

Wisconsin Tobacco Facts: Smoking During Pregnancy

May 2024



Center for Urban Population Health
University of Wisconsin-Milwaukee



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*Data-driven. Evidence-based.
Community-engaged.*

ACKNOWLEDGEMENTS

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SMOKING DURING PREGNANCY: PREFACE

Cigarette smoking during pregnancy has been shown to have adverse effects on both the mother and child. Two reports of the Surgeon General, *Women and Smoking*¹ and *The Health Consequences of Smoking*,² highlight the dangers of smoking during pregnancy. Pregnant mothers who smoke put themselves and their babies at risk for premature rupture of membranes, placenta previa, stillbirth, preterm delivery, and sudden infant death syndrome.^{1,2} These reports also show that infants born to mothers who smoke are twice as likely to be low birthweight, defined as weighing less than 2,500 grams at birth.^{1,2} Analysis of Wisconsin data presented in this report reveal that 15.5% of babies born to mothers who smoked during pregnancy during 2020 were low birthweight babies, compared to 7.5% of babies born to non-smoking mothers. During the same time period, the infant mortality rate for babies of Wisconsin mothers who smoked during pregnancy was 8.1 deaths per 1,000 live births, compared to 5.4 deaths per 1,000 live births for babies of mothers who did not smoke.

Wisconsin has long recognized the great risk mothers who smoke take for themselves, their unborn child, and their family. Through many programs with local health departments, coalitions, health care professionals, and interested partners, Wisconsin has focused efforts at reducing tobacco use and exposure to secondhand smoke in the general population, including pregnant mothers. In addition, the State supports the First Breath³ program, a nationally recognized smoking cessation program established in 2000 for pregnant mothers, which now serves pregnant and postpartum mothers, as well as their families. Moreover, the State's Tobacco Prevention and Control Plan has set forth the objective of reducing the percentage of Wisconsin pregnant mothers who smoke to 9% by the end of 2025.⁴

In view of this goal, the purpose of this report is to examine and monitor trends in smoking during pregnancy among mothers in Wisconsin. Utilizing a comprehensive data set, comprised of all births in Wisconsin, it compares the prevalence of smoking during pregnancy in Wisconsin to the prevalence in the United States for all pregnant mothers and for select subgroups. In addition, social and demographic characteristics associated with an increased likelihood of smoking during pregnancy are identified. It is important to note, however, that none of the relationships presented in this report should be construed as causal. Rather, they illuminate important identifying characteristics that can serve to focus related program and policy considerations on those mothers most in need of assistance in the prevention and cessation of maternal smoking.

In sum, this report serves as an update to the previously published series on maternal smoking in Wisconsin in order to provide an ongoing surveillance of maternal smoking in the state. The findings presented here are intended to provide a resource for health professionals, local health departments, and local coalitions working towards the reduction of the prevalence of smoking during pregnancy in Wisconsin.

*** Note: The word *mother* is used throughout this report because *mother* is used to identify the person giving birth on the U.S. Standard Certificate of Live Birth from which all data in this report were taken.**

SMOKING DURING PREGNANCY: KEY FINDINGS

Trends in Maternal Smoking in the United States

- In the United States, the prevalence of smoking during pregnancy decreased from 18.4% in 1990 to 3.7% in 2022, representing a relative decrease of 80%.

Trends in Maternal Smoking in Wisconsin

- In Wisconsin, the prevalence of smoking during pregnancy decreased from 22.9% in 1990 to 5.4% in 2022, representing a relative decrease of 76%.

Maternal Smoking in Wisconsin and Low Birthweight Babies

- In 2022, 15.5% of babies born to Wisconsin mothers that smoked during pregnancy were low birthweight, compared to 7.5% of babies born to mothers that did not smoke.

Maternal Smoking in Wisconsin and Infant Mortality

- In 2022, the infant mortality rate for babies born to Wisconsin mothers that smoked during pregnancy was 8.1, compared to 5.4 for babies born to mothers that did not smoke.

Maternal Smoking in Wisconsin, by Age

- During 2020-2022, mothers 20 to 24 years of age were most likely to smoke during pregnancy (8.7%), followed by mothers 18-19 years old (7.4%) and mothers 25-29 years old (7.2%).
- When age and race/ethnicity were considered in tandem, however, the prevalence of smoking during pregnancy for American Indian/Alaska Native mothers and black mothers was greater for slightly older age groups. For American Indian/Alaska Native mothers, the highest prevalence of maternal smoking was among those 35 to 39 years of age. For black mothers, the highest prevalence of maternal smoking was among those 30 years of age or older.

Maternal Smoking in Wisconsin, by Race/Ethnicity

- During 2020-2022, American Indian/Alaska Native mothers had the highest prevalence of smoking during pregnancy (29.4%), followed by multiracial mothers (14.7%), black mothers (7.6%), white mothers (7.2%), Hispanic mothers (3.6%), and Asian/Pacific Islander mothers (3.0%).

Maternal Smoking in Wisconsin and the United States, by Race/Ethnicity

- During 2020-2022, the prevalence of smoking during pregnancy for American Indian/Alaska Native, black, Hispanic, Asian/Pacific Islander, and multiracial mothers in Wisconsin was at least twice the prevalence for each corresponding racial/ethnic group in the United States. For white mothers, the prevalence of maternal smoking in Wisconsin was similar to the national average for Whites.

Maternal Smoking in Wisconsin, by Education

- During 2020-2022, the prevalence of smoking during pregnancy was highest among mothers with a high school degree (14.5%), followed by mothers with less than a high school degree (13.4%), mothers with some college (7.6%), and college graduates (0.6%).

Maternal Smoking in Wisconsin, by Marital Status

- During 2020-2022, 14.7% of unmarried mothers smoked during pregnancy, compared to 2.5% of married mothers.

Maternal Smoking in Wisconsin, by Prenatal Care

- During 2020-2022, 6.0% of mothers who initiated prenatal care during the first trimester of their pregnancy smoked during pregnancy, compared to 9.8% of mothers who initiated care during their second trimester and 11.3% of mothers who initiated care during the third trimester. Among mothers who did not receive prenatal care, maternal smoking was 24.6%.

