Women Count in Indiana

Data Book 2014

Indiana State
Department of Health

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December 23, 2013

Greetings!

I am pleased to have this opportunity to present to you the *Women Count in Indiana Data Book 2014* and to offer my congratulations to the Office of Women's Health on another year of providing statewide leadership to women on issues critical to their wellness and life-long health.

We all should be concerned about health issues facing the aging Baby Boom generation, such as breast cancer, cervical cancer, ovarian cancer, and osteoporosis. Women in their reproductive years face additional challenges, and Indiana must improve its infant mortality rates, especially among African American women. Additionally, we must focus on the health risks related to tobacco use, obesity, diabetes and HIV/AIDS for all age groups and all populations.

The *Women Count in Indiana Data Book 2013* provides a statewide summary of women's health issues, which can assist health-care providers, policymakers, local health departments, and other interested parties in identifying the specific needs of women in their communities.

The Office of Women's Health works daily to increase awareness of the health concerns facing women today. The office has also played a vital role in formulating health care policies affecting women through its service as a clearinghouse for new scientific findings and other information on women's health issues.

On behalf of all Hoosiers, thank you for your continued commitment to improving the health of all women in Indiana.

Sincerely,

William C. VanNess II, MD

State Health Commissioner

Indiana State Department of Health

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December 23, 2013

Greetings!

On behalf of the Office of Women's Health, I am proud to present our newest publication, *Women Count in Indiana Data Book 2014*.

This publication is more than ten years in the making and reflects the many changes Indiana women have seen in demographics, reproductive health, health conditions, selected health behaviors and risks, and use of the health care system since 2001. The addition of a Violence Against Women section provides a full view of the health issues impacting women in Indiana.

The information provided here informs service providers, policymakers, and other interested parties about the state of women's health in Indiana and its 92 counties.

The purpose of this publication is to make it possible for a wide range of interested parties to look more closely at the specific needs of women in their communities. It is the goal of the Office of Women's Health that this data will be used to set priorities for women's health issues, in order to allow resources to be used most effectively to improve the health of all women throughout Indiana. In addition, the Office of Women's Health and other agencies focusing on women's health issues in Indiana will use this data to clarify gaps in current kinds and levels of service and to identify future needs.

Many people were involved in the publication of this document. First and foremost I would like to thank Linda Stemnock of the Indiana State Department of Health Epidemiology Resource Center, Data Analysis Team. Without her efforts to gather statistical information, this document could not have been written. Amanda Stinnett is the main author of this publication, and I express my extreme gratitude for her hours of hard work and dedication. I would also like to thank the many reviewers who provided invaluable input. Lastly, thank you to Lisa Stoner and the Office of Public Affairs staff.

It is my hope that the information in this document will create awareness of the importance of collecting and disseminating women's health information, and ultimately, improve the health of Indiana women.

Warm regards,

Kathryn M. Jones, MSW

Director, Office of Women's Health

Introduction

Using the Data Book

Introduction: Using the Data Book

In 2001, the Office of Women's Health published *Women Count in Indiana: County Data Book 2001* to provide a comprehensive source of data on the health status of women in our state. Over a decade later, some progress has been made and some challenges remain. Maintaining health requires a holistic approach to well-being throughout a woman's life course. If public health advocates and policy makers are to continue making well-informed decisions regarding women's health, there must be an understanding of the challenges modern women face. These challenges can be dynamic and complex. Risk and protective factors such as nutrition, stress, socioeconomic status, and environmental exposures can affect health throughout a lifetime. Further data collection and analysis has allowed key information to be compiled into a format which provides a renewed picture of the health status of women in Indiana today.

Women are living longer than ever, and there are several factors that can affect health and well-being. Access to health care services, preventive screenings, and healthy behaviors are vital for health and quality of life. This is important, not only for individual women, but also for their families. This data book covers key topics that provide a closer look at the health status of Indiana women and factors that are helping or hindering them from leading healthy lives.

Data Sources, Scope and Limitations

An attempt has been made to collect all recent reports on women's health issues, as well as the most current statistics available about demographics. Most data on women's health comes from state and federal data, such as birth and death records, hospital records, census data, and other state and federal sources. Other data comes from the Indiana Behavioral Risk Factor Surveillance System (BRFSS) survey, which is limited by self-reporting errors, such as recall bias or social desirability bias.

Another limitation of the data is a poor understanding of the ways in which racial, cultural, and ethnic differences affect women's health and their participation in risky behaviors. Where data exist to show variations between racial and ethnic groups, these data are presented here. Generally, groups with the highest rates for morbidity and mortality are usually the poor, the elderly, and racial or ethnic minorities. Comparative data by racial and ethnic group are not available for all categories presented. Improvements in infant mortality rates, reduction of disparities in minority mortality due to cardiovascular disease, cancer, stroke, and diabetes, and reduction in incidence of minority cases of HIV/AIDS and STDs are all attainable through collaborative efforts. The Office of Minority Health at the Indiana State Department of Health focuses on eradicating disparities in preventable conditions among minorities in the state of Indiana.

Urban versus rural differences also need to be taken into account, most obviously with regard to access to health care services, but also with reference to exposure to health risks, different practices in health

prevention, and varying attention to diagnosis and treatment. Because data collection at the county level in Indiana is limited, it is important to keep in mind these variations in interpreting both incidence of disease and risk behaviors, as well as the impact of education programs and screening campaigns on women's well-being. Researchers are advised to look at original data and reports before drawing conclusions about policy or program needs from the data as presented here. While some data from the original sources are not presented in this report, it may assist in identifying needs for future research to develop a more detailed picture of the status of women's health in Indiana.

A bibliography of references used to prepare this report appears at the end of the booklet, and data sources for tables are cited under each table.

History of Women's Health Data in Indiana

The Office of Women's Health (OWH) at the Indiana State Department of Health (ISDH) was established in 1998 by then Governor Frank O'Bannon. In 1999, the Indiana General Assembly passed legislation to give the Office permanence through statutory language. The statute defines several functions of OWH, including educating the public on women's health issues, particularly preventive health and healthy lifestyles, through forums, programs, or initiatives and advocating for women's health funding and services (House Enrolled Act No. 1356). The OWH also is expected "to collect, classify, and analyze relevant research information and data conducted or compiled by: (A) the state department [of health]; or (B) other entities in collaboration with the state department [of health]; and to provide interested persons with information regarding the research results, except as prohibited by law."

With House Enrolled Act No. 1356, Indiana made provisions to begin collecting, classifying, and analyzing data about women's health issues. Prior to this time, little information about women's health issues was collected in any systematic way. In 2001, the OWH produced and disseminated the first *Women Count in Indiana: County Data Book 2001*. The *Data Book* was created as a baseline for future data collection and reporting efforts, as no organized data collection on the health status of Indiana women had been done prior to its release. Since that time, the *Data Book* has been used by County Health Departments, legislators, and other stakeholders to help identify and prioritize women's health issues for Indiana.

OWH has undergone many changes over the years, in staffing, programming, funding, and priorities. In the early years of the Office, data collection and programming for osteoporosis and adolescent girls took precedence. As new leadership came to the Governor's Office and to ISDH in the mid-2000s, new initiatives became priorities for the OWH, including the First Lady, Cheri Daniels' Heart to Heart initiative, Indiana Female Leaders Unite (INFLuence) championed by former Health Commissioner Dr. Judith Monroe, and the Rape Prevention and Education Cooperative Agreement. In 2011, the OWH once again placed an emphasis on data collection and dissemination by designing and publishing the second edition of the *Women Count in Indiana Data Book*.

The process of collecting women's health data has evolved over time, as public health data collection has grown and improved. In 1984, when the Behavioral Risk Factor Surveillance System (BRFSS) was created by the Centers for Disease Control and Prevention (CDC), Indiana had access to significantly more information on health issues affecting women. ISDH implements the BRFSS in Indiana by collecting

survey data through phone interviews about health behaviors and health risks, preventive health practices, and health care access. In 2011, the BRFSS began to include cell phones in its interview process, which improved reporting but made data comparisons to previous years impossible. The new data collection method is explained in the next section.

Nationally, women's health data collection continues to improve. In 2000, a panel of women's health experts developed *Making the Grade on Women's Health: A National and State by State Report Card* (National Women's Law Center, 2000). The *Report Card* established a core set of standards for women's health and then evaluated women's health status in each state and nationally compared to these standards. Now in its fifth publication, the *Report Card* remains the most comprehensive resource for federal and state-by-state women's health status data to date.

Outline of the Report

This edition of the *Women Count in Indiana Data Book* presents a statewide overview of health issues affecting Hoosier women. The amount of information available at the state level far exceeds the information available for individual counties. For this reason, limited county level information is presented in this report.

The data are presented in the following order: (a) demographic profile; (b) reproductive health statistics; (c) data on selected health conditions, including mortality and morbidity information; (d) information about health behaviors and health risks, such as smoking and obesity; (e) information about violence against women; and (f) data on women's use of health care services, such as insurance coverage, mammograms, and pap smears. This listing was the order in the first edition of *Women Count in Indiana*, and the Office of Women's Health has decided to continue it here. The main difference between the first edition in 2001 and the 2013 publication is the addition of violence against women information. Since 2001, the amount of data on Violence Against Women has increased, and with the release of the National Intimate Partner and Sexual Violence Survey (NISVS) in 2011, reliable state-level data became available.

A brief description of the new BRFSS methodology is included to help the reader understand the difficulties in comparing data across the years. A conclusion at the end of the publication highlights the most pressing women's health issues facing Indiana's women as we enter 2014 and can be used to prioritize efforts at the county level. A bibliography of resources that were utilized to prepare this publication is included following the conclusion.

Change in BRFSS Methodology

Start of a New Era

Change in BRFSS Methodology: Start of a New Era

The BRFSS is a state-based system of health surveys created by the CDC in 1984 to gather information on the health of adults ages 18 years and older. State health departments conduct the BRFSS surveys continuously through the year using a standardized core questionnaire and optional modules, plus state-added questions. More than 400,000 adult interviews are conducted annually. The BRFSS is the sole source of state-level health risk factors, behaviors and prevalence of certain chronic conditions.

Beginning with data collected in 2011, two significant changes have been made to the methodology used with the BRFSS survey. Cell phone interviews are now included, and a new weighting procedure has been implemented. These changes were brought about to maintain the accuracy and validity of the BRFSS.

Background

Traditionally, the BRFSS survey has relied on landline telephone numbers. With the rapid growth of cell phone only households by more than 700% from 2003 to 2009, these households needed to be included to more accurately reflect the adult population. People with cell phone only service are known to have a different demographic profile than those who have a landline telephone. People in cell phone only households tend to be younger, rent instead of own their homes, are not married, and likely to be racial and ethnic minority groups. There are also attitudinal and behavioral differences between these two groups. Including cell phone households will improve survey coverage of certain population groups. The proportion of interviews conducted with respondents who are male, those with lower education and lower income levels, and younger ages will increase; while the proportion for white, older, and female respondents will decrease.

Since the 1980s, CDC has used a statistical method called post-stratification to weight BRFSS data to adjust survey respondent data to known proportions of age, race and ethnicity, sex, geographic region or other known characteristics of a state's population. Weighting is important because it makes the sample more representative of the population and adjusts for non-response bias. CDC began testing a more sophisticated weighted method called iterative proportional fitting, or "raking," in 2006. Raking has several advantages over post-stratification. Additional demographic variables such as education level, marital status, and home ownership are brought into the weighting process, along with cell phone surveys.

Results

Raking and the inclusion of cell phone respondents will result in improved measuring of risk factors; as such, 2011 BRFSS data will not be comparable to earlier years. In 2011, the median proportion of interviews represented by cell phones is believed to be 10%. In 2012, CDC requested that all states have at least 20% of their interviews conducted by cell phone.

Use of the new methodology will result in prevalence estimates that will be different from estimates achieved with the previous post-stratification procedure. These differences will vary by survey question and state, with the results determined by variations by state in demographic variables used for raking and the portion of respondents who use cell phones. CDC has determined that some of the BRFSS indicators will increase for the majority of the states. This increase is most likely due to the addition of cell phone respondents and the new raking method and is not a "real" change in the prevalence from 2010. Analysis done by CDC indicates that the shape of trend lines will not change greatly over time.

A review of select variables among states indicated that use of the new methodology meant changes ranging from +9.6% (Idaho) to +49.4% (South Dakota) (+1.5 to +7.6 percentage points) for all states for current smoking. The estimated prevalence of adults with any type of health care coverage meant changes ranging from -0.7% (Maine) to -10.4% (Georgia) (-0.6 to -8.7 percentage points) for all states. Prevalence estimates by state will be made available by CDC soon.

Risk factors and behaviors more prevalence in younger and/or minority groups, such as smoking and binge drinking, will have more of a change from 2010 to 2011.

For Indiana, use of the new methodology resulted in a higher prevalence for certain risk factors and behaviors in 2011 compared to 2010, for example:

- Current smoking – 25.6% (2010 prevalence was 21.2%)
- Adults ages 18-64 without health care coverage – 23.6% (2010 prevalence was 17.9%)
- Adults reporting binge drinking – 17.8% (2010 prevalence was 13.5%)

As stated above, the change in prevalence does <u>not</u> mean an actual increase in the behavior, but may be likely due to the change in weighting and the inclusion of cell phones.

For Indiana, there were similar prevalence estimates for certain risk factors and behaviors for 2010 and 2011:

- Adults ever being told they have diabetes – 10.2% (2010 prevalence was 9.8%)
- Percent of adults considered obese based on body mass index (BMI) calculated from self-reported height and weight – 30.8% (2010 prevalence was 30.2%)
- Adults reporting current asthma – 9.6% (2010 prevalence was 9.5%)

It is important that the BRFSS, along with other health surveys, take advantage of improvements in surveillance and statistical procedures to provide the best information possible. Raking methods allow the BRFSS to incorporate information from cell phone interviews and create estimates with smaller sample sizes. The prevalence resulting from the new methodology is a more precise estimate of the various behaviors and risk factors obtained through the BRFSS.

In the upcoming months, ISDH and the CDC will be publishing results from the 2011 BRFSS survey.

Glossary & Indicator Definitions

Glossary & Indicator Definitions

Age-adjustment (direct method): The population is first divided into reasonable homogeneous age ranges, and the age-specific rate is calculated for each age range. Then, each age-specific rate is weighted by multiplying it by the proportion of the standard population in the respective age group. The age-adjusted rate is the sum of the weighted age-specific rates.

Body Mass Index (BMI): weight (in kilograms) / [height (in meters)] ^{2}

BRFSS: U.S. Department of Health and Human Services, CDC, Office of Surveillance, Epidemiology, and Laboratory Services, Public Health Surveillance and Informatics Program Office, Division of Behavioral Surveillance (DBS), self-reported data from random telephone interviews, annually since 1984 (http://www.cdc.gov/osels/phsipo/dbs/).

General Fertility Rate (GFR): The number of births per 1,000 women age 15-44 in a year.

Low Birth Weight (LBW): less than 2,500 grams weight at birth (5 lbs., 8 oz.)

Normal Weight: BMI score of 18.5 – 24.5

Obese: BMI score of 30 or greater

Overweight: BMI score of 25 – 29.9

Total Fertility Rate (TFR): The number of births that 1,000 women would have if the current year's age-specific birth rate remained constant throughout their childbearing years.

Unstable rates (u): indicates "less than 20 cases," so rate is unstable and should be used with caution.

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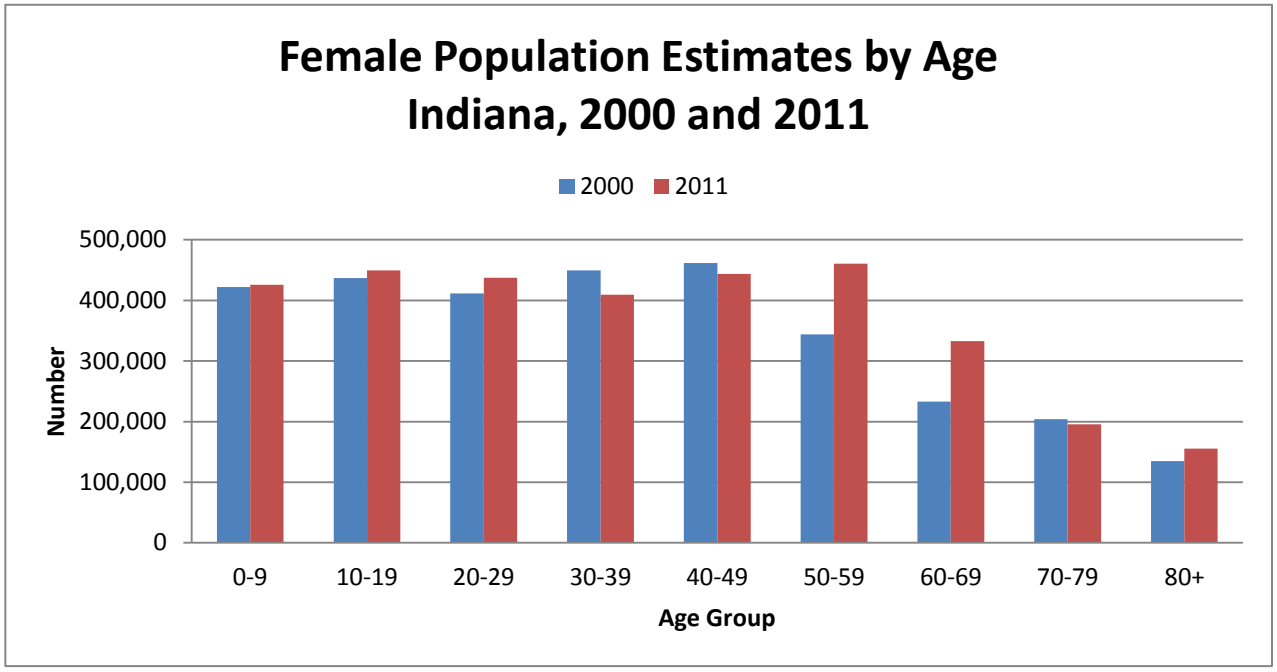
Demographic Profile

Demographic Profile

Just over half of the Indiana's population is female, a majority is white, and of child-bearing age. The median age is 38 years old. Life expectancy for women in Indiana is 81 years, and the majority of residents age 65 and over is female. The number of women who identify as Hispanic (any race) is growing, with an increase of 3.32% from 2001 (**Figure 1 & Tables 1-4**).

