Brief Contents

• I. Introduction .......................................................... 5
• II. Adults .................................................................. 15
• III. Children and Youth ........................................... 28
• IV. Associated Chronic Diseases ............................... 45
• V. Obesity Categories ............................................... 57
• VI. Data Sources ......................................................... 70
Acronyms

• BRFSS - Behavioral Risk Factor Surveillance System
• YRBS - Youth Risk Behavior Survey
• ACHI - Arkansas Center for Health Improvement
• WIC – Women, Children, and Infants
Contents

I. Introduction ............................................................................. 5

II. Adults..................................................................................... 15
   A. BRFSS Trend Data, 2007-2016
   B. BRFSS Data, 2016

III. Children and Youth.............................................................. 28
   A. YRBS Data (High School Students)
   B. ACHI Data (K-10th Grade Students, even grades only)
   C. WIC Data (Ages 2 to 4)

IV. Associated Chronic Diseases................................. 45
   A. Coronary Heart Disease
   B. Stroke
   C. Hypertension
   D. Diabetes
   E. Disability

V. Obesity Categories............................................................... 57

VI. Data Sources and Descriptions................................. 70
SECTION I. INTRODUCTION
Obesity Data Deck

• Purpose
To provide a comprehensive set of charts describing multiple impacts of **overweight and obesity** in Arkansas with selected U.S. comparisons.

• Burden
Being overweight or obese increases a person’s risk for developing various adverse health conditions, many of which are included in this data deck.
Health Consequences of Overweight and Obesity

- Coronary heart disease
- Type 2 diabetes
- Cancers
- Hypertension (high blood pressure)
- Dyslipidemia (for example, high total cholesterol or high levels of triglycerides)
- Stroke
- Liver and Gallbladder disease
- Sleep apnea and breathing problems
- Osteoarthritis (a breakdown of cartilage and bone within a joint)
- Gynecological problems (abnormal periods, infertility)

Source: Centers for Disease Control and Prevention
Top Fifteen Leading Causes of Death (All Ages)
Arkansas, 2015

- Heart Disease: 25.1%
- Malignant Neoplasms (Cancer): 21.3%
- Chronic Lower Respiratory Disease: 7.2%
- Cerebrovascular (Stroke): 5.2%
- Unintentional Injuries: 4.9%
- Alzheimer's Disease: 4.6%
- Diabetes: 2.8%
- Nephritis: 2.2%
- Influenza/Pneumonia: 2.2%
- Suicide: 1.8%
- Septicemia: 1.7%
- Liver Disease/Cirrhosis: 1.3%
- Hypertension: 1.0%
- Parkinson's Disease: 0.8%
- Homicide: 0.7%

Source: Center for Disease Control and Prevention Wide-ranging OnLine Data for Epidemiologic Research (CDC WONDER)
BMI Calculation

• Body Mass Index (BMI)

\[
\text{BMI} = \left( \frac{\text{weight in pounds}}{\text{height in inches} \times \text{height in inches}} \right) \times 703
\]

or

\[
\text{BMI} = \frac{\text{weight in kilograms}}{\text{height in meters} \times \text{height in meters}}
\]
## Standard Weight Classification Categories for Adults

<table>
<thead>
<tr>
<th>BMI</th>
<th>Weight Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 18.5</td>
<td>Underweight</td>
</tr>
<tr>
<td>18.5-24.9</td>
<td>Healthy weight</td>
</tr>
<tr>
<td>25.0-29.9</td>
<td>Overweight</td>
</tr>
<tr>
<td>30.0 and Above</td>
<td>Obese</td>
</tr>
</tbody>
</table>

# BMI Table for Adults

## Body Mass Index Table

<table>
<thead>
<tr>
<th>BMI</th>
<th>Normal</th>
<th>Overweight</th>
<th>Obese</th>
<th>Extreme Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>91</td>
<td>100</td>
<td>105</td>
<td>110</td>
</tr>
<tr>
<td>20</td>
<td>101</td>
<td>110</td>
<td>115</td>
<td>120</td>
</tr>
<tr>
<td>21</td>
<td>111</td>
<td>120</td>
<td>125</td>
<td>130</td>
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<td>22</td>
<td>121</td>
<td>130</td>
<td>135</td>
<td>140</td>
</tr>
<tr>
<td>23</td>
<td>131</td>
<td>140</td>
<td>145</td>
<td>150</td>
</tr>
<tr>
<td>24</td>
<td>141</td>
<td>150</td>
<td>155</td>
<td>160</td>
</tr>
</tbody>
</table>

How to Interpret BMI for Children

• Interpretation for children’s BMI takes into account height and weight measurements, sex, and age.