Maternal Smoking in Wisconsin, by Principal Source of Payment

- During 2020-2022, 14.6% of mothers whose principal source of payment was Medicare or Badgercare smoked during pregnancy, compared to 2.7% of mothers who had private insurance and 1.6% of mothers who self-paid for services. Among mothers with some other source of payment, 7.9% smoked during pregnancy.

Maternal Smoking in Wisconsin Counties and the City of Milwaukee

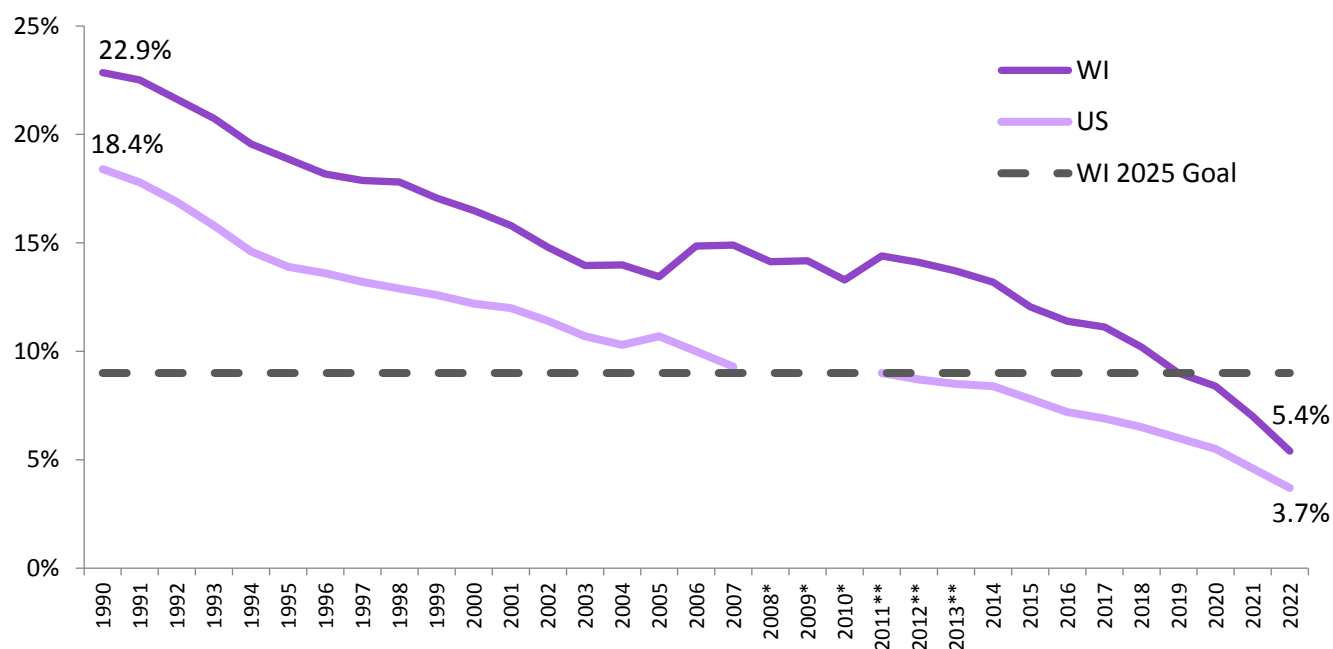
- During 2020-2022, the average prevalence of smoking during pregnancy among all Wisconsin mothers was 7.0%; however, in 50 of the state's counties, the prevalences were higher than the state average.
- The prevalence of smoking during pregnancy varied greatly among counties. During 2020-2022, Waukesha County had the lowest prevalence (2.4%) and Menominee County had the highest prevalence (30.6%).
- In general, higher prevalences of smoking during pregnancy were observed in counties located in the northern third of the state, and in a few centrally located counties.
- The prevalence of smoking during pregnancy in the City of Milwaukee was 6.0% during 2020-2022.

SMOKING DURING PREGNANCY: RESULTS

- ❖ Total Number of Live Births in Wisconsin in 2022: **60,032**
- ❖ Number (Percent) of Wisconsin Mothers Who Smoked During Pregnancy in 2022: **3,242 (5.4%)**

Data: Wisconsin Interactive Statistics on Health

Figure 1. Trends in the Prevalence of Smoking During Pregnancy, Wisconsin and the United States, 1990-2022