According to the 2011 Indiana Behavioral Risk Factor Surveillance System (BRFSS), one-fifth of women in Indiana report that their health status is fair or poor, slightly higher than men (**Figure 2 & Table 2**). There is an association between poor health status and socioeconomic factors such as age, race, education level and income.

Figure 1



Sources: 2010 American Community Survey and 2011 estimates from the Census Bureau

Table 1

Female Racial and Ethnic Population
Indiana 2010 and 2011*

Race	Number	Percent
American Indian, Eskimo and Aleut alone	12,025	0.4
Asian alone	56,658	1.7
Black alone	317,726	9.6
White alone	2,864,720	86.5
Two or more races	57,017	1.7
Native Hawaiian/Pacific Islander	1,791	0.1
Total	3,309,937	100.0

**2011 population estimate from the US Census Bureau*

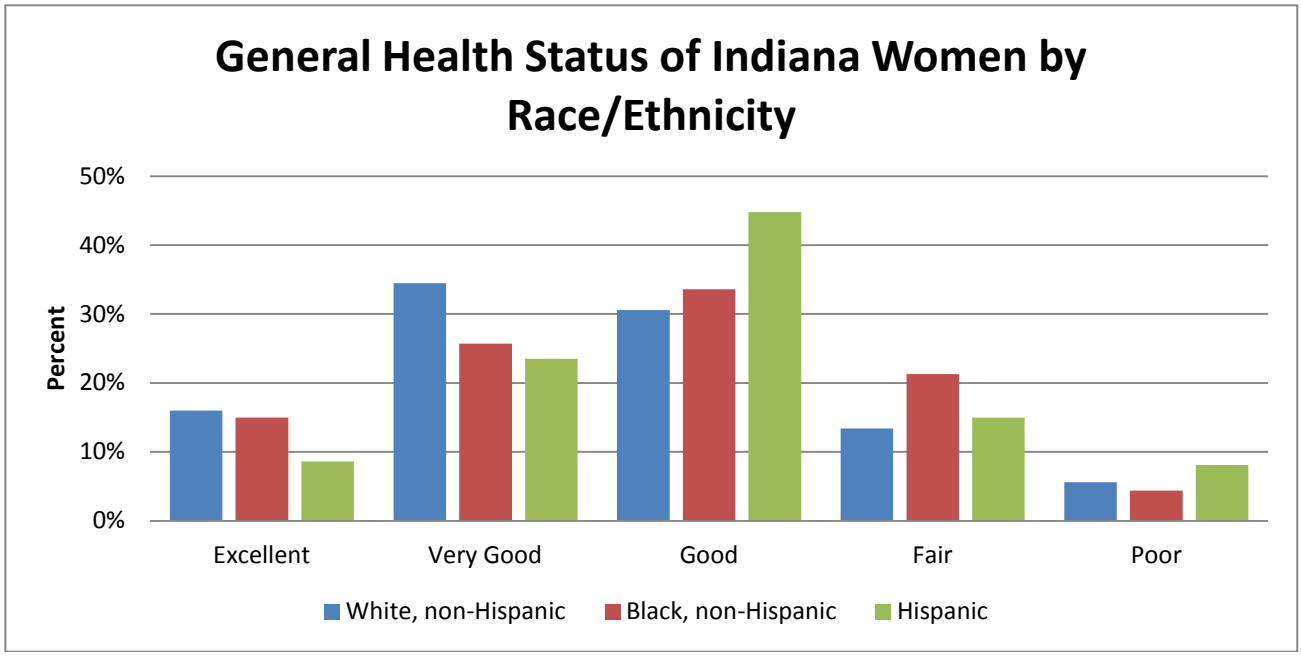
Ethnicity	Number	Percent
Hispanic (any race)	191,862	5.8
Non-Hispanic	3,118,075	94.2
Total	3,309,937	100.0

**2011 population estimate from the US Census Bureau*

Age in Years	Number	Percent
Less than 15	650,552	19.7
15-44	1,287,393	39.1
45-64	872,904	26.5
65+	483,216	14.7
Total	3,294,065	100.0

Source: 2010 American Community Survey

Figure 2



Source: 2011 Indiana Behavioral Risk Factor Surveillance System

Table 2

Self-Reported General Health Status
Indiana, 2011

	Excellent	Very Good	Good	Fair	Poor
	%	%	%	%	%
Total	15.5	32.5	33.1	13.4	5.5
Male	15.5	32.3	34.7	12.4	5.1
Female	15.6	32.7	31.6	14.3	5.8

Self-Reported General Health Status - Females
Indiana, 2011

	Excellent	Very Good	Good	Fair	Poor
Age Group	%	%	%	%	%
18-24	13.9	42.0	31.0	10.3	2.8
25-34	20.2	33.9	34.5	9.6	1.95
35-44	21.8	32.5	29.2	12.6	3.9
45-54	16.0	32.0	29.7	15.1	7.1
55-64	12.1	32.1	29.5	18.5	7.9
65+	9.3	27.2	34.5	18.8	10.2
	Race/Ethnicity				
White, non-Hispanic	16.0	34.5	30.6	13.4	5.6
Black, non-Hispanic	15.0	25.7	33.6	21.3	4.4
Hispanic	8.6	23.5	44.8	15.0	8.1
Education					
Less than High School	5.1	25.7	30.4	25.1	13.7
High School/GED	12.0	30.0	35.4	16.5	6.0
Some College	17.7	33.6	31.1	12.5	5.1
College Graduate	25.1	40.7	26.0	6.6	1.6
	Income				
<$15,000	8.1	22.4	28.7	24.9	15.9
$15-$24,999	11.1	23.7	37.7	18.8	8.8
$25-$34,999	10.9	36.8	35.6	14.1	2.5
$35-$49,999	15.2	32.1	33.9	14.2	4.6
$50-$74,999	16.4	46.6	24.9	9.1	2.9
≥$75,000	27.0	41.1	27.0	4.3	0.6

Source: 2011 Indiana Behavioral Risk Factor Surveillance System

Table 3

Components of Health & Well-Being Composite Index

Indicator	Indiana Rate per 100,000	United States Rate per 100,000
Age-Adjusted Mortality Rate Among Women from Heart Disease[1]	154.9	143.0
White	153.2	139.5
Black	185.6	191.8
Age-Adjusted Mortality Rate Among Women from Lung Cancer[1]	45.3	38.5
White	45.5	39.8
Black	50.4	35.9
Age-Adjusted Mortality Rate Among Women from Breast Cancer[1]	23.0	22.3
White	22.6	21.7
Black	31.1	30.5
Percent of Women Who Have Ever Been Told They have Diabetes[2]	10.2%	9.5%
White	9.9%	8.6%
Black	13.1%	13.7%
Incidence Rate of Chlamydia Among Women[3]	501.6	610.6
Incidence Rate of Gonorrhea Among Women[3]	110.4	106.4
Age-Adjusted Mortality Rate Among Women from Suicide[1]	4.9	4.8

Sources

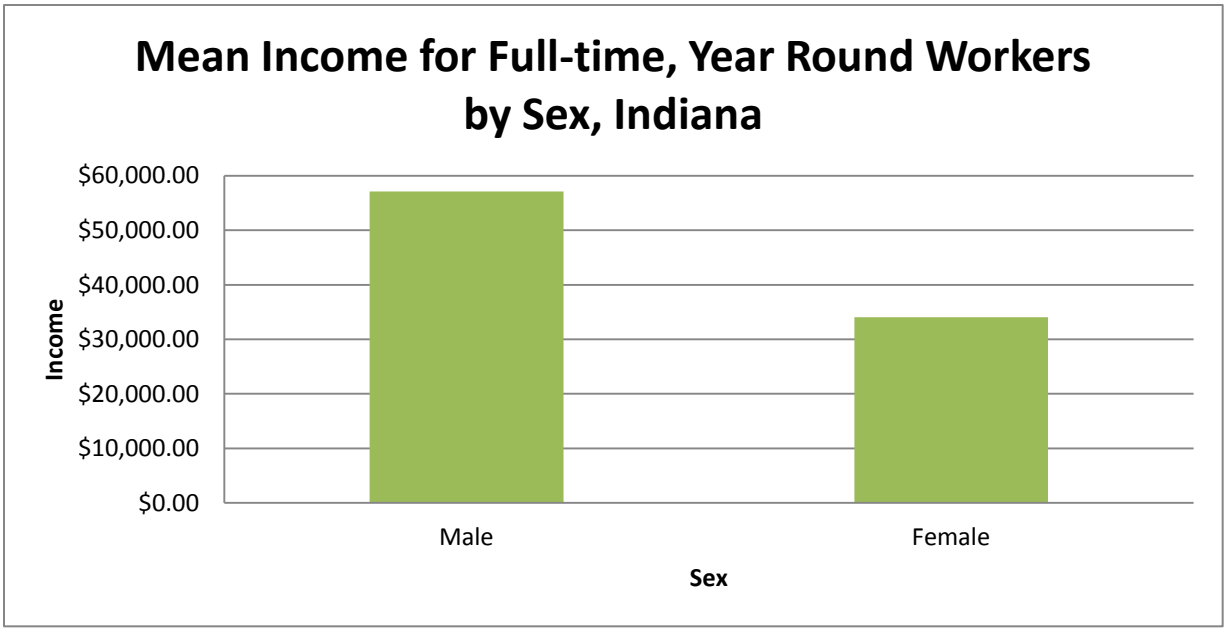
[1]*2009 Indiana Mortality Data; Kochanek KD, Xu JQ, Murphy SL, Miniño AM. Deaths: Final Data for 2009. National Vital Statistics Reports; vol 60 no 3. Hyattsville, MD: National Center for Health Statistics. 2011.*
[2]*2011 Behavioral Risk Factor Surveillance System (BRFSS)*
[3]*ISDH HIV/STD Division; Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2010. Atlanta: U.S. Department of Health and Human Services; 2011.*

It is estimated that 59.4% of all women in Indiana age 16 and over are in the labor force, and comprise 47.3% of the state's total labor force (U.S. Census Bureau, 2010). The average household income is estimated at $58,451, while the average family income is $68,429. The per capita income is estimated at $22,806. There is an annual wage gap of $12,630 for women working full-time compared to men (**Figure 3**). Minority women (all races) experience an even larger gap (U.S. Census Bureau, 2010).

According to the U.S. Census Bureau, females make up 67% of the households in Indiana. Households headed by single women (no husband present) rose from 11% in 2000 to 18.7% in 2011. The national average is 13%. Nearly one-third of these households are living below the poverty level, and 21.7% of below-poverty level households include children under the age of 18.

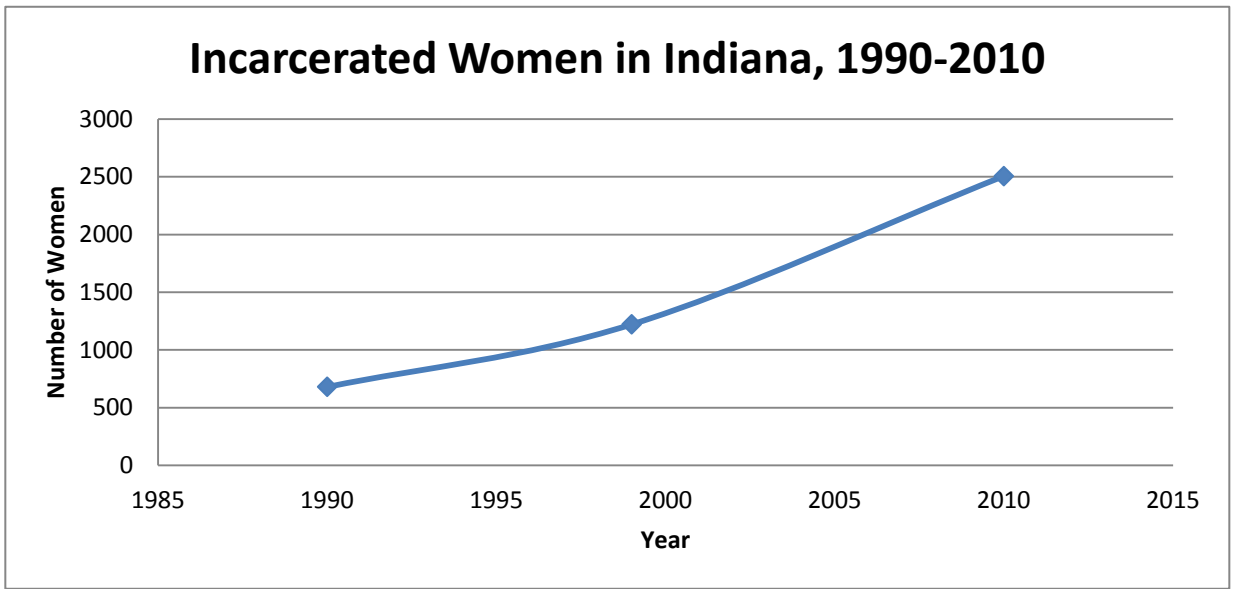
The number of incarcerated women in Indiana increased over time (**Figure 4**), with a rate (measured as the number of female prisoners with sentences of more than one year per 100,000 residents) of 40 in 1999 to 76 in 2010. This is higher than the national average of 67 per 100,000. The cause of this increase in female incarceration is likely complex and merits further research.

Figure 3



Source: 2010 American Community Survey and 2011 estimates from the Census Bureau

Figure 4



Source: 2011 Indiana Behavioral Risk Factor Surveillance System

Table 4

Selected Demographic Information
Indiana

	Indiana	United States
Population (2011)[1]	6,516,922	311,591,917
Land area (in square miles)	35,826.1	3,531,905
Population density (2010) (persons per square mile)	181.0	87.4
Number of counties (2011)[3]	92	3,068
Number of local health departments (2011)	93	27,002
Median age - males (2011)[1]	35.9	36.0
Median age - females (2011)[1]	38.4	38.7
Percentage of population male/female (2011)	49.2%/50.8%	49.2%/50.8%
POPULATION		
Total Age ≥65 years (2011)[1]	858,087 (13.2%)	13.3%
Male	367,413 (5.6%)	5.8%
Female	490,674 (7.5%)	7.5%
Total Age ≥85 years (2011)[1]	119,778 (1.8%)	1.8%
Male	37,754 (0.6%)	0.6%
Female	82,024 (1.3%)	1.2%
PERCENTAGE OF POPULATION		
Below poverty level - total (2010)[2]	15.3%	15.3%
Below poverty level - females (2010)[2]	16.5%	16.5%
Children under age 18 below poverty (2010)[2]	21.7%	21.6%
Below poverty level - households headed by single women, no husband present (2010)[2]	31.7%	30.3%
Households headed by single women, no husband present (2010)[2]	309,205 (18.7%)	15,250,349 (13.1%)
Median household income (2010)[2]	$44,613	$50,046
Median household income, female householder, no husband present (2010)[2]	$27,271	$30,085
Median earnings for female, full-time, year-round workers (2010)[2]	$32,221	$36,551
Median earnings for male, full-time, year-round workers (2010)[2]	$44,851	$46,500
Women-owned businesses (2007)[4]	129,609	7,792,115
Incarcerated women (2000)[5]	1,447	85044
Incarcerated women (2010)[5]	2,505	104629
Incarceration rate (2010)[5] per 100,000	76	67

Sources:

[1] *2011 Census Bureau estimate as of July 1, 2011*
[2] *2010 American Community Survey*
[3] *Approximate number according to the National Association of County and City Health Officials (NACCHO)*
[4] *Census Bureau, The 2012 Statistical Abstract, Business Enterprise*
[5] *Bureau of Justice Statistics, National Prisoner Statistics Program and unpublished US Census Bureau January 1 population estimates*

Reproductive Health

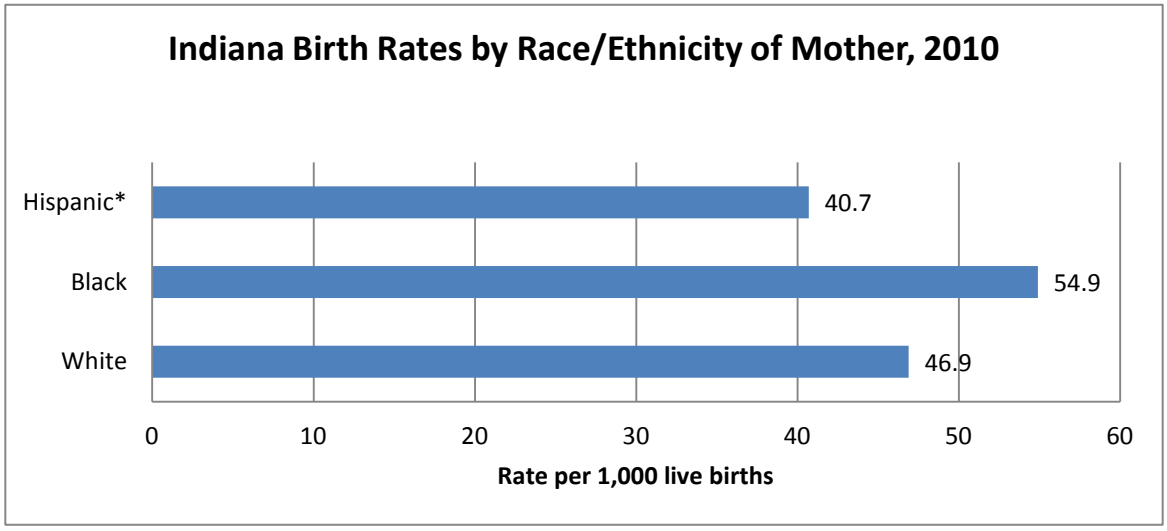
Reproductive Health

Nationally, fertility rates have remained steady since the 1970's, with an average of 2.1 children born per woman of child bearing age. However, the characteristics of women giving birth have shifted, as American mothers today are older, more educated, more racially and ethnically diverse, and more likely unmarried than their predecessors.

