



***Wisconsin Tobacco Facts:
Consumption, Physical Health, and Mortality
March 2022***

**Center for Urban Population Health
University of Wisconsin-Milwaukee**



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Center for Urban
Population Health
*Data-driven. Evidence-based.
Community-engaged.*

ACKNOWLEDGEMENTS

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PREFACE

The health and economic effects of cigarette smoking are well documented and include excessive rates of chronic diseases, reduced productivity, premature death, and substantial health care costs. Wisconsin has worked hard to reduce the consumption of tobacco, especially cigarettes, in hopes of reducing the burden it has placed on individuals, families, and communities.

This research updates previous reports on tobacco consumption in Wisconsin in effort to provide ongoing surveillance and monitoring of trends in consumption. In addition, it reveals how those trends are related to cigarette taxes and the real price of cigarettes over time. Importantly, the current day relationship of adult cigarette smoking status with select tobacco-related chronic diseases is presented, along with trends in Wisconsin deaths due to lung cancer and chronic obstructive pulmonary disease (COPD), diseases for which smoking is the major cause.

The data presented here are intended to exemplify the health and economic burden associated with tobacco use in Wisconsin, and to serve as a reminder of the importance of preventing young people from ever using it and assisting current users in their efforts to quit. Due to the cross-sectional nature of the data presented in this report, none of the relationships should be construed as independently causal. Yet, the relationships are real, and have serious implications for the health and well-being of Wisconsinites.

The findings presented here are intended to provide a resource for state and local health departments, health professionals, educators, and local coalitions working to reduce tobacco consumption and its associated costs in Wisconsin. This report may also assist public health agencies assess progress made toward the reduction of tobacco use and exposure among adults, and further aid them in determining the focus of future programmatic efforts.

Data used for this report were accessed from numerous databases as well as using the most recently published data available. For more detailed information on the data sources and methods used, refer to *Section D. Data Sources* at the end of the report. Analysis were conducted using SPSS, v. 25. Data were weighted as necessary to be representative of the state population from which they were drawn.

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KEY FINDINGS

Cigarette Consumption and Prices

- In 2021, 203.9 million packs of cigarettes were sold in the state of Wisconsin. This is the equivalent of 34.6 packs per person.
- In general, as the “real price” of cigarettes increases, per capita sales decrease.
- The last cigarette tax increase in Wisconsin was implemented on September 1, 2009.

Physical Health and Smoking

- Current smokers were most likely to report a greater number of poor physical health days during the past month, followed by former smokers, and then never smokers. 20% of current smokers reported having 14 to 30 poor physical health days, compared to 14% of former smokers, and 8% of never smokers.
- Current smokers were most likely to assess their general health as being fair or poor (27%), compared to 18% of former smokers, and 11% of never smokers.
- Former smokers were most likely to have been diagnosed with coronary heart disease or myocardial infarction (11%), compared to 10% of current smokers, and 5% of never smokers.
- Current smokers were most likely to have been diagnosed with stroke (5%), compared to 4% of former smokers, and 2% of never smokers.
- Current smokers were most likely to have been diagnosed with chronic obstructive pulmonary disease [COPD] (17%), compared to 10% of former smokers, and 3% of never smokers.
- Amongst persons that had ever been diagnosed with cancer, current smokers were most likely to have been diagnosed with three or more different types of cancer (8%), compared to 4% of former smokers and 2% of never smokers.
- Current smokers were most likely to report having permanent teeth removed due to tooth decay or gum disease, followed by former smokers, and then never smokers.

Tobacco-Related Deaths and Economic Cost

- Between 1989 and 2020, the age-adjusted lung cancer mortality rate among Wisconsin men decreased from a high of 77 per 100,000 in 1990 to 38 per 100,000 in 2020.
- During the same time period, the age-adjusted lung cancer mortality rate among Wisconsin women plateaued and remained fairly level between 2002 (40 per 100,000) and 2011 (41 per 100,000). Since then, the rate has slowly decreased to its current level of 30 per 100,000 in 2020.
- Between 1989 and 2020, the age-adjusted COPD mortality rate among Wisconsin men slowly decreased from a high of 54 per 100,000 in 1991 to 39 per 100,000 in 2020.
- During the same time period, the age-adjusted COPD mortality rate among Wisconsin women plateaued and remained level during 2000 (33 per 100,000) through 2020 (32 per 100,000).
- During 2020, 2,633 Wisconsinites, age 35 years or older, died from lung cancer.
- The direct health care cost of smoking is estimated at \$3.0 billion annually in Wisconsin, with an additional cost of \$1.6 billion in lost productivity.