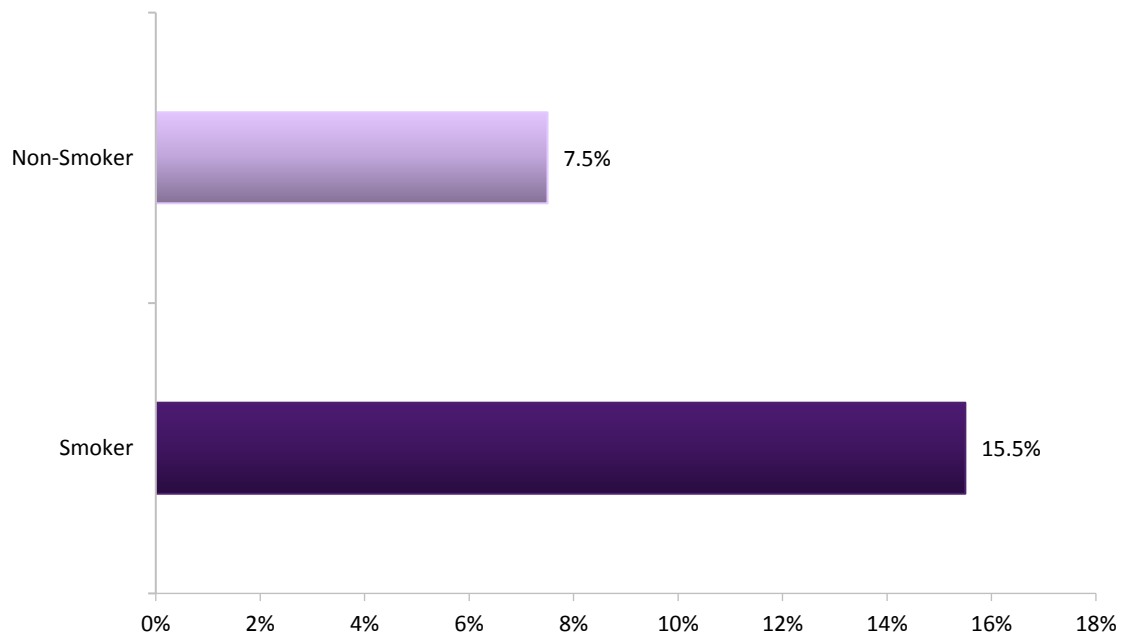


Note: Wisconsin data for 1990 through 2010, and U.S. data for 1990 through 2007, were collected using the 1989 U.S. Standard Certificate of Live Birth. Wisconsin and U.S. data for 2011 through 2022 were collected using the 2003 U.S. Standard Certificate of Live Birth.

* Because available U.S. data for 2008 through 2010 were collected using the 2003 Standard Certificate of Live Birth, they are not comparable to the Wisconsin data for those years, and thus are not included in this figure.

Data: Wisconsin Interactive Statistics on Health; CDC's Wide-Ranging Online Data for Epidemiologic Research; CDC's National Vital Statistics System; CDC's annual report on trends in health statistics; U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. *Women's Health USA 2010*. Rockville, Maryland: U.S. Department of Health and Human Services, 2010.

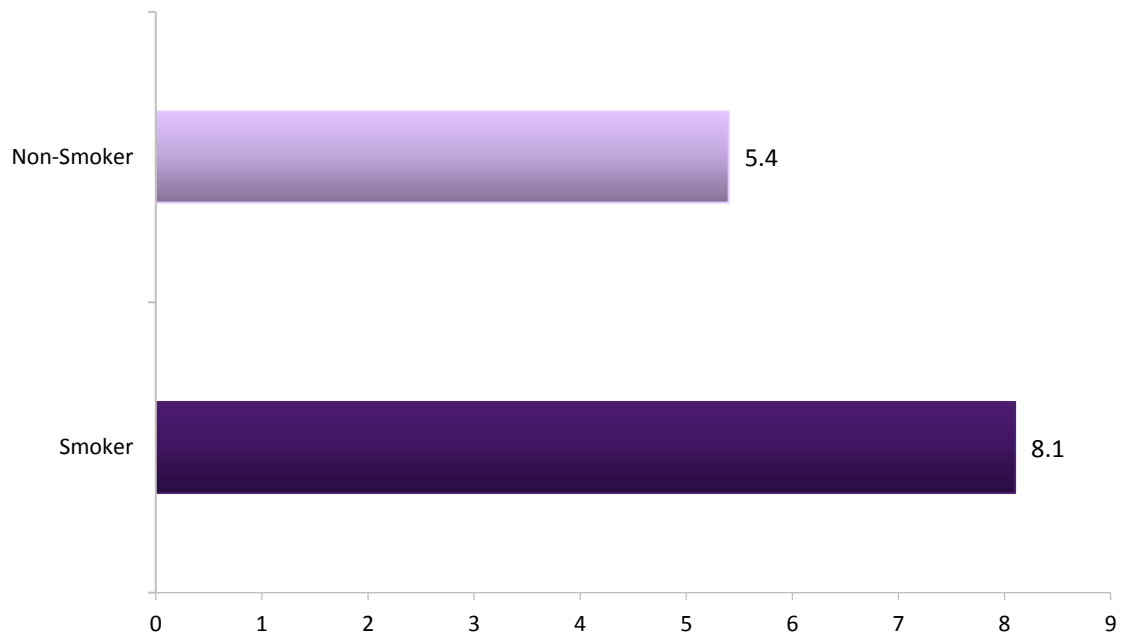
Figure 2. Prevalence of Low Birthweight Babies* Born to Smoking and Non-Smoking Mothers, Wisconsin, 2022



* Low birthweight is defined as weighing less than 2,500 grams (approximately 5.5 pounds) at birth.

Data: Wisconsin Interactive Statistics on Health

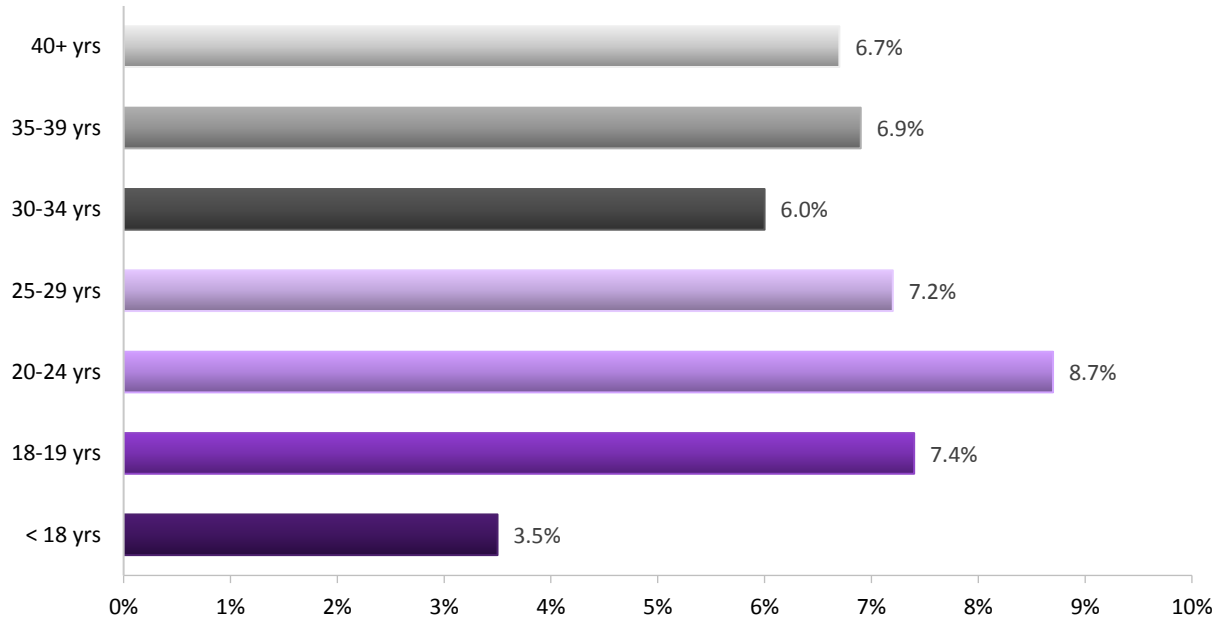
Figure 3. Mortality Rates† for Babies Born to Smoking and Non-Smoking Mothers, Wisconsin, 2022



† The infant mortality rate is per 100,000 live births.