The most current natality data for Indiana is from 2010. The crude birth rate was 12.9 per 1,000 population. Pregnancy rates in Indiana are lower than the national average. Births by Cesarean delivery have steadily increased for all age groups, both nationally and in Indiana. Birth rates in Indiana are highest among women ages 25-29 years. Hispanic birth rates rose to a rate of 83.2 per 1,000 females in 2009, but decreased in 2010 to a rate of 40.7 per 1,000 (**Figure 5**). Black and white birth rates remained stable.

Nationally, birth rates for teenagers age 15-19 have declined in all racial and ethnic groups by 44% between 1991 and 2010 (Martinez, Daniels, & Chandra, 2012). Indiana has also seen declines in teen birth rates, albeit less so than the national decline. Between 1991 and 2006, birth rates among this age group dropped by 28% in Indiana. Only four counties report births to the very youngest of mothers (0-5 births in a county are suppressed), and the state average is 0.4 births per 1,000 females age 10-14. Twenty Indiana counties have a rate of births to teen mothers age 15-17 above the state average (18.5 per 1,000) (Indiana State Department of Health, 2010). The highest rates for this age group are found in Howard, Jackson, and Lawrence counties, though eight counties had rates greater than 25.0 per 1,000. The birth rate for 18-19 year olds in Indiana (63.8 per 1,000) is higher than the national rate (58.3 per 1,000). For older mothers, ten counties report births above the state average of 6.9 per 1,000 females age 40-44. This rate is especially high for Adams (31.5 per 1,000), LaGrange (18.5 per 1,000), and Daviess (17.5 per 1,000) (**Tables 5-6**).

Figure 5



**Hispanic can be of any race.*
Source: 2010 Natality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team

Table 5

Reported Pregnancies by Age of Mother
Indiana (2010) and United States (2008)

	Indiana		United States	
Age of Mother	Number	Rate*	Number	Rate *
Total	**93,898**	**72.9**	**6,408,000**	**105.5**
10-14	143	0.6	16,000	1.4
15-17	2,923	21.8	250,000	39.5
18-19	7,186	74.2	474,000	114.2
20-24	25,835	114.7	1,662,000	163.0
25-29	27,968	133.8	1,652,000	167.9
30-34	19,798	97.0	1,346,000	141.2
35-39	8,155	39.5	807,000	78.5
40-44	1,741	8.1	200,000	18.8
45+	120	0.5	n/a	n/a
Unknown	29	--		

*Rate per 1,000 females

Sources:
2010 Indiana Natality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team
Ventura SJ, Curtin SC, Abma JC, Henshaw SK. Estimated pregnancy rates and rates of pregnancy outcomes for the United States, 1990-2008. National vital statistics reports; vol 60 no 7. Hyattsville, MD: National Center for Health Statistics, 2012.

Table 6

Birth Rates by Race and Ethnicity of Mother, Indiana 2010

	Number of Births				Rate per 1,000 Females			
Age of Mother	Total	White	Black	Hispanic*	Total	White	Black	Hispanic*
Total	**83,867**	**69,858**	**10,052**	**7,558**	**48.0**	**46.9**	**54.9**	**40.7**
10-14	91	55	33	17	0.3	0.3	1.3	0.9
15-19	8,659	6,656	1,682	992	37.5	34.3	63.8	60.1
20-24	22,493	18,178	3,570	1,928	99.8	95.7	147.1	128.8
25-29	25,527	21,881	2,492	2,101	122.1	123.8	109.3	132.2
30-34	18,274	15,768	1,448	1,640	89.5	91.0	66.0	100.9
35-39	7,258	6,041	675	731	35.1	34.2	31.7	52.5
40-44	1,459	1,194	139	144	6.9	6.5	7.0	13.3
45+	100	81	12	5	0.4	0.4	0.6	0.5
Unknown	6	4	1	0	0.0	0.0	0.0	0.0

GFR	65.1	63.8	73.6	85.3
TFR	1,959	1,931	2,134	2,447

General Fertility Rate (GFR): The number of births per 1,000 women age 15-44 in a year.

Total Fertility Rate (TFR): The number of births that 1,000 women have if the current year's age-specific birth rate remained constant throughout their childbearing years.

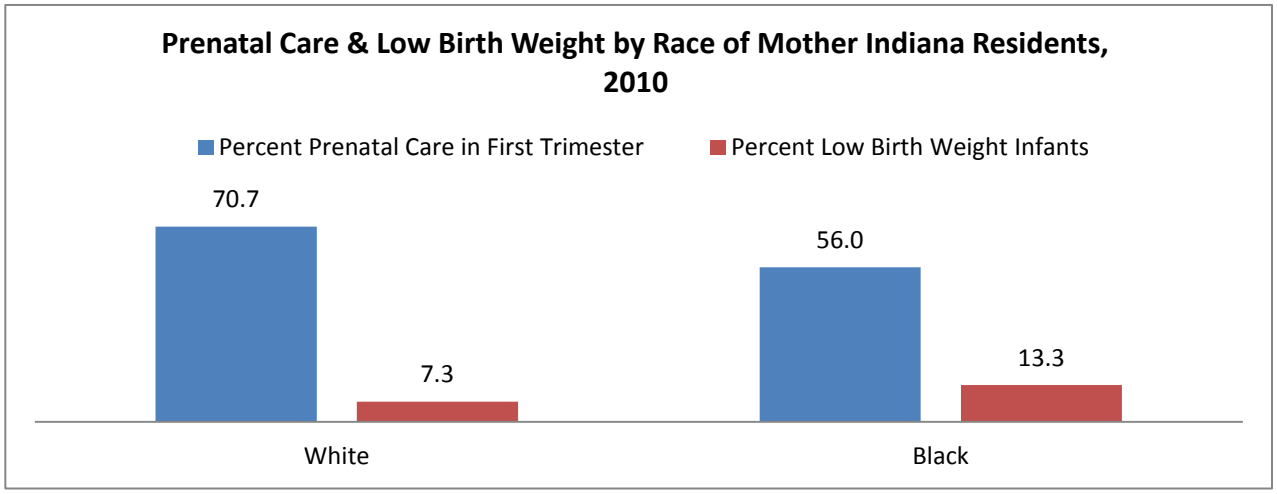
Infant mortality rates in Indiana have remained relatively unchanged over the past decade and are consistently higher than the national rate. Indiana's infant mortality rate in 2010 was 7.7 per 1,000 live births. An overwhelming disparity is seen when comparing the infant (birth to 364 days old), neonatal (babies less than 28 days old), and post-neonatal mortality rates (babies between 28 and 364 days old) for black versus white babies. In Indiana, the 2010 infant mortality rate (per 1,000 live births) for blacks is 12.3 compared to 6.9 for whites; for neonatal deaths the rates (per 1,000 live births) are 7.6 for blacks versus 4.7 for whites; post-neonatal death rates (per 1,000 live births) are 4.7 for blacks and 2.2 for whites (**Table 7**).

Preterm birth and low birth weight can increase the risk of infant death and can lead to lifelong disabilities. One important factor in preventing preterm birth and low birth weight is early prenatal care. Black females are less likely to receive prenatal care in the first trimester. This leads to an associated higher percentage of low birth weight infants for black mothers compared to white mothers (**Figure 6 & Table 8**). Maternal age is also a factor, with females under the age of 17 and over the age of 45 at higher risk for delivering low birth weight infants (**Table 9**).

Smoking is a major preventable health risk during pregnancy. In Indiana, the number of pregnant women who smoked cigarettes at any time during pregnancy has slowly decreased, however it is still above the national rate (Centers for Disease Control, 2009). Young, white women are much more likely to smoke during pregnancy in Indiana than black women of any age. Nearly one-third of white teenage mothers age 18-19 (29.9%) smoked during pregnancy. Approximately one-fourth of babies at low birth weight (less than 2,500 grams) were born to mothers who smoked during pregnancy in Indiana in 2010 (**Figures 7-8**)

An important indicator of maternal well-being is maternal mortality. According to the CDC, maternal mortality has steadily risen nationwide since 1987 (Pregnancy Complications, 2012). The Indiana maternal mortality rate for 2010 is 2.9 deaths per 100,000 live births. This compares favorably with the national rate of 12.1 pregnancy-related deaths per 100,000 live births (National Women's Law Center, 2010).

Figure 6



Sources: 2010 Natality and Mortality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team

Table 7

Infant, Neonatal, and Postneonatal Mortality by Race/Ethnicity
Indiana and United States, 2010

Indiana	Number				Rate per 1,000 Live Births		
	Live Births	Infant Deaths (under 1 year)	Neonatal Deaths (<28 days)	Postneonatal Deaths (28-364 days)	Infant Deaths (under 1 year)	Neonatal Deaths (<28 days)	Postneonatal Deaths (28-364 days)
Total	83,750	643	435	208	7.7	5.2	2.5
White	69,349	479	327	152	6.9	4.7	2.2
Black	9,908	122	75	47	12.3	7.6	4.7
Other	4,493	42	33	9	9.3	7.3	**
Hispanic*	8,105	53	38	15	6.5	4.7	**

United States	Number				Rate per 1,000 Live Births		
	Live Births	Infant Deaths (under 1 year)	Neonatal Deaths (<28 days)	Postneonatal Deaths (28-364 days)	Infant Deaths (under 1 year)	Neonatal Deaths (<28 days)	Postneonatal Deaths (28-364 days)
Total	3,999,386	24,586	16,188	8,398	6.1	4.0	2.1
White	3,069,315	15,954	10,612	5,342	5.2	3.5	1.7
Black	636,425	7,401	4,769	2,632	11.6	7.5	4.1
Other	293,646	1,231	807	424	9.3	6.0	3.3

** Hispanic can be of any race*
**Numerator is less than 20 and the rate is unstable.

Sources: 2010 Natality and Mortality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team
Murphy, SL, Xu JQ, Kochanek KD: Final Data for 2010. National Vital Statistics Reports; vol 61 no 4. Hyattsville, MD: National Center for Health Statistics. 2013.

Figure 7

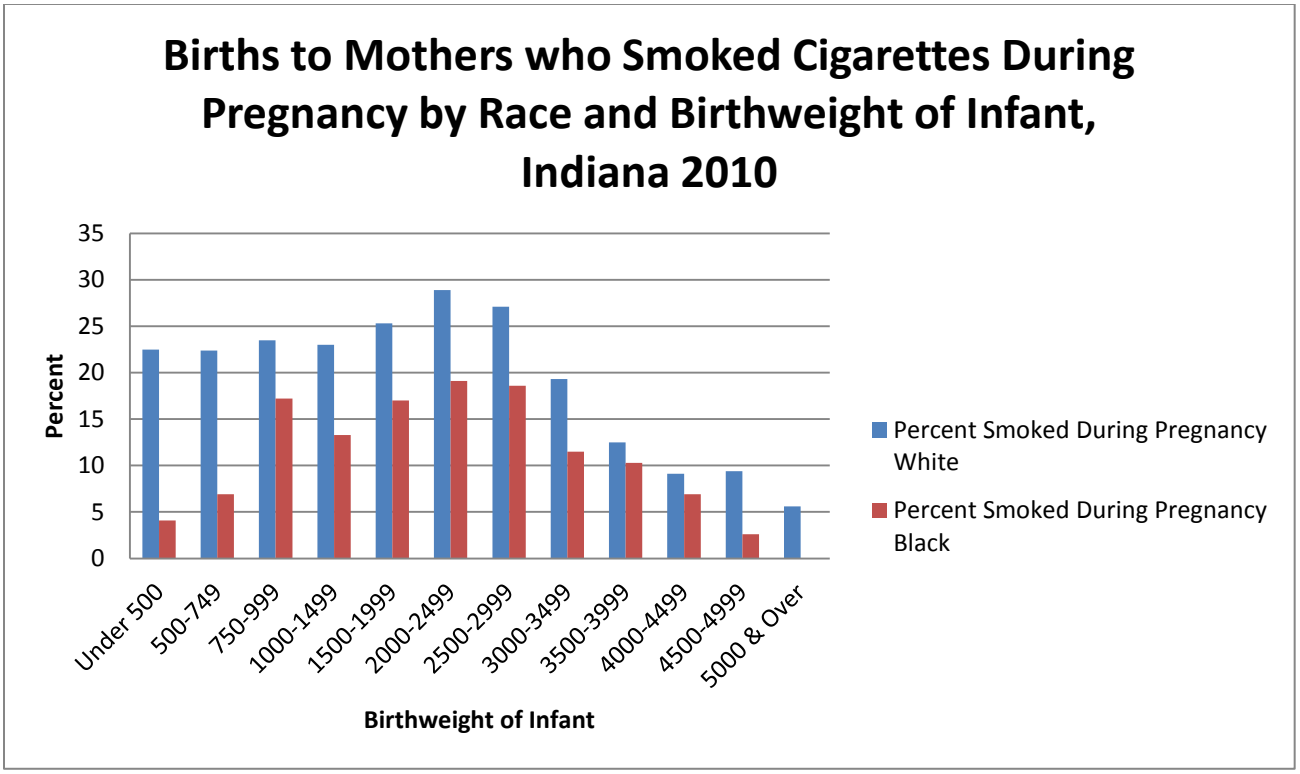


Figure 8

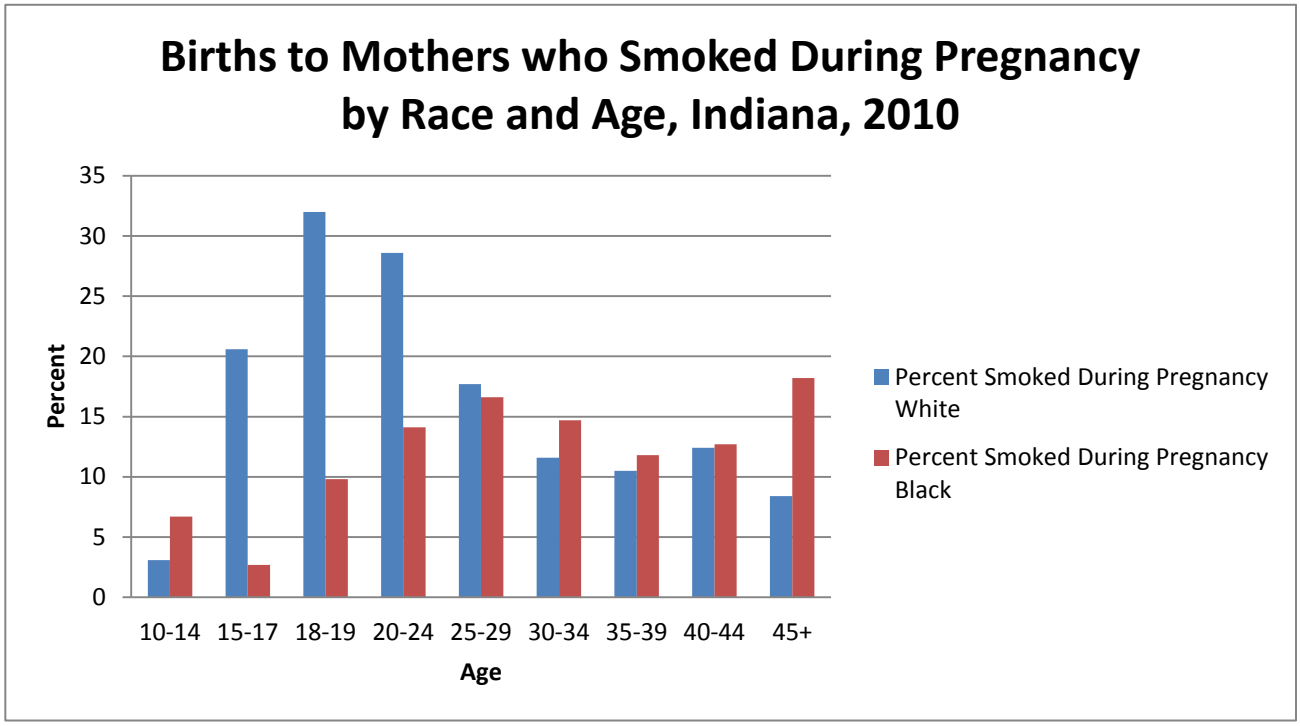


Table 8

Prenatal Care & Low Birth Weight by Race/Ethnicity of Mother
Indiana Residents, 2010