SECTION A. CIGARETTE CONSUMPTION AND PRICES

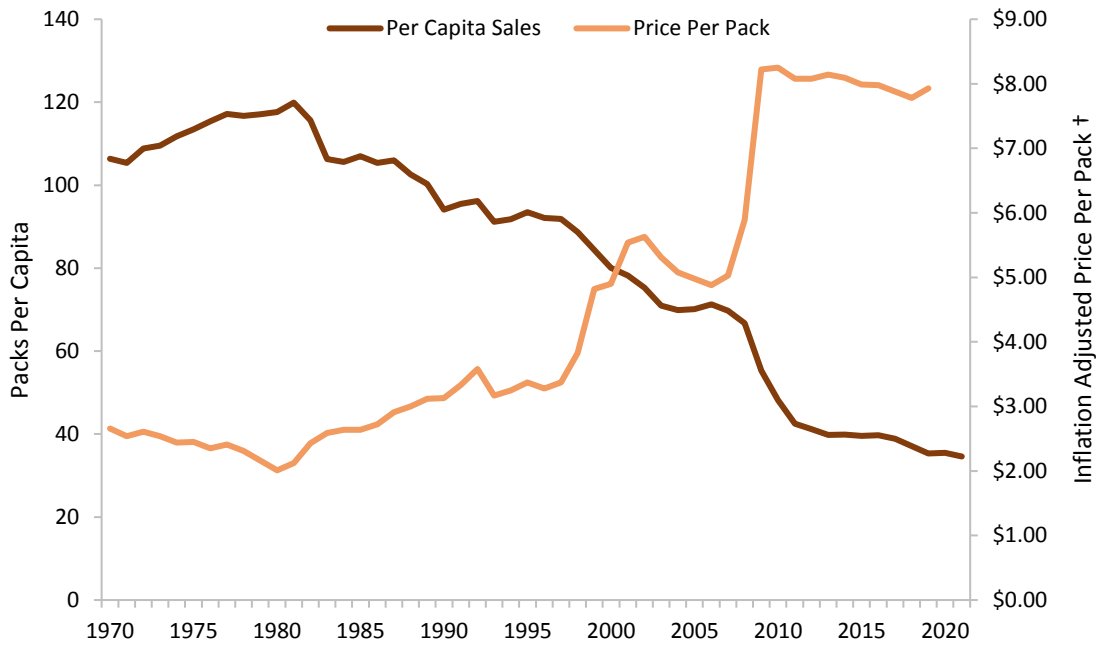
Table A.1. Number of Cigarette Sales, Statewide and Per Capita, Wisconsin, 1990-2021

Year *	State Tax-Paid Cigarette Sales	Annual Per Capita Cigarette Sales
1990	463.1 million packs	94.1 packs
2000	426.5 million packs	80.1 packs
2005	388.4 million packs	70.1 packs
2010	285.6 million packs	48.2 packs
2011	241.7 million packs	42.5 packs
2012	234.9 million packs	41.2 packs
2013	227.4 million packs	39.8 packs
2014	228.9 million packs	39.9 packs
2015	227.6 million packs	39.5 packs
2016	229.1 million packs	39.7 packs
2017	225.5 million packs	38.9 packs
2018	215.5 million packs	37.1 packs
2019	205.7 million packs	35.3 packs
2020	209.4 million packs	35.5 packs
2021	203.9 million packs	34.6 packs

* Calculated using fiscal years (July 01 – June 30)

Data Sources: Wisconsin Department of Revenue; The Tax Burden on Tobacco; U.S. Census Bureau, Population Division

Figure A.1. Per Capita Cigarette Sales and Cigarette Price, Wisconsin, 1970-2021*



* The most recent year for which per capita cigarette sales data can be calculated is 2021; the most recent year for which average price per pack data are available is 2019.

† Price per pack data are inflation-adjusted to June 2019 dollars.

Data Sources: Wisconsin Department of Revenue; The Tax Burden on Tobacco; U.S. Census Bureau, Population Division; U.S. Department of Labor, Bureau of Labor Statistics, CPI Inflation Calculator

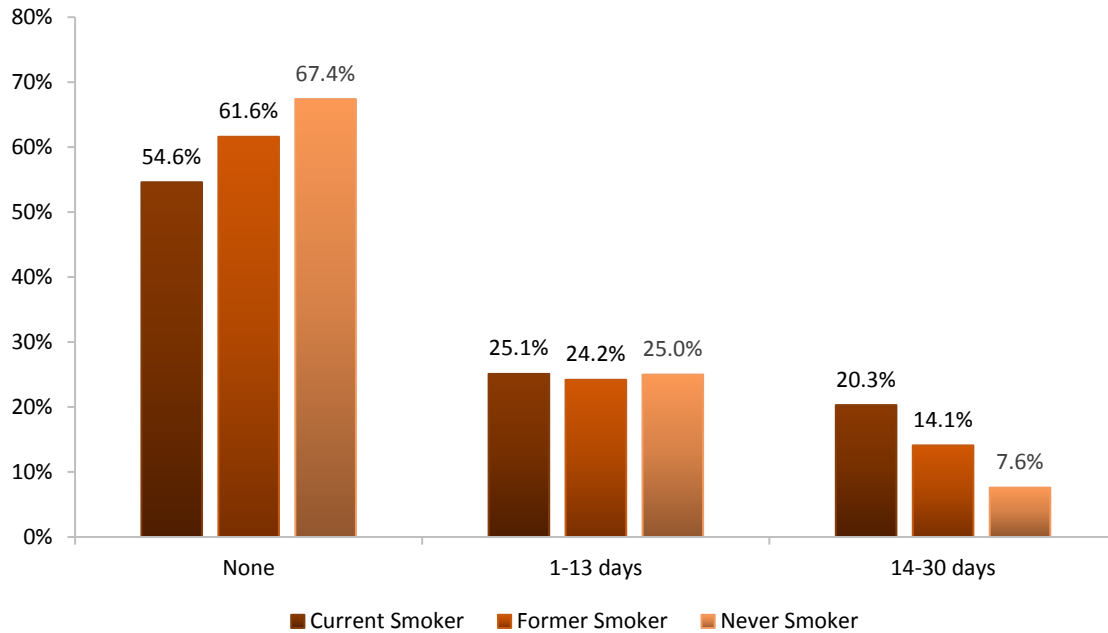
Table A.2. Cigarette Tax Increases, Wisconsin, 1939-2021