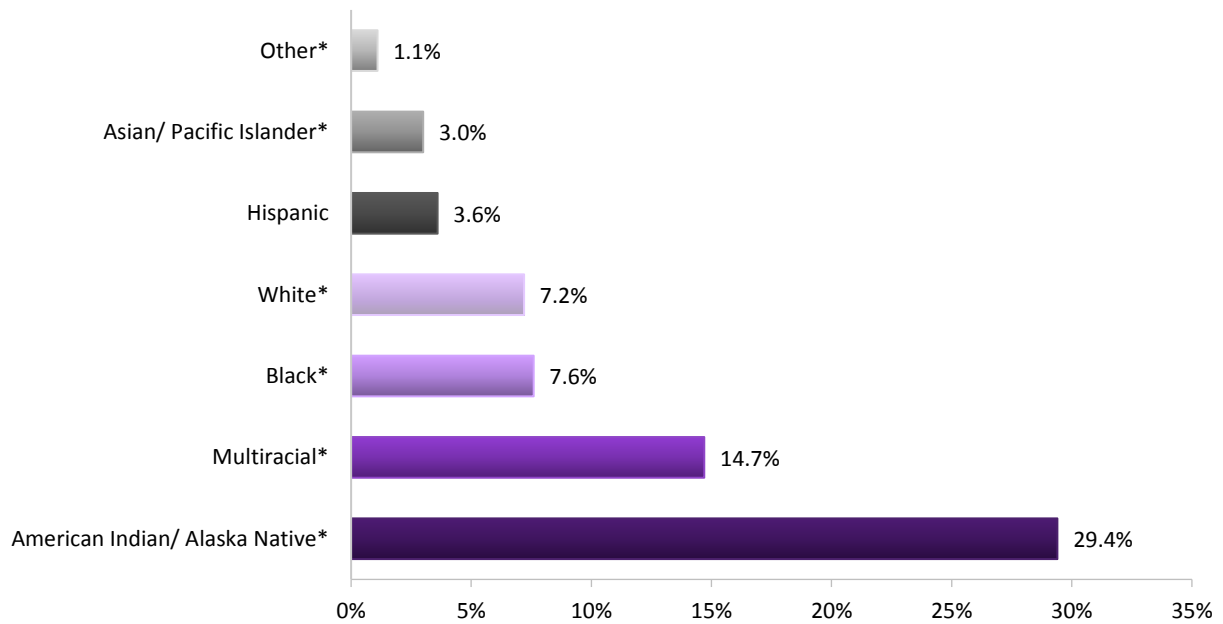
Data: Wisconsin Interactive Statistics on Health

Figure 4. Prevalence of Smoking During Pregnancy by Age of Mother, Wisconsin, 2020-2022



Data: Wisconsin Interactive Statistics on Health

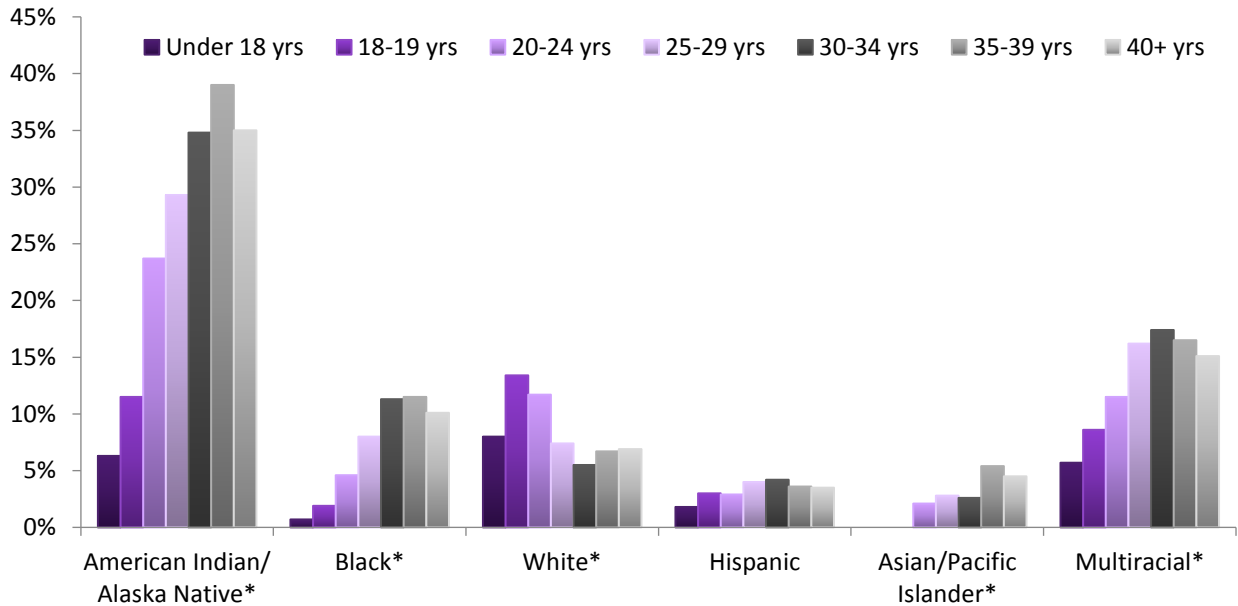
Figure 5. Prevalence of Smoking During Pregnancy by Race/Ethnicity, Wisconsin, 2020-2022



* All racial groups are non-Hispanic

Data: Wisconsin Interactive Statistics on Health

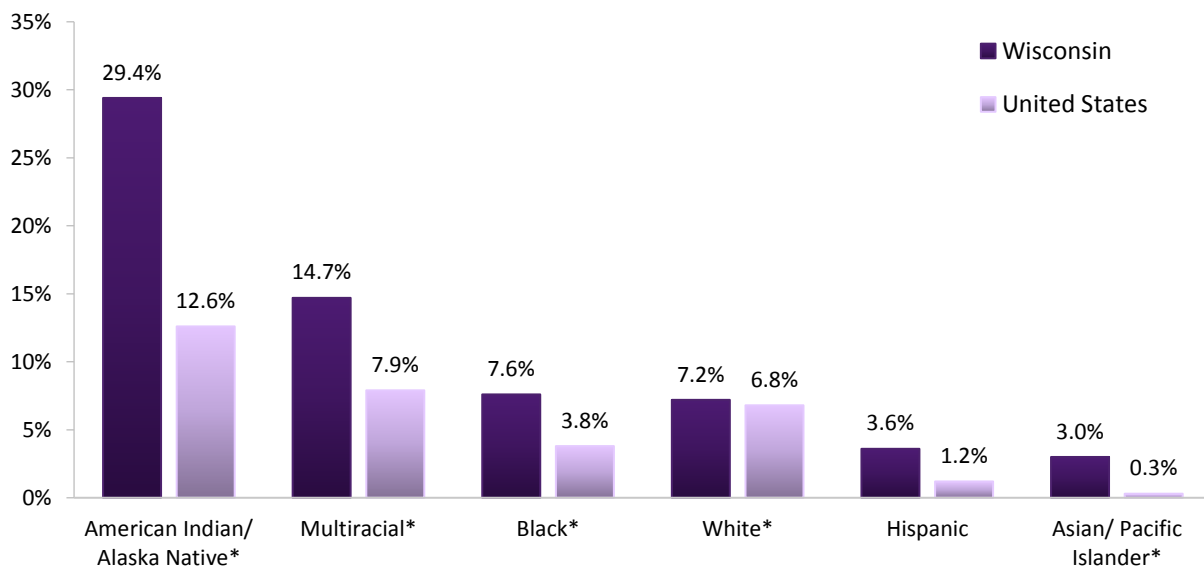
Figure 6. Prevalence of Smoking During Pregnancy by Race/Ethnicity and Age, Wisconsin, 2020-2022



* All racial groups are non-Hispanic

Data: Wisconsin Interactive Statistics on Health

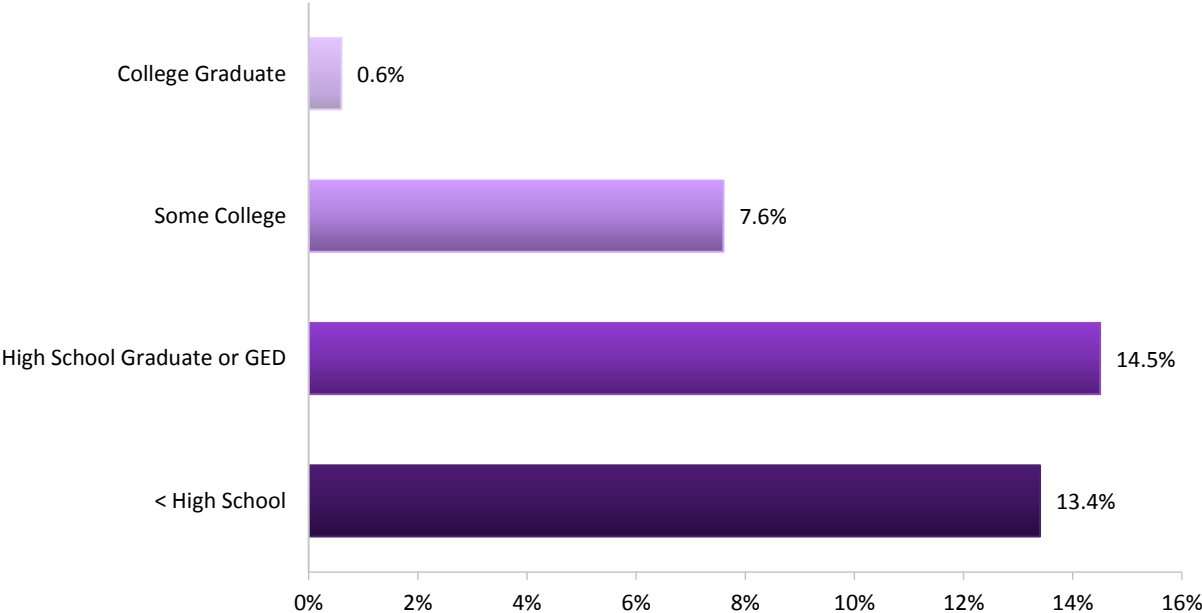
Figure 7. Prevalence of Smoking During Pregnancy by Race/Ethnicity, Wisconsin and the United States, 2020-2022



* All racial groups are non-Hispanic

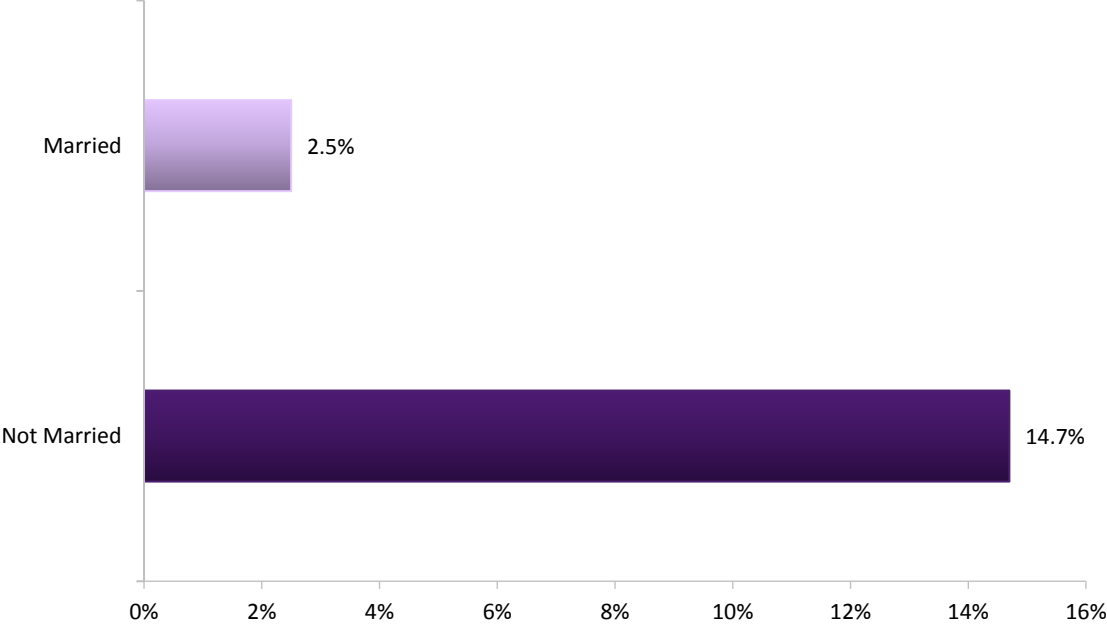
Data: Wisconsin Interactive Statistics on Health; CDC Wide-Ranging Online Data for Epidemiologic Research

Figure 8. Prevalence of Smoking During Pregnancy by Educational Attainment, for Mothers 20 Years Old and Older, Wisconsin, 2020-2022



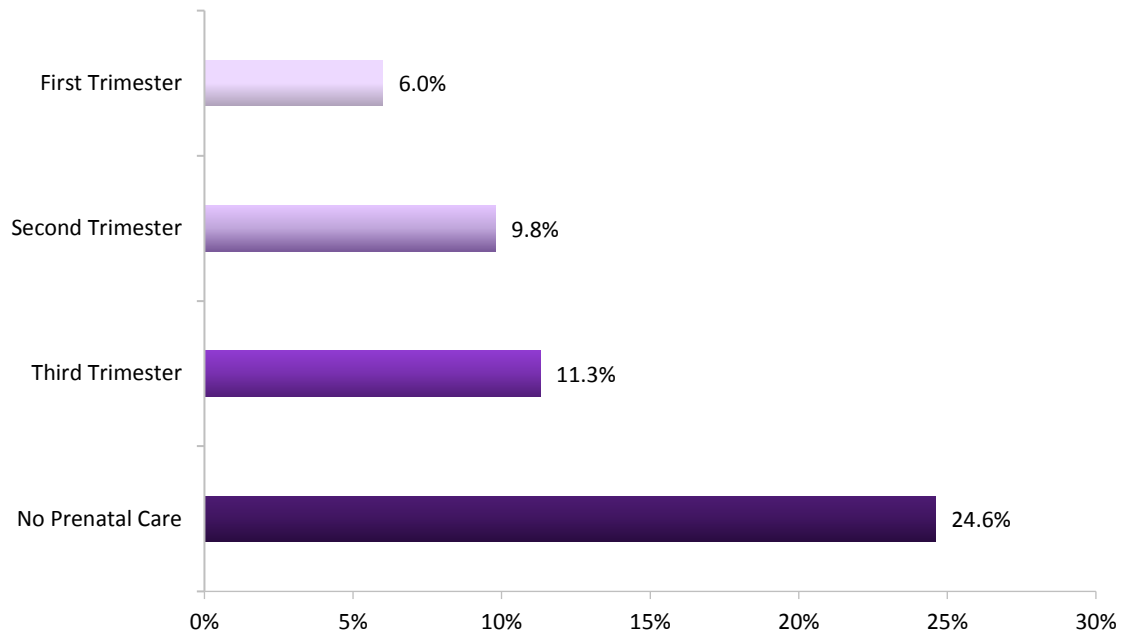
Data: Wisconsin Interactive Statistics on Health

Figure 9. Prevalence of Smoking During Pregnancy by Marital Status, Wisconsin, 2020-2022



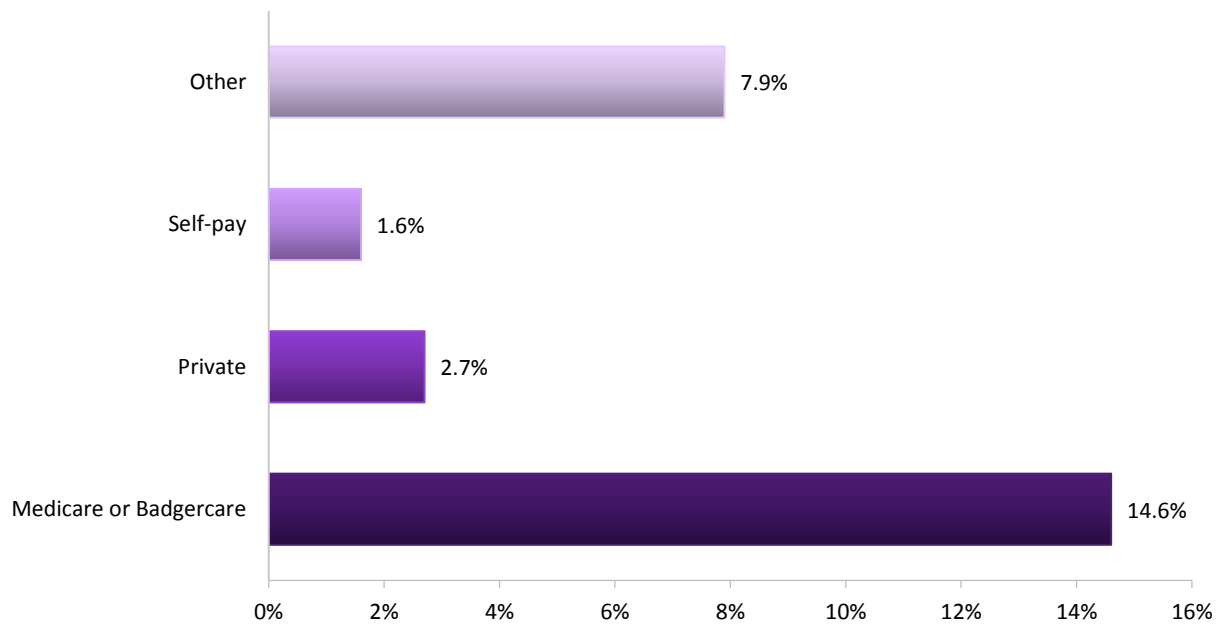
Data: Wisconsin Interactive Statistics on Health

Figure 10. Prevalence of Smoking During Pregnancy by Trimester of Prenatal Care, Wisconsin, 2020-2022



Data: Wisconsin Interactive Statistics on Health

Figure 11. Prevalence of Smoking During Pregnancy by Principal Source of Payment, Wisconsin, 2020-2022



Data: Wisconsin Interactive Statistics on Health

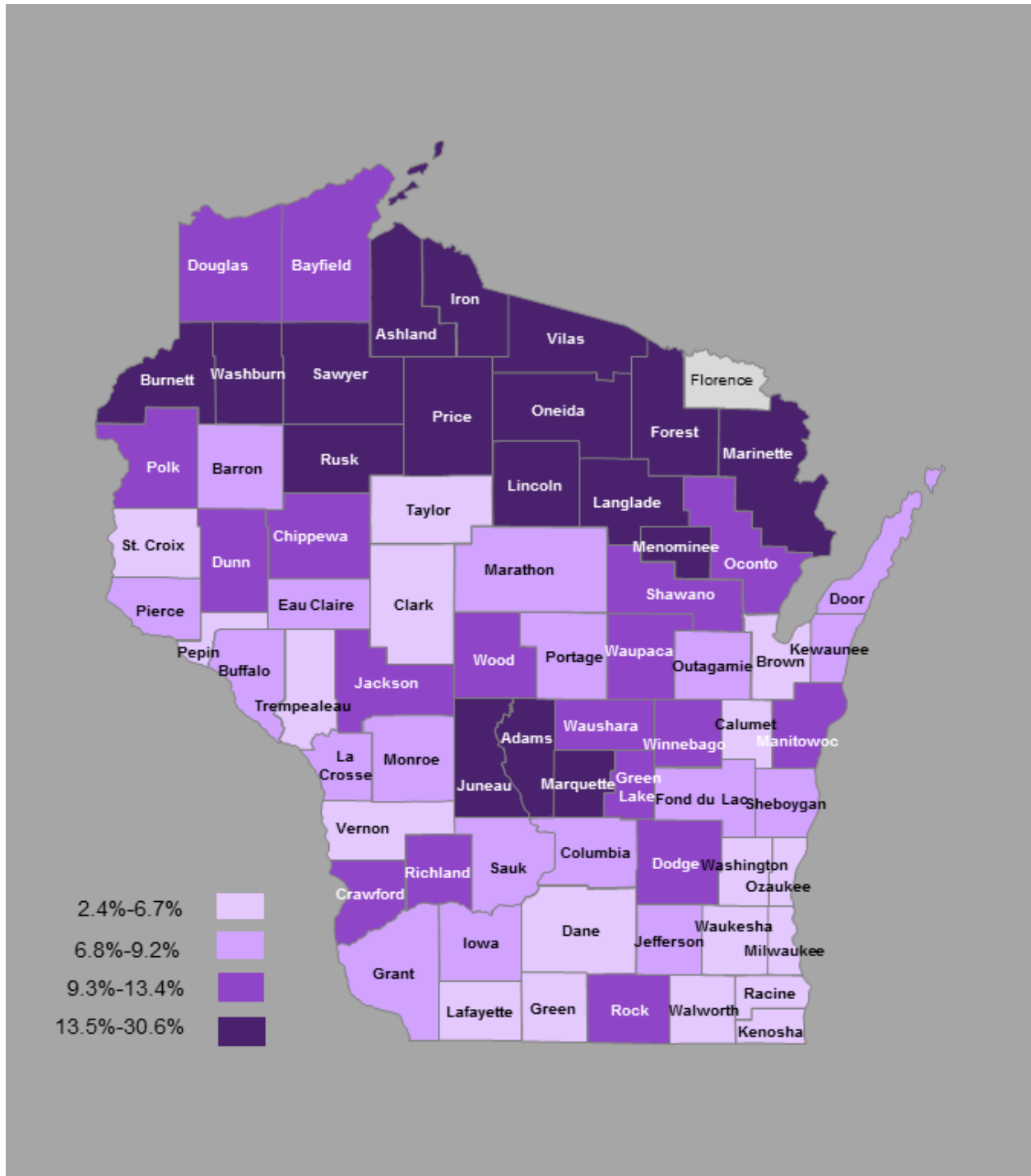
Table 1. Prevalence of Smoking During Pregnancy in Wisconsin, by County and the City of Milwaukee, 2020-2022

State/County	Total live births 2020-2022	Smoking Prevalence 2020-2022	State/County	Total live births 2020-2022	Smoking Prevalence 2020-2022
Wisconsin	182,460	7.0%			
Adams	362	18.7%	Marathon	4,297	8.4%
Ashland	469	17.8%	Marinette	1,095	16.0%
Barron	1,340	9.1%	Marquette	384	14.4%
Bayfield	321	12.8%	Menominee	212	30.6%
Brown	9,011	6.7%	Milwaukee	35,836	5.1%
Buffalo	371	7.8%	Monroe	1,723	9.2%
Burnett	299	17.8%	Oconto	1,017	12.7%
Calumet	1,420	5.2%	Oneida	800	13.9%
Chippewa	1,975	10.2%	Outagamie	6,315	6.9%
Clark	1,720	5.4%	Ozaukee	2,493	2.7%
Columbia	1,708	7.3%	Pepin	241	6.7%
Crawford	489	11.7%	Pierce	1,149	7.2%
Dane	16,946	3.3%	Polk	1,211	10.5%
Dodge	2,280	9.7%	Portage	1,796	8.5%
Door	623	8.0%	Price	280	16.4%
Douglas	1,172	11.9%	Racine	6,475	6.6%
Dunn	1,302	10.4%	Richland	511	10.3%
Eau Claire	3,279	7.8%	Rock	5,429	9.8%
Florence	80	--	Rusk	372	16.9%
Fond du Lac	2,989	9.1%	St. Croix	2,970	3.5%
Forest	287	25.4%	Sauk	2,115	7.8%
Grant	1,697	7.9%	Sawyer	408	18.3%
Green	1,047	5.6%	Shawano	1,282	13.3%
Green Lake	589	11.8%	Sheboygan	3,393	7.6%
Iowa	766	6.9%	Taylor	665	6.5%
Iron	124	14.8%	Trempealeau	1,182	5.9%
Jackson	658	12.5%	Vernon	1,261	4.5%
Jefferson	2,403	8.2%	Vilas	466	22.2%
Juneau	670	14.7%	Walworth	2,653	6.6%
Kenosha	5,115	6.4%	Washburn	356	13.5%
Kewaunee	604	6.8%	Washington	3,733	5.0%
La Crosse	3,355	6.9%	Waukesha	11,424	2.4%
Lafayette	753	5.2%	Waupaca	1,407	11.6%
Langlade	529	18.2%	Waushara	564	13.2%
Lincoln	772	15.6%	Winnebago	5,075	9.3%
Manitowoc	2,196	11.1%	Wood	2,144	13.4%
City of Milwaukee	24,834	6.0%			

Data Source: Wisconsin Interactive Statistics on Health

--Data not reported due to small sample size (number of births <100)

Figure 12. Prevalence of Smoking During Pregnancy by County, in Quartiles, Wisconsin, 2020-2022



Data: Wisconsin Interactive Statistics on Health

Note: Data not reported for Florence County due to small sample size

SMOKING DURING PREGNANCY: REFERENCES

1. U.S. Department of Health and Human Services. *Women and Smoking: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General; 2001.
2. U.S. Department of Health and Human Services. *The Health Consequences of Smoking: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General; 2004.
3. Wisconsin Women's Health Foundation. First Breath. Website: <https://www.wwhf.org/firstbreath/>
4. Wisconsin Department of Health Services, Division of Public Health, Bureau of Community Health Promotion, Tobacco Prevention and Control Program. *Wisconsin Tobacco Prevention & Control Plan 2020-2025*. Available at: https://www.tobaccofreewisconsin.org/uploads/1/1/6/5/116511217/final_tobacco_plan_10.8.19_f.pdf

SMOKING DURING PREGNANCY: DATA SOURCES & TECHNICAL NOTES

Wisconsin Data. All Wisconsin 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/>

National Data. Data for the United States trend analysis have been routinely accessed and collected over the years in order to track and compare the U.S average maternal smoking prevalence to that of Wisconsin. Accordingly, multiple sources (published and data repositories) have been used, including:

- Centers for Disease Control and Prevention's annual report on trends in health statistics, *Health, United States, with Chartbook on Trends in the Health of Americans*. Available from:

<https://www.cdc.gov/nchs/hus/index.htm>

- Centers for Disease Control and Prevention's National Vital Statistics System. Available from:

<https://www.cdc.gov/nchs/nvss.htm>

- Centers for Disease Control and Prevention's Wide-Ranging Online Data for Epidemiologic Research (WONDER). Available from: <https://wonder.cdc.gov/>

- United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Division of Vital Statistics, Natality public-use data 2016-2022, on CDC WONDER Online Database, October 2023. Last accessed at <http://wonder.cdc.gov/natality-expanded-current.html> on April 28, 2024

- U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. *Women's Health USA 2010*. Rockville, Maryland: U.S. Department of Health and Human Services, 2010. Online version available from: <https://mchb.hrsa.gov/whusa10/>

Maternal cigarette use is based on the mother's report of smoking during pregnancy. Information on smoking during pregnancy is obtained from the mother during prenatal care visits or at the time of delivery and is recorded on the birth certificate by the attending physician, nurse, or other health professional at the time of delivery.

The 33 years of data analyzed for this report were collected using two different birth certificates, the 1989 U.S. Standard Certificate of Live Birth and the 2003 revision. The 1989 version reports smoking at any time during pregnancy, using one "yes/no" question. In 2003, the birth certificate was revised to assess cigarette use during the three months prior to pregnancy and during each trimester of pregnancy. States have the option of determining which certificate they will use.

Wisconsin data presented in this report for the years 1990 through 2010 are from the 1989 U.S. Standard Certificate of Live Birth. Comparable U.S. data (those using the 1989 birth certificate) were available through 2007.

Wisconsin and U.S. data presented in this report for the years 2011 through 2022 are from the 2003 U.S. Standard Certificate of Live Birth.

By 2008, a majority of U.S. states were using the 2003 revision of the birth certificate. Wisconsin, however, used the 1989 version through 2010. Thus, comparable U.S. data (those using the 1989 birth certificate) were not being reported or published in readily accessible databases for 2008 through 2010. Accordingly, Wisconsin data on smoking during pregnancy are not compared to U.S. data for the years 2008, 2009, and 2010.

The word mother is used to refer to the person giving birth to each baby on its corresponding birth certificate. Thus, mother is used throughout this report. The U.S. Standard Certificate of Live Birth can be found here: <https://www.cdc.gov/nchs/data/dvs/birth11-03final-acc.pdf>

A three-year time period (2020-2022) was utilized for select analyses in order to increase sub-sample sizes, thereby improving the reliability of estimates.

Cases for which data on smoking status or other key factors were missing were excluded from analysis on a case by case basis.