• CDC recommends that health care providers use the growth standards for infants, children, and adolescents in the U.S.
  – Ages 0 to 2 years: WHO growth standards
  – Ages 2 years and older: CDC growth charts

World Health Organization (WHO) growth charts: http://www.who.int/childgrowth/en
Centers for Disease Control and Prevention (CDC) growth charts: http://www.cdc.gov/growthcharts/clinical_charts.htm
## BMI Percentile Classification for Children

<table>
<thead>
<tr>
<th>Percentile Range</th>
<th>Weight Status Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than the 5th percentile</td>
<td>Underweight</td>
</tr>
<tr>
<td>5th percentile to less than the 85th percentile</td>
<td>Healthy weight</td>
</tr>
<tr>
<td>85th to less than the 95th percentile</td>
<td>Overweight</td>
</tr>
<tr>
<td>95th percentile or greater</td>
<td>Obese</td>
</tr>
</tbody>
</table>

Centers for Disease Control and Prevention (CDC) About Children & Teen BMI:  
https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html
Growth Chart Example

Centers for Disease Control and Prevention (CDC) About Children & Teen BMI:
https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html
SECTION II.  ADULTS
(AGES 18 AND OLDER)
A. BRFSS TREND DATA (2007-2016)
Adult Overweight and Obesity Prevalence

Source: BRFSS
In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years.
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30
Adult Obesity Prevalence

Source: BRFSS
In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years.
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30
Adult Overweight and Obesity Prevalence
Arkansas, 2007-2016

Source: BRFSS
In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years.
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30
Adult Overweight and Obesity Prevalence, by Gender
Arkansas, 2007-2016

Source: BRFSS

In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years.

BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30
Adult Overweight and Obesity Prevalence, by Race/Ethnicity
Arkansas, 2007-2016

Source: BRFSS
In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years.
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; NH = Non-Hispanic
B. BRFSS DATA, 2016
Adult Overweight and Obesity Prevalence
Arkansas and U.S., 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30
Adult Overweight and Obesity Prevalence, by Gender
Arkansas, 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30
Adult Overweight and Obesity Prevalence, by Race/Ethnicity
Arkansas, 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30
Adult Overweight and Obesity Prevalence, by Race and Gender, Arkansas 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; NH = Non-Hispanic
Adult Overweight and Obesity Prevalence, by Age
Arkansas, 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30
SECTION III. CHILDREN AND YOUTH
A. YRBS DATA  
(HIGH SCHOOL STUDENTS)
High School Students Overweight and Obesity Prevalence

Source: YRBS
BMI Categories: Overweight: >= 85th percentile but < the 95th; Obese: >= the 95th percentile for BMI, by age and sex
High School Students Overweight and Obesity Prevalence
Arkansas, 2007-2015

Source: YRBS
BMI Categories: Overweight: >= 85th percentile but < the 95th; Obese: >= the 95th percentile for BMI, by age and sex
High School Students Overweight and Obesity Prevalence
Arkansas, 2007-2015

Source: YRBS
BMI Categories: Overweight: >= 85th percentile but < the 95th; Obese: >= the 95th percentile for BMI, by age and sex; NH = Non-Hispanic
High School Students Overweight and Obesity Prevalence
Arkansas, 2007-2015

Source: YRBS
BMI Categories: Overweight: >= 85th percentile but < the 95th; Obese: >= the 95th percentile for BMI, by age and sex
B. ACHI DATA
(K, 2\textsuperscript{ND}, 4\textsuperscript{TH}, 6\textsuperscript{TH}, 8\textsuperscript{TH}, & 10\textsuperscript{TH} GRADE STUDENTS)
Trends in BMI Classification for Arkansas Public School Students in Grades K, 2, 4, 6, 8, & 10

Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)
Percent of Arkansas Students* Overweight and Obese, by Gender, 2015-2016 School Year
Grades K, 2, 4, 6, 8, & 10

Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)
*Public School Students
Percent of Arkansas Students* Overweight and Obese, by Race/Ethnicity, 2015-2016 School Year
Grades K, 2, 4, 6, 8, & 10

Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)
NH = Non-Hispanic; *Public School Students
Percent of Arkansas Students* Overweight and Obese, by Gender & Race/Ethnicity, 2015-2016 School Year Grades K, 2, 4, 6, 8, & 10

Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)
NH = Non-Hispanic; *Public School Students
Percent of Arkansas Students* Overweight and Obese, by Grade, 2015-2016 School Year
Grades K, 2, 4, 6, 8, & 10

Source: Arkansas Center for Health Improvement, Assessment of Childhood and Adolescent Obesity, Year 13 (Fall 2015-Spring 2016)
*Public School Students
C. WIC DATA
(AGES 2 TO 4 YEARS)
Children Ages 2 to 4 Years Old, Overweight WIC* Population, Arkansas and U.S., 2008-2014

Source: *Women, Infants, and Children Participant and Program Characteristics (WIC)
BMI Categories: Overweight: >= 85th percentile but < the 95th; Obese: >= the 95th percentile for BMI, by age and sex
Children Ages 2 to 4 Years Old, Obese WIC* Population, Arkansas and U.S., 2008-2014

Source: *Women, Infants, and Children Participant and Program Characteristics (WIC)
BMI Categories: Overweight: >= 85th percentile but < the 95th; Obese: >= the 95th percentile for BMI, by age and sex
Children Ages 2 to 4 Years Old, Overweight and Obese
WIC* Population, Arkansas and U.S., 2014

Overweight

<table>
<thead>
<tr>
<th>Arkansas</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.5</td>
<td>15.8</td>
</tr>
</tbody>
</table>

Obese

<table>
<thead>
<tr>
<th>Arkansas</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.4</td>
<td>14.1</td>
</tr>
</tbody>
</table>

Source: *Women, Infants, and Children Participant and Program Characteristics (WIC)
BMI Categories: Overweight: >= 85th percentile but < the 95th; Obese: >= the 95th percentile for BMI, by age and sex
Children Ages 2 to 4 Years Old, Overweight and Obese, by Race/Ethnicity, WIC* Population, Arkansas, 2014

*Source: Women, Infants, and Children Participant and Program Characteristics (WIC)
BMI Categories: Overweight: >= 85th percentile but < the 95th; Obese: >= the 95th percentile for BMI, by age and sex; NH = Non-Hispanic
SECTION IV. ASSOCIATED CHRONIC DISEASES
A. CORONARY HEART DISEASE
Coronary Heart Disease Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2016

Source: BRFSS
B. STROKE
Stroke Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2016

Not Overweight or Obese
- Arkansas: 4.6%
- United States: 2.7%

Overweight
- Arkansas: 5.1%
- United States: 3.2%

Obese
- Arkansas: 4.2%
- United States: 4.0%

Source: BRFSS
C. HYPERTENSION
Hypertension Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2015

Source: BRFSS
D. DIABETES
Diabetes Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2016

Source: BRFSS
E. DISABILITY
Disability* (Limited In Any Way) Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2015

Source: BRFSS

*Question: Are you limited in any way in any activities because of physical, mental, or emotional problems?
### Disability* (Use Special Equipment) Prevalence Among Adults, by Weight Classification, Arkansas and U.S., 2015

<table>
<thead>
<tr>
<th>Weight Classification</th>
<th>Arkansas (%)</th>
<th>United States (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Overweight or Obese</td>
<td>6.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Overweight</td>
<td>9.0</td>
<td>7.3</td>
</tr>
<tr>
<td>Obese</td>
<td>17.1</td>
<td>13.6</td>
</tr>
</tbody>
</table>

**Source:** BRFSS

*Question: Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?
SECTION V. OBESITY CATEGORIES
## Expanded Weight Classification Categories for Adults