Date	Amount Per Pack
1939	From \$0.00 to \$0.03
July 1, 1955	From \$0.03 to \$0.04
July 1, 1957	From \$0.04 to \$0.05
September 1, 1961	From \$0.05 to \$0.06
August 15, 1963	From \$0.06 to \$0.08
August 1, 1965	From \$0.08 to \$0.10
September 1, 1969	From \$0.10 to \$0.14
November 5, 1971	From \$0.14 to \$0.16
August 1, 1981	From \$0.16 to \$0.20
May 1, 1982	From \$0.20 to \$0.25
September 1, 1987	From \$0.25 to \$0.30
May 1, 1992	From \$0.30 to \$0.38
September 1, 1995	From \$0.38 to \$0.44
November 1, 1997	From \$0.44 to \$0.59
October 1, 2001	From \$0.59 to \$0.77
January 1, 2008	From \$0.77 to \$1.77
September 1, 2009	From \$1.77 to \$2.52

Data Sources: Wisconsin Department of Revenue; The Tax Burden on Tobacco, 2014

SECTION B. PHYSICAL HEALTH AND SMOKING

Figure B.1. Number of Poor Physical Health Days* During the Past 30 Days, by Current Cigarette Smoking Status, Adults, Wisconsin, 2016-2020

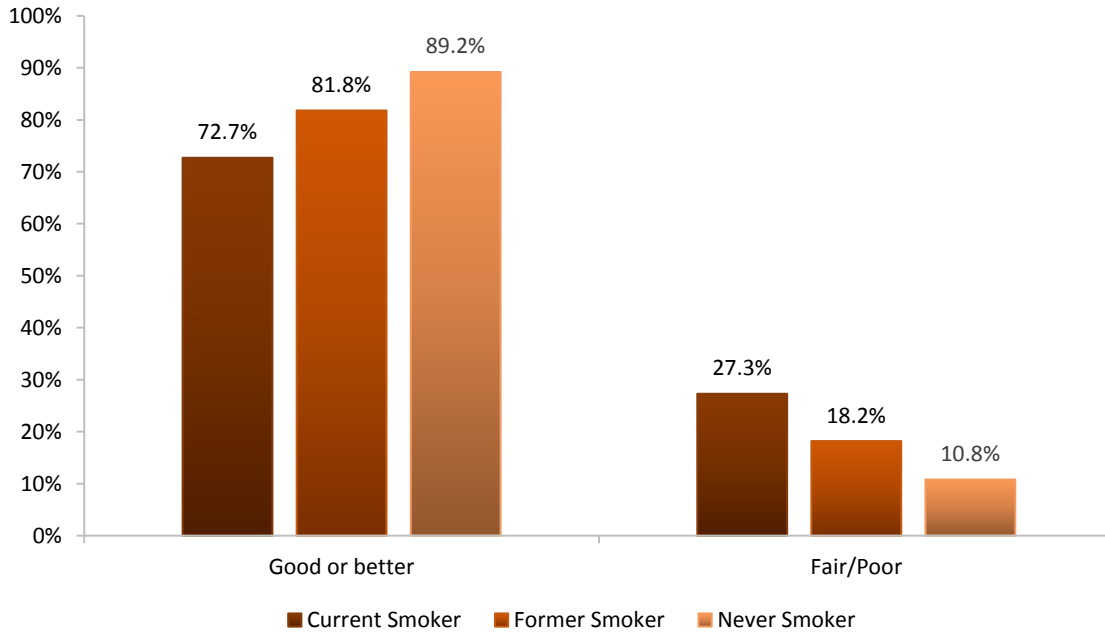


* The number of poor physical health days was assessed with the following question: Now thinking about your physical health, which includes illness and injury, for how many days during the past 30 days was your physical health not good?

Data: Wisconsin Behavioral Risk Factor Survey; The most recent five years of data were merged to improve the reliability of estimates.



Figure B.2. Self-Reported General Health Status*, by Current Cigarette Smoking Status, Adults, Wisconsin, 2016-2020

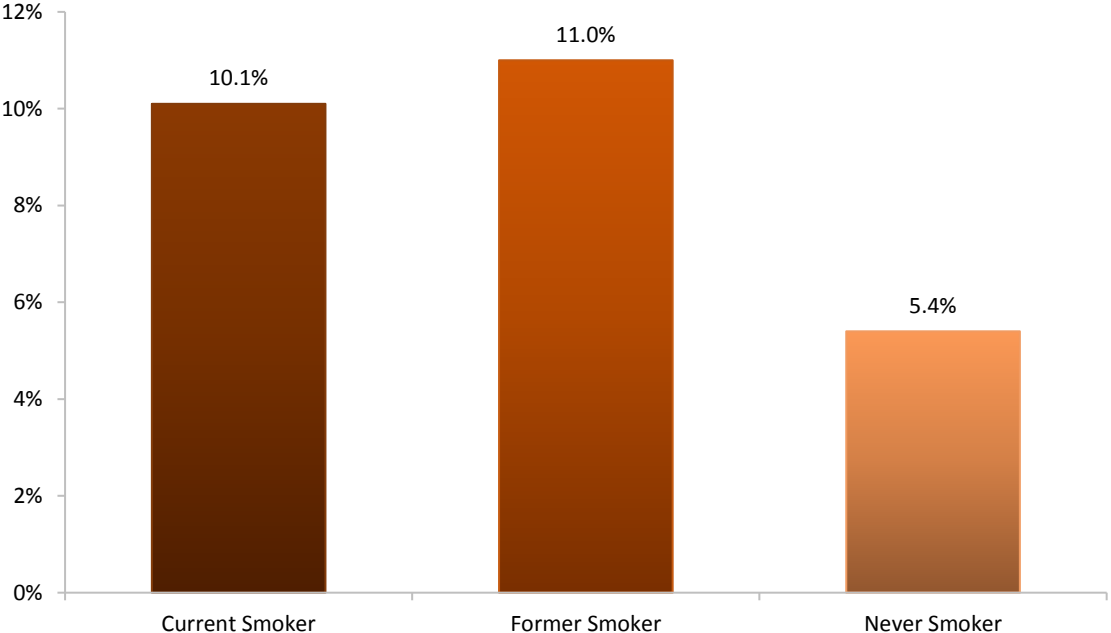


* Self-reported general health status was assessed with the following question: Would you say that in general your health is: Excellent, Very Good, Good, Fair, or Poor? For analysis, the data were dichotomized into: Good or better and Fair/Poor

Data: Wisconsin Behavioral Risk Factor Survey; The most recent five years of data were merged to improve the reliability of estimates.



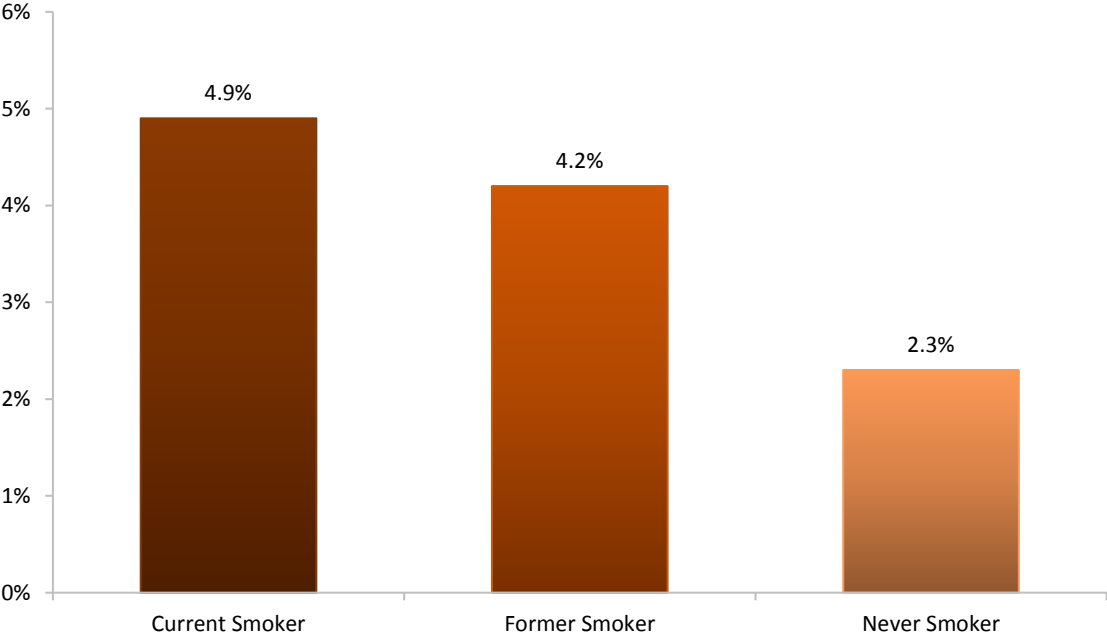
Figure B.3. Ever Diagnosed with Coronary Heart Disease or Myocardial Infarction*, by Current Cigarette Smoking Status, Adults (age 35 years or older), Wisconsin, 2016-2020



* Ever diagnosed with coronary heart disease/myocardial infarction was assessed with the following 2 questions: Has a doctor, nurse, or other health professional ever told you that you had angina or coronary heart disease? Has a doctor, nurse, or other health professional ever told you that you had a heart attack also called a myocardial infarction?

Data: Wisconsin Behavioral Risk Factor Survey; The most recent five years of data were merged to improve the reliability of estimates.

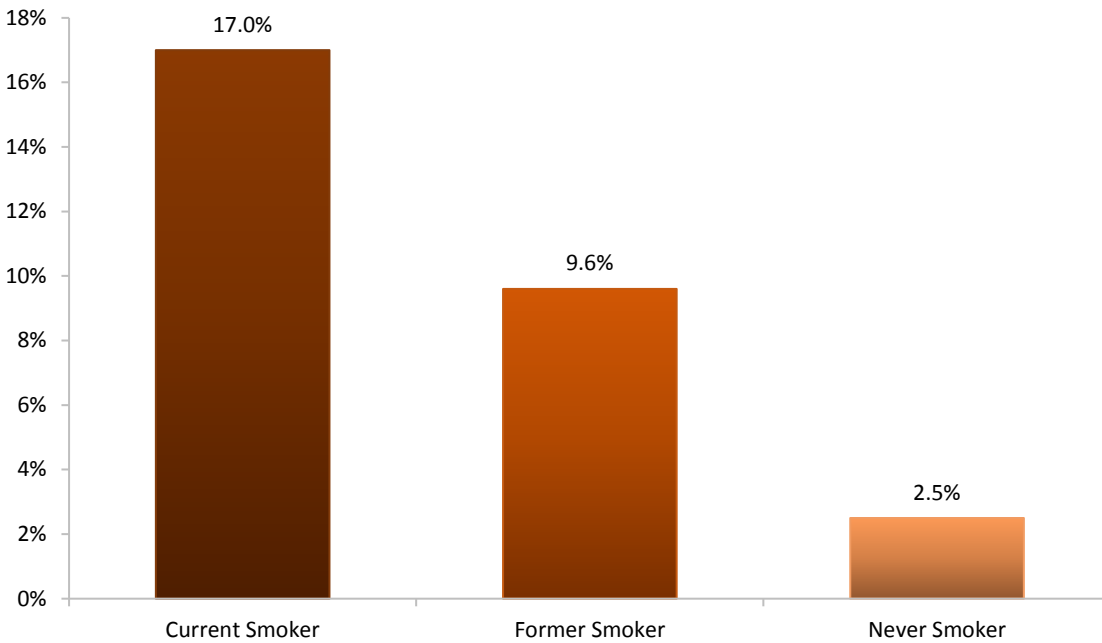
Figure B.4. Ever Diagnosed with Stroke*, by Current Cigarette Smoking Status, Adults (age 35 years or older), Wisconsin, 2016-2020



* Ever diagnosed with stroke was assessed with the following question: Has a doctor, nurse, or other health professional ever told you that you had a stroke?

Data: Wisconsin Behavioral Risk Factor Survey; The most recent five years of data were merged to improve the reliability of estimates.

Figure B.5. Ever Diagnosed with Chronic Obstructive Pulmonary Disease (COPD)*, by Current Cigarette Smoking Status, Adults (age 35 years or older), Wisconsin, 2016-2020

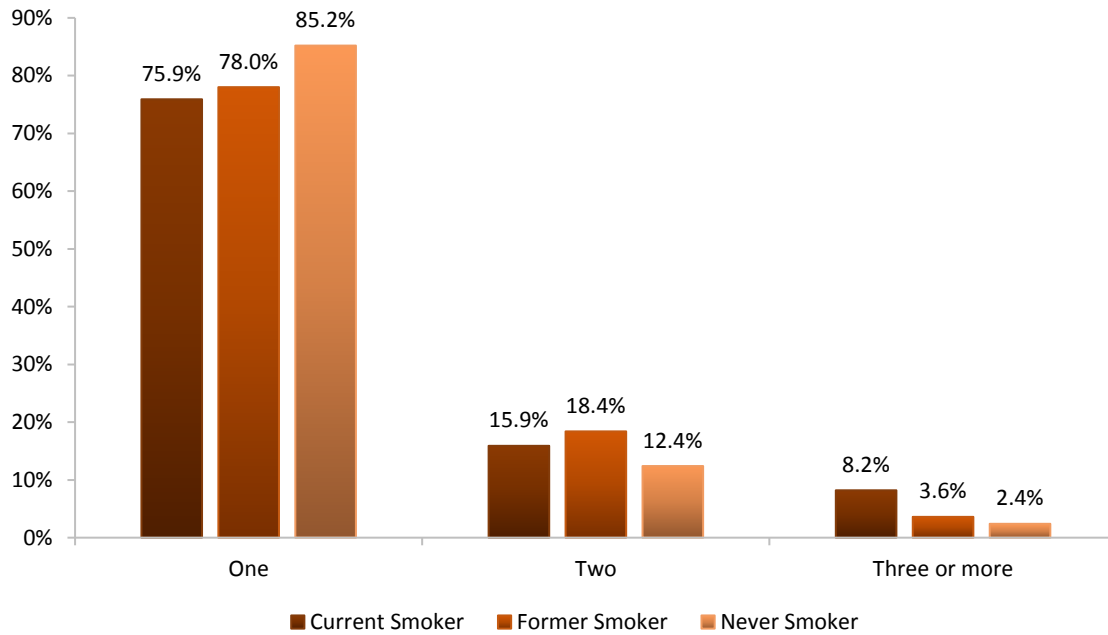


* Ever diagnosed with chronic obstructive pulmonary disease (COPD) was assessed with the following question: Has a doctor, nurse, or other health professional ever told you that you have chronic obstructive pulmonary disease, COPD, emphysema or chronic bronchitis?

Data: Wisconsin Behavioral Risk Factor Survey; The most recent five years of data were merged to improve the reliability of estimates.



Figure B.6. Number of Different Cancer Diagnoses*, by Current Cigarette Smoking Status, Adults (age 35 years or older), Wisconsin, 2016 and 2020†.



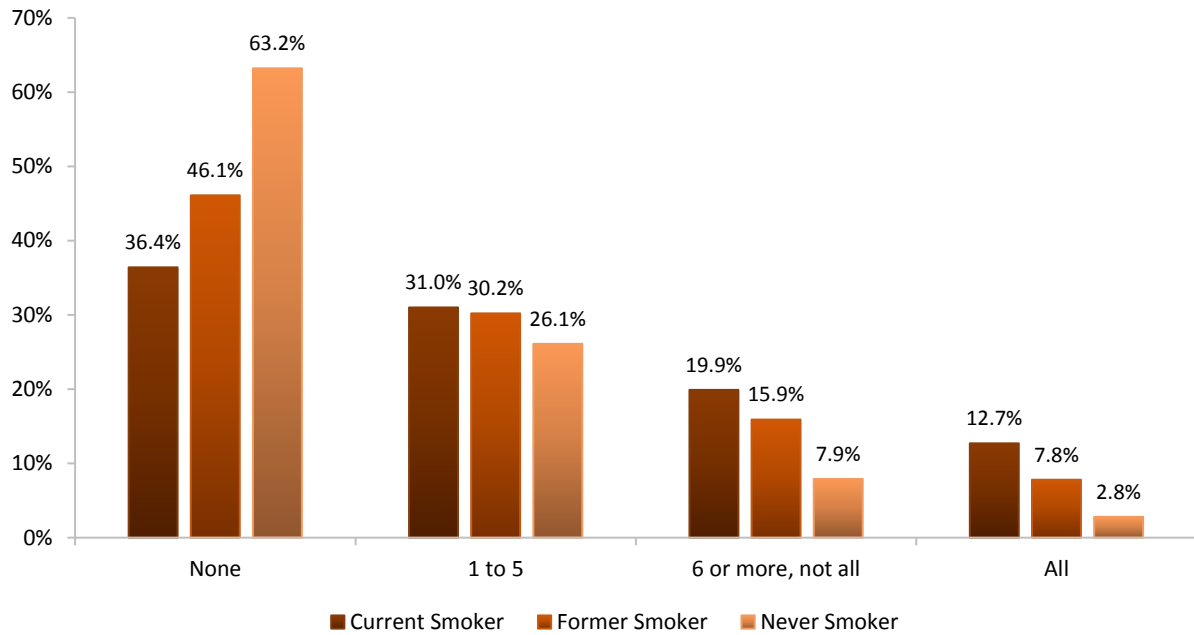
* Number of different cancer diagnoses was assessed with the following question: How many different types of cancer have you had? Responses were entered by the interviewer as follows: One, Two, Three or more.

Note: This question was only asked of respondents who reported having had cancer.

Data: Wisconsin Behavioral Risk Factor Survey; The most recent five years of data were merged to improve the reliability of estimates; †This question was only available in the 2016 and 2020 BRFs.



Figure B.7. Number of Permanent Teeth Removed*, by Current Cigarette Smoking Status, Adults (age 35 years or older), Wisconsin, 2016, 2017, 2018 and 2020†.



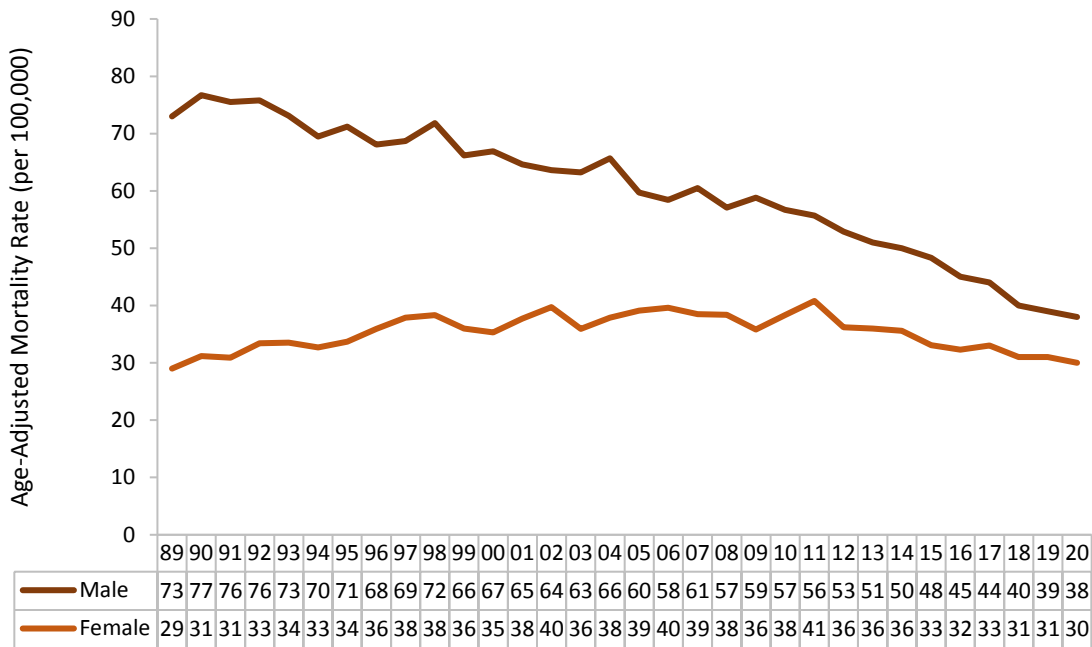
* Number of permanent teeth removed was assessed with the following question: Not including teeth lost for injury or orthodontics, how many of your permanent teeth have been removed because of tooth decay or gum disease? Responses were entered by the interviewer as follows: None, 1 to 5, 6 or more but not all, All.

Data: Wisconsin Behavioral Risk Factor Survey; The most recent five years of data were merged to improve the reliability of estimates; †This question was not asked in the 2019 BRFs.



SECTION C. TOBACCO-RELATED DEATHS AND ECONOMIC COST

Figure C.1. Age-Adjusted Lung Cancer Mortality* Rate, by Sex, Wisconsin, 1989-2020

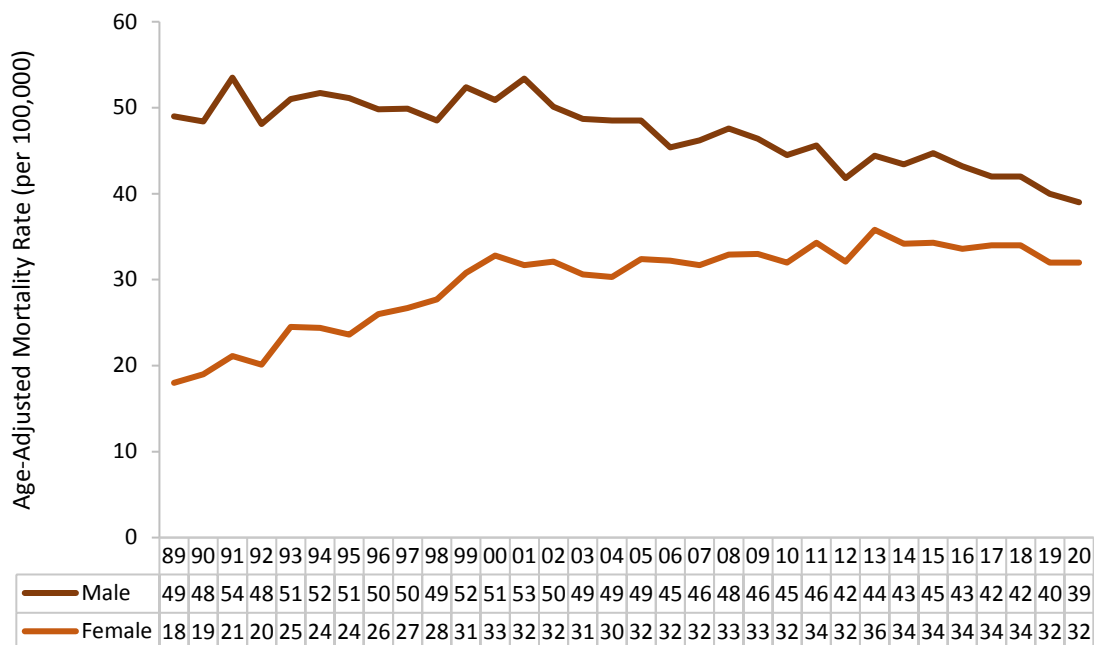


* Lung cancer mortality is estimated using data for malignant neoplasm of the trachea, bronchus, and lung.

Data: Wisconsin Interactive Statistics on Health

Note: Age-adjustment is a process by which the age composition is defined as constant so that differences in age composition can be eliminated from the analysis. This is needed because older populations have higher mortality rates, merely because death rates increase with age. Age-adjusted rates allow for more meaningful comparison of the risk of mortality over time and among groups.

Figure C.2. Age-Adjusted Chronic Obstructive Pulmonary Disease (COPD) Mortality* Rate, by Sex, Wisconsin, 1989-2020



* COPD mortality is estimated using data for bronchitis (chronic and unspecified), emphysema, and other chronic lower respiratory diseases.

Data: Wisconsin Interactive Statistics on Health

Note: Age-adjustment is a process by which the age composition is defined as constant so that differences in age composition can be eliminated from the analysis. This is needed because older populations have higher mortality rates, merely because death rates increase with age. Age-adjusted rates allow for more meaningful comparison of the risk of mortality over time and among groups.

Annual Tobacco-Related Deaths, Health Care Costs, and Lost Productivity in Wisconsin

- ❖ Approximately 7,000 Wisconsin residents die annually from smoking-related illnesses.
- ❖ Two thousand six hundred thirty-three (2,633) Wisconsinites, age 35 years or older, died from lung cancer in 2020.
 - An estimated 78% of these lung cancer deaths in Wisconsin (n=2,054) are associated with smoking.
- ❖ The direct health care cost of smoking (e.g., physician visits, hospitalizations, medication, etc.) is estimated at \$3.0 billion annually in Wisconsin, with an additional cost of \$1.6 billion in lost productivity.

Source: Palmersheim KA, Prosser EC. *Burden of Tobacco in Wisconsin: 2015 Edition*. Milwaukee, WI: University of Wisconsin-Milwaukee, Center for Urban Initiatives and Research; 2015.

Data: 2020 lung cancer mortality data are from Wisconsin Interactive Statistics on Health.

SECTION D. DATA SOURCES

Burden of Tobacco in Wisconsin. Tobacco-related deaths and the associated economic cost and lost productivity data are from the following source: Palmersheim KA, Prosser EC. *Burden of Tobacco in Wisconsin: 2015 Edition*. Milwaukee, WI: University of Wisconsin-Milwaukee, Center for Urban Initiatives and Research; 2015. Available from: https://www.cuph.org/uploads/2/5/8/5/25855930/burden_of_tobacco_2015_final_1.12.2015.pdf.

The Tax Burden on Tobacco.

Historical tax data are from: Orzechowski and Walker. *The Tax Burden on Tobacco: Historical Compilation, Historical Compilation, 2014*. Volume 49. Arlington, VA: Orzechowski and Walker; 2015.

Average annual price per pack data and per capita cigarette sales data for 1970 through 2014 are from: Orzechowski and Walker. *The Tax Burden on Tobacco: Historical Compilation, Historical Compilation, 2014*. Volume 49. Arlington, VA: Orzechowski and Walker; 2015.

Average annual price per pack data and per capita cigarettes sales data for 2015 are from: Orzechowski and Walker. *The Tax Burden on Tobacco: Historical Compilation, 2015*. Volume 50. Arlington, VA: Orzechowski and Walker; 2016.

Average annual price per pack data for 2016 through 2019 and per capita cigarettes sales data for 2016 are from the Centers for Disease Control and Prevention's online repository of Orzechowski and Walker's, *The Tax Burden on Tobacco*, available from <https://chronicdata.cdc.gov/Policy/The-Tax-Burden-on-Tobacco-1970-2019/7nwe-3aj9>.

U.S. Census Bureau, Population Division.

Wisconsin population estimates used to calculate the 2017 and 2018 per capita sales data are from the American Fact Finder. This is in accordance with how the figures were calculated by Orzechowski and Walker for *The Tax Burden on Tobacco*. (This site has been decommissioned.)

Wisconsin population estimates used to calculate the 2019 per capita sales data are available from: <https://www.census.gov/programs-surveys/popest.html>.

Wisconsin population estimates used to calculate the 2020 and 2021 per capita sales data are from QuickFacts. Available from: <https://www.census.gov/quickfacts/fact/table/WI,US/PST045221>.

U.S. Department of Labor, Bureau of Labor Statistics, CPI Inflation Calculator. Price per pack of cigarettes is inflation-adjusted to June 2019 dollars using the calculator available from: <https://data.bls.gov/cgi-bin/cpicalc.pl>.

Wisconsin Behavioral Risk Factor Survey. Wisconsin adult cigarette smoking status and health-related data are from the Wisconsin Behavioral Risk Factor Survey (BRFS). Databases were accessed from the Wisconsin Department of Health Services, Division of Public Health, Office of Health Informatics, the organization that administers the survey and manages the databases and associated documentation.



Wisconsin Department of Revenue. The state tax-paid cigarette sales data are from the Wisconsin Department of Revenue (DOR). Data for earlier years were received directly from the DOR. More recently collected data are from the DOR's *Monthly Cigarette and Other Tobacco Products Report*. Available from: <https://www.revenue.wi.gov/DORReports/Cigarette-and-Other-Tobacco-Product-Collections.pdf>.

Wisconsin Interactive Statistics on Health. Wisconsin population estimates and mortality data are from Wisconsin Interactive Statistics on Health (WISH), which employs multiple sources from protected databases. WISH is developed and maintained by the Wisconsin Department of Health Services, Division of Public Health, Office of Health Informatics. Available from: <https://www.dhs.wisconsin.gov/wish/>.