Age of Mother	Live Births			Prenatal Care in First Trimester			Percent Received Prenatal Care in First Trimester		
	Total	White	Black	Total	White	Black	Total	White	Black
Total	**83,867**	**69,858**	**10,052**	**57,435**	**49,393**	**5,626**	**68.5**	**70.7**	**56.0**
10-14	91	55	33	34	19	13	37.4	34.5	39.4
15-17	2,481	1,835	528	1,307	1,033	218	52.7	56.3	41.3
18-19	6,178	4,821	1,154	3,533	2,842	596	57.2	59	51.6
20-24	22,493	18,178	3,570	13,716	11,448	1,889	61	63	52.9
25-29	25,527	21,881	2,492	18,480	16,330	1,463	72.4	74.6	58.7
30-34	18,274	15,768	1,448	13,887	12,249	909	76	77.7	62.8
35-39	7,258	6,041	675	5,411	4,586	442	74.6	75.9	65.5
40-44	1,459	1,194	139	1,006	836	89	69	70	64
45+	100	81	12	61	50	7	61	61.7	58.3
Unknown	6	4	1	0	0	0	0	0	0

Age of Mother	Live Births			Low Birth Weight Infants			Percent Low Birth Weight Infants		
	Total	White	Black	Total	White	Black	Total	White	Black
Total	**83,867**	**69,858**	**10,052**	**6,732**	**5,100**	**1,338**	**8**	**7.3**	**13.3**
10-14	91	55	33	10	6	4	11	10.9	12.1
15-17	2,481	1,835	528	251	171	65	10.1	9.3	12.3
18-19	6,178	4,821	1,154	596	430	152	9.6	8.9	13.2
20-24	22,493	18,178	3,570	1,913	1,380	482	8.5	7.6	13.5
25-29	25,527	21,881	2,492	1,853	1,456	315	7.3	6.7	12.6
30-34	18,274	15,768	1,448	1,315	1,053	193	7.2	6.7	13.3
35-39	7,258	6,041	675	642	488	109	8.8	8.1	16.1
40-44	1,459	1,194	139	136	102	17	9.3	8.5	12.2
45+	100	81	12	16	14	1	16	17.3	8.3
Unknown	6	4	1	0	0	0	0	0	0

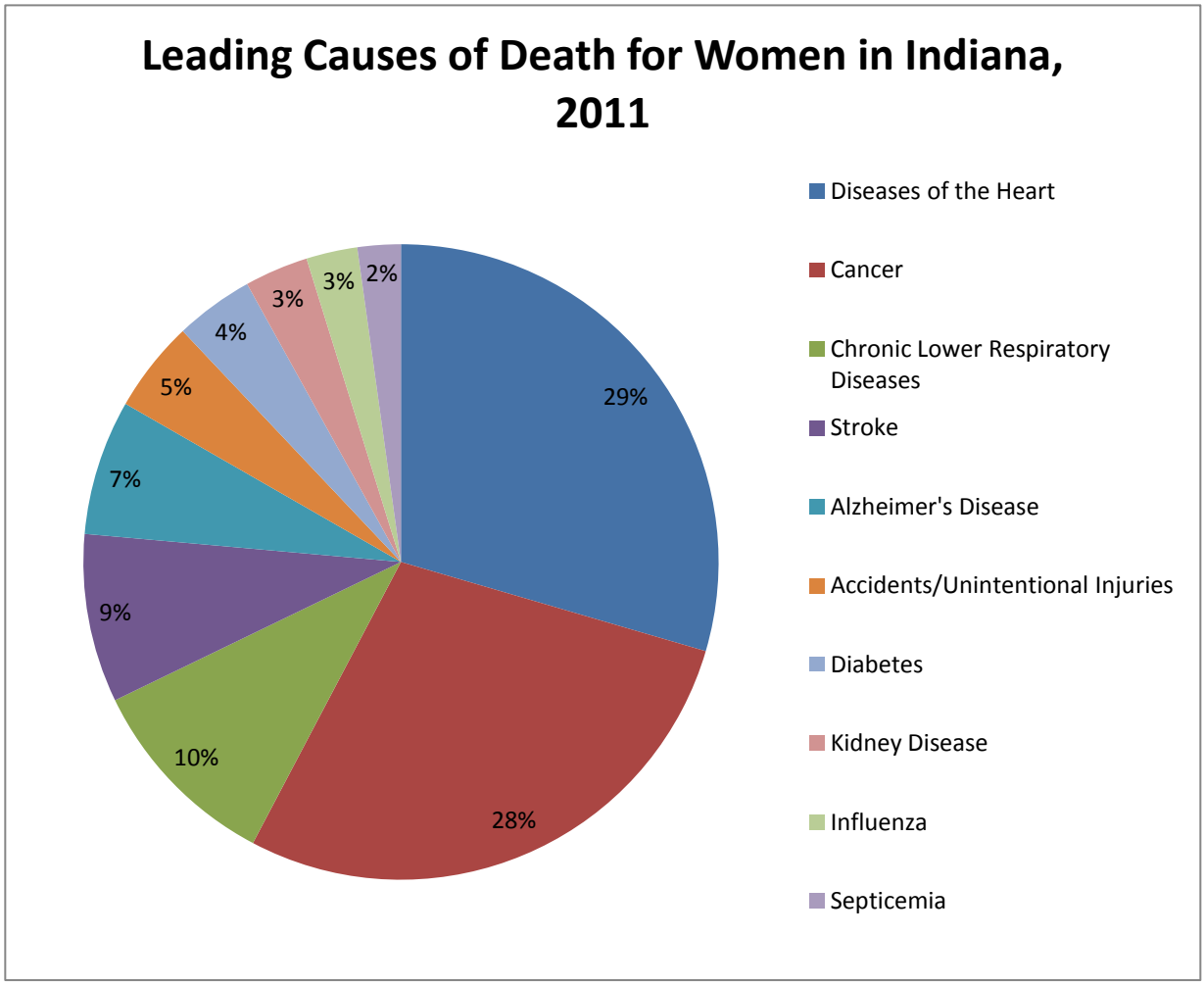
Source: 2010 Natality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team

Selected Health Conditions

Selected Health Conditions

The leading causes of death have changed dramatically over the years, with infectious diseases such as tuberculosis and diarrhea no longer contributing as significantly to mortality rates. Today, the leading causes of death in the United States are heart disease, cancer, and stroke; followed by unintentional injuries, Alzheimer's disease, diabetes, pneumonia, kidney disease, and suicide (CDC, 2012). The leading causes of death in Indiana are similar, though influenza and septicemia replace pneumonia and suicide as leading causes (Indiana State Department of Health, 2011). Indiana's rates are slightly higher.

Figure 9



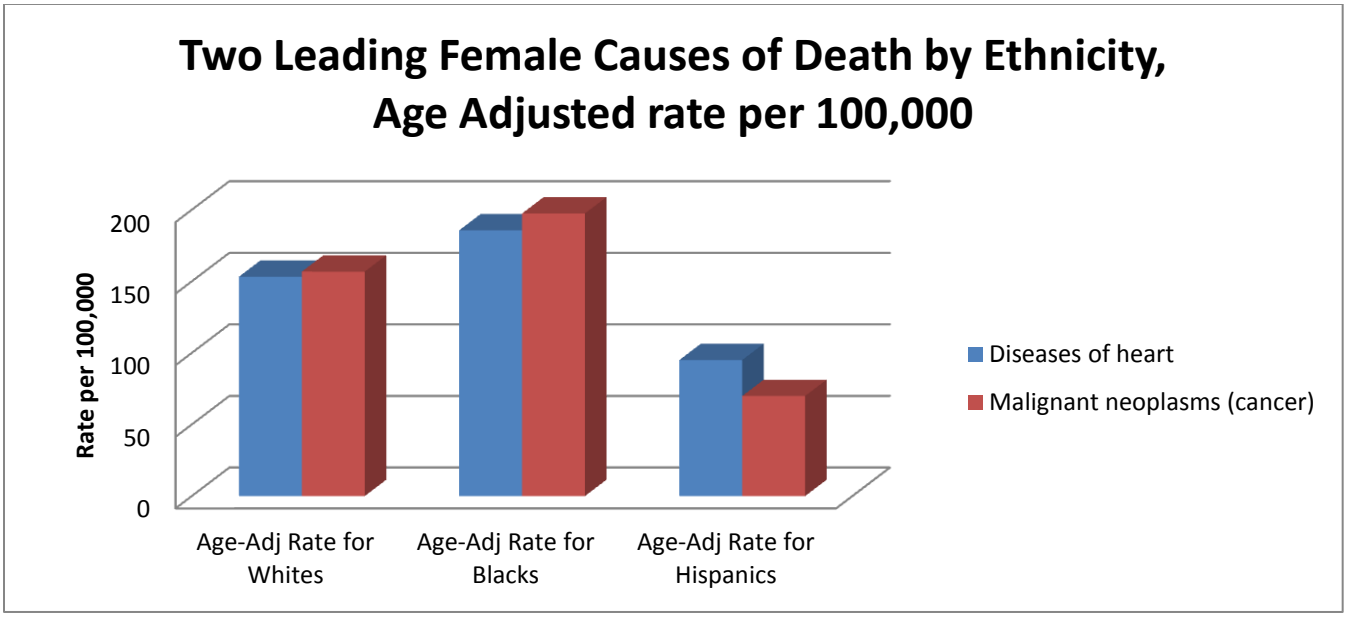
Sources: 2011 Mortality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team

Table 9

Leading Causes of Death for Women
Indiana and United States, 2010

		Indiana	United States
All Causes	Number of Deaths	28,601	1,236,003
	Age-Adjusted Rate per 100,000	694.9	634.9
Diseases of the Heart	Number of Deaths	6,580	290,305
	Age-Adjusted Rate per 100,000	153.5	143.3
Cancer	Number of Deaths	6,191	273,706
	Age-Adjusted Rate per 100,000	157.6	146.7
Lung	Number of Deaths	1,789	70,578
	Age-Adjusted Rate per 100,000	45.9	38.1
Breast	Number of Deaths	882	40,996
	Age-Adjusted Rate per 100,000	22.7	22.1
Ovarian	Number of Deaths	330	14,572
	Age-Adjusted Rate per 100,000	8.4	7.9
Cervical	Number of Deaths	90	3,909
	Age-Adjusted Rate per 100,000	2.5	2.3
Colon, Rectum, and Anus	Number of Deaths	546	25,338
	Age-Adjusted Rate per 100,000	13.5	13.3
Stroke	Number of Deaths	1,859	77,109
	Age-Adjusted Rate per 100,000	43.6	38.3
Chronic Lower Respiratory Diseases	Number of Deaths	2,022	72,657
	Age-Adjusted Rate per 100,000	50.3	38.0
Alzheimer's Disease	Number of Deaths	1,381	58,130
	Age-Adjusted Rate per 100,000	30.3	27.3

Figure 10



Sources: 2009 Mortality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team Kochanek KD, Xu JQ, Murphy SL, Miniño AM. Deaths: Final Data for 2009. National Vital Statistics Reports; vol 60 no 3. Hyattsville, MD: National Center for Health Statistics. 2011.

Cardiovascular Disease

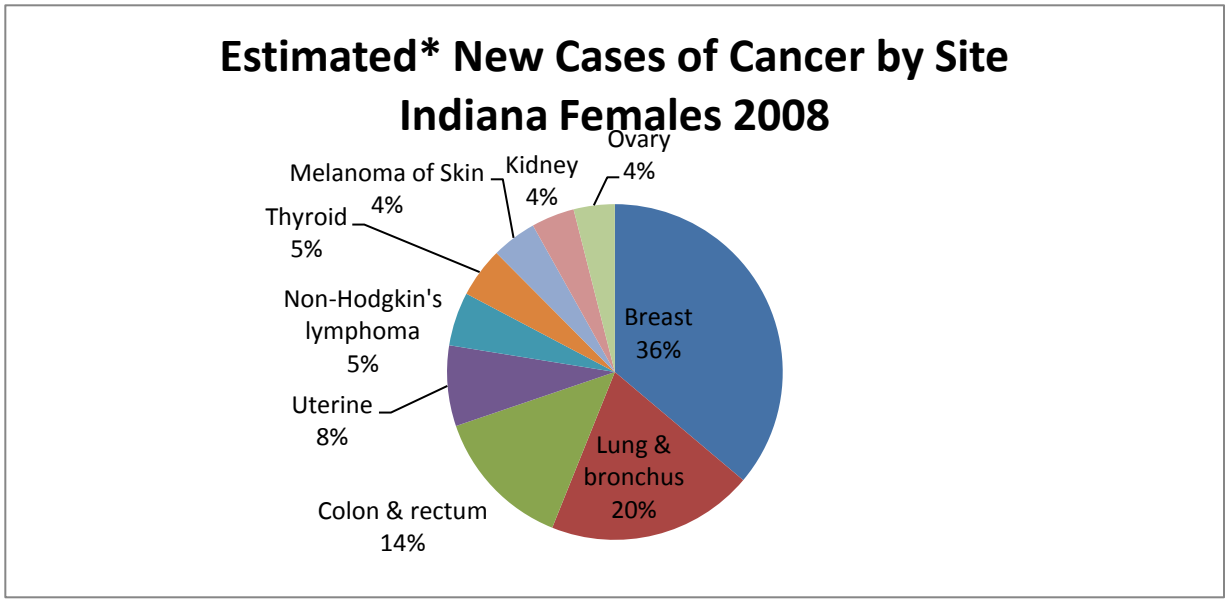
Cardiovascular disease, including heart disease and stroke, is the number one cause of death for American women. Risk factors for cardiovascular disease in women include: tobacco use, physical inactivity, being overweight, aging, heredity, history of prior heart attack, and excessive drinking. Excessive drinking includes binge drinking, heavy drinking, alcohol use by persons under 21, and alcohol use by pregnant women. Many of these risk factors are modifiable.

High blood pressure is a major risk factor for heart disease and stroke. It is called the "silent killer" because it often has no symptoms. Women are at risk of developing high blood pressure during pregnancy, especially in the last trimester. Women who smoke, are overweight, and/or take birth control pills are at an increased risk of developing high blood pressure. In Indiana, approximately 31.3% of females have been told by a doctor that they have high blood pressure (Indiana State Department of Health, 2010).

Cancer

Cancer is the second leading cause of death in the United States. The American Cancer Society estimates approximately 34,050 Indiana residents were diagnosed with cancer in 2011. This diagnostic rate is the equivalent of four new cancer cases every hour of every day. (Indiana Cancer Consortium, 2012). Excluding skin cancer, the three most common cancers among women are breast, lung, and colorectal cancers (**Figure 11**)

Figure 11



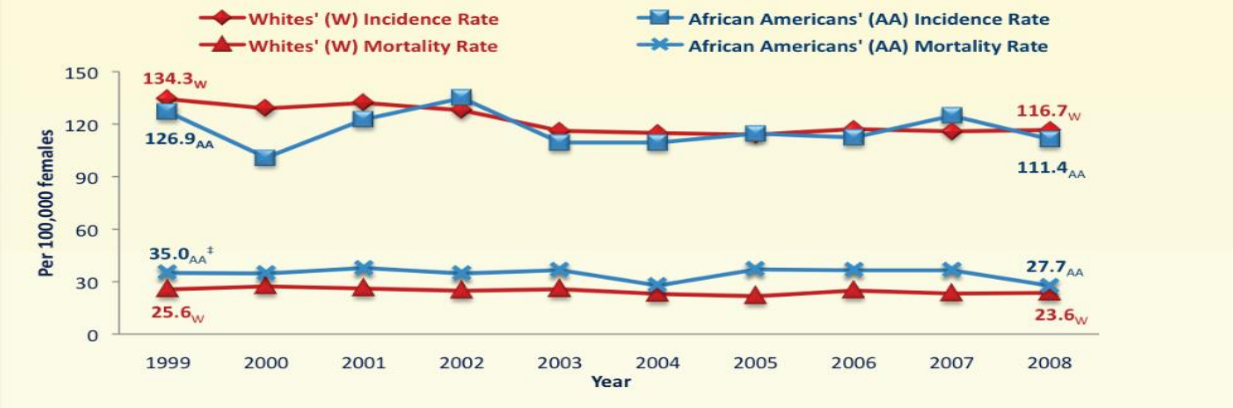
*Excludes basal and squamous cell skin cancers and in situ carcinoma except urinary bladder. *Source: Indiana State Cancer Registry*

Breast Cancer

Approximately one in 1,000 women was diagnosed with breast cancer in Indiana in 2011. Improvements in treatment and early detection have assisted the decline in breast cancer death rates over time (**Figure 12**). Common risk factors include sex, age, and race. Incidence, risks of developing, and mortality risks of developing breast cancer increases with age (**Figure 13**). Black women are particularly higher risk for poor outcomes due to being diagnosed at a later stage or with more aggressive forms of breast cancer (Indiana Cancer Consortium, 2012). Beginning at age 40, annual mammograms are shown to significantly increase survival rates.

Figure 12

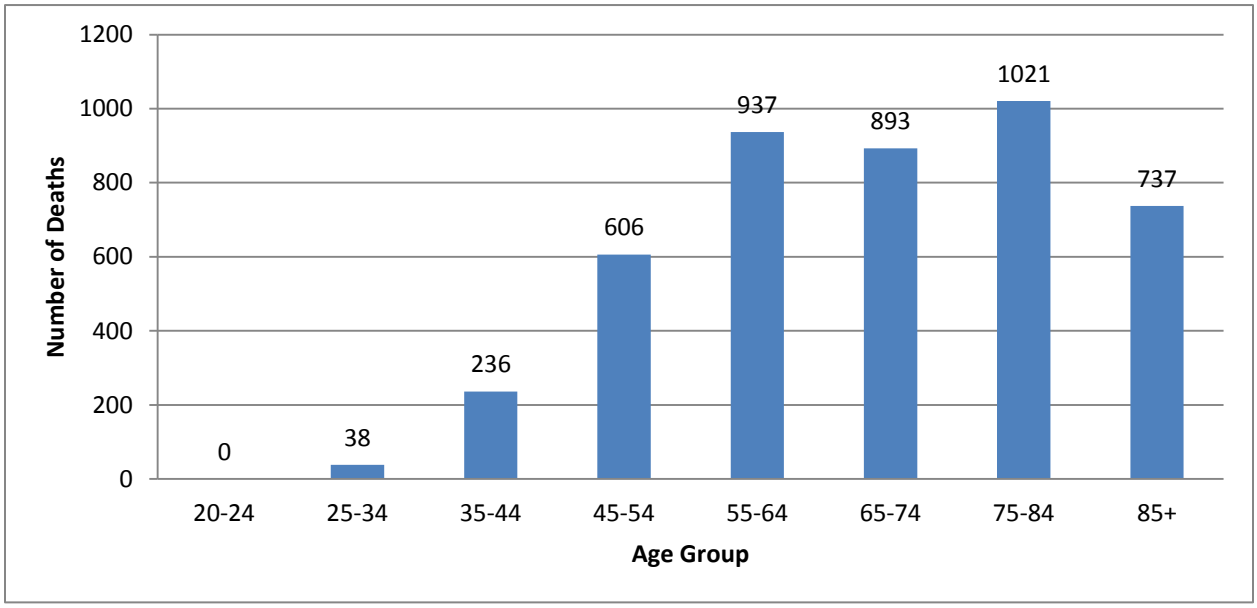
Female Breast Cancer Incidence and Mortality Rates Trends by Race*Indiana, 1999-2008



**Age-Adjusted. Source: Indiana State Cancer Registry*

Figure 13

Deaths from Breast Cancer in Women by Age in Indiana, 2005-2009

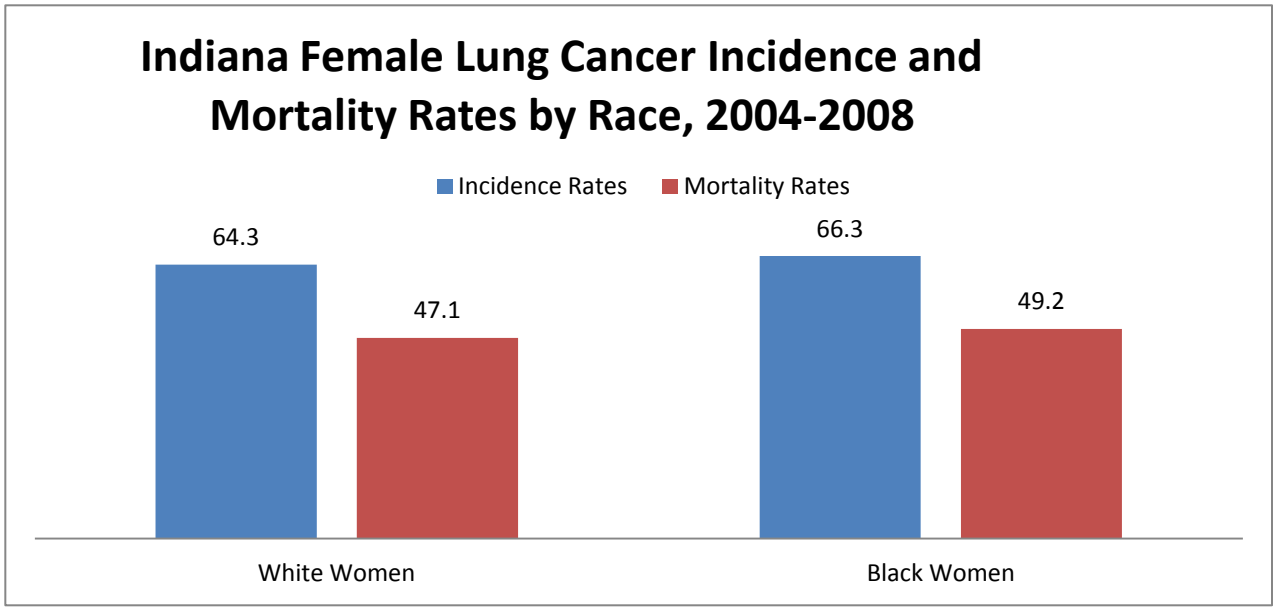


Sources:
2009 Mortality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team
Kochanek KD, Xu JQ, Murphy SL, Miniño AM. Deaths: Final Data for 2009. National Vital Statistics Reports; vol 60 no 3. Hyattsville, MD: National Center for Health Statistics. 2011.

Lung Cancer

Women tend to underestimate the dangers of lung cancer, which is the second leading cause of death both nationally and in Indiana. Lung cancer incidence rates for females in Indiana have been increasing over the past decade, and have been consistently higher than national rates. African American females in Indiana have higher incidence and mortality rates for lung cancer compared to white females (**Figure 14**). Primary and secondary exposure to tobacco smoke is the largest risk factor attributed to lung cancer. Indiana ranks among the highest in the nation for adult smoking rates (Indiana State Department of Health, 2010).

Figure 14



Source: 2009 Mortality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team

Ovarian, Uterine, & Cervical Cancer

Ovarian cancer is the most deadly of all cancers of the female reproductive system, with symptoms often appearing only in advanced stages of the disease. In Indiana, ovarian cancer claimed the lives of 306 women in 2009. Indiana's incidence rate of ovarian cancer was 10.5 per 100,000 in 2010. The state ovarian cancer age-adjusted mortality rate of 8.0 per 100,000 is lower than the national rate of 9.3 per 100,000 (**Table 11**).

In 2008 there were 43,134 cases of uterine cancer in the United States, with 7,675 deaths (US Cancer Statistics Working Group, 2012). Uterine cancer comprises 5.9% of female cancers in Indiana and is the fourth leading site for new cancer cases (excluding skin cancer).

Cervical cancer used to kill more American women but is now preventable due to regular screening and vaccination against Human Papillomavirus (HPV). Cervical cancer is no longer in the top ten leading causes of cancer deaths among American women, with a mortality rate of two per 100,000 in 2008. In 1999-2008, the incidence rate for cervical cancer in Indiana was 8.4 per 100,000 females, though, since 2004, this rate has dropped to 7.9 per 100,000 females (Indiana Cancer Consortium, 2012). The rates vary by race, however. In black women, the incidence rate was 24% higher than the rate for white women in 2004-2008 (**Figure 15**).

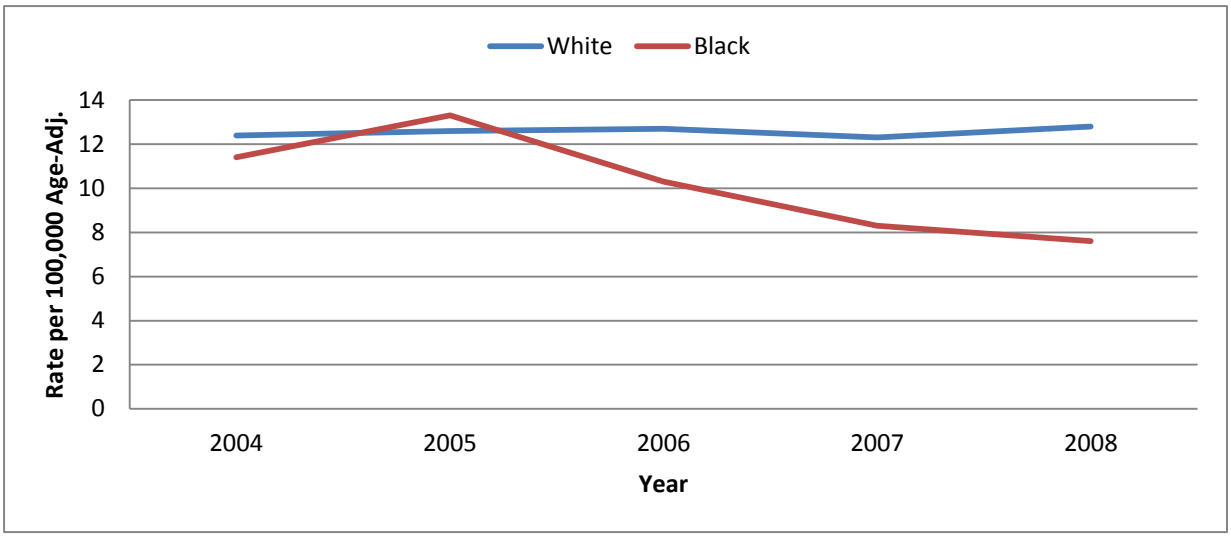
Table 10

Deaths from Ovarian Cancer, Females by Race, Indiana and United States, 2009

	Indiana		United States	
	Number	Age-Adj. Rate*	Number	Age-Adj. Rate*
Total	309	8.0	14,436	9.3
White	290	8.2	12,744	10.2
Black	16	6.1	1,260	5.9

*Rate per 100,000

Sources:
2009 Mortality Data, Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team
Kochanek KD, Xu JQ, Murphy SL, Miniño AM. Deaths: Final Data for 2009. National Vital Statistics Reports; vol 60 no 3. Hyattsville, MD: National Center for Health Statistics. 2011.



Colorectal Cancer

Colorectal cancer in the United States accounts for 11.6% of all cancer cases and is the third leading cause of cancer death among American women. The incidence rate for colorectal cancers has been declining since 1985, likely due to improved detection of early stage disease and more aggressive polyp removal. In Indiana, the incidence rate of colorectal cancers among women was higher than the national rate (**Table 12**). Death rates due to colorectal cancer are significantly higher among blacks than among whites in Indiana.

Table 11

Incidence and Mortality Rates for Colorectal Cancers By Sex Indiana and United States 2004-2008

	Indiana Age-Adj. Rate*	United States Age-Adj. Rate*
Incidence Rate		
Females	44.2	41.4
Males	59.5	55.7
Mortality Rate		
Females	15.6	14.5
Males	23.1	20.7

*Rate per 100,000 population
Sources: Indiana State Cancer Registry;
US Mortality Data: National Center for Health Statistics, Centers for Disease Control and Prevention

Osteoporosis

Osteoporosis is common, afflicting 10 million Americans, 80% of whom are women. More than half of all women over age 65 suffer from osteoporosis, causing hip, wrist, vertebral, and other fractures. In Indiana, more than 600,000 individuals over age 50 have osteoporosis or low bone density. White women suffer from osteoporosis more than black women, and they have twice the incidence of fractures due to osteoporosis. Menopause poses the single greatest risk for osteoporosis, causing women to lose up to 20% of their bone mass in the five to seven years following menopause and making them more susceptible to osteoporosis. Hospital discharge data for osteoporosis by county can be found in **Table 13**.

Table 12

by Any Diagnosis of Osteoporosis (ICD-9-CM 733.00, 733.01, 733.02, 733.03, 733.09)
Females, Age 45 and Over
Indiana, 2010

COUNTY	No. of Discharges	Rate per 100,000	COUNTY	No. of Discharges	Rate per 100,000	COUNTY	No. of Discharges	Rate per 100,000
Adams	140	2034.88	Hendricks	382	1353.27	Pike	53	1693.83
Allen	1,142	1603.17	Henry	198	1707.04	Porter	596	1681.38
Bartholomew	232	1402.24	Howard	356	1781.78	Posey	86	1412.61
Benton	46	2241.72	Huntington	158	1885.89	Pulaski	42	1341.85
Blackford	101	3158.22	Jackson	174	1867.35	Putnam	100	1296.85
Boone	175	1449.4	Jasper	127	1769.79	Randolph	174	2833.88
Brown	24	581.96	Jay	141	2984.76	Ripley	103	1623.58
Carroll	61	1307.61	Jefferson	140	1894.71	Rush	66	1636.5
Cass	148	1712.76	Jennings	89	1512.32	St. Joseph	1072	1904.02
Clark	363	1519.66	Johnson	584	2046.82	Scott	97	1840.26
Clay	137	2258.49	Knox	209	2366.39	Shelby	193	1928.65
Clinton	125	1742.4	Kosciusko	259	1585.75	Spencer	72	1479.35
Crawford	23	936.48	LaGrange	54	830.13	Starke	65	1221.8
Daviess	108	1652.89	Lake	2030	1880.87	Steuben	63	818.93
Dearborn	109	981.81	LaPorte	500	2032.6	Sullivan	86	1864.3
Decatur	74	1298.02	Lawrence	170	1529.46	Switzerland	19	847.46
DeKalb	101	1120.6	Madison	842	2852.4	Tippecanoe	608	2219.87
Delaware	668	2709.83	Marion	2919	1673.3	Tipton	43	1089.44
DuBois	211	2224.57	Marshall	190	1846.99	Union	31	1809.69
Elkhart	728	1895.64	Martin	69	2863.07	Vanderburgh	849	2115.52
Fayette	161	2790.29	Miami	148	1918.59	Vermillion	84	2104.21
Floyd	301	1798.84	Monroe	295	1316.02	Vigo	515	2299.83
Fountain	80	1930.04	Montgomery	165	1917.94	Wabash	147	1824.73
Franklin	26	513.23	Morgan	288	1900.99	Warren	26	1294.82
Fulton	88	1794.09	Newton	49	1453.57	Warrick	223	1650.87
Gibson	159	2073.82	Noble	152	1557.38	Washington	73	1195.94
Grant	427	2631.42	Ohio	12*	797.87	Wayne	561	3443.41
Greene	134	1742.75	Orange	51	1125.08	Wells	238	3672.27
Hamilton	485	973.93	Owen	52	1030.72	White	98	1630.62
Hancock	80	527.08	Parke	44	1075.53	Whitley	123	1611.85
Harrison	108	1214.3	Perry	30	689.66			

*Numerator is less than 20, interpret with caution

Diabetes

Diabetes is the seventh leading cause of death in Indiana, and is a major contributor to heart disease and stroke mortality (Indiana State Department of Health, 2012). An estimated 10% of women in Indiana have been diagnosed with diabetes. Diabetes is the fourth leading cause of death for black women and the fifth leading cause of death for Hispanic females in Indiana. Prevalence increases with age. Besides genetic factors and prior history of gestational diabetes, additional major risk factors for females developing diabetes include obesity, polycystic ovarian syndrome, and smoking.

Gestational diabetes affected 4.5% of Indiana births in 2008. Gestational diabetes increases the risk of pregnancy complications and the likelihood that the mother will develop Type 2 diabetes over her lifetime (Indiana State Department of Health, 2012).

Arthritis

Arthritis is a major factor in limiting women's daily activities, especially after age 65. It ranks as the number one cause of disability in the United States, and it trails only heart disease as a cause of work disability. The incidence of arthritis in women is significantly higher than in men. In Indiana, as elsewhere, the incidence of arthritis increases with age. In 2011, 50.8% of women in Indiana ages 55-64 reported they have been told at some point by a doctor that they have arthritis, as did 59% of women age 65 and over. Of the Indiana women who reported having been told they have arthritis in Indiana, the majority of them were white (32.4%), followed by black (31%) and Hispanic (12.6%). Women with a high BMI are also more likely to report they have arthritis.

Human Immunodeficiency Virus (HIV)

Indiana ranks 24th highest of all 50 states in the number of cumulative reported AIDS cases from the beginning of the epidemic through December 2008. As of 2011, there are an estimated 10,225 people living with HIV in Indiana. Approximately 19.5% are women.

Males are diagnosed with HIV/AIDS at almost four times the rate of females in Indiana. The female new diagnosis rate in 2009 was approximately 3 per 100,000. Among Indiana women, black females comprise 57% of newly reported cases of HIV at first diagnosis, while 48% of newly reported AIDS cases are among white females.

There have been 826 reported cases of children born to HIV positive mothers in Indiana between 1982 and 2010. Over half of these children were black (51%), followed by white (31%) with the remaining (9.4%) being Hispanic.

Sexually Transmitted Diseases

Chlamydia is the most frequently reported sexually transmitted disease (STD) in Indiana. Indiana ranked 34th compared all other states for the number of cases; 355.4 cases per 100,000 population. This number has continued to rise over time, with an increase of nearly 5% since 2008 (**Figure 16**).

The incidence rate of gonorrhea has been higher among women than men since 2002. In 2010, gonorrhea rates were highest among women aged 15-19 and 20-24 years. The national rate among

blacks in 2010 was 18.7 times that of whites (CDC, 2011). In Indiana in 2010, 3,598 cases of gonorrhea in females were reported. The rate of gonorrhea infection among black women significantly exceeded the rate among white women (27.9 per 100,000 white women compared to 527.6 per 100,000 black women).

There were only 20 total female cases of syphilis reported in Indiana for 2010, which is a rate of 0.6 per 100,000. This rate is lower than the national incidence rate.

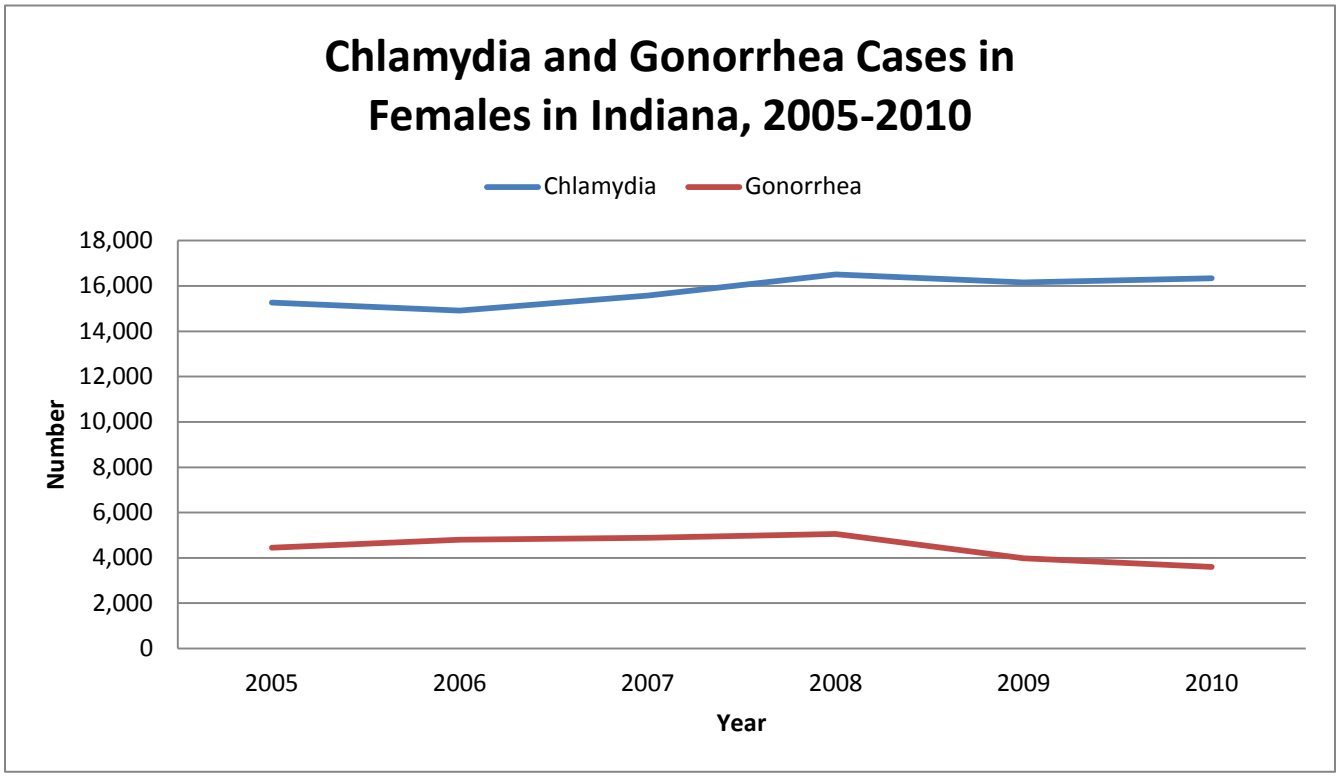
Table 13

Incidence of Sexually Transmitted Diseases
Females by Race/Ethnicity
Indiana and United States 2010

		Indiana		United States	
		Number	Rate**	Number	Rate**
CHLAMYDIA	**Total***	**16,344**	**501.6**	**949,802**	**610.6**
	White, non-Hispanic	5,353	191.2	210,586	229.7
	Black, non-Hispanic	4,783	1557.8	311,553	1,801.6
	Hispanic	692	374.6	132,364	721.9
GONORRHEA	**Total***	**3,598**	**110.4**	**165,693**	**106.5**
	White, non-Hispanic	780	27.9	27,305	29.8
	Black, non-Hispanic	1,620	527.6	87,316	504.9
	Hispanic	78	42.2	11,908	64.9
PRIMARY AND SECONDARY SYPHILIS	**Total***	**20**	**0.6**	**1,780**	**1.1**
	White, non-Hispanic	<20	n/a	297	0.3
	Black, non-Hispanic	<20	n/a	1,296	7.5
	Hispanic	<20	n/a	118	0.6

Indiana State Department of Health, HIV/STD Division, 2012, numbers and total rate.
Centers for Disease Control and Prevention, Sexually Transmitted Disease Surveillance 2010. Atlanta: U.S. Department of Health and Human Services, 2011

Figure 16


Chlamydia and Gonorrhea Cases in Females in Indiana, 2005-2010
Chlamydia
Gonorrhea
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Number
2005
2006
2007
2008
2009
2010
Year

Selected Health Behaviors

Selected Health Behaviors

Many behaviors negatively affect women's health, such as smoking, poor nutritional habits, alcohol abuse, and lack of exercise. **Table 16** shows Indiana's rankings for seven important women's health factors: overweight body mass index (BMI), smoking, Pap test, mammogram, fair or poor health status, obesity, and health care coverage based on data from BRFSS. However, there are some limitations to the information gathered. The data are self-reported, so there is under-reporting of behaviors that may be considered socially unacceptable or unhealthy, such as smoking or binge drinking. Over-reporting also occurs for behaviors that are socially desirable, such as amount of exercise. Responses are also affected by recall bias and participants' ability to recall past behaviors accurately. It is also important to note that beginning in 2011, two significant changes have been made to the methodology used for BRFSS data collection. Cell phone interviews are now included, and a new weighting procedure has been implemented. These changes were brought about to maintain the accuracy and validity of the BRFSS. Because of these changes, accurate comparisons to past years cannot be made for risk behaviors primarily measured by BRFSS data.

Smoking

Negative effects of tobacco use can include cardiovascular disease, cancer, chronic lung disease, sexual dysfunction, and complications of pregnancy, such as low birth weight and intrauterine growth retardation. Smoking is a main risk factor for cancer, and lung cancer has surpassed breast cancer as the leading cause of cancer-related deaths in women. However, women generally find it more difficult to quit smoking than men.

The smoking rate for Indiana has been declining over the past decade. In Indiana, 23.3% of women age 18 and over are current smokers according to 2011 BRFSS data (**Table 17**). The rate among Indiana women is generally declining (**Figure 17**). However, Indiana consistently exceeds the national average (17.8%) for female smokers. As the BRFSS rankings show, Indiana ranks sixth in the prevalence of smoking among women compared to the other states and the District of Columbia.

Exercise

In Indiana, 70.8% of BRFSS respondents answered "yes" when asked if they had participated in any physical activities within the past month. Women in Indiana were more likely than men to report they did not participate in physical activities or exercises. Physical inactivity is more prevalent among blacks and Hispanics than among whites, among older than among younger adults, and among less affluent and less educated than among more affluent and more educated Americans.

Overweight and Obesity

The prevalence of obesity is rising and has far reaching health consequences for women. According to the CDC, over one-third of Americans are obese. Approximately 60% of Indiana residents age 18 and over are either overweight or obese based on BMI (**Figure 18**). In 2011, the estimated obesity rate

among women in Indiana was higher than the national rate; a much higher percentage of black women are obese compared to white women in Indiana.

Obesity increases the risk for several health conditions, including diabetes, coronary heart disease, and arthritis. Fertility is also complicated by obesity. Obesity during pregnancy is problematic for several reasons, including complications during pregnancy, higher rates of cesarean delivery, higher incidence of fetal abnormalities, and increased medical costs (Kulie, et. al, 2011). Maternal obesity is also associated with lower breastfeeding rates and shorter duration of breastfeeding.

Alcohol Consumption

In the United States, two in five women drink alcohol and four million women are considered heavy drinkers (US Department of Health & Human Services, 2007). Nationally, one in ten pregnant women drinks alcohol. Binge drinking is defined as the consumption of five or more alcoholic drinks on a single occasion at least once in the past month. Binge and chronic drinking put women at risk for liver disease and both heart and brain damage. Binge drinking rates are highest among women ages 18-24 (**Table 18**).

Table 14

State Prevalence Rankings (Females): BRFSS, 2010*, 2011

State:	Overweight Based on BMI		Current Smokers		No Pap Test in Past 3 Years, Age 18+		Females Ages 40+ wo/ Mammogram in Past 2 Yrs.		Health Status Fair or Poor		Obese Based on BMI		Females Age 18-65 wo/health care coverage	
	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Alabama	30.5	7	21.0	15	16.8	35	24.8	25	23.8	5	31.8	5	21.1	17
Alaska	31.3	3	23.0	8	18.9	25	27.6	19	16.3	30	26.7	28	19.5	22
Arizona	29.1	28	16.8	40	18.1	28	26.1	20	19.2	18	25.2	35	19.0	25
Arkansas	28.6	35	25.2	3	25.2	2	31.3	8	24.9	2	31.2	7	27.5	4
California	28.5	38	10.0	50	19.2	22	21.6	41	19.3	17	24.5	37	19.0	25
Colorado	26.7	50	15.2	45	20.2	12	29.7	11	14.0	45	20.3	50	18.8	27
Connecticut	28.3	43	15.4	44	14.4	46	18.6	48	15.4	35	23.6	41	11.7	43
Delaware	28.7	34	18.3	30	17.3	31	18.6	48	14.7	39	28.6	17	10.3	47
District of Co.	23.9	51	17.1	36	11.3	50	20.0	43	14.2	42	28.4	19	6.8	50
Florida	30.4	10	16.9	38	19.6	18	22.9	33	21.9	9	25.6	33	26.8	5
Georgia	28.4	41	18.2	31	13.4	47	22.8	35	19.1	19	29.3	15	26.6	7
Hawaii	27.6	47	13.9	49	20.3	11	23.5	31	14.9	38	19.2	51	9.3	48
Idaho	27.6	47	15.0	46	23.8	4	36.2	1	16.3	30	27.9	20	26.2	8
Illinois	29.2	25	17.8	34	16.8	35	28.6	15	17.3	26	26.5	29	16.4	29
Indiana	**29.7**	**20**	**23.8**	**6**	**19.8**	**14**	**28.7**	**13**	**20.2**	**13**	**30.8**	**9**	**20.4**	**18**
Iowa	30.6	5	18.6	27	19.4	20	24.0	28	12.7	50	27.4	26	11.2	46
Kansas	28.5	38	19.5	22	17.3	31	24.0	28	15.7	34	29.1	16	18.8	27
Kentucky	29.2	25	26.6	1	19.1	23	30.1	9	23.3	7	31.1	8	19.9	19
Louisiana	29.6	22	22.3	9	16.9	33	23.7	30	23.9	4	33.8	3	26.8	5
Maine	30.5	7	20.6	18	15.0	44	19.4	45	16.2	32	27.6	22	12.0	42
Maryland	29.9	15	17.2	35	13.0	48	19.2	47	14.7	39	27.9	20	12.2	41
Massachusetts	29.1	28	16.9	38	11.1	51	16.4	51	14.2	42	21.4	49	5.3	51
Michigan	30.3	13	19.6	21	17.6	30	21.8	40	17.5	24	30.7	10	16.2	30
Minnesota	30.4	10	17.0	37	12.5	49	19.3	46	12.0	51	22.9	46	11.6	44
Mississippi	29.0	31	21.8	10	19.8	14	31.9	7	24.3	3	37.3	1	27.9	3
Missouri	29.8	18	23.6	7	19.9	13	28.7	13	19.4	16	30.7	10	19.7	20
Montana	28.6	35	21.0	15	21.7	6	32.6	5	16.5	29	23.3	44	21.4	16
Nebraska	29.2	25	17.9	33	19.8	14	28.5	17	13.9	46	27.6	22	16.2	30
Nevada	27.9	46	20.2	20	21.6	7	32.8	3	22.8	8	23.4	43	31.4	2
New Hampshire	29.1	28	18.5	28	16.4	38	19.6	44	13.3	47	24.1	38	15.2	34
New Jersey	30.5	7	14.6	48	15.9	42	22.7	36	16.6	28	21.8	48	15.2	34
New Mexico	30.0	14	18.2	31	19.6	18	29.0	12	20.9	11	26.3	30	22.8	13
New York	30.4	10	16.8	40	16.4	38	22.4	37	17.4	25	23.7	40	13.2	40
North Carolina	29.9	15	19.2	24	16.0	41	22.9	33	20.3	12	30.0	13	22.8	13
North Dakota	29.8	18	19.5	22	19.7	17	24.8	25	15.1	36	25.4	34	14.0	37
Ohio	29.9	15	24.2	5	18.3	27	25.8	22	18.3	20	27.6	22	14.6	36
Oklahoma	28.6	35	24.3	4	22.5	5	32.5	6	19.5	15	31.5	6	23.7	10
Oregon	28.5	38	18.4	29	25.1	3	28.6	15	17.6	23	27.2	27	21.7	15
Pennsylvania	30.9	4	21.5	13	18.7	26	26.1	20	16.9	27	27.6	22	13.4	39
Rhode Island	31.4	1	18.8	26	16.9	33	18.6	48	17.8	22	23.3	44	13.8	38
South Carolina	28.4	41	20.7	17	16.1	40	25.5	23	21.0	10	33.0	4	23.1	11
South Dakota	28.9	32	21.7	12	19.1	23	23.4	32	14.1	44	26.3	30	15.5	33
Tennessee	29.7	20	21.3	14	16.6	37	24.3	27	23.4	6	30.4	12	19.1	23
Texas	28.9	32	15.0	46	20.6	10	29.9	10	19.9	14	29.9	14	33.3	1
Utah	27.4	49	9.6	51	26.8	1	33.0	2	12.9	48	22.9	46	19.6	21
Vermont	28.1	45	16.5	42	18.1	28	21.9	39	12.8	49	23.6	41	8.0	49
Virginia	28.3	43	20.5	19	14.8	45	22.2	38	18.0	21	28.6	17	16.0	32
Washington	29.3	23	16.2	43	19.3	21	25.4	24	15.1	36	24.9	36	19.1	23
West Virginia	31.4	1	25.9	2	21.0	9	27.7	18	26.1	1	34.2	2	23.1	11
Wisconsin	30.6	5	19.1	25	15.2	43	21.3	42	14.7	39	26.1	32	11.6	44
Wyoming	29.3	23	21.8	10	21.6	7	32.7	4	16.2	32	23.8	39	24.5	9
Range	23.9-31.4		9.6-26.6		11.1-26.8		16.4-36.2		12.0-26.1		19.2-37.3		5.3-33.3	
National Median	29.2		18.8		18.7		24.8		17.3		27.4		19.0	

*Mammogram and Pap Test prevalence from 2010 BRFSS

NOTE: Each percent has a different standard error and confidence interval.

Because of this, rankings are not truly meaningful.

Unknown and refused responses are not included.

A ranking between 1 and 25 (above the median value) implies poor status relative to other states.

Data obtained from national public use file and CDC BRFSS prevalence website on 10/11/2012.

Source: 2011 Indiana Behavioral Risk Factor Surveillance System

Table 15

Current Cigarette Smoking by Age and Sex
Indiana, 2011

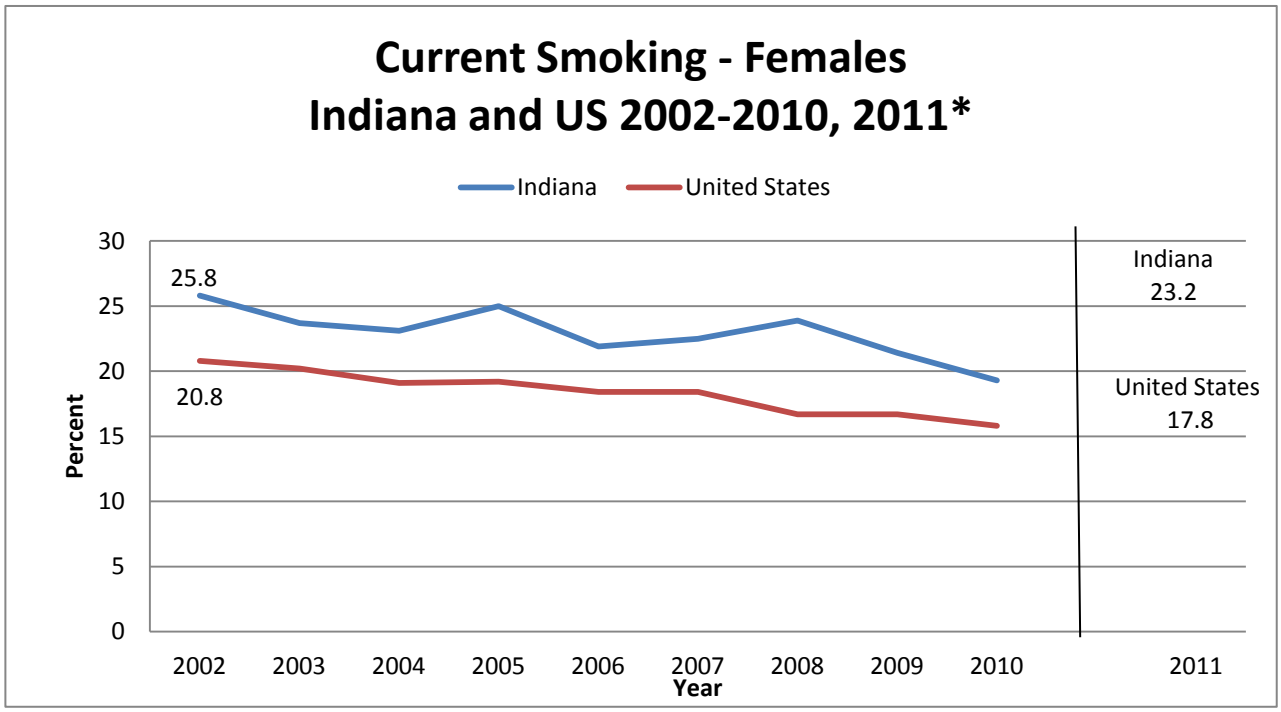
Total	**25.6%**
Male	27.6%
Female	23.3%

Age Group	18-24	25-34	35-44	45-54	55-64	65+
Male	28.8%	35.9%	31.8%	30.2%	22.7%	13.4%
Female	29.2%	29.2%	26.9%	28.7%	22.1%	10.1%

Females	
Race/Ethnicity	
White, non-Hispanic	23.6%
Black, non-Hispanic	28.5%
Hispanic	16.9%
Education	
Less than High School	39.1%
High School/GED	26.7%
Some College	24.3%
College Graduate	8.3%
Income	
<$15,000	35.6%
$15-$24,999	26.5%
$25-$34,999	28.1%
$35-$49,999	28.0%
$50-$74,999	20.5%
≥$75,000	12.4%

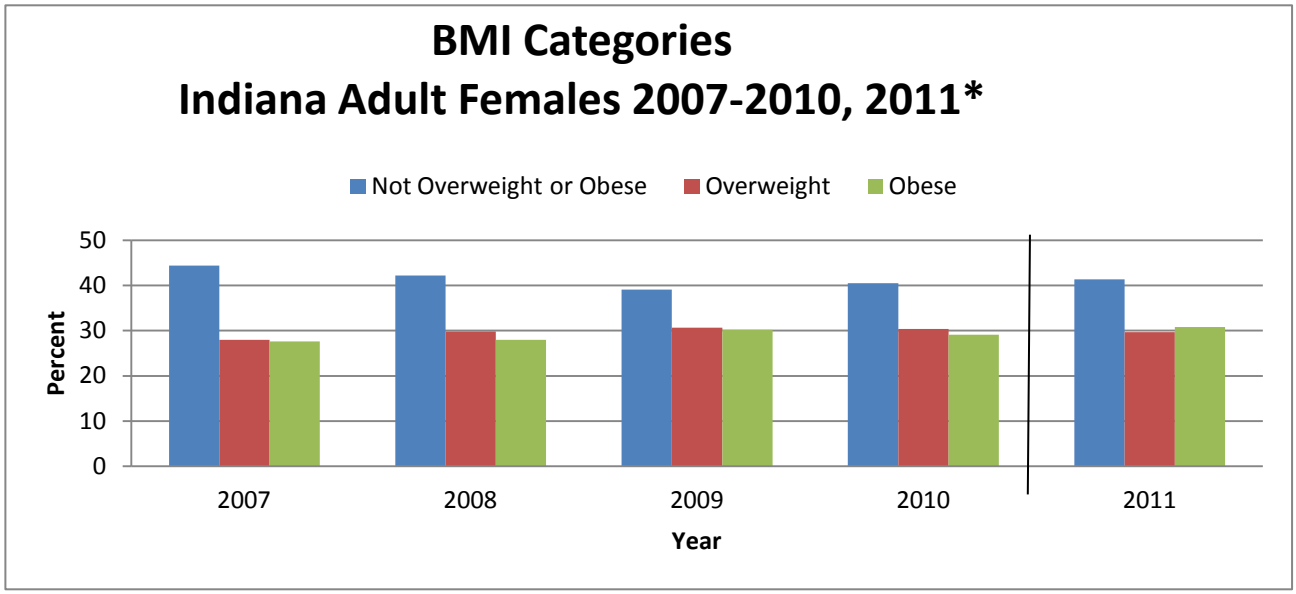
Source: 2011 Indiana Behavioral Risk Factor Surveillance System

Figure 17



**The 2011 prevalence estimate was determined using a new, more precise methodology, including the addition of cell phone respondents and new weighting techniques; therefore, the 2011 estimate should not be compared to earlier prevalence estimates.*
Source: 2002-2011 Behavioral Risk Factor Surveillance System

Figure 18



**The 2011 prevalence estimate was determined using a new, more precise methodology, including the addition of cell phone respondents and new weighting techniques; therefore, the 2011 estimate should not be compared to earlier prevalence estimates.*
Source: 2002-2011 Behavioral Risk Factor Surveillance System

Table 16

Percent of Binge and Heavy Drinking by Sex and Age, Indiana, 2011

Males	Binge Drinking*	Heavy Drinking**
18-24	34.2%	11.9%
25-34	35.9%	12.7%
35-44	27.5%	8.8%
45-54	20.7%	7.2%
55-64	16.5%	6.1%
65+	5.6%	4.4%
Total	**23.4%**	**8.5%**
Females		
18-24	20.4%	6.2%
25-34	18.6%	2.8%
35-44	16.5%	4.2%
45-54	14.2%	5.4%
55-64	6.7%	3.2%
65+	2.0%	1.6%
Total	**12.5%**	**3.8%**

**Males having five or more drinks on one occasion, females having four or more drinks on one occasion*
***Males having more than two drinks per day, females having more than one drink per day*
Source: 2011 Indiana Behavioral Risk Factor Surveillance System

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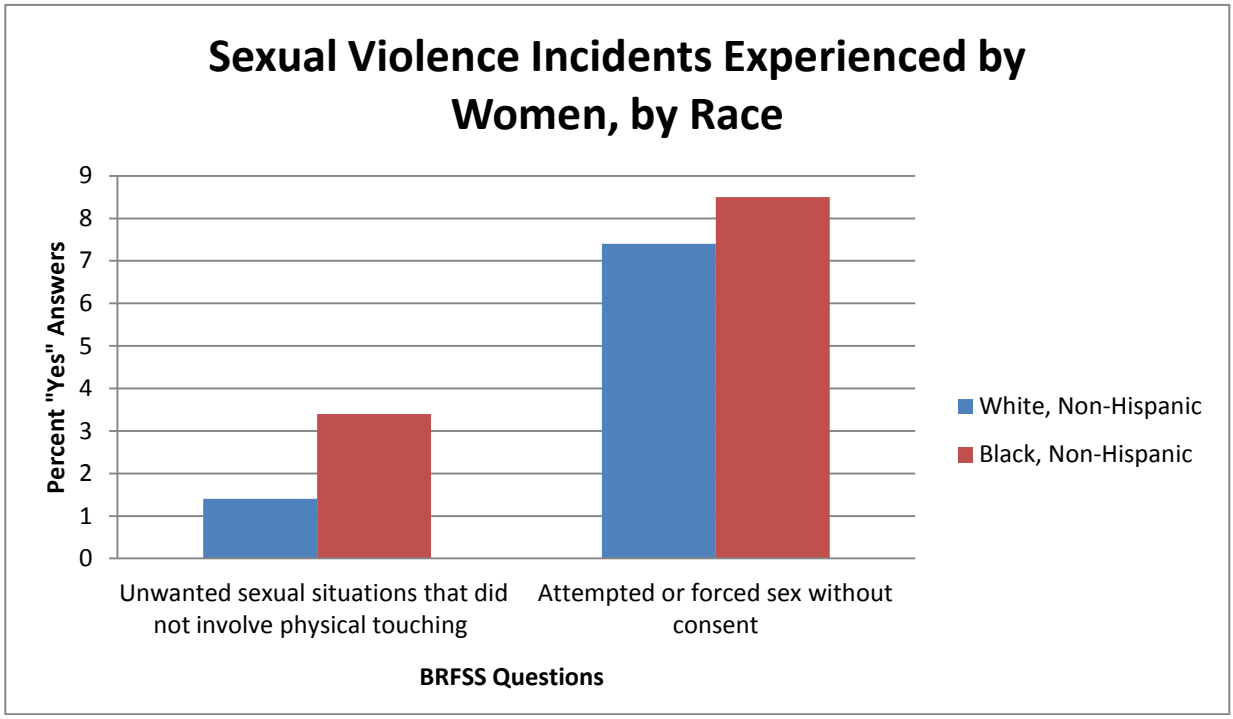
Violence Against Women

Violence Against Women

Violence affects everyone, though women are disproportionately affected by sexual assault, intimate partner violence and stalking. In Indiana, 20.4% of women have been victims of rape in their lifetime (National Intimate Partner and Sexual Violence Survey (NISVS), 2011). This rate is higher than the national average (18.3%). According to NISVS, Multiracial, American Indiana or Alaska Native, and Black women in Indiana experience higher rates of sexual violence victimization than White or Hispanic women (**Figure 19**). Additionally, 40% of Hoosier women are victims of sexual violence, physical violence, or stalking by an intimate partner, which is higher than the average in the United States (35.6%). High school-aged females are also affected by sexual violence (**Figure 20**). Indiana has the second highest rate of forced sexual intercourse in the United States (Youth Risk Behavior Surveillance System, 2011).

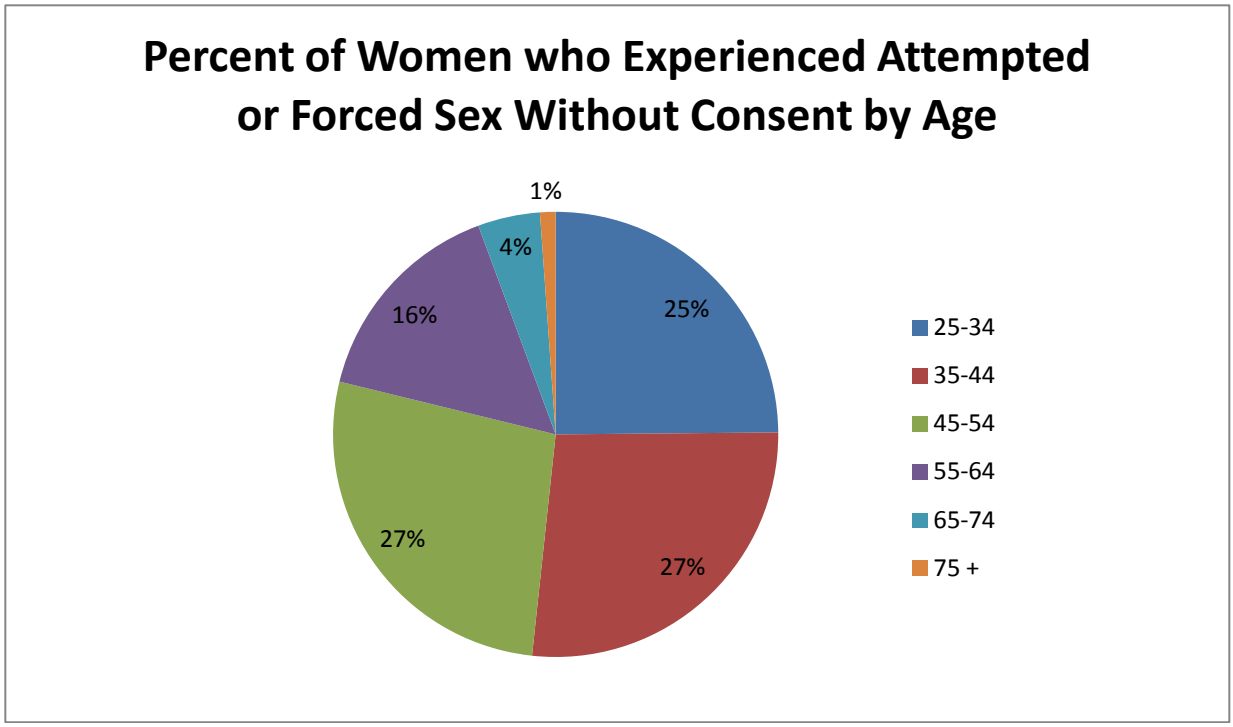
Violence against women can have a significant impact on physical and mental health. Research indicates that women who have experienced sexual or intimate partner violence have an increased use of the health care system throughout the course of their lifetime as opposed to women without a history of victimization, including more visits to health providers, more hospital stays, and longer duration of hospital stays. Women with a history of sexual assault, intimate partner violence, or stalking have significantly higher rates of asthma, irritable bowel syndrome, diabetes, frequent headaches, chronic pain, difficulty sleeping, activity limitations, and poor physical and mental health compared to women who have not experienced abuse (NISVS, 2011).

Figure 19



Source: 2011 Indiana Behavioral Risk Factor Surveillance System

Figure 20



Source: 2011 Indiana Behavioral Risk Factor Surveillance System

Use of the Health Care System

Use of the Health Care System

Women's use of health care differs from men's. Women with health coverage are more likely to seek preventive services, and women are more likely than men to visit the doctor. Even excluding pregnancy-related visits, women are 33% more likely to visit a doctor compared to men. Despite this, many women face barriers to health care services. Approximately 14% of women ages 0-64 were uninsured in 2011 compared to 17% nationally (Henry J. Kaiser Family Foundation, 2013) (**Table 19**). Lower-income and minority women in the state have the highest rates of non-coverage. Lack of health insurance coverage results in lower screening rates for conditions such as cancer, diabetes, and high blood pressure. Compared to other states in the US, Indiana ranks 40th in overall female health status, forty-first in rate of mammography screening (**Figure 21**), and 46th in Pap smear screening rates (**Figure 22**).

The United States Preventive Services Task Force (USPSTF) recommends regular screening for colorectal cancer for both men and women beginning at age 50 and continuing to age 75. In 2010, a slightly higher percentage of Indiana women ages 50 and over reported that they had ever had a sigmoidoscopy or colonoscopy compared to men. Both nationally and in Indiana, individuals age 65-75 were more likely to be up to date on colorectal screenings than their younger counterparts (**Figure 23**).

Indiana's Women, Infants and Children (WIC) program provides a number of health related services, including nutrition counseling, breastfeeding support, and healthy food supplementation. **Figure 24** shows the healthy changes brought on by participating in WIC (Indiana State Department of Health , 2012). Nearly 40,000 women in Indiana are served by WIC (ISDH, 2012). **Figure 25** shows the state distribution of WIC enrollment by county.

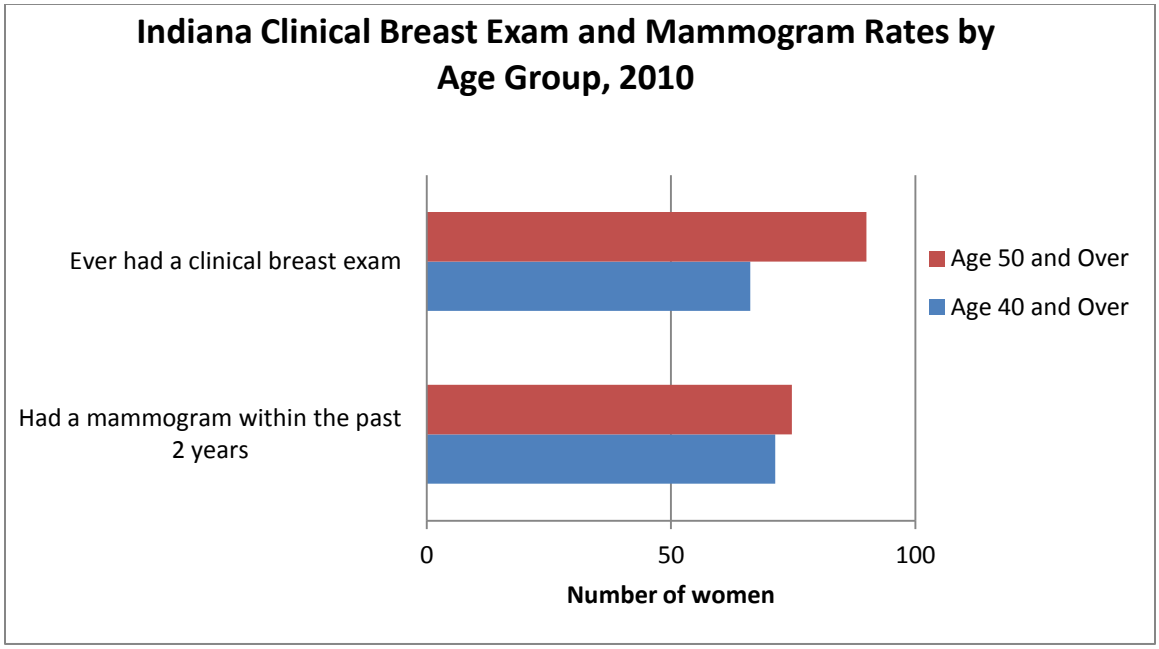
Table 17

Health Care Coverage (Health Insurance, Prepaid Plans such as HMOs, or Government Plans such as Medicare) Indiana, 2011

Total	**80.2%**
Male	76.8%
Female	83.4%
Females	
Age Group	
18-24	77.5%
25-34	71.0%
35-44	79.3%
45-54	83.9%
55-64	85.9%
65+	98.0%
Race	
White, non-Hispanic	85.2%
Black, non-Hispanic	75.9%
Hispanic	58.7%
Education	
Less than High School	66.1%
High School/GED	83.0%
Some College	84.2%
College Graduate	93.4%
Income	
<$15,000	69.2%
$15-$24,999	70.7%
$25-$34,999	79.4%
$35-$49,999	88.4%
$50-$74,999	91.1%
≥$75,000	97.6%

Source: 2011 Indiana Behavioral Risk Factor Surveillance System

Figure 21



Source: 2011 Indiana Behavioral Risk Factor Surveillance System

Figure 22

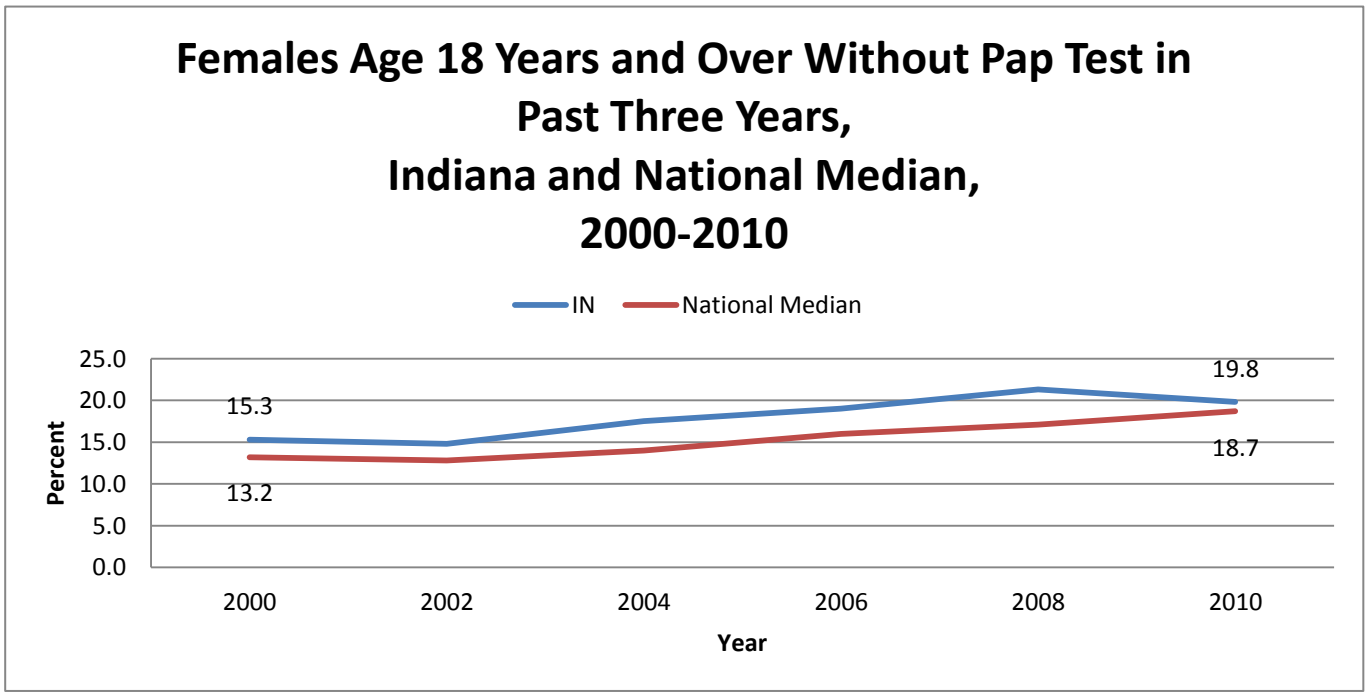
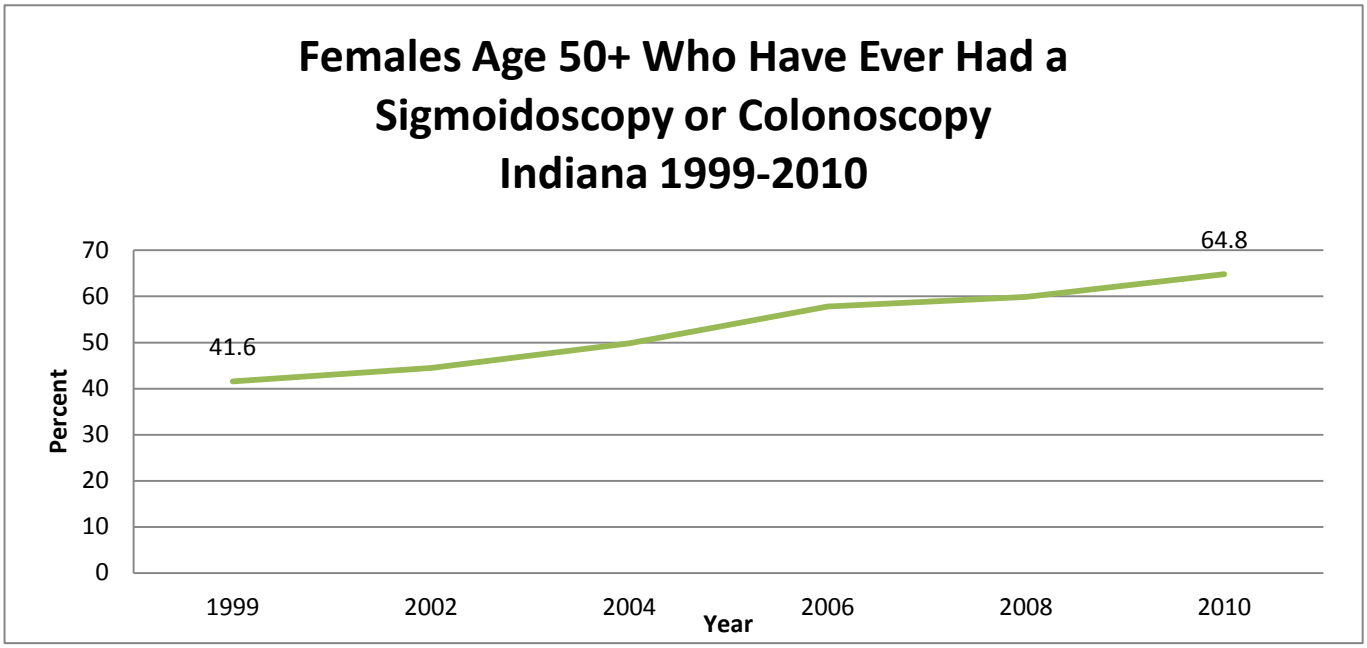
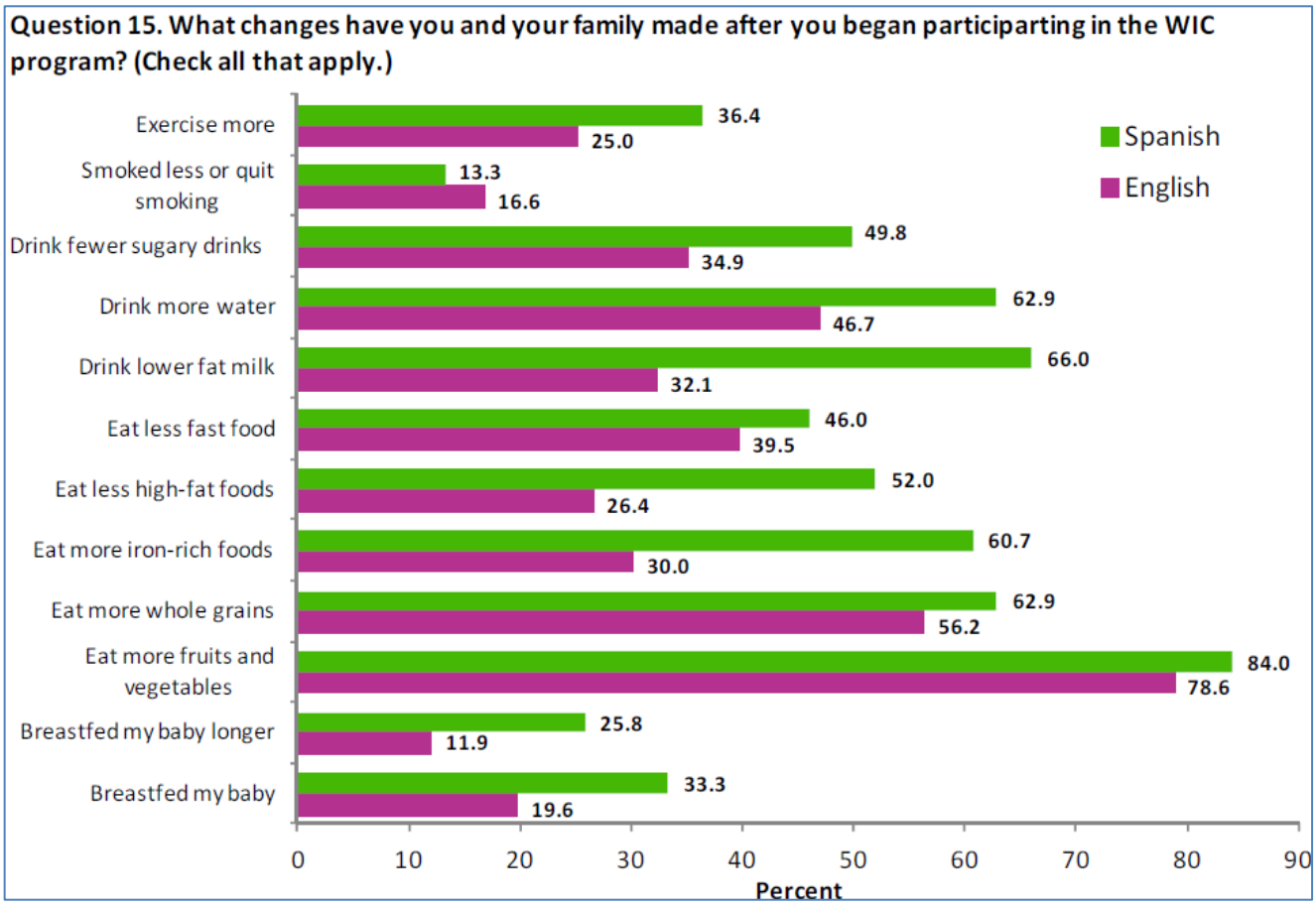


Figure 23



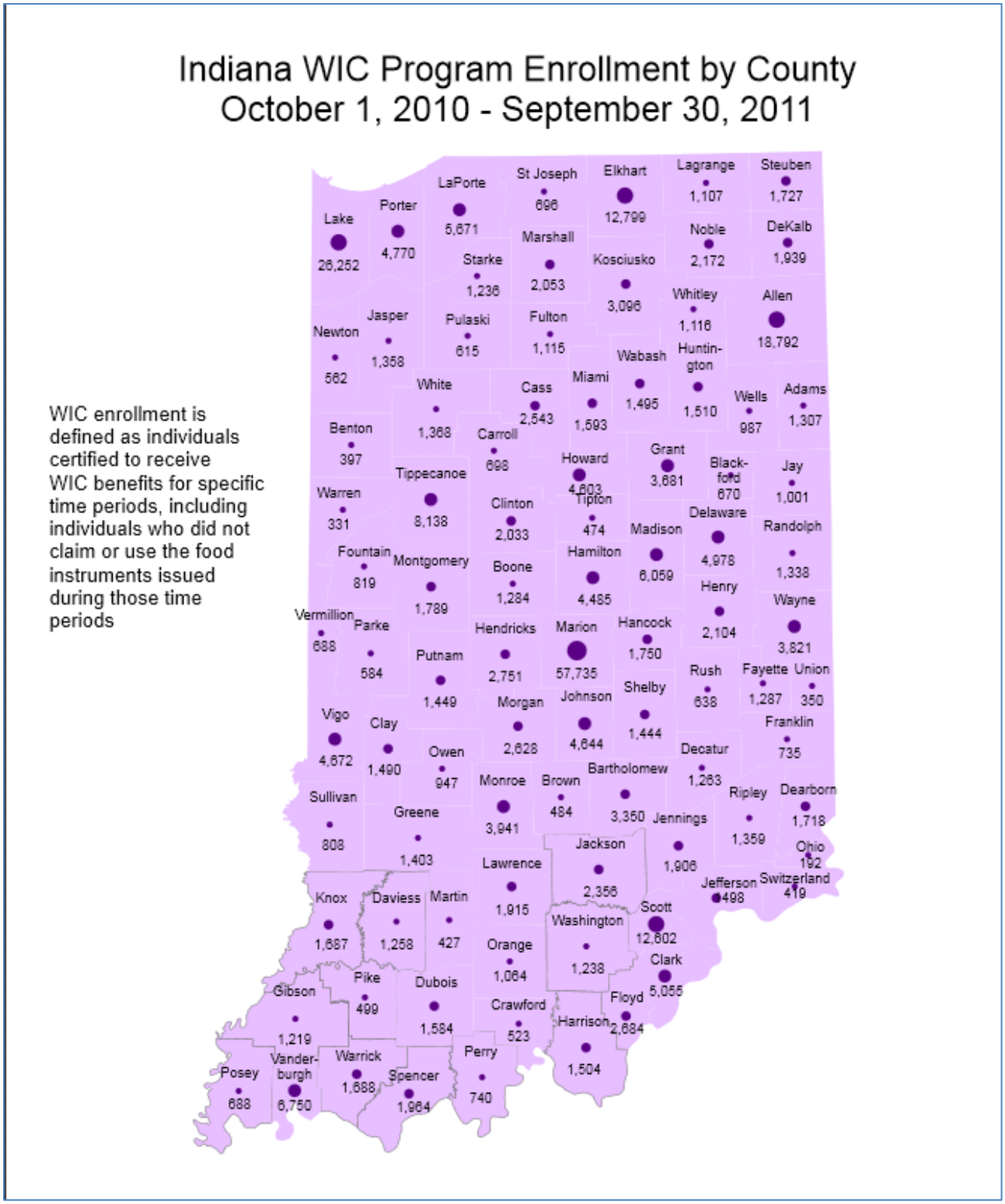
Source: 2000-2010 Indiana and National Behavioral Risk Factor Surveillance System

Figure 24



Source: Indiana State Department of Health, 2012

Figure 25



Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division, 2012

Conclusion

Conclusion

This overview of women's health in Indiana is a snapshot of the leading indicators for health and well-being. Although a great deal of information is available, more data is needed on the role certain factors such as socioeconomic status or race play as risk factors and how disparities arise. Several main data elements stand out and are worth noting, for continued research and increased efforts.

Demographics

- The Indiana female population is changing. Hoosier women are older and more ethnically diverse than they were a decade ago. The Hispanic birth rate has increased significantly more than other races/ethnicities. Birth rates among teen mothers are declining.
- Women are often single heads of household and can suffer economic hardships due to a variety of factors including wage disparity and education attainment. One-fifth of Indiana women report their health status as fair or poor, a factor that is strongly influenced by socioeconomic status.
- More research is warranted for the increasing trend in the female incarceration rate.

Reproductive Health

- Infant mortality in Indiana continues to exceed the national average, and has remained unchanged for the past decade. This health concern remains a top priority for ISDH. Women in Indiana need better access to prenatal care during the first trimester, which can help reduce the number of babies born at low birth weight. Poor maternal child health outcomes are higher among African American mothers and their babies.
- Cesarean births, which may be associated with health complications, exceed the national rate in Indiana and continue to rise.
- Smoking cessation efforts for pregnant women should be a priority, as high rates of pregnant women continue to smoke in Indiana.

Selected Health Conditions

- Racial disparities exist for women in Indiana for several major health issues: heart disease, cancer, diabetes, and STDs including HIV/AIDS. African American women have higher morbidity and mortality rates for each of these conditions.
- The rate of female lung cancer in Indiana is much higher than the national rate. Lung cancer exceeds breast cancer as a cause of cancer death among Indiana women.
- Indiana women have higher incidence rates for the major health conditions than national rates. Aside from STDs, smoking and obesity are the two major preventable risk factors associated with the leading causes of death for women in Indiana.

Selected Health Behaviors and Behavioral Risks

- Although smoking rates have declined over the past decade, Indiana consistently exceeds the national average for smoking by women.
- The estimated obesity rate among women in Indiana was higher than the national rate.
- Physical activity rates are lower among Indiana women than men and serve as a significant risk factor for chronic diseases.

Violence Against Women

- Violence against women can have a significant impact on health. Women who experience sexual or intimate partner violence have increased health care use over the course of a lifetime and significantly higher rates of physical and mental illnesses than non-victims.
- Indiana has the second highest rate of forced sexual intercourse among high school females in the United States.
- Multiracial, American Indiana or Alaska Native, and Black women in Indiana experience higher rates of sexual violence victimization than White or Hispanic women.

Use of Health Care Services

- Lack of health insurance coverage results in lower screening rates for conditions such as cancer, diabetes, and high blood pressure.
- Although preventive screening rates have increased in the past decade, Indiana ranks 40th in the US for overall female health status, 41st in the rate of mammography screening, and 46th in Pap smear screening rates.
- WIC is a highly successful program, helping over 40,000 Hoosier women with vital services during pregnancy and lactation, as well as their infants and children. WIC programs have proven to increase healthy behaviors among participants.

Indiana has a unique opportunity to improve the lives of more than half of its population by implementing policies and programs that promote women's health. The data outlined in this report highlight priorities for future initiatives aimed to decrease disease and increase quality of life for all women in the state.

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