<table>
<thead>
<tr>
<th>BMI</th>
<th>Weight Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 18.5</td>
<td>Underweight</td>
</tr>
<tr>
<td>18.5-24.9</td>
<td>Healthy weight</td>
</tr>
<tr>
<td>25.0-29.9</td>
<td>Overweight</td>
</tr>
<tr>
<td>30.0-34.9</td>
<td>Class I Obesity</td>
</tr>
<tr>
<td>35.0-39.9</td>
<td>Class II Obesity</td>
</tr>
<tr>
<td>40 and Above</td>
<td>Class III Obesity</td>
</tr>
</tbody>
</table>

Centers for Disease Control and Prevention (CDC) Defining Adult Overweight and Obesity: [https://www.cdc.gov/obesity/adult/defining.html](https://www.cdc.gov/obesity/adult/defining.html)
Adult Overweight and Obesity Prevalence
Arkansas, 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40
Adult Overweight and Obesity Prevalence
Arkansas, 2007-2016

Source: BRFSS
In 2011, BRFSS had substantial methodological changes; it is not comparable to previous years
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40
Adult Overweight and Obesity Prevalence, by Gender, Arkansas, 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class III Obese = BMI ≥ 40
Adult Overweight and Obesity Prevalence, by Race/Ethnicity, Arkansas, 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40
Adult Overweight and Obesity Prevalence, by Age, Arkansas, 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40
Note: Due to rounding, All Obese may not exactly equal the sum of Class I, Class II, and Class III Obese.
Coronary Heart Disease Prevalence Among Adults, by Weight Classification, Arkansas, 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class III Obese = BMI ≥ 40
Stroke Prevalence Among Adults, by Weight Classification, Arkansas, 2016

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40
Hypertension Prevalence Among Adults, by Weight Classification, Arkansas, 2015

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40
Diabetes Prevalence Among Adults, by Weight Classification, Arkansas, 2016

- Not Overweight or Obese: 5.5%
- Overweight: 13.9%
- Class I Obese: 15.3%
- Class II Obese: 27.2%
- Class III Obese: 25.1%
- All Obese: 20.2%

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class II Obese = BMI ≥ 40
Disability* (Limited In Any Way) Prevalence Among Adults, by Weight Classification, Arkansas, 2015

Source: BRFSS

BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9; Class III Obese = BMI ≥ 40
Disability* (Use Special Equipment) Prevalence Among Adults, by Weight Classification, Arkansas, 2015

Source: BRFSS
BMI Categories: Overweight = 25-29.9; Obese = BMI ≥ 30; Class I Obese = 30-34.9; Class II Obese = 35-39.9, Class III Obese = BMI ≥ 40
SECTION VI. DATA SOURCES AND DESCRIPTIONS
Data Sources

• Center for Disease Control and Prevention Wide-ranging Online Data for Epidemiologic Research (CDC WONDER)

• Behavioral Risk Factor Surveillance System (BRFSS)*

• Youth Risk Behavior Survey (YRBS)*

• Arkansas Youth Tobacco Survey (YTS)*

• Arkansas Center for Health Improvement (ACHI)

• Women, Infants, and Children Participant and Program Characteristics (WIC)

*Indicates self-reported data
Data Source Descriptions

• Center for Disease Control and Prevention Wide-ranging Online Data for Epidemiologic Research (CDC WONDER)
  
  CDC WONDER is the online public information health system created by the Centers for Disease Control and Prevention (CDC). It provides a single point of access to a wide variety of CDC reports, guidelines, and numeric public health data. With it, one can search for and retrieve MMWR (Morbidity and Mortality Weekly Report) articles and Prevention Guidelines published by the CDC, as well as query dozens of numeric datasets on CDC’s mainframe and other computers via "fill-in-the blank" request screens. Public-use datasets about mortality, cancer incidence, hospital discharges, AIDS, behavioral risk factors, diabetes, and many other topics are available for query, and the requested data can be readily summarized and analyzed.

• Behavioral Risk Factor Surveillance System (BRFSS)*
  
  The Behavioral Risk Factor Surveillance System is a standardized, random telephone health survey conducted by each of the 50 states, Washington, D.C., and three U.S. territories under the guidance of the Centers for Disease Control and Prