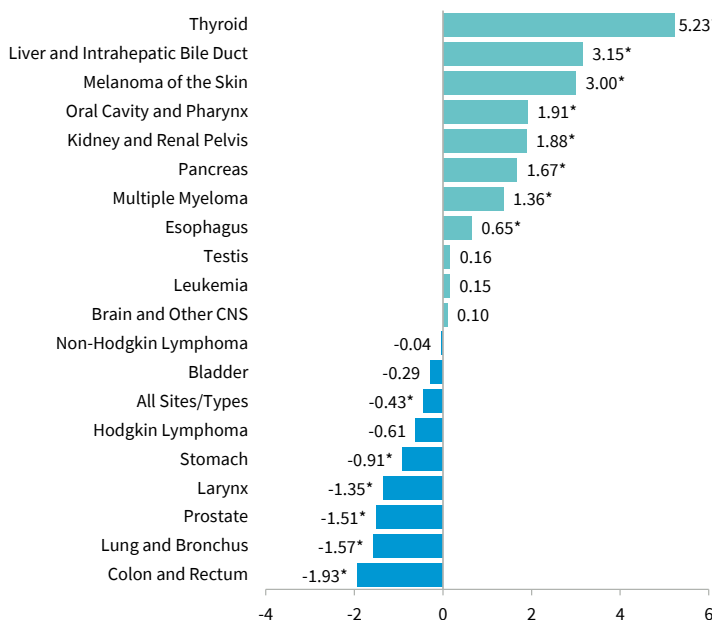
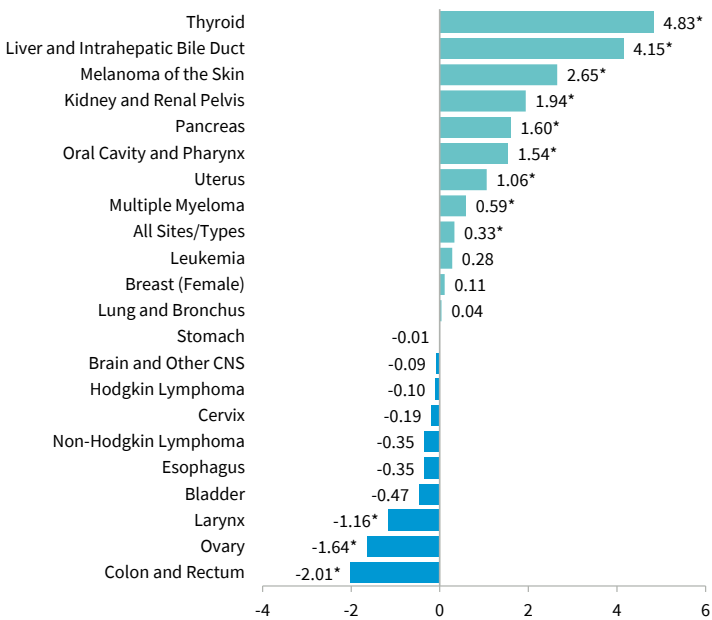


Figure 1c. Average Annual Percent Change of Cancer Incidence Rates Among Females in Ohio, 2000-2019



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.
CNS = Central Nervous System.

Average Annual Percent Change of Cancer Mortality Rates

Figure 2a. Average Annual Percent Change of Cancer Morality Rates in Ohio, 2001-2020

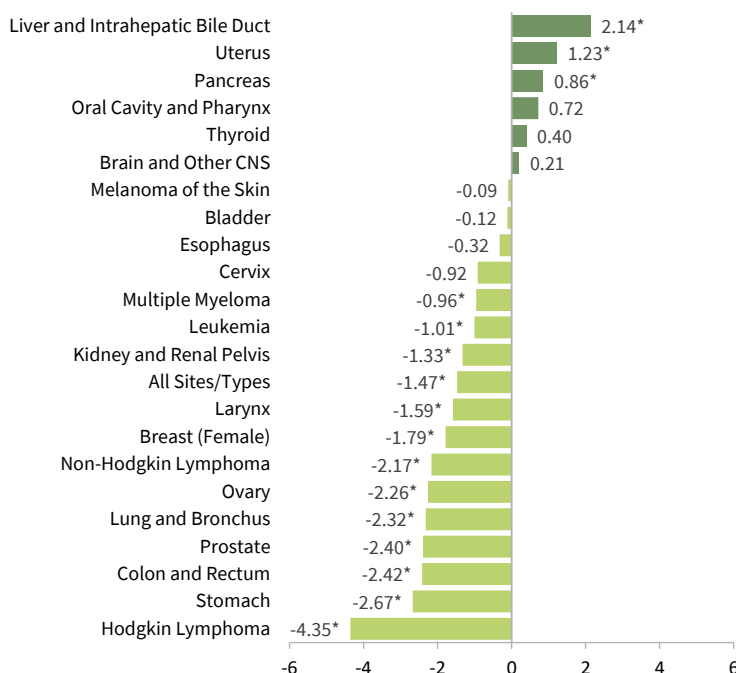
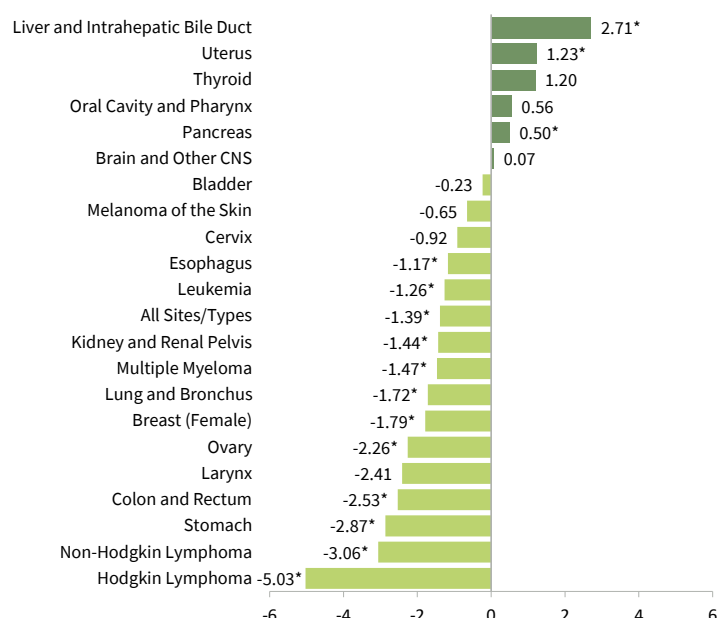
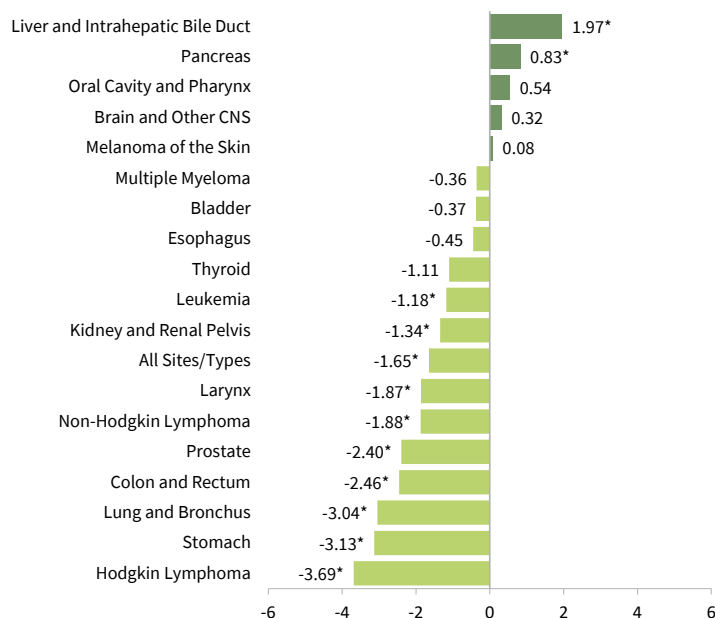


Figure 2b. Average Annual Percent Change of Cancer Mortality Rates Among Males in Ohio, 2001-2020

Figure 2c. Average Annual Percent Change of Cancer Mortality Rates Among Females in Ohio, 2001-2020



Source: Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.
CNS = Central Nervous System.

Average Annual Percent Change of Five-Year Relative Survival

Figure 3a. Average Annual Percent Change of Five-Year Relative Survival in Ohio, 1996-2015

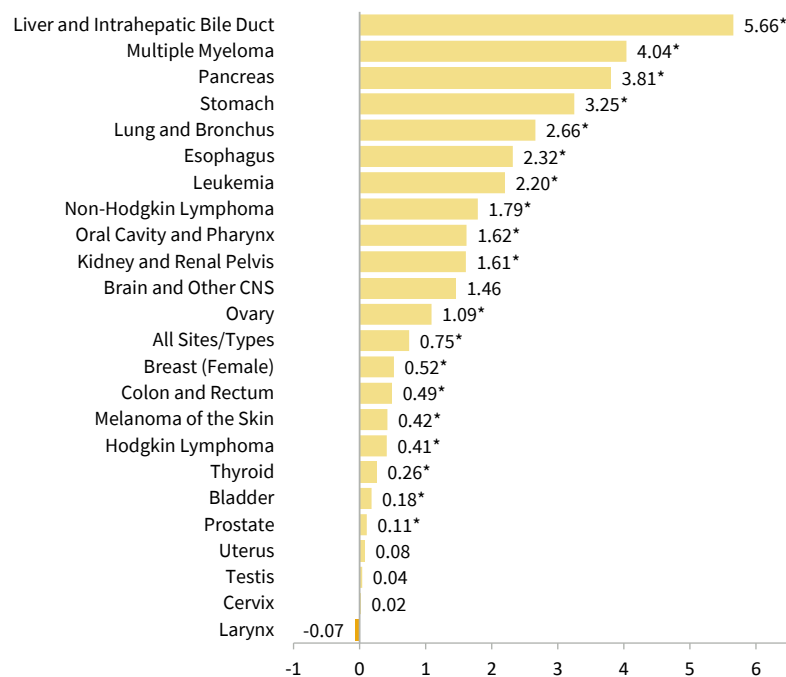


Figure 3b. Average Annual Percent Change of Five-Year Relative Survival Among Males in Ohio, 1996-2015

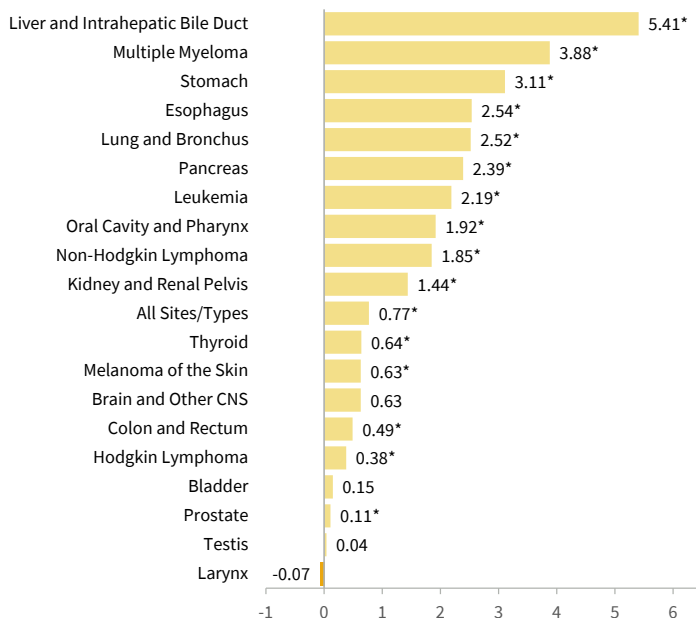
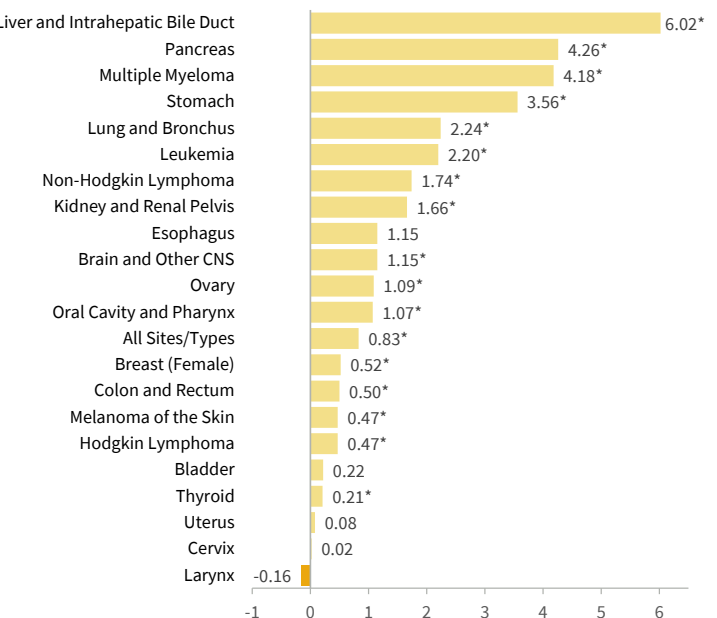


Figure 3c. Average Annual Percent Change of Five-Year Relative Survival Among Females in Ohio, 1996-2015

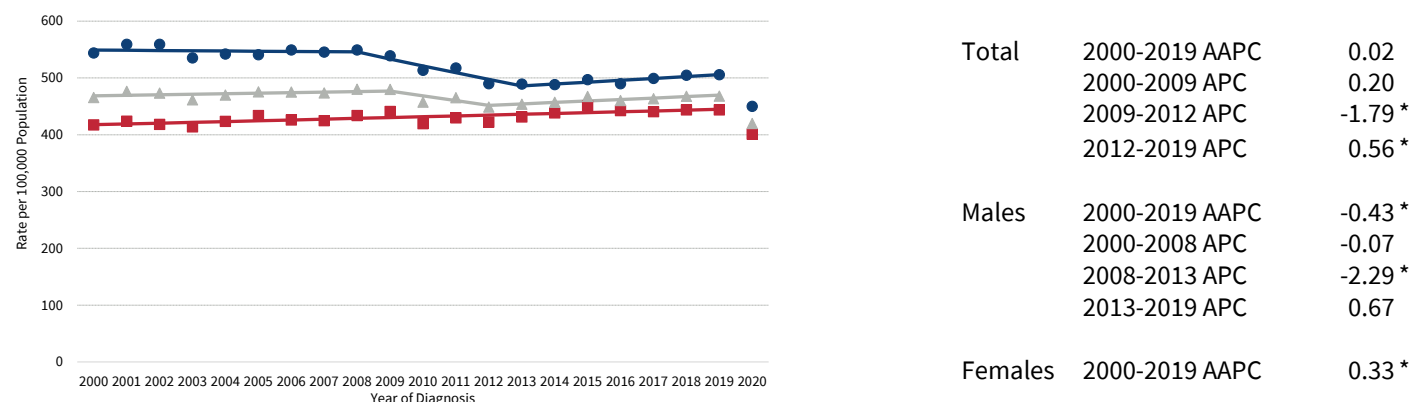


All Cancer Sites/Types

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

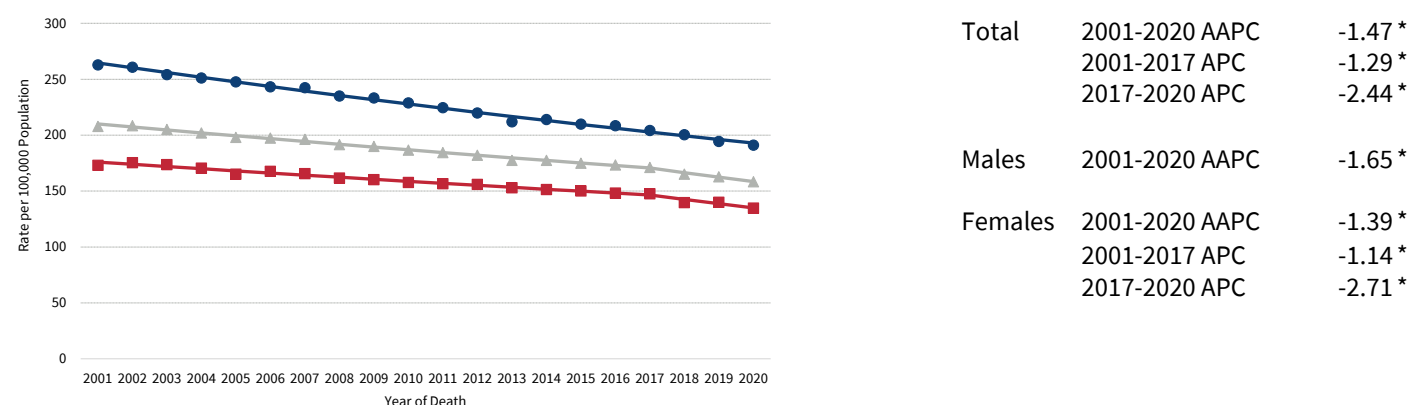


Figure 4. Trends in All Cancer Sites/Types Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



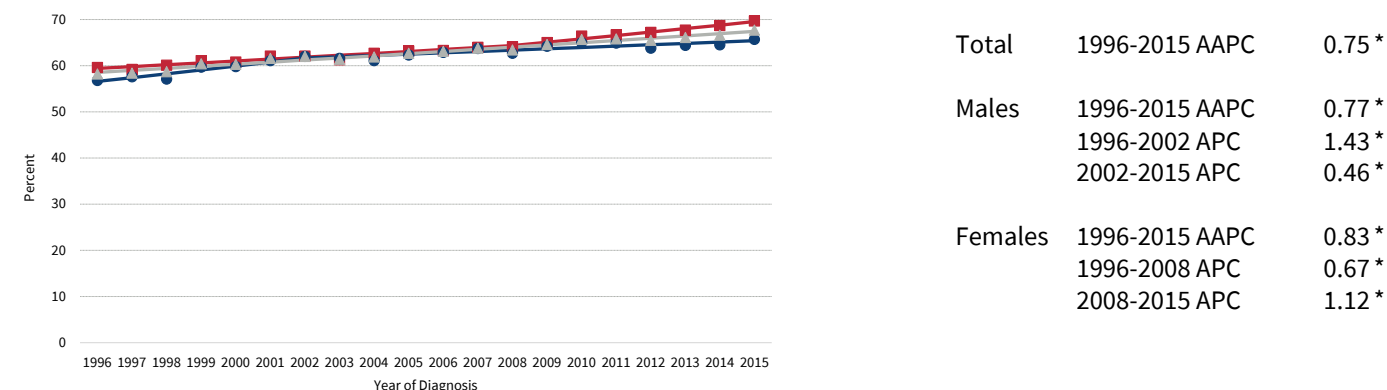
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Figure 5. Trends in All Cancer Sites/Types Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 6. Trends in All Cancer Sites/Types Five-Year Relative Survival by Sex in Ohio, 1996-2015



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Bladder Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

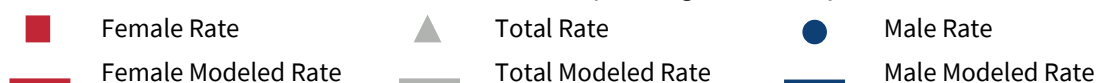
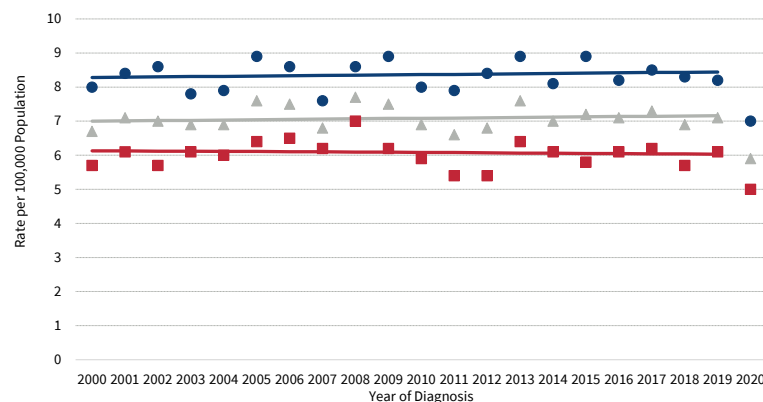


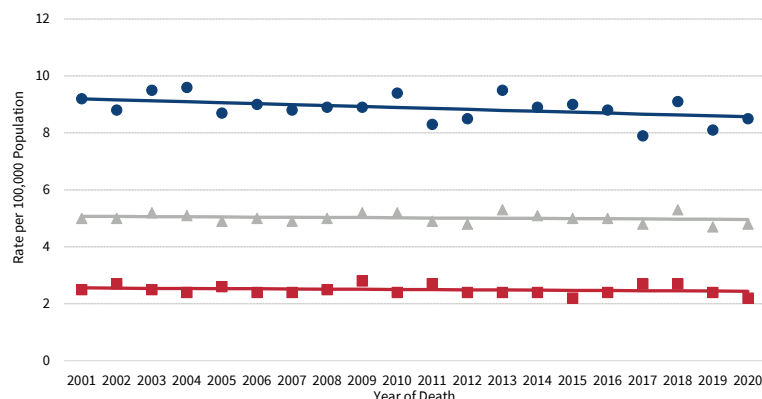
Figure 7. Trends in Bladder Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	-0.14
Males	2000-2019 AAPC	-0.29
Females	2000-2019 AAPC	-0.47

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

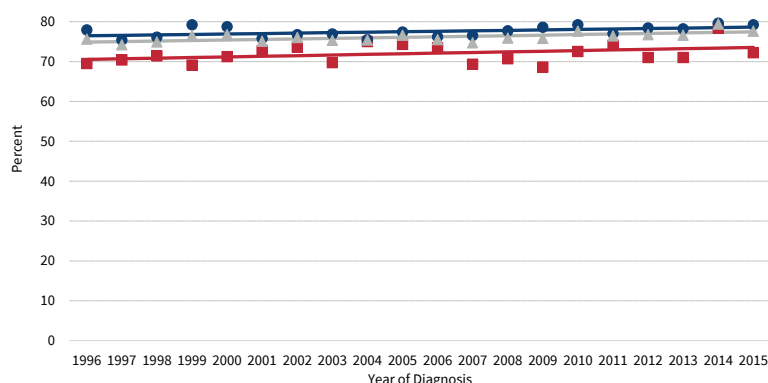
Figure 8. Trends in Bladder Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-0.12
Males	2001-2020 AAPC	-0.37
Females	2001-2020 AAPC	-0.23

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 9. Trends in Bladder Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	0.18 *
Males	1996-2015 AAPC	0.15
Females	1996-2015 AAPC	0.22

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Brain and Other Central Nervous System (CNS) Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

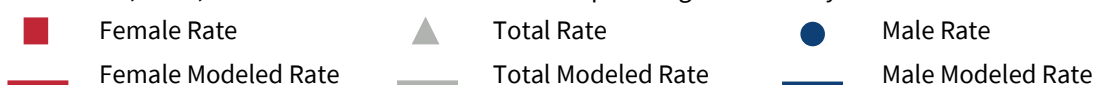
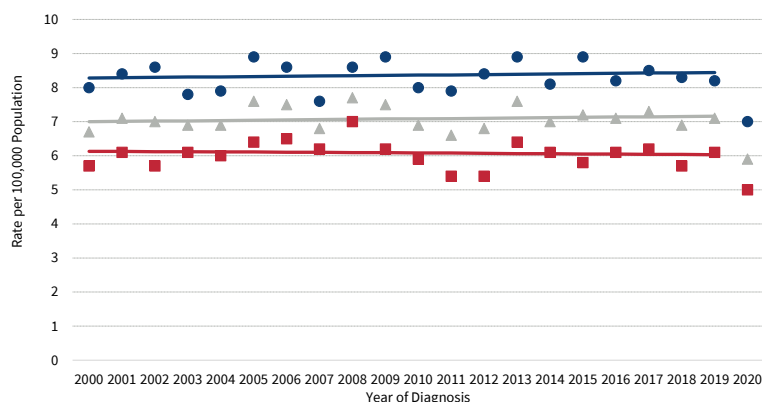


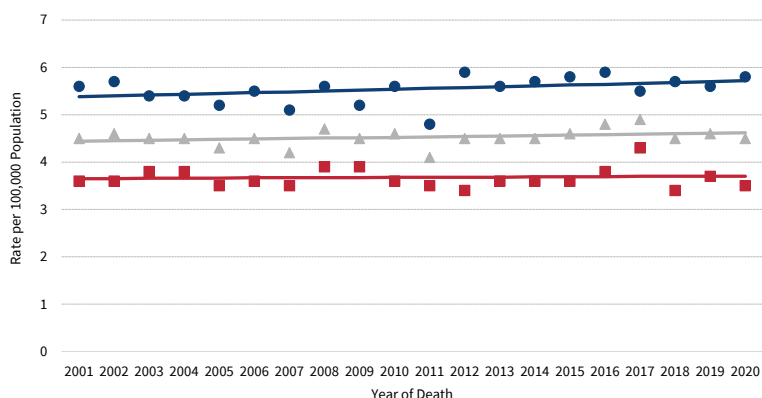
Figure 10. Trends in Brain and Other CNS Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	0.12
Males	2000-2019 AAPC	0.10
Females	2000-2019 AAPC	-0.09

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

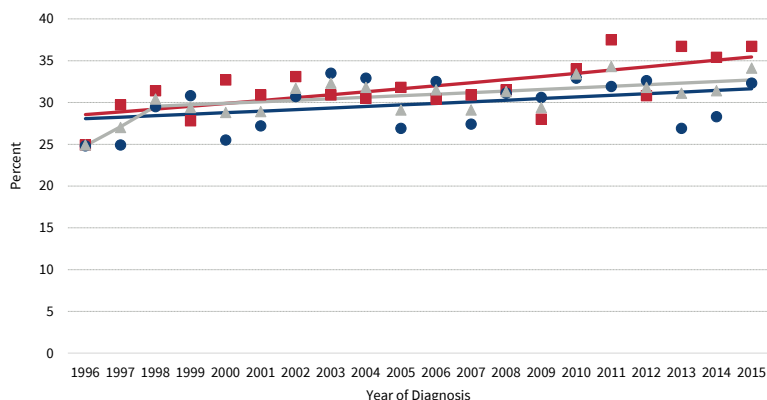
Figure 11. Trends in Brain and Other CNS Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	0.21
Males	2001-2020 AAPC	0.32
Females	2001-2020 AAPC	0.07

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 12. Trends in Brain and Other CNS Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	1.46
	1996-1998 APC	9.06
	1998-2015 APC	0.60
Males	1996-2015 AAPC	0.63
Females	1996-2015 AAPC	1.15 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Female Breast Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

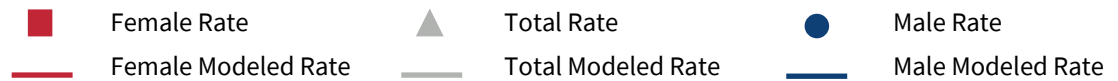
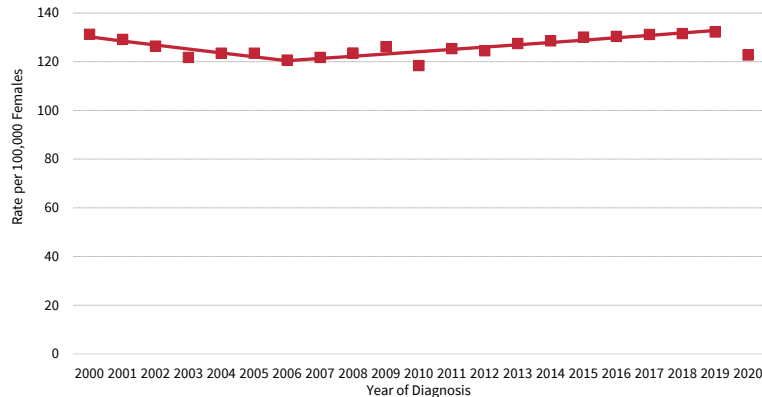


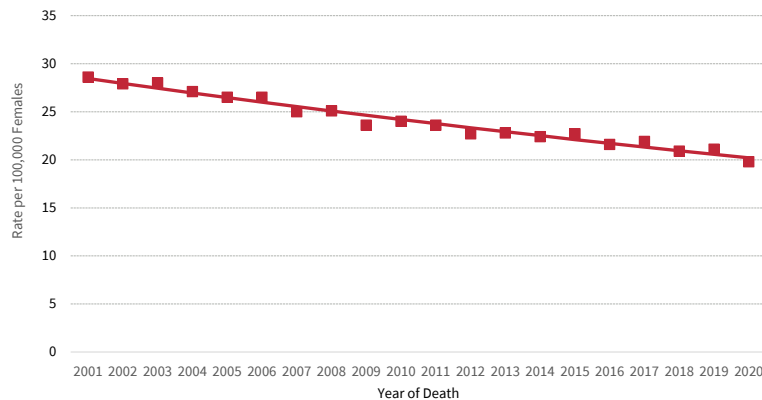
Figure 13. Trend in Female Breast Cancer Age-Adjusted Incidence Rates in Ohio, 2000-2020



Females	2000-2019 AAPC	0.11
	2000-2006 APC	-1.29 *
	2006-2019 APC	0.76 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

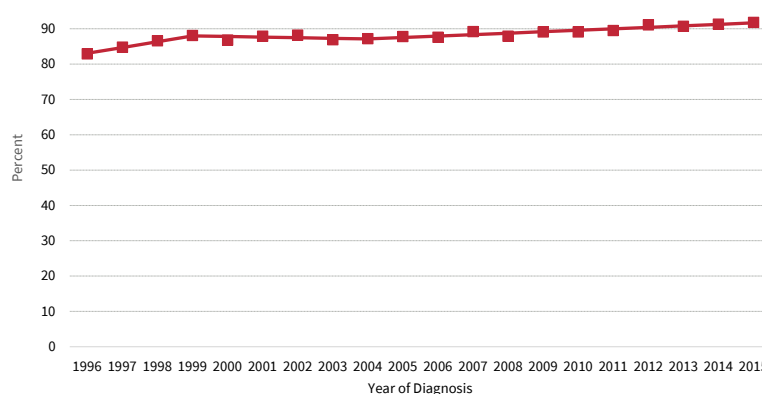
Figure 14. Trend in Female Breast Cancer Age-Adjusted Mortality Rates in Ohio, 2001-2020



Females	2001-2020 AAPC	-1.79 *
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Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 15. Trend in Female Breast Cancer Five-Year Relative Survival in Ohio, 1996-2015



Females	1996-2015 AAPC	0.52 *
	1996-1999 APC	1.93 *
	1999-2004 APC	-0.20
	2004-2015 APC	0.46 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Cervical Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

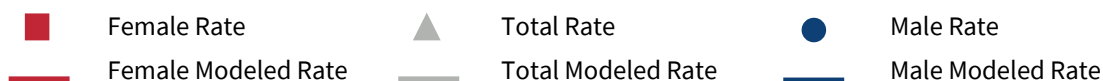
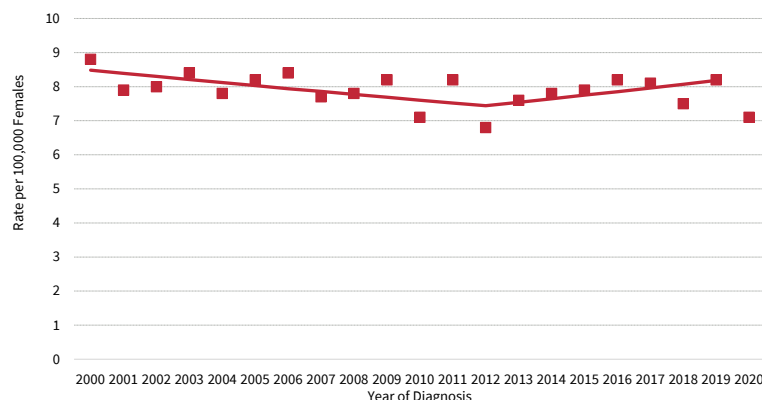


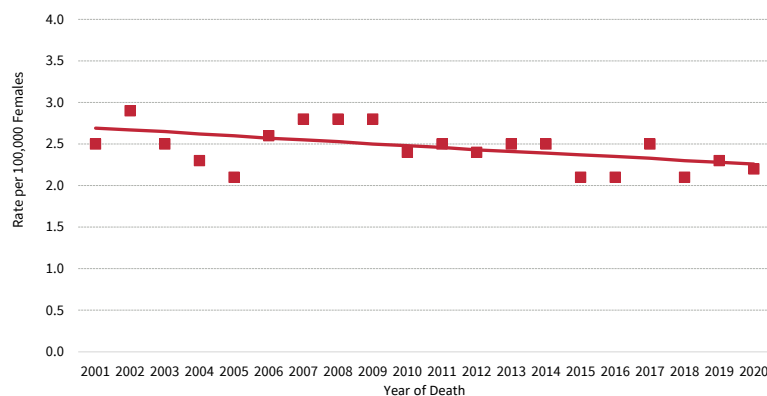
Figure 16. Trend in Cervical Cancer Age-Adjusted Incidence Rates in Ohio, 2000-2020



Females	2000-2019 AAPC	-0.19
	2000-2012 APC	-1.09 *
	2012-2019 APC	1.37

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

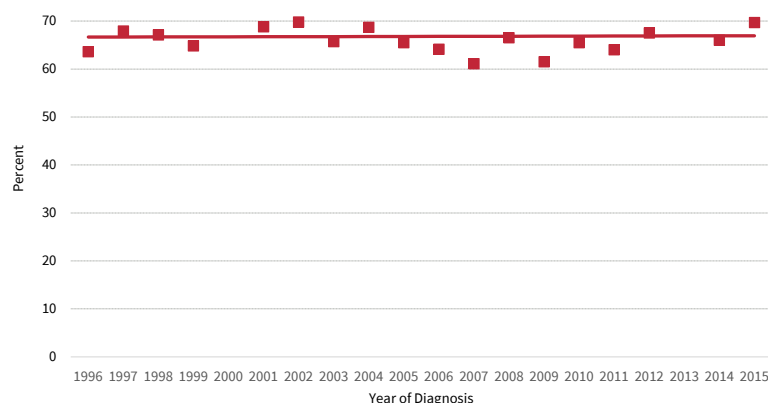
Figure 17. Trend in Cervical Cancer Age-Adjusted Mortality Rates in Ohio, 2001-2020



Females	2001-2020 AAPC	-0.92
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Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 18. Trend in Cervical Cancer Five-Year Relative Survival in Ohio, 1996-2015



Females	1996-2015 AAPC	0.02
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Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Colon and Rectum Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

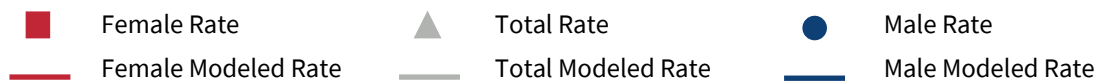
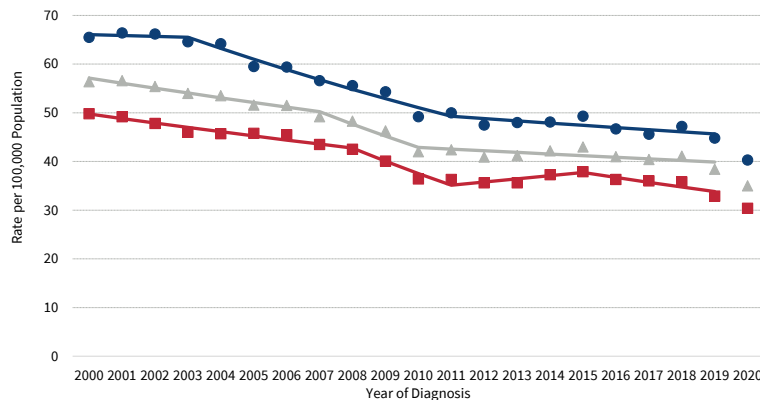


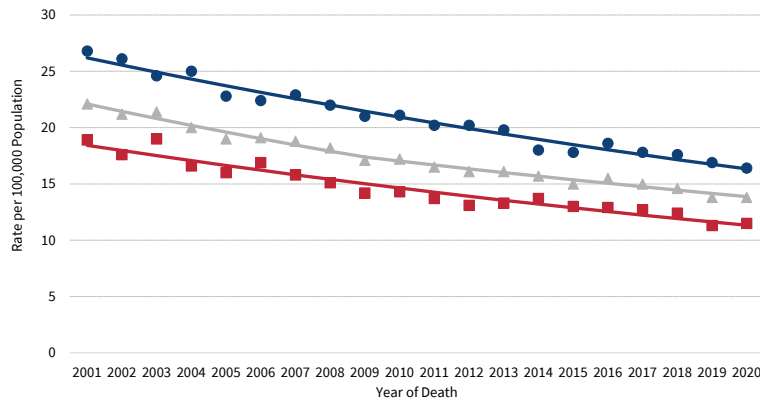
Figure 19. Trends in Colon and Rectum Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	-1.87 *
	2000-2007 APC	-1.82
	2007-2010 APC	-5.13 *
	2010-2019 APC	-0.80
Males	2000-2019 AAPC	-1.93 *
	2000-2003 APC	-0.27
	2003-2011 APC	-3.50 *
	2011-2019 APC	-0.95
Females	2000-2019 AAPC	-2.01 *
	2000-2008 APC	-1.88 *
	2008-2011 APC	-6.32 *
	2011-2015 APC	1.80 *
	2015-2019 APC	-2.71 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

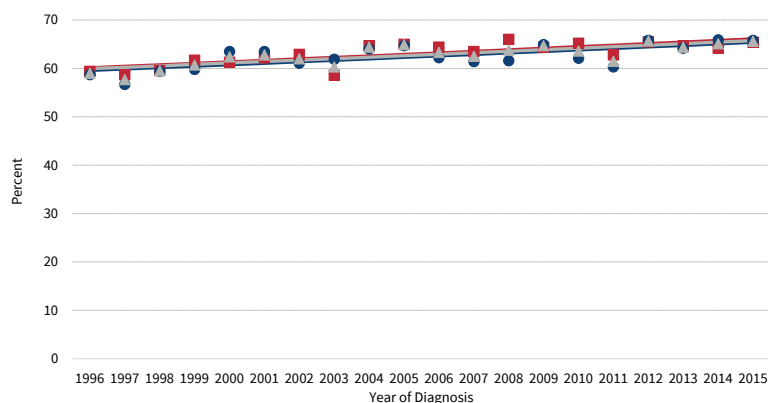
Figure 20. Trends in Colon and Rectum Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-2.42 *
	2001-2009 APC	-2.96 *
	2009-2020 APC	-2.03 *
Males	2001-2020 AAPC	-2.46 *
Females	2001-2020 AAPC	-2.53 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 21. Trends in Colon and Rectum Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	0.49 *
Males	1996-2015 AAPC	0.49 *
Females	1996-2015 AAPC	0.50 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Esophageal Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

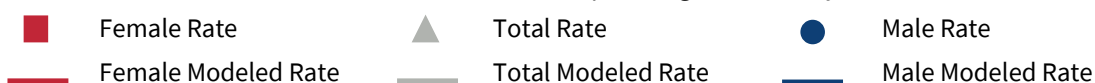
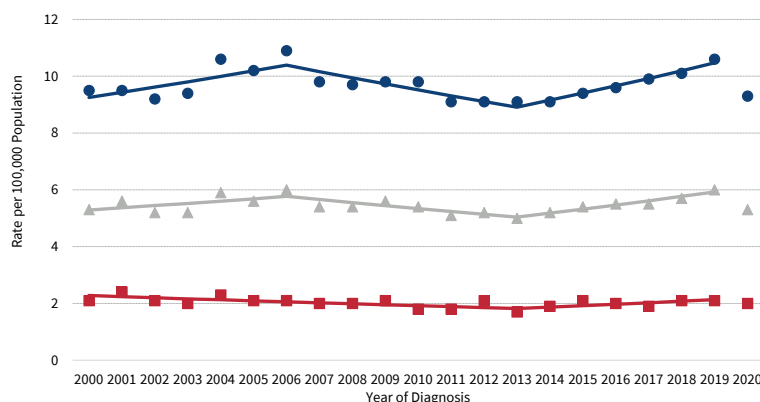


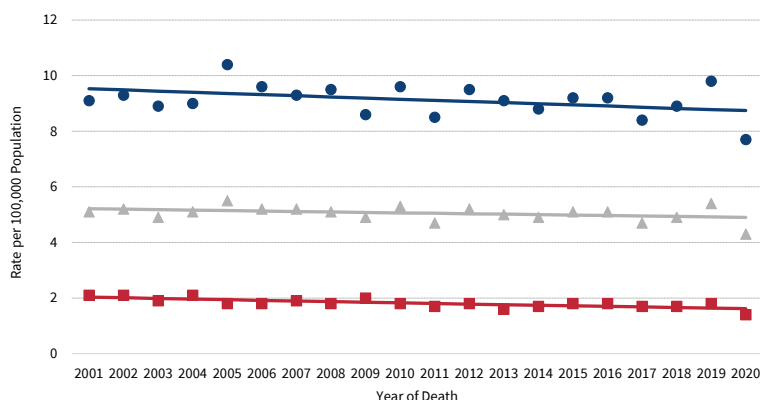
Figure 22. Trends in Esophageal Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	0.60 *
	2000-2006 APC	1.44 *
	2006-2013 APC	-1.91 *
	2013-2019 APC	2.74 *
Males	2000-2019 AAPC	0.65 *
	2000-2006 APC	1.95 *
	2006-2013 APC	-2.16 *
	2013-2019 APC	2.72 *
Females	2000-2019 AAPC	-0.35
	2000-2013 APC	-1.70
	2013-2019 APC	2.63

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

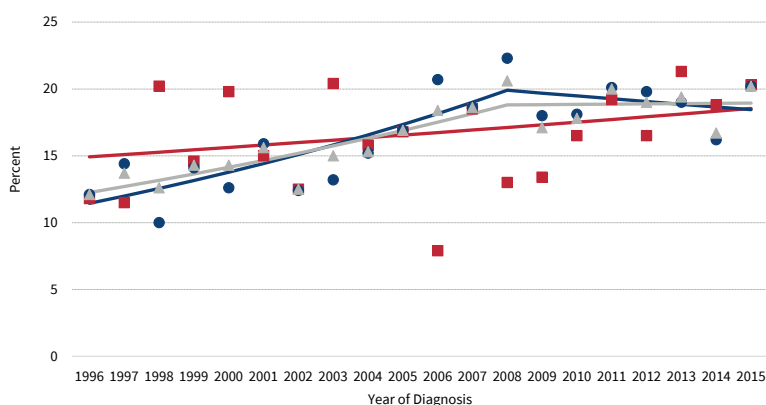
Figure 23. Trends in Esophageal Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-0.32
Males	2001-2020 AAPC	-0.45
Females	2001-2020 AAPC	-1.17 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 24. Trends in Esophageal Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	2.32 *
	1996-2008 APC	3.64 *
	2008-2015 APC	0.10
Males	1996-2015 AAPC	2.54 *
	1996-2008 APC	4.71 *
	2008-2015 APC	-1.08
Females	1996-2015 AAPC	1.15

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Hodgkin Lymphoma

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

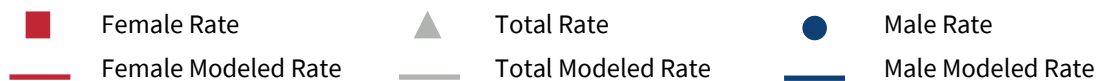
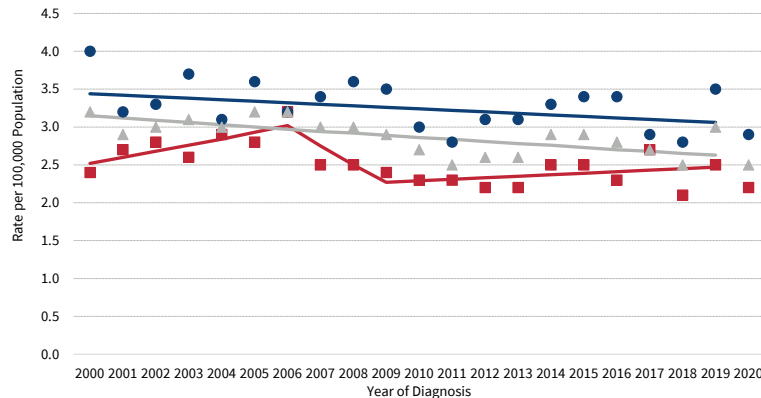


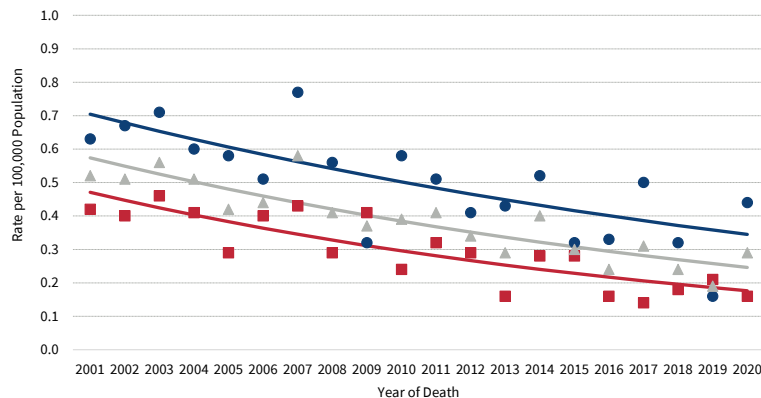
Figure 25. Trends in Hodgkin Lymphoma Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	-0.94 *
Males	2000-2019 AAPC	-0.61
Females	2000-2019 AAPC	-0.10
	2000-2006 APC	3.06 *
	2006-2009 APC	-9.00 *
	2009-2019 APC	0.84

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

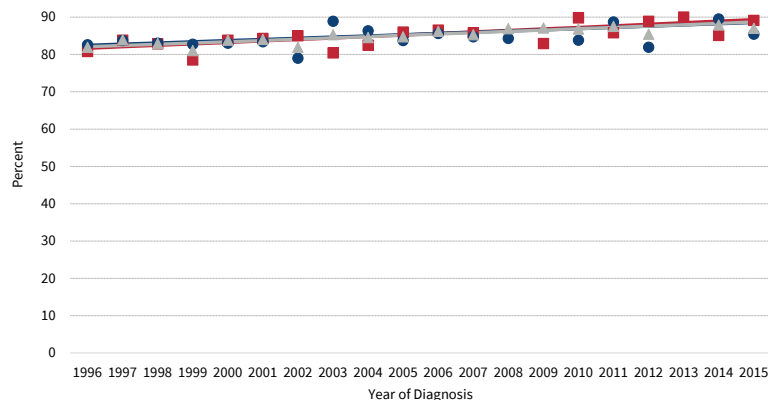
Figure 26. Trends in Hodgkin Lymphoma Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-4.35 *
Males	2001-2020 AAPC	-3.69 *
Females	2001-2020 AAPC	-5.03 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 27. Trends in Hodgkin Lymphoma Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	0.41 *
Males	1996-2015 AAPC	0.38 *
Females	1996-2015 AAPC	0.47 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Kidney and Renal Pelvis Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

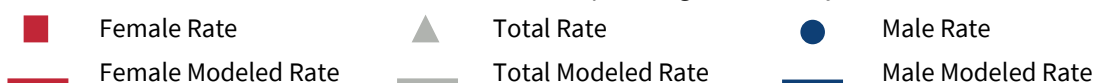
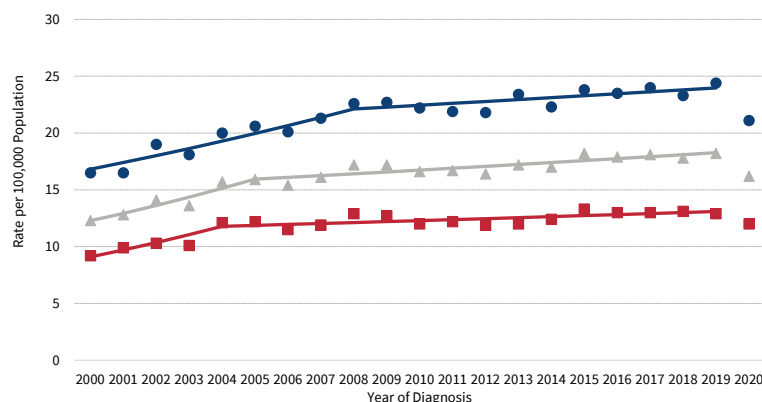


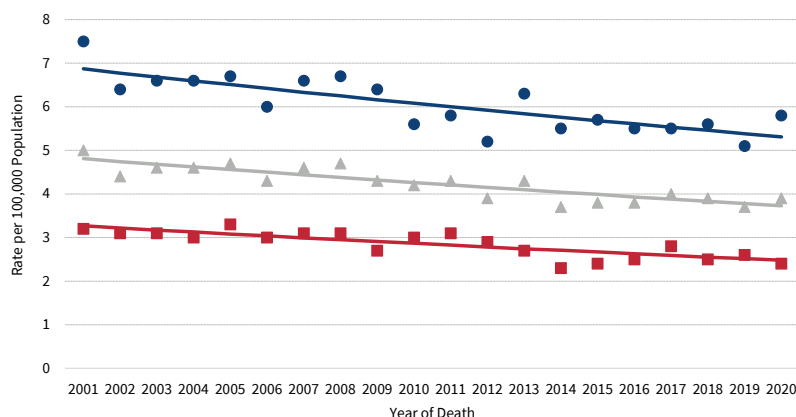
Figure 28. Trends in Kidney and Renal Pelvis Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	2.12 *
	2000-2005 APC	5.36 *
	2005-2019 APC	0.98 *
Males	2000-2019 AAPC	1.88 *
	2000-2008 APC	3.48 *
	2008-2019 APC	0.73
Females	2000-2019 AAPC	1.94 *
	2000-2004 APC	6.72 *
	2004-2019 APC	0.70 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

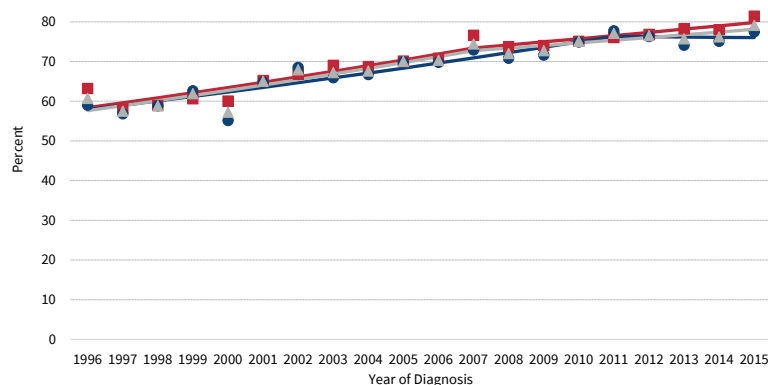
Figure 29. Trends in Kidney and Renal Pelvis Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-1.33 *
Males	2001-2020 AAPC	-1.34 *
Females	2001-2020 AAPC	-1.44 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 30. Trends in Kidney and Renal Pelvis Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	1.61 *
	1996-2007 APC	2.14 *
	2007-2015 APC	0.90
Males	1996-2015 AAPC	1.44 *
	1996-2011 APC	1.86 *
	2011-2015 APC	-0.11
Females	1996-2015 AAPC	1.66 *
	1996-2007 APC	2.10 *
	2007-2015 APC	1.06

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Laryngeal Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

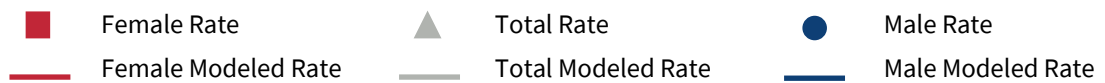
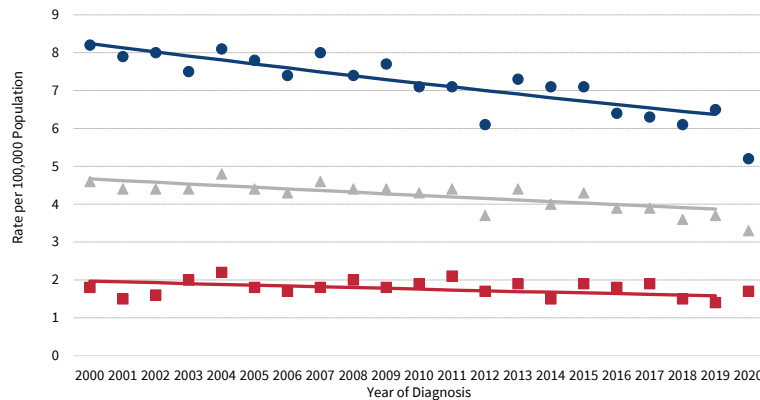


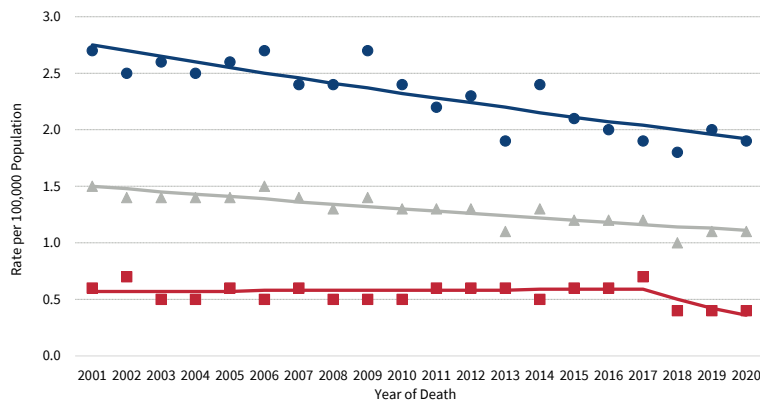
Figure 31. Trends in Laryngeal Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	-0.98 *
Males	2000-2019 AAPC	-1.35 *
Females	2000-2019 AAPC	-1.16 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

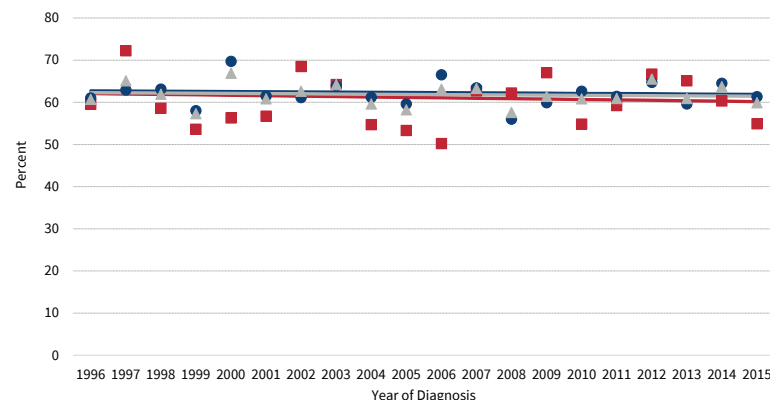
Figure 32. Trends in Laryngeal Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-1.59 *
Males	2001-2020 AAPC	-1.87 *
Females	2001-2020 APC	-2.41
	2001-2017 APC	0.21
	2017-2020 APC	-15.28

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 33. Trends in Laryngeal Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	-0.07
Males	1996-2015 AAPC	-0.07
Females	1996-2015 AAPC	-0.16

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Leukemia

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

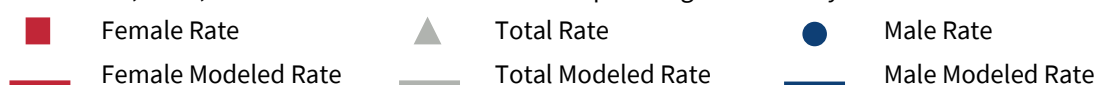
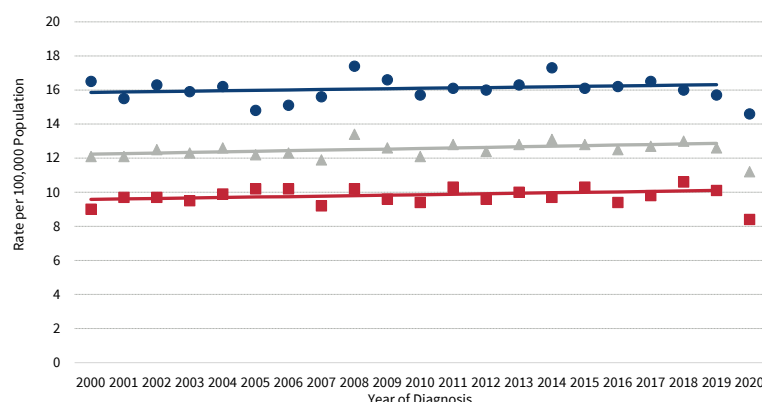


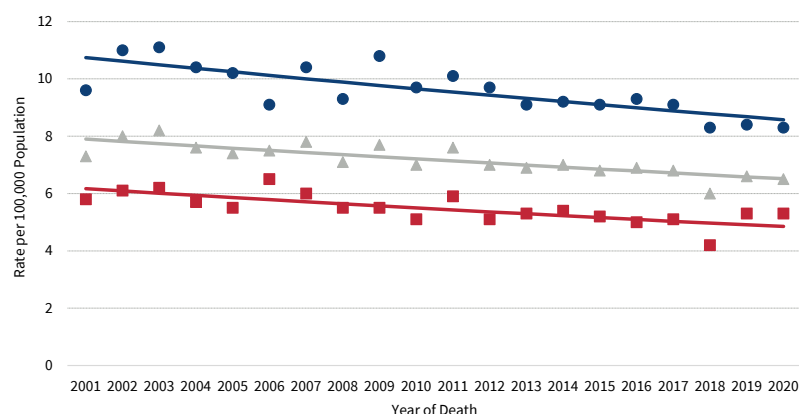
Figure 34. Trends in Leukemia Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	0.26 *
Males	2000-2019 AAPC	0.15
Females	2000-2019 AAPC	0.28

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

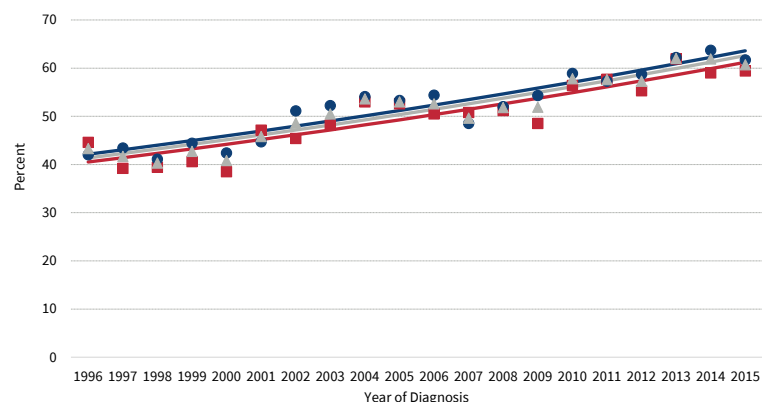
Figure 35. Trends in Leukemia Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-1.01 *
Males	2001-2020 AAPC	-1.18 *
Females	2001-2020 AAPC	-1.26 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 36. Trends in Leukemia Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	2.20 *
Males	1996-2015 AAPC	2.19 *
Females	1996-2015 AAPC	2.20 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Liver and Intrahepatic Bile Duct (IBD) Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

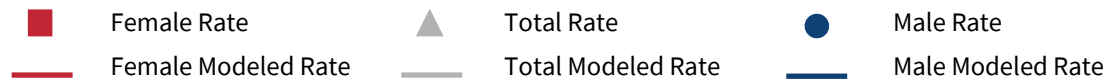
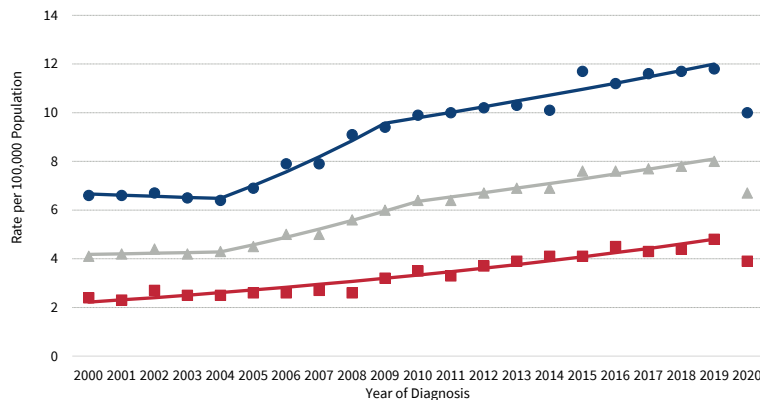


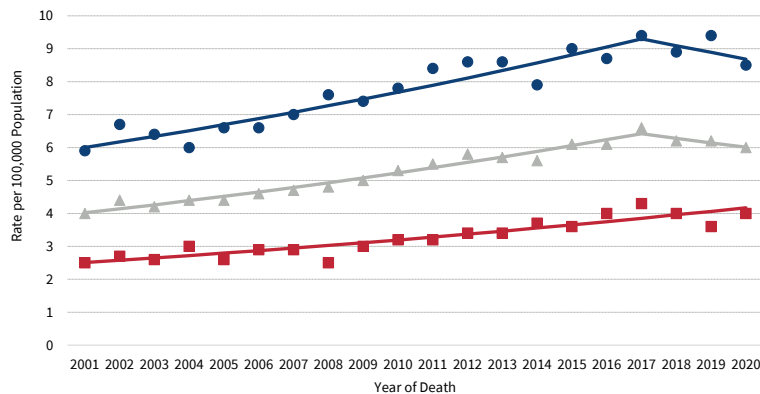
Figure 37. Trends in Liver and IBD Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	3.55 *
	2000-2004 APC	0.59
	2004-2010 APC	6.84 *
	2010-2019 APC	2.72 *
Males	2000-2019 AAPC	3.15 *
	2000-2004 APC	-0.67
	2004-2009 APC	8.12 *
	2009-2019 APC	2.29 *
Females	2000-2019 AAPC	4.15 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

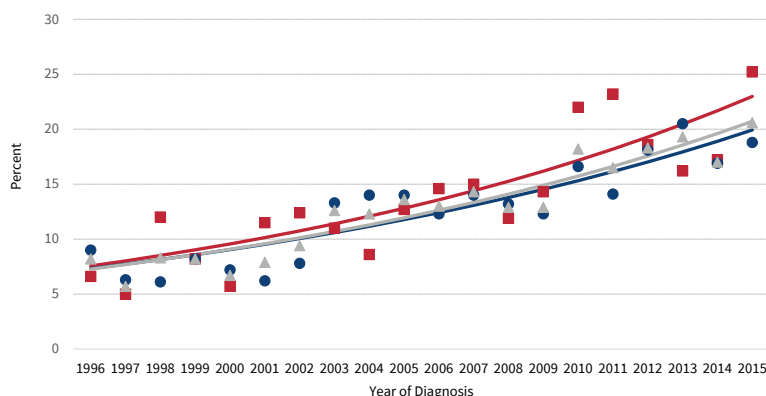
Figure 38. Trends in Liver and IBD Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	2.14 *
	2001-2017 APC	2.97 *
	2017-2020 APC	-2.17
Males	2001-2020 AAPC	1.97 *
	2001-2017 APC	2.78 *
	2017-2020 APC	-2.28
Females	2001-2020 AAPC	2.71 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 39. Trends in Liver and IBD Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	5.66 *
Males	1996-2015 AAPC	5.41 *
Females	1996-2015 AAPC	6.02 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Lung and Bronchus Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

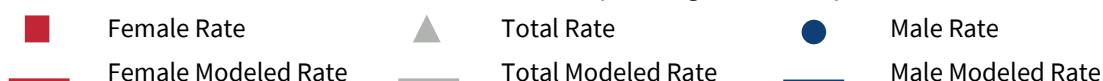
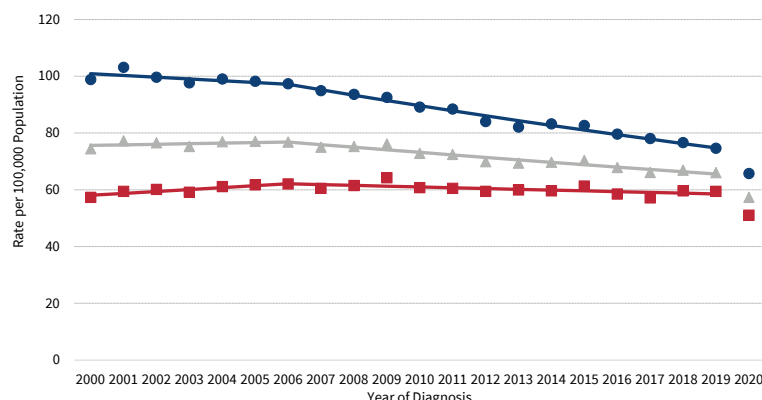


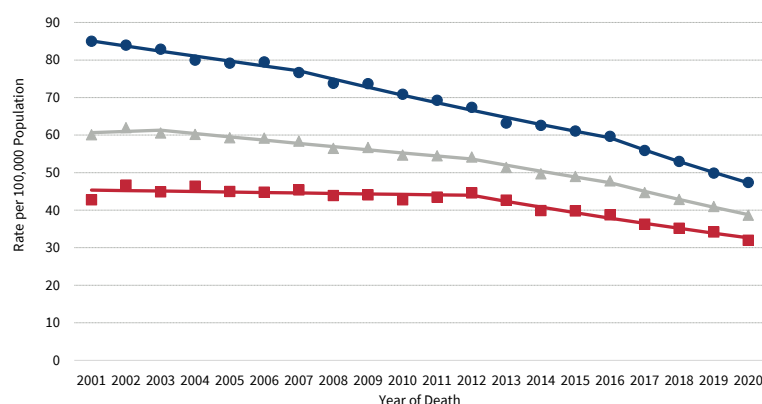
Figure 40. Trends in Lung and Bronchus Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	-0.75 *
	2000-2006 APC	0.26
	2006-2019 APC	-1.22 *
Males	2000-2019 AAPC	-1.57 *
	2000-2006 APC	-0.63
	2006-2019 APC	-2.00 *
Females	2000-2019 AAPC	0.04
	2000-2006 APC	1.12 *
	2006-2019 APC	-0.45 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

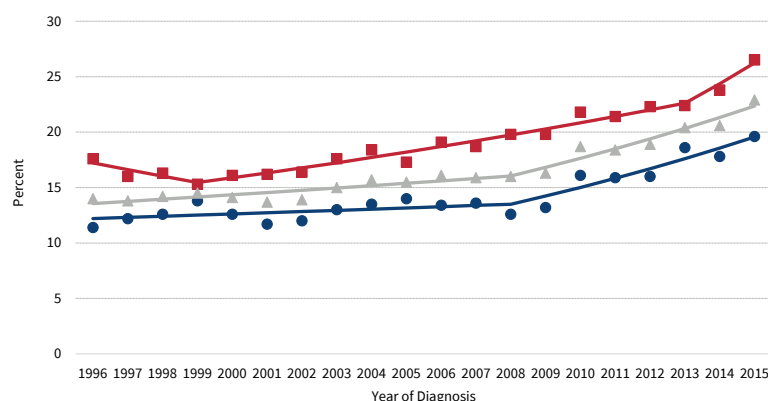
Figure 41. Trends in Lung and Bronchus Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-2.32 *
	2001-2003 APC	0.58
	2003-2012 APC	-1.48 *
	2012-2016 APC	-3.08
	2016-2020 APC	-4.82 *
Males	2001-2020 AAPC	-3.04 *
	2001-2007 APC	-1.63 *
	2007-2016 APC	-2.89 *
	2016-2020 APC	-5.48 *
Females	2001-2020 AAPC	-1.72 *
	2001-2012 APC	-0.28
	2012-2020 APC	-3.65 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 42. Trends in Lung and Bronchus Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	2.66 *
	1996-2008 APC	1.41
	2008-2015 APC	4.84 *
Males	1996-2015 AAPC	2.52 *
	1996-2002 APC	0.84
	2002-2015 APC	5.45 *
Females	1996-2015 AAPC	2.24 *
	1996-1999 APC	-3.56
	1999-2013 APC	2.75 *
	2013-2015 APC	7.75 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Melanoma of the Skin

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

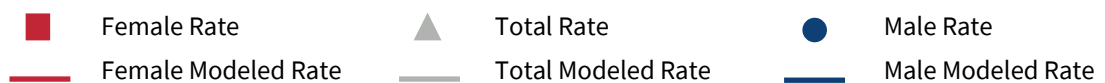
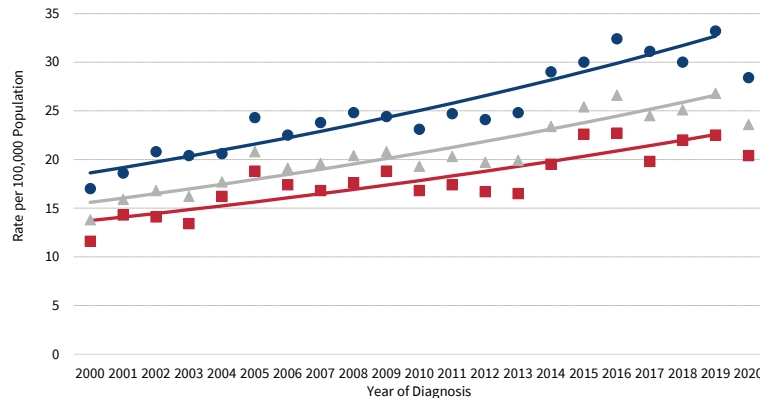


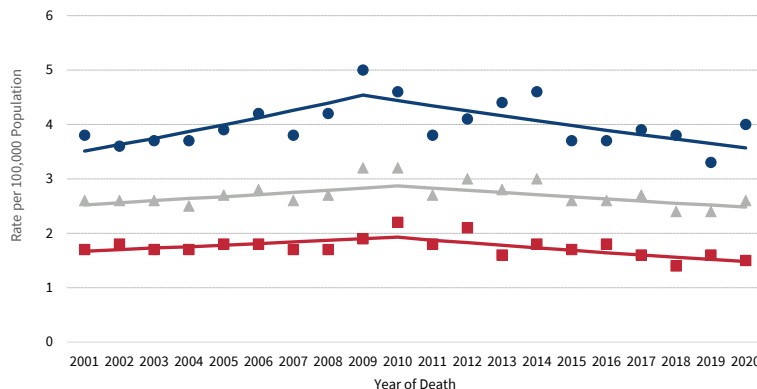
Figure 43. Trends in Melanoma of the Skin Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	2.85 *
Males	2000-2019 AAPC	3.00 *
Females	2000-2019 AAPC	2.65 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

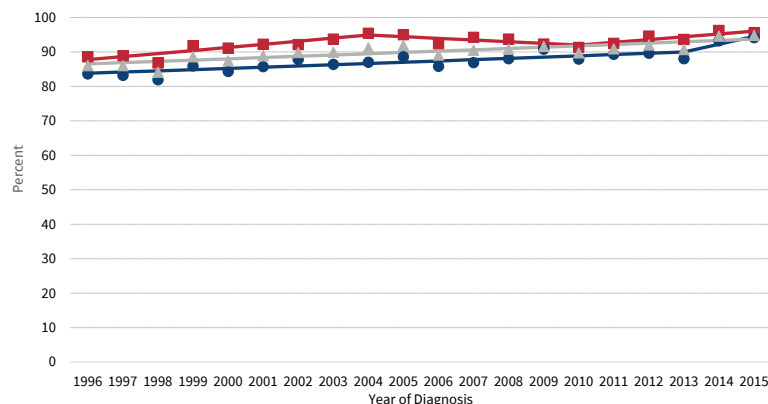
Figure 44. Trends in Melanoma of the Skin Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-0.09
	2001-2010 APC	1.46 *
	2010-2020 APC	-1.47 *
Males	2001-2020 AAPC	0.08
	2001-2009 APC	3.26 *
	2009-2020 APC	-2.17 *
Females	2001-2020 AAPC	-0.65
	2001-2010 APC	1.57
	2010-2020 APC	-2.62 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 45. Trends in Melanoma of the Skin Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	0.42 *
Males	1996-2015 AAPC	0.63 *
	1996-2013 APC	0.42
	2013-2015 APC	2.47 *
Females	1996-2015 AAPC	0.47 *
	1996-2004 APC	0.98 *
	2004-2010 APC	-0.52
	2010-2015 APC	0.86 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Multiple Myeloma

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

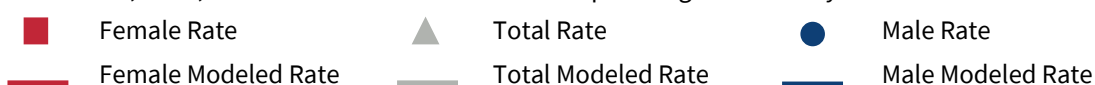
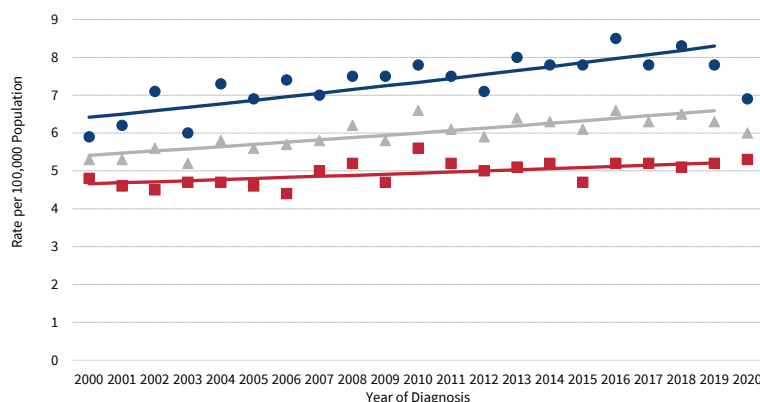


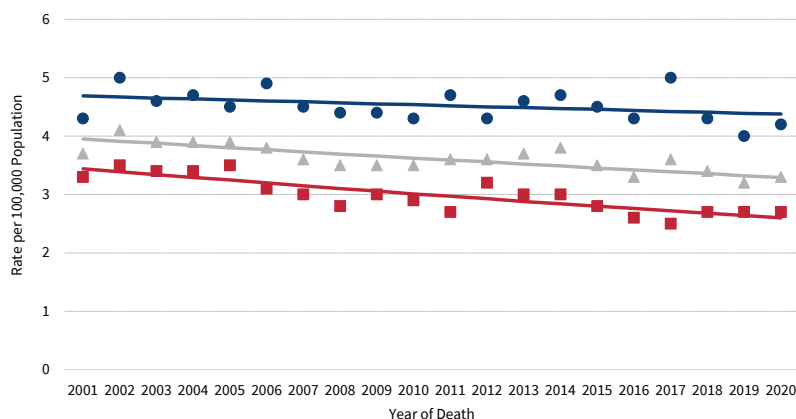
Figure 46. Trends in Multiple Myeloma Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	1.04 *
Males	2000-2019 AAPC	1.36 *
Females	2000-2019 AAPC	0.59 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

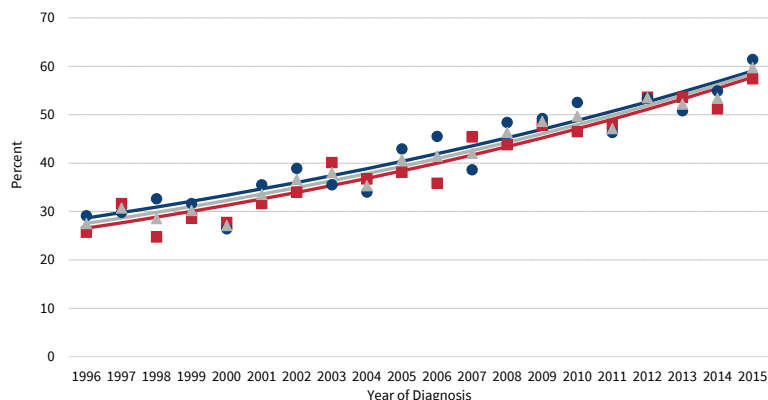
Figure 47. Trends in Multiple Myeloma Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-0.96 *
Males	2001-2020 AAPC	-0.36
Females	2001-2020 AAPC	-1.47 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 48. Trends in Multiple Myeloma Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	4.04 *
Males	1996-2015 AAPC	3.88 *
Females	1996-2015 AAPC	4.18 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Non-Hodgkin Lymphoma

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

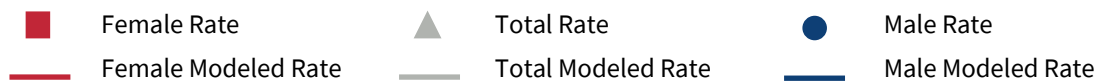
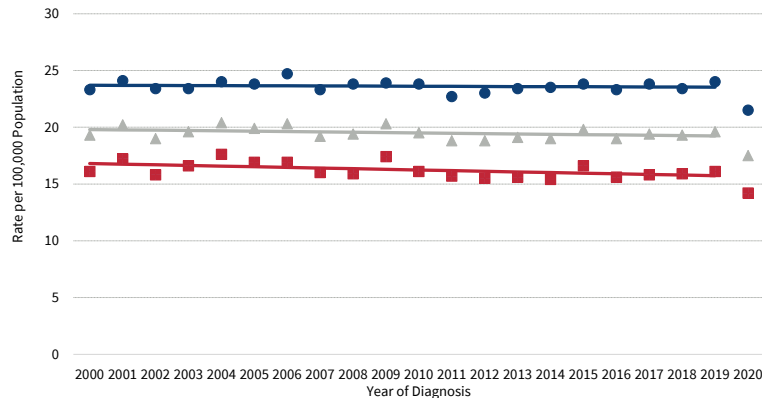


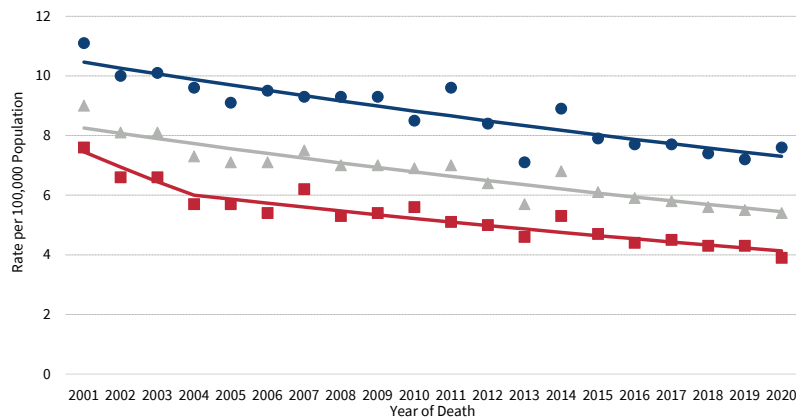
Figure 49. Trends in Non-Hodgkin Lymphoma Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	-0.16
Males	2000-2019 AAPC	-0.04
Females	2000-2019 AAPC	-0.35

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

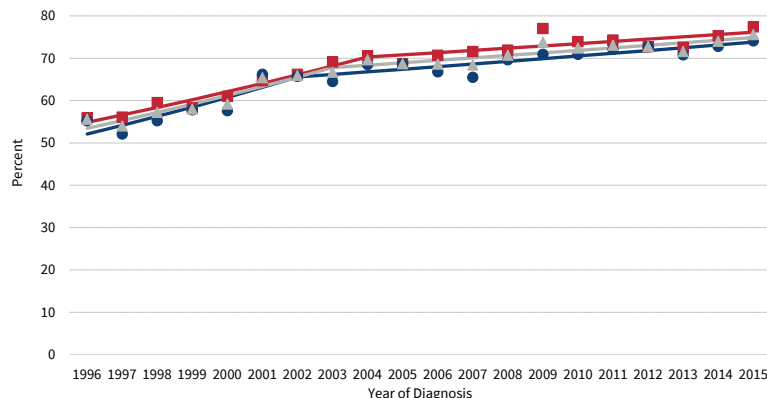
Figure 50. Trends in Non-Hodgkin Lymphoma Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-2.17 *
Males	2001-2020 AAPC	-1.88 *
Females	2001-2020 AAPC	-3.06 *
	2001-2004 APC	-6.96 *
	2004-2020 APC	-2.31

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 51. Trends in Non-Hodgkin Lymphoma Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	1.79 *
	1996-2003 APC	3.46 *
	2003-2015 APC	0.83 *
Males	1996-2015 AAPC	1.85 *
	1996-2002 APC	3.90 *
	2002-2015 APC	0.91 *
Females	1996-2015 AAPC	1.74 *
	1996-2004 APC	3.15 *
	2004-2015 APC	0.73 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Oral Cavity and Pharynx Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

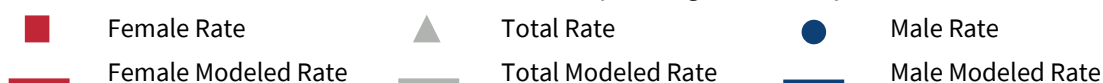
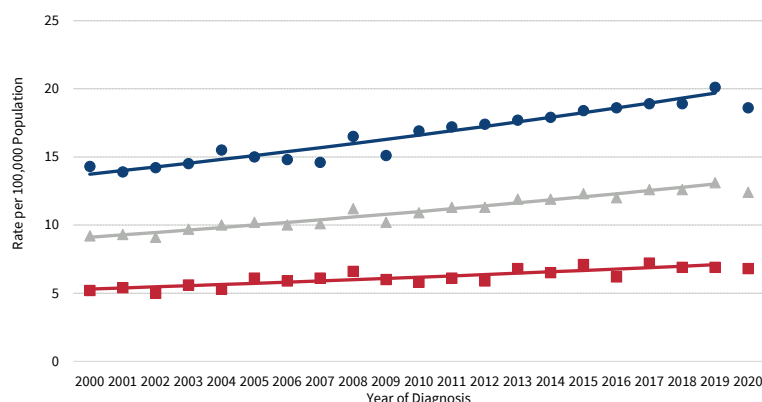


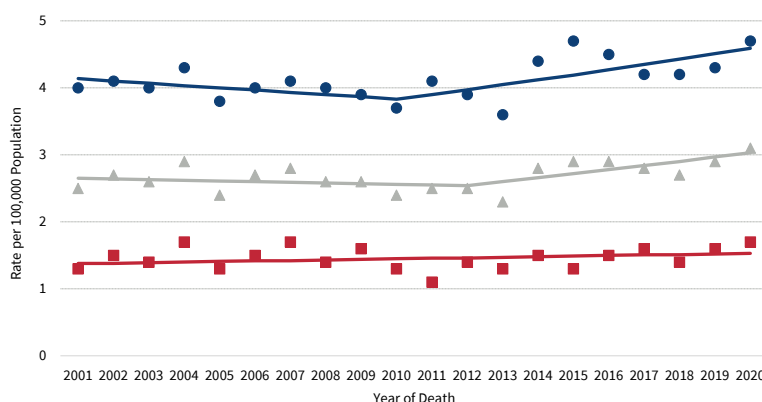
Figure 52. Trends in Oral Cavity and Pharynx Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	1.90 *
Males	2000-2019 AAPC	1.91 *
Females	2000-2019 AAPC	1.54 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

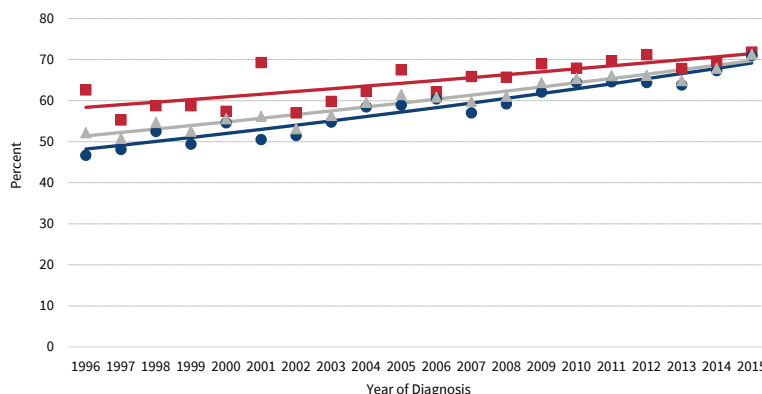
Figure 53. Trends in Oral Cavity and Pharynx Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	0.72
	2001-2012 APC	-0.36
	2012-2020 APC	2.23
Males	2001-2020 AAPC	0.54
	2001-2010 APC	-0.85
	2010-2020 APC	1.81 *
Females	2001-2020 AAPC	0.56

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 54. Trends in Oral Cavity and Pharynx Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	1.62 *
Males	1996-2015 AAPC	1.92 *
Females	1996-2015 AAPC	1.07 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Ovarian Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

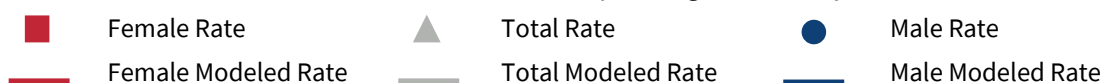
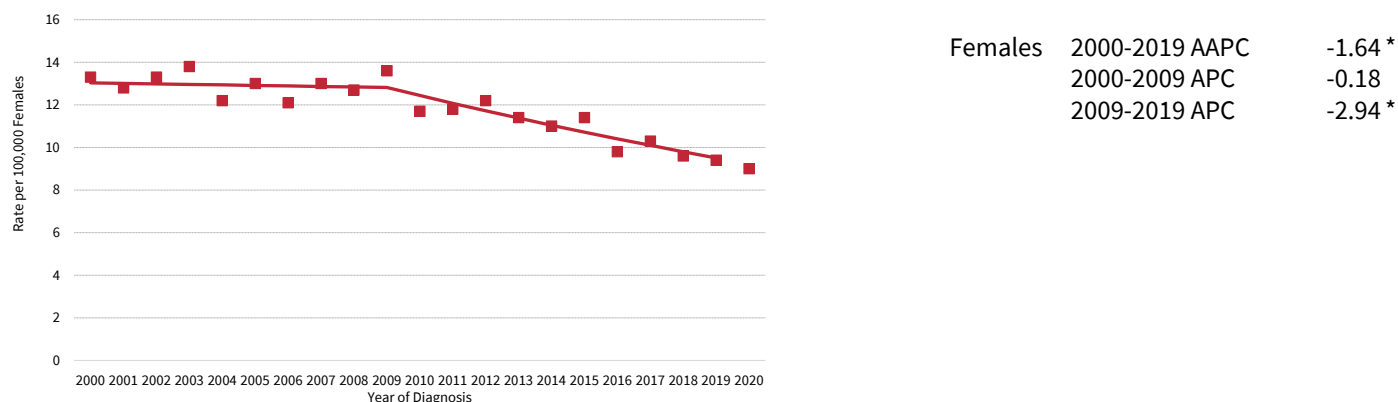
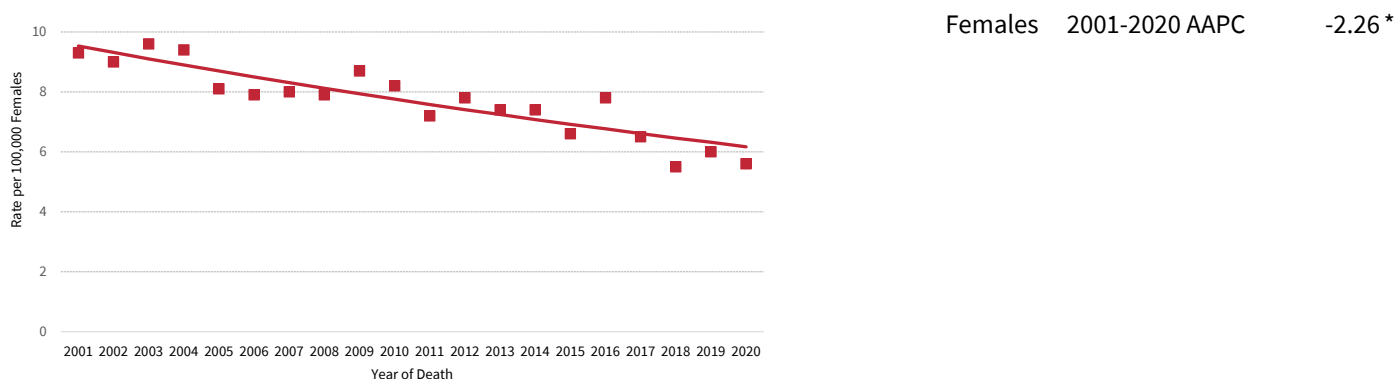


Figure 55. Trend in Ovarian Cancer Age-Adjusted Incidence Rates in Ohio, 2000-2020



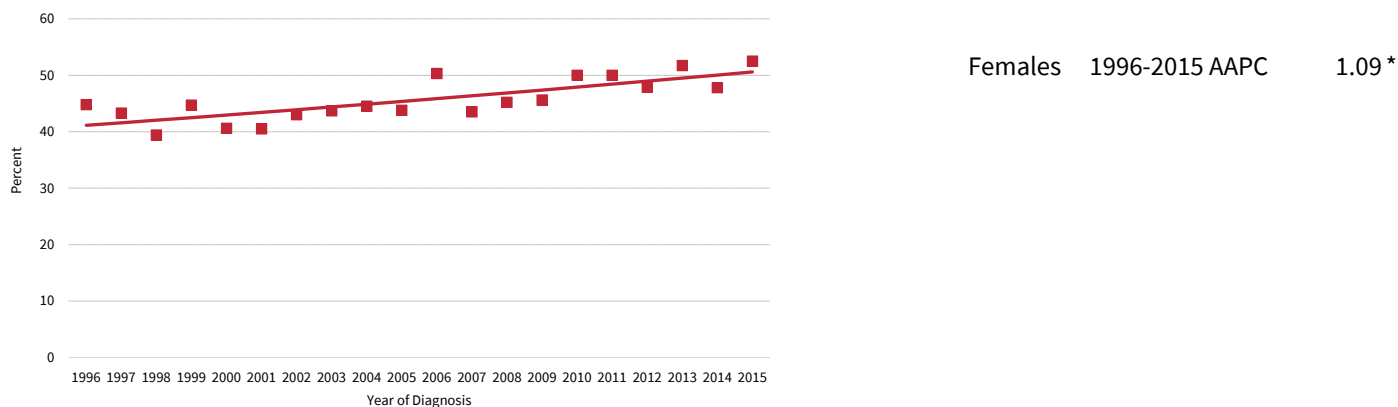
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Figure 56. Trend in Ovarian Cancer Age-Adjusted Mortality Rates in Ohio, 2001-2020



Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 57. Trend in Ovarian Cancer Five-Year Relative Survival in Ohio, 1996-2015



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Pancreatic Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

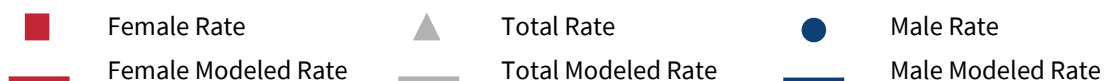
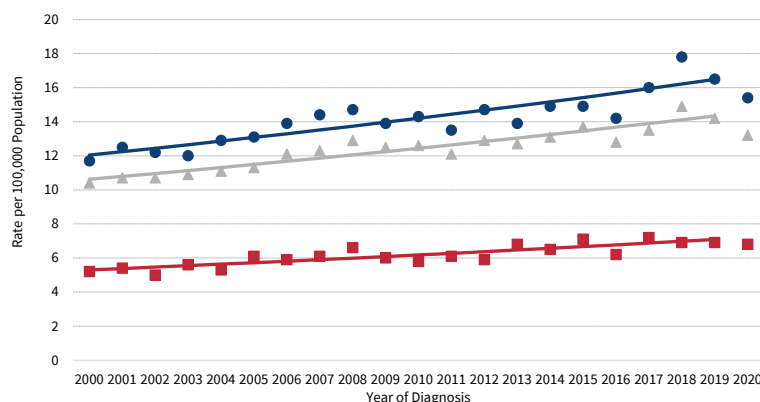


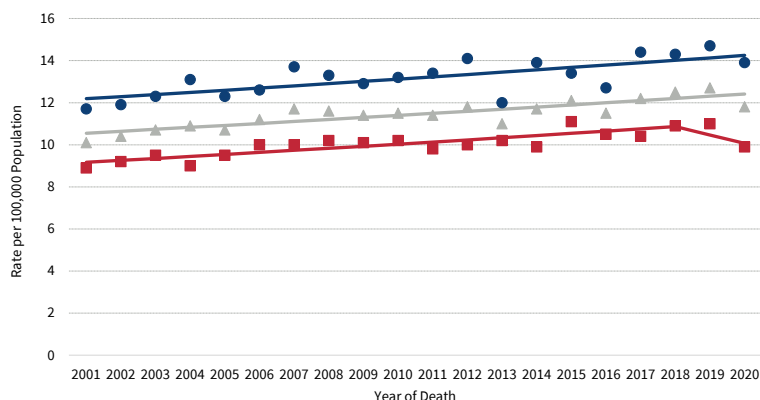
Figure 58. Trends in Pancreatic Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	1.59 *
Males	2000-2019 AAPC	1.67 *
Females	2000-2019 AAPC	1.60 *
	2000-2011 APC	2.45 *
	2011-2019 APC	0.98

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

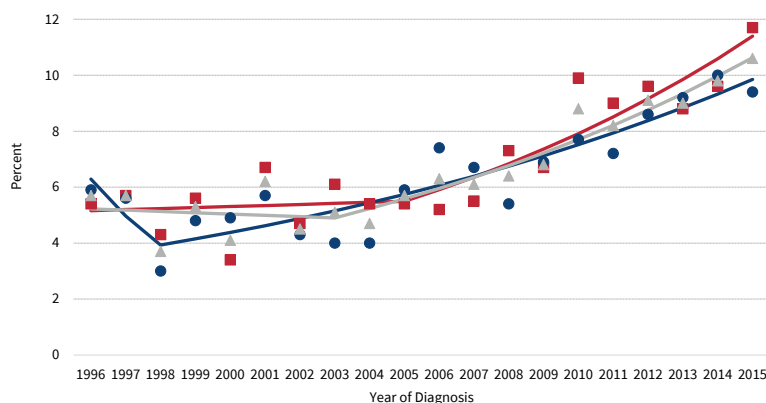
Figure 59. Trends in Pancreatic Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	0.86 *
Males	2001-2020 AAPC	0.83 *
Females	2001-2020 AAPC	0.50 *
	2001-2018 APC	1.00 *
	2018-2020 APC	-3.72

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 60. Trends in Pancreatic Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	3.81 *
	1996-2003 APC	-0.90
	2003-2015 APC	6.66 *
Males	1996-2015 AAPC	2.39 *
	1996-1998 APC	-20.91
	1998-2015 APC	5.55 *
Females	1996-2015 AAPC	4.26 *
	1996-2005 APC	0.70
	2005-2015 APC	7.57 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Prostate Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

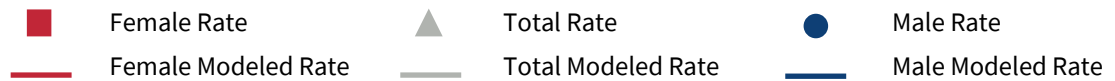
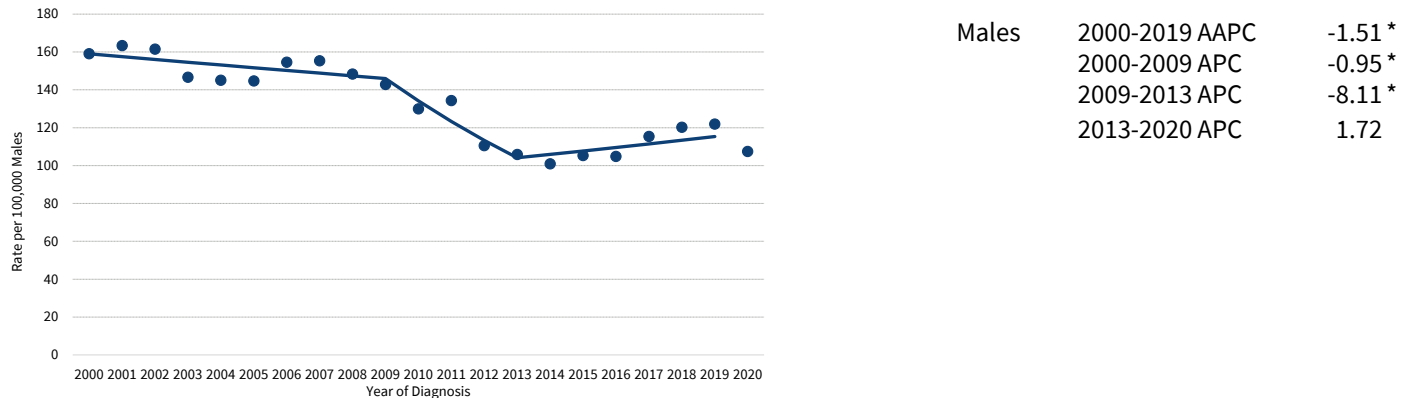
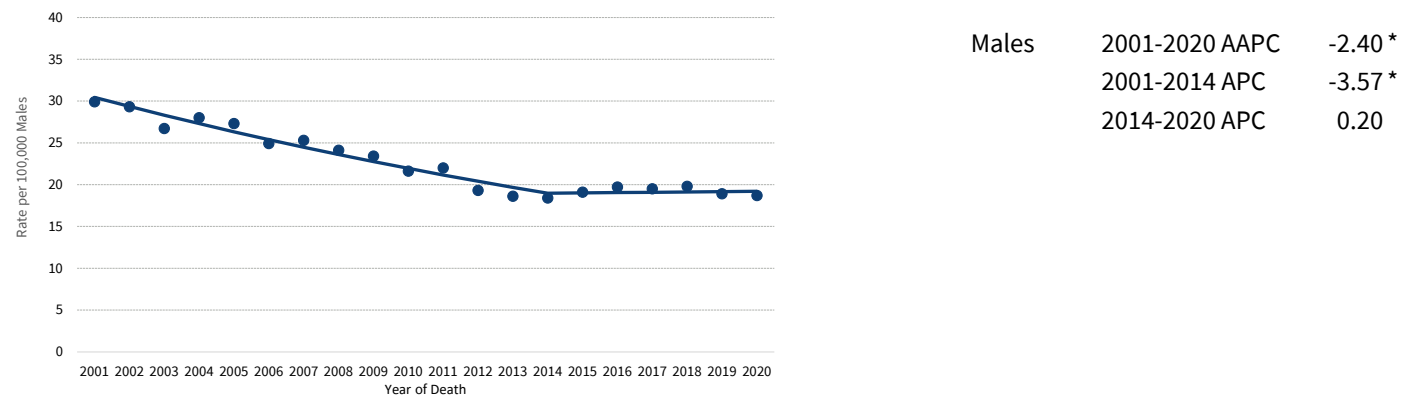


Figure 61. Trend in Prostate Cancer Age-Adjusted Incidence Rates in Ohio, 2000-2020



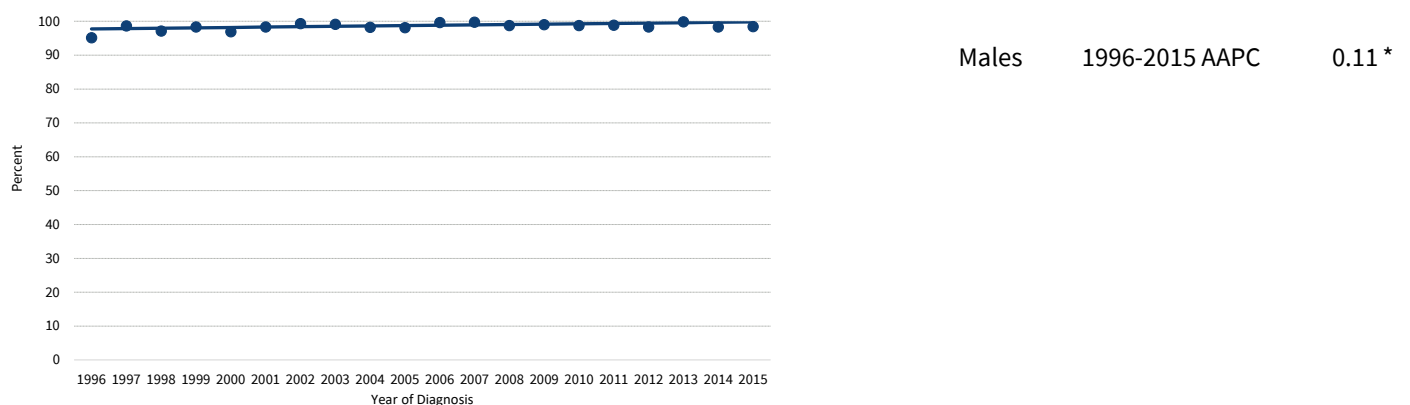
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Figure 62. Trend in Prostate Cancer Age-Adjusted Mortality Rates in Ohio, 2001-2020



Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 63. Trend in Prostate Cancer Five-Year Relative Survival in Ohio, 1996-2015



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Stomach Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

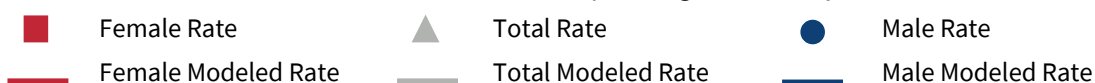
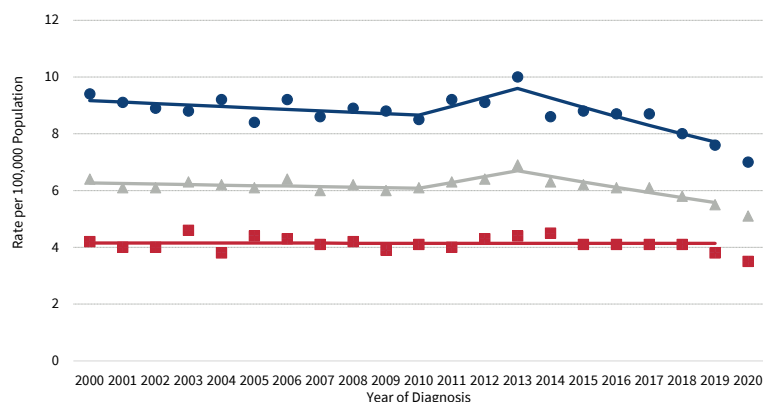


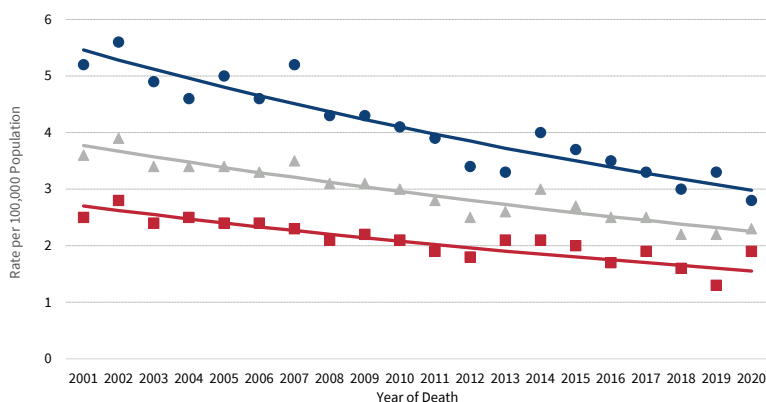
Figure 64. Trends in Stomach Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	-0.16
	2000-2010 APC	-0.31
	2010-2013 APC	3.28 *
	2013-2019 APC	-2.99 *
Males	2000-2019 AAPC	-0.91 *
	2000-2010 APC	-0.57
	2010-2013 APC	3.52
	2013-2019 APC	-3.59 *
Females	2000-2019 AAPC	-0.01

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

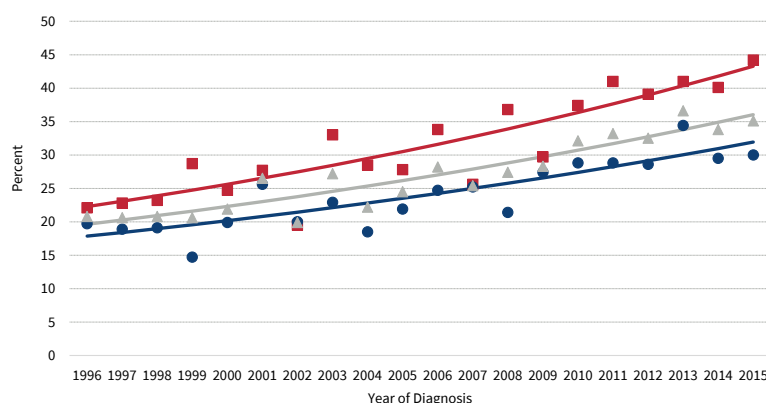
Figure 65. Trends in Stomach Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	-2.67 *
Males	2001-2020 AAPC	-3.13 *
Females	2001-2020 AAPC	-2.87 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 66. Trends in Stomach Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	3.25 *
Males	1996-2015 AAPC	3.11 *
Females	1996-2015 AAPC	3.56 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Testicular Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

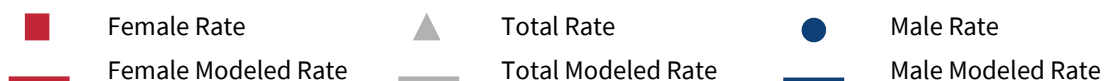
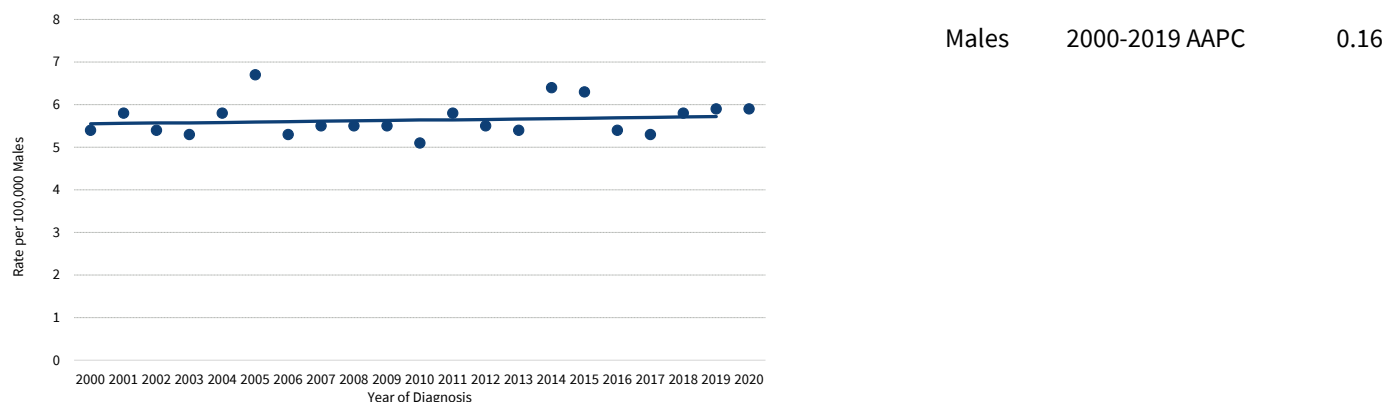


Figure 67. Trend in Testicular Cancer Age-Adjusted Incidence Rates in Ohio, 2000-2020

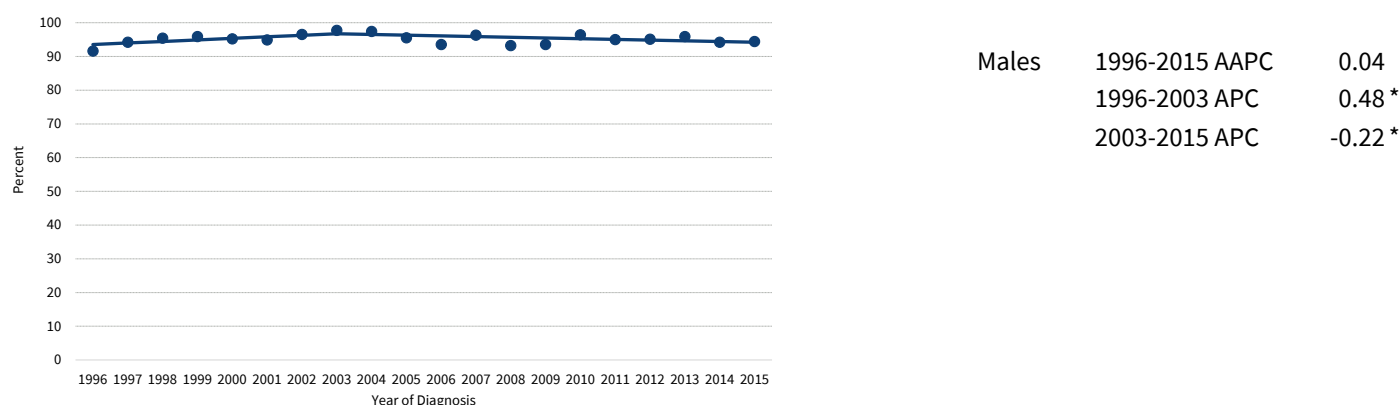


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

The trend in the testicular cancer mortality rate was omitted because the rate could not be calculated for 2007, 2009, and 2018.

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 68. Trend in Testicular Cancer Five-Year Relative Survival in Ohio, 1996-2015



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Thyroid Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

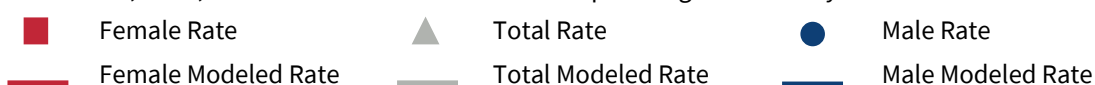
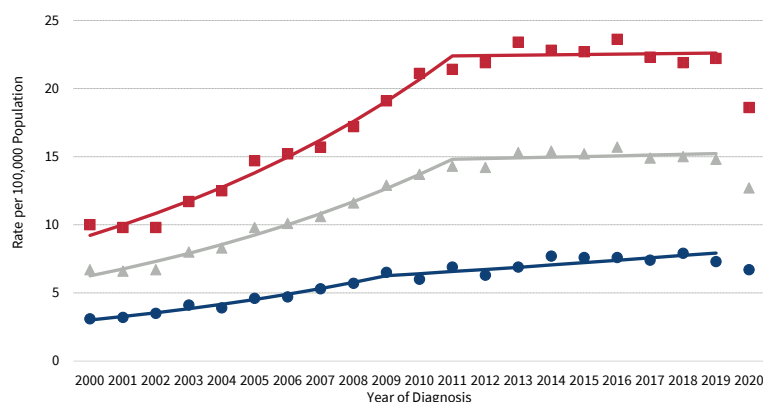


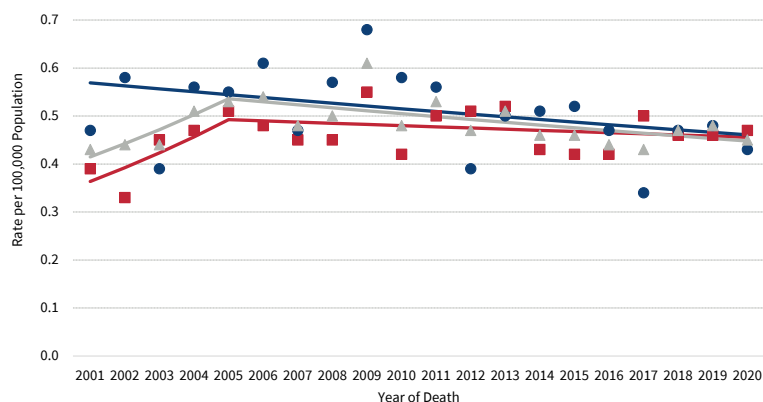
Figure 69. Trends in Thyroid Cancer Age-Adjusted Incidence Rates by Sex in Ohio, 2000-2020



Total	2000-2019 AAPC	4.80 *
	2000-2011 APC	8.16 *
	2011-2019 APC	0.35
Males	2000-2019 AAPC	5.23 *
	2000-2009 APC	8.47 *
	2009-2019 APC	2.39 *
Females	2000-2019 AAPC	4.83 *
	2000-2011 APC	8.40 *
	2011-2019 APC	0.11

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

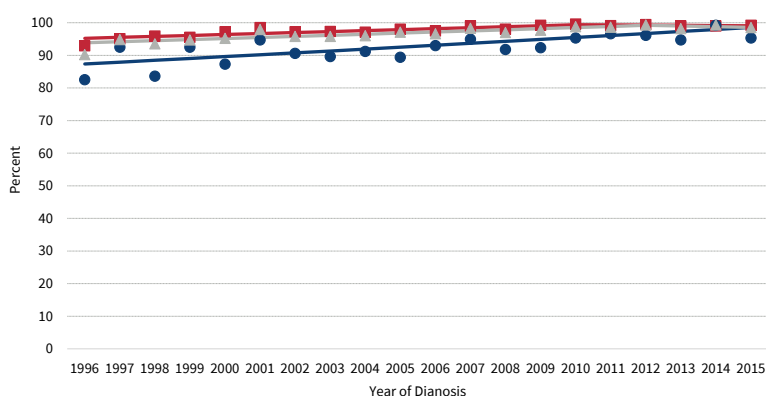
Figure 70. Trends in Thyroid Cancer Age-Adjusted Mortality Rates by Sex in Ohio, 2001-2020



Total	2001-2020 AAPC	0.40
	2001-2005 APC	6.62 *
	2005-2020 APC	-1.19 *
Males	2001-2020 AAPC	-1.10
Females	2001-2020 AAPC	1.20
	2001-2005 APC	7.88 *
	2005-2020 APC	-0.51

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 71. Trends in Thyroid Cancer Five-Year Relative Survival by Sex in Ohio, 1996-2015



Total	1996-2015 AAPC	0.26 *
	1996-2012 APC	0.35 *
	2012-2015 APC	-0.21
Males	1996-2015 AAPC	0.64 *
Females	1996-2015 AAPC	0.21 *
	1996-2010 APC	0.31 *
	2010-2015 APC	-0.06

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Uterine Cancer

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

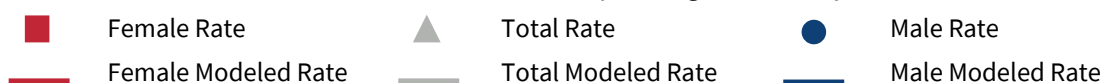
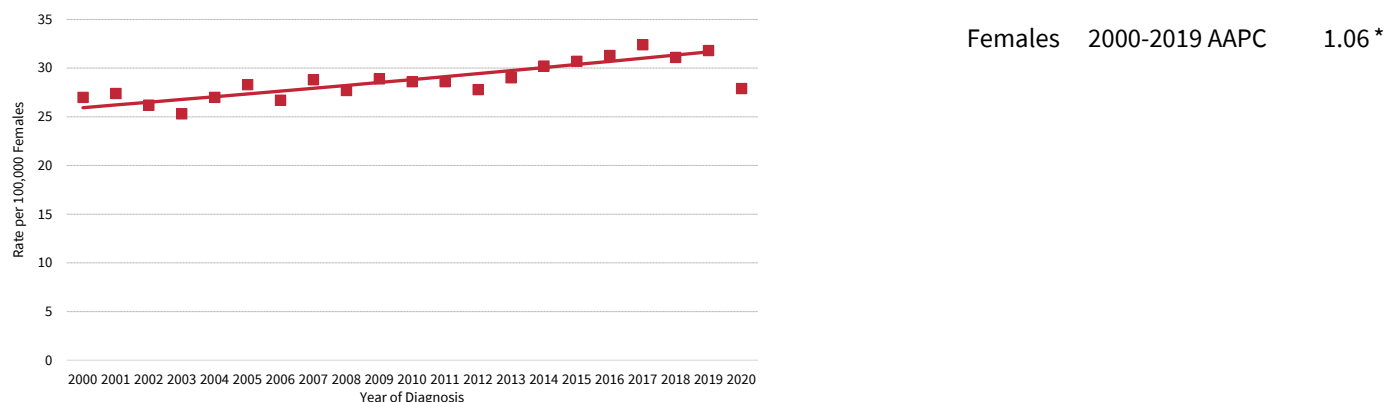
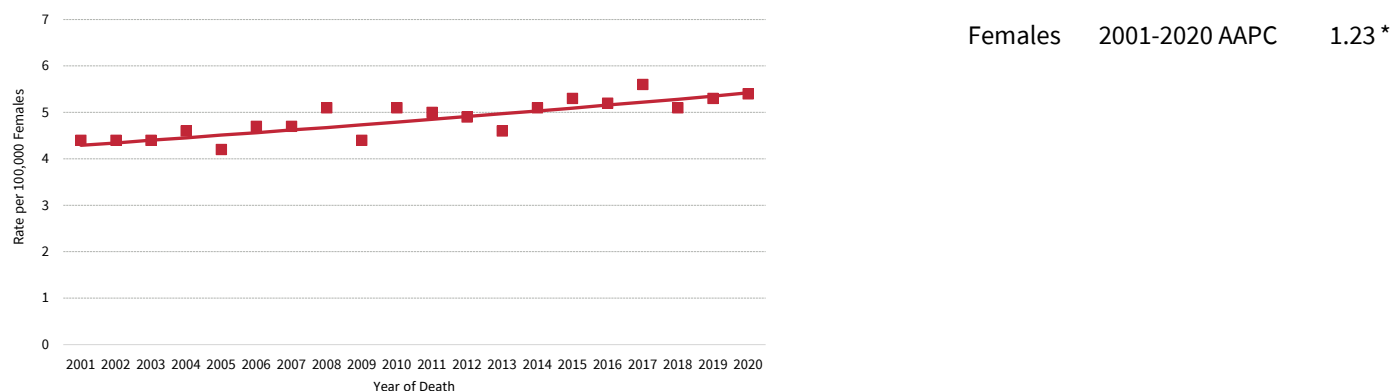


Figure 72. Trend in Uterine Cancer Age-Adjusted Incidence Rates in Ohio, 2000-2020



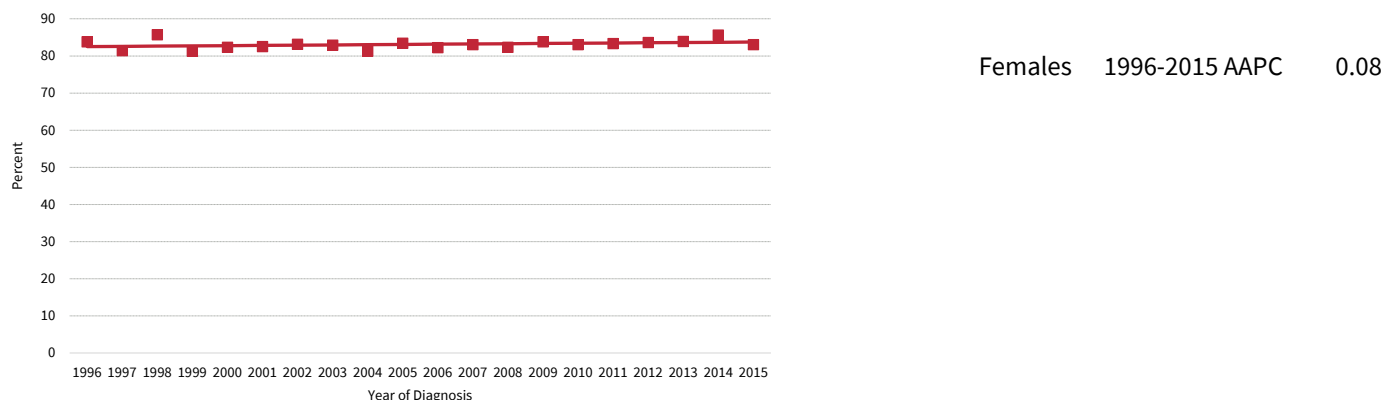
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Figure 73. Trend in Uterine Cancer Age-Adjusted Mortality Rates in Ohio, 2001-2020



Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 74. Trend in Uterine Cancer Five-Year Relative Survival in Ohio, 1996-2015



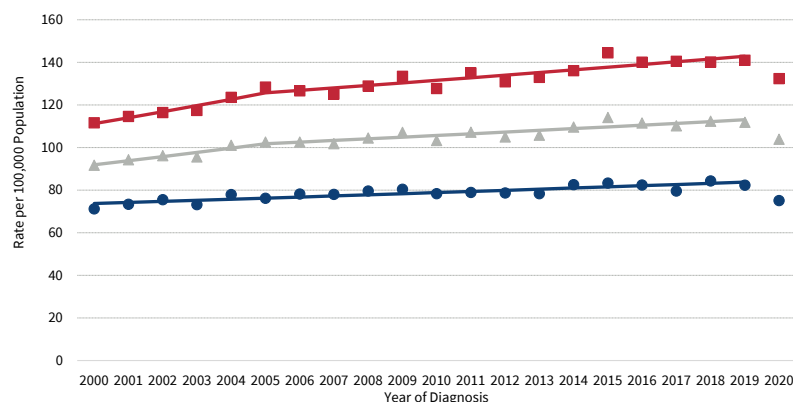
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

All Cancer Sites/Types Among Those Less Than 50 Years Old

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.



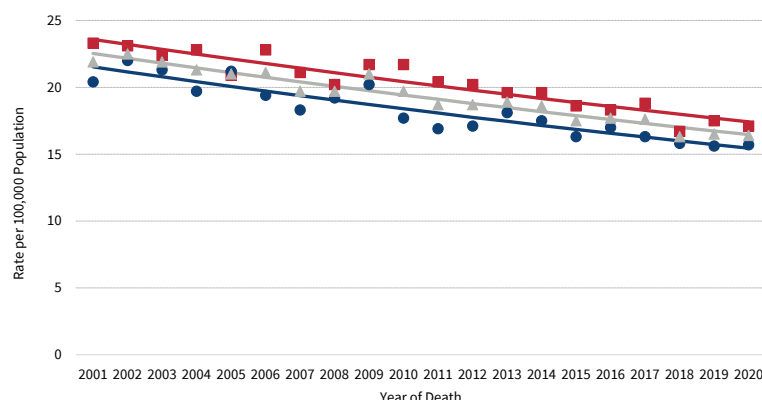
Figure 75. Trends in All Cancer Sites/Types Age-Adjusted Incidence Rates by Sex Among those Less Than 50 Years Old in Ohio, 2000-2020



Total	2000-2019 AAPC	1.10 *
	2000-2005 APC	2.07 *
	2005-2019 APC	0.75 *
Males	2000-2019 AAPC	0.68 *
Females	2000-2019 AAPC	1.33 *
	2000-2005 APC	2.48 *
	2005-2019 APC	0.92

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

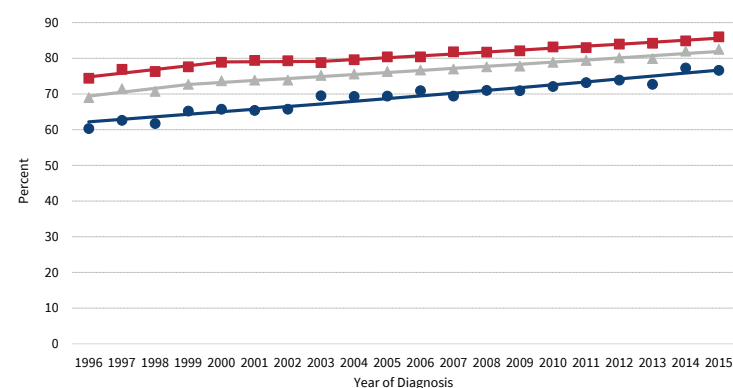
Figure 76. Trends in All Cancer Sites/Types Age-Adjusted Mortality Rates by Sex Among those Less Than 50 Years Old in Ohio, 2001-2020



Total	2001-2020 AAPC	-1.64 *
Males	2001-2020 AAPC	-1.73 *
Females	2001-2020 AAPC	-1.58 *

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 77. Trends in All Cancer Sites/Types Five-Year Relative Survival by Sex Among those Less Than 50 Years Old in Ohio, 1996-2015



Total	1996-2015 AAPC	0.88 *
	1996-1999 APC	1.56 *
	1999-2015 APC	0.75 *
Males	1996-2015 AAPC	1.11 *
Females	1996-2015 AAPC	0.71 *
	1996-2000 APC	1.36 *
	2000-2003 APC	0.06
	2003-2015 APC	0.66 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Female Breast Cancer Among Those Less Than 50 Years Old

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

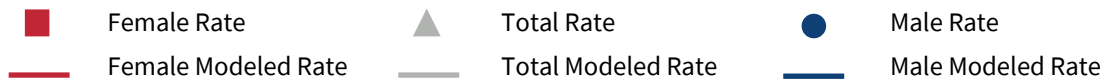
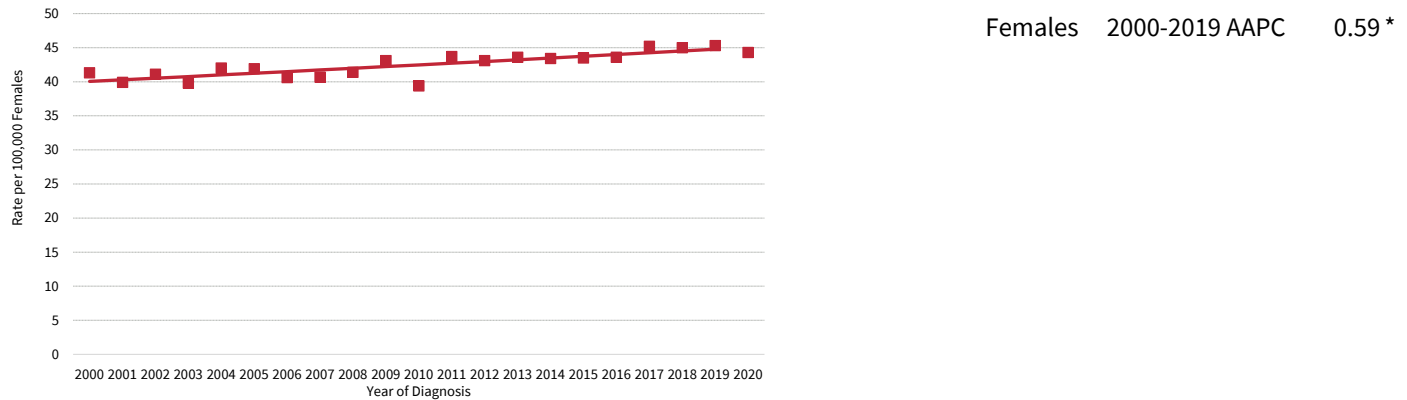
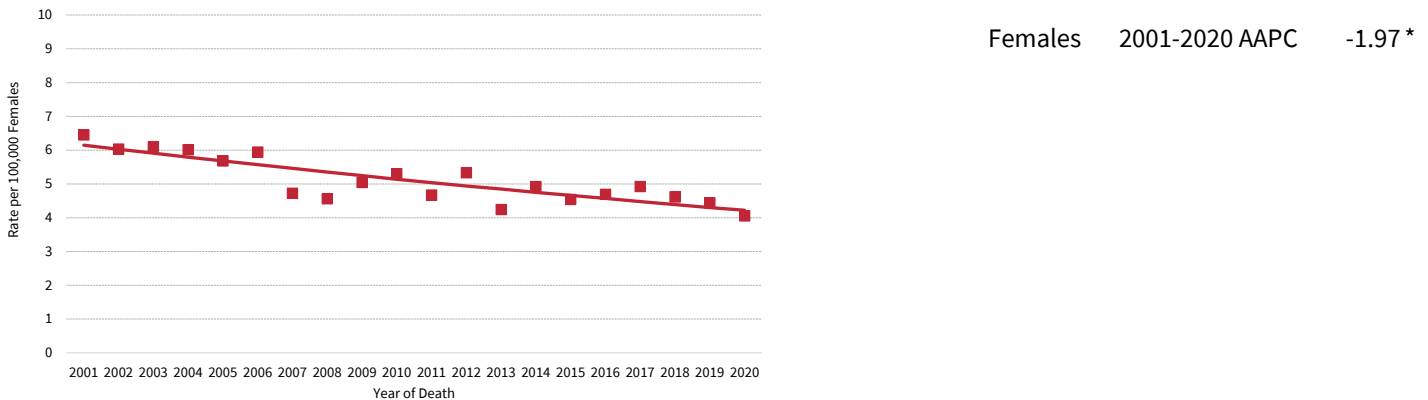


Figure 78. Trend in Female Breast Cancer Age-Adjusted Incidence Rates Among Those Less Than 50 Years Old in Ohio, 2000-2020



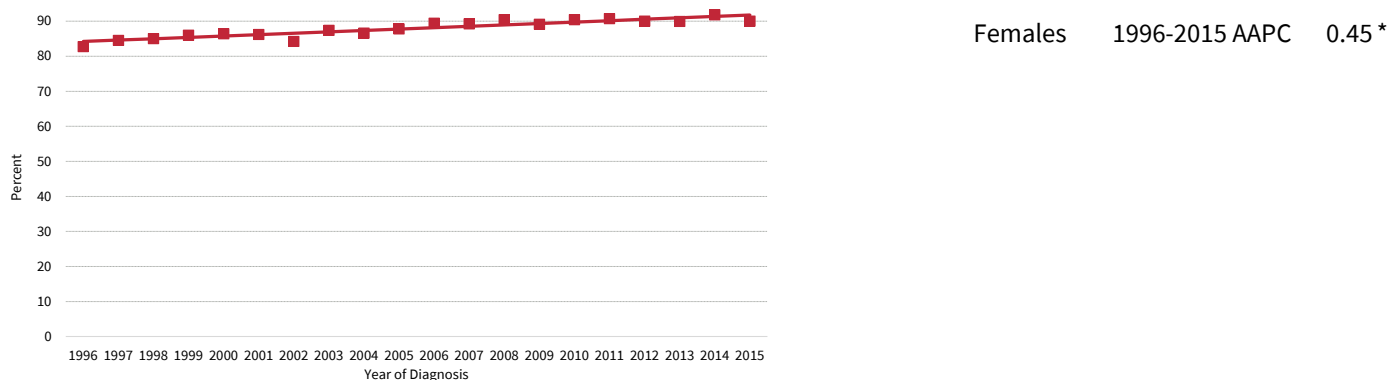
Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Figure 79. Trend in Female Breast Cancer Age-Adjusted Mortality Rates Among Those Less Than 50 Years Old in Ohio, 2001-2020



Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 80. Trend in Female Breast Cancer Five-Year Relative Survival Among Those Less Than 50 Years Old in Ohio, 1996-2015



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Colon and Rectum Cancer Among Those Less Than 50 Years Old

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

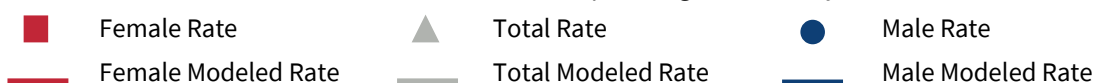
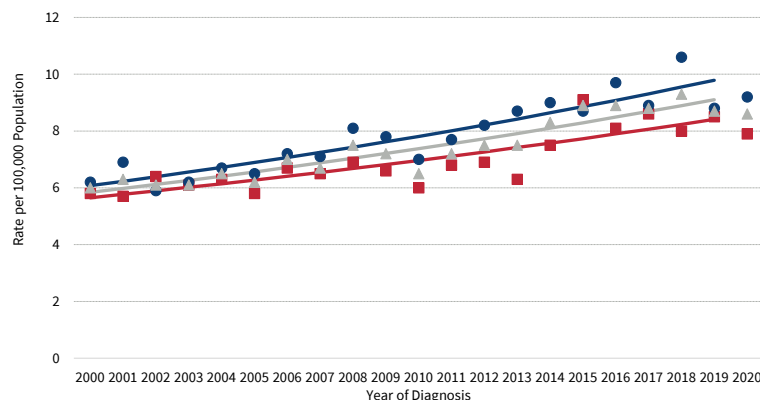


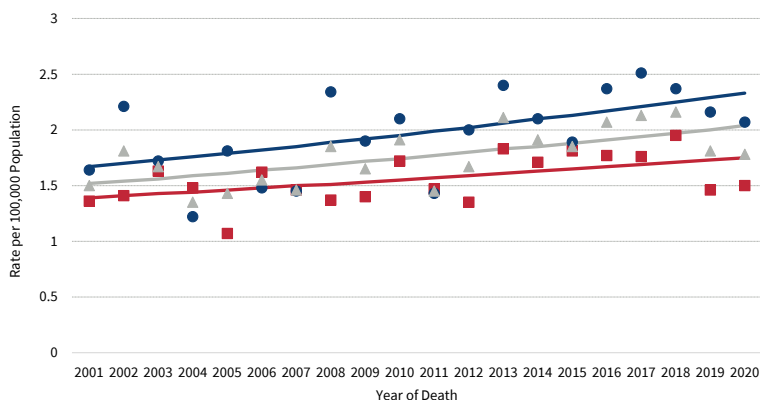
Figure 81. Trends in Colon and Rectum Cancer Age-Adjusted Incidence Rates by Sex Among Those Less Than 50 Years Old in Ohio, 2000-2020



Total	2000-2019 AAPC	2.36 *
Males	2000-2019 AAPC	2.54 *
Females	2000-2019 AAPC	2.12 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

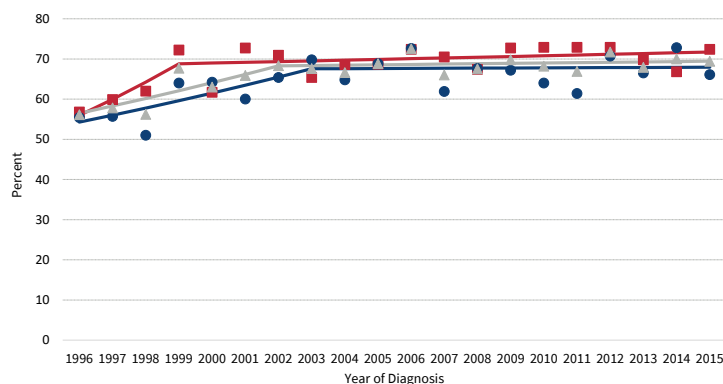
Figure 82. Trends in Colon and Rectum Cancer Age-Adjusted Mortality Rates by Sex Among Those Less Than 50 Years Old in Ohio, 2001-2020



Total	2001-2020 AAPC	1.56 *
Males	2001-2020 AAPC	1.77 *
Females	2001-2020 AAPC	1.22

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 83. Trends in Colon and Rectum Cancer Five-Year Relative Survival by Sex Among Those Less Than 50 Years Old in Ohio, 1996-2015



Total	1996-2015 AAPC	1.09 *
	1996-2002 APC	3.22 *
	2002-2015 APC	0.13
Males	1996-2015 AAPC	1.19 *
	1996-2003 APC	3.18 *
	2003-2015 APC	0.15
Females	1996-2015 AAPC	1.31 *
	1996-1999 APC	7.13 *
	1999-2015 APC	0.26

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Liver and Intrahepatic Bile Duct (IBD) Cancer Among Those Less Than 50 Years Old

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

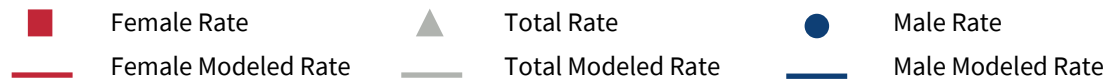
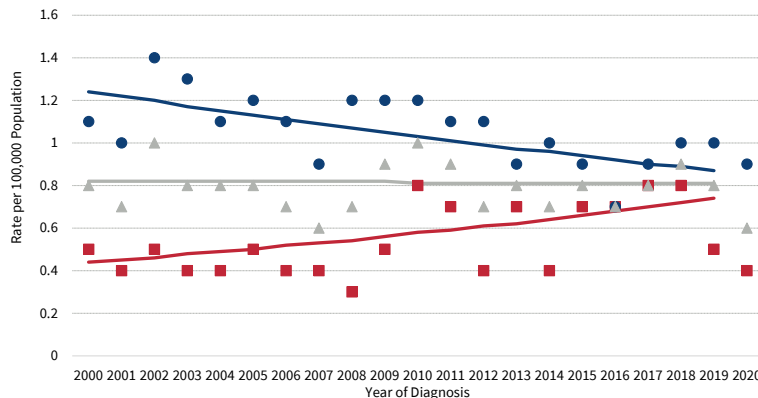


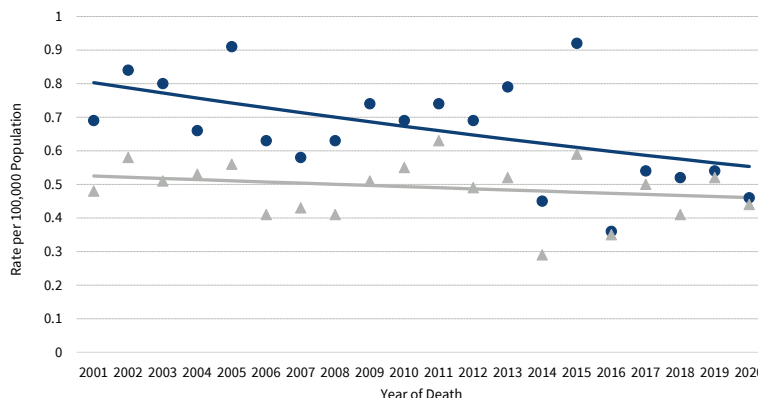
Figure 84. Trends in Liver and IBD Cancer Age-Adjusted Incidence Rates by Sex Among Those Less Than 50 Years Old in Ohio, 2000-2020



Total	2000-2019 AAPC	-0.09
Males	2000-2019 AAPC	-1.85 *
Females	2000-2019 AAPC	2.76 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Figure 85. Trends in Liver and IBD Cancer Age-Adjusted Mortality Rates by Sex Among Those Less Than 50 Years Old in Ohio, 2001-2020

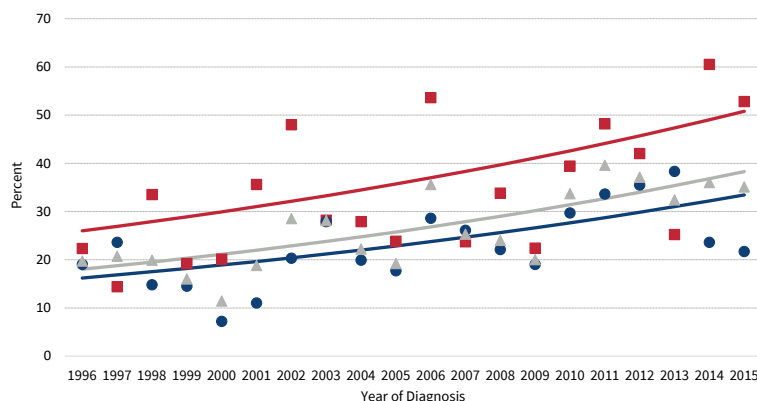


Total	2001-2020 AAPC	-0.69
Males	2001-2020 AAPC	-1.94 *
Females	2001-2020 AAPC	---

Female figure omitted because the mortality rate could not be calculated for 11 of the years.

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 86. Trends in Liver and IBD Cancer Five-Year Relative Survival by Sex Among Those Less Than 50 Years Old in Ohio, 1996-2015



Total	1996-2015 AAPC	2.59 *
Males	1996-2015 AAPC	2.55 *
Females	1996-2015 AAPC	2.22 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Pancreatic Cancer Among Those Less Than 50 Years Old

Modeled rates, APCs, and AAPCs were derived from Joinpoint regression analyses.

Legend

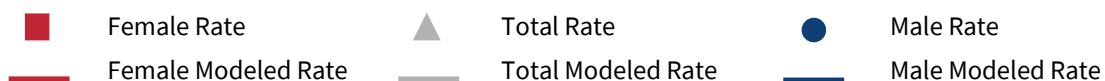
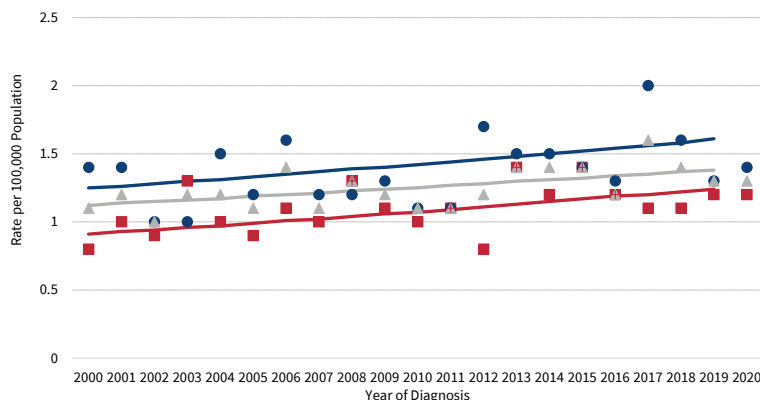


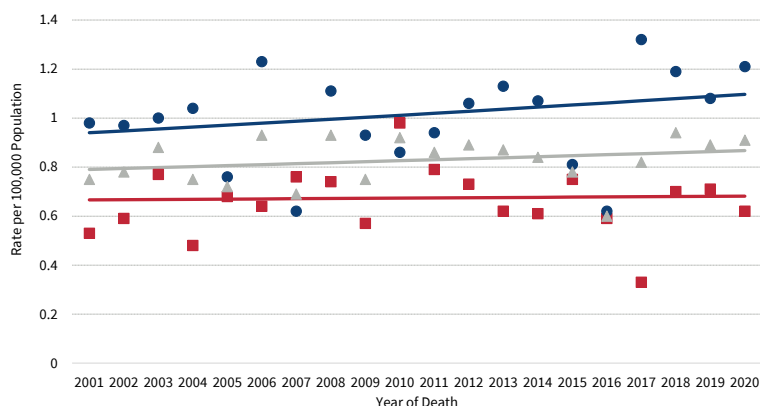
Figure 87. Trends in Pancreatic Cancer Age-Adjusted Incidence Rates by Sex Among Those Less Than 50 Years Old in Ohio, 2000-2020



Total	2000-2019 AAPC	1.10 *
Males	2000-2019 AAPC	1.34
Females	2000-2019 AAPC	1.65 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

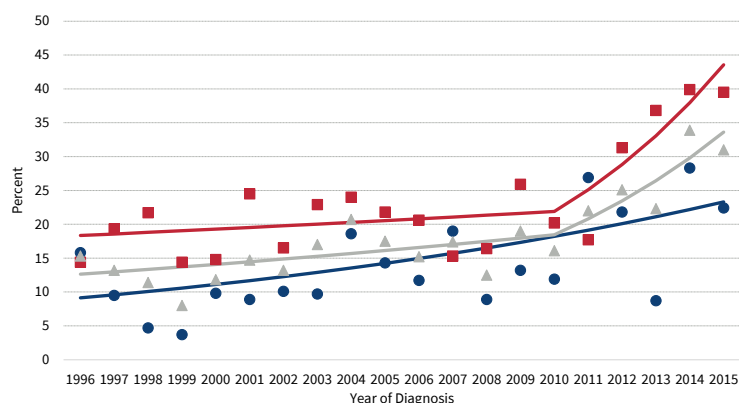
Figure 88. Trends in Pancreatic Cancer Age-Adjusted Mortality Rates by Sex Among Those Less Than 50 Years Old in Ohio, 2001-2020



Total	2001-2020 AAPC	0.49
Males	2001-2020 AAPC	0.81
Females	2001-2020 AAPC	0.12

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

Figure 89. Trends in Pancreatic Cancer Five-Year Relative Survival by Sex Among Those Less Than 50 Years Old in Ohio, 1996-2015



Total	1996-2015 AAPC	5.28 *
	1996-2010 APC	2.75
	2010-2015 APC	12.73 *
Males	1996-2015 AAPC	5.06 *
Females	1996-2015 AAPC	4.66 *
	1996-2010 APC	1.27
	2010-2015 APC	14.76 *

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Technical Notes

Age-Adjusted Rate: A summary rate that is a weighted average of age-specific rates, where the weights represent the age distribution of a standard population (direct adjustment). The incidence and mortality rates presented in this report were standardized to the age distribution of the 2000 U.S. Standard Population. Using the direct method, the population was first divided into 19 five-year age groups, i.e., <1, 1-4, 5-9, 10-14, 15-19...85+, and the age-specific rate was calculated for each age group. Each age-specific rate was then multiplied by the standard population proportion for the respective age group.

Annual Percent Change (APC): Used to measure trends or the change in rates over time. Calculated as the slope of a fitted straight line when rates are displayed by year assuming a constant change from the previous year.

Average Annual Percent Change (AAPC): A summary measure describing the average APCs over a period of multiple years. Calculated as a weighted average of APCs from the model, with the weights equal to the length of the APC intervals.

Incidence Rate: The number of cases per unit of population (e.g., per 100,000 females) during a specified time period.

Mortality Rate: The number of deaths per unit of population (e.g., per 100,000 females) during a specified time period. Rates may be unstable and are not presented when the death count is less than 10.

Relative Survival: Relative survival is a net survival measure representing cancer survival in the absence of other causes of death. Relative survival is defined as the ratio of the proportion of observed survivors in a cohort of cancer patients to the proportion of expected survivors in a comparable set of cancer free individuals.

Data Sources

Incidence rates and relative survival: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Mortality rates: Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Mortality, released June 2022. Underlying mortality data provided by National Center for Health Statistics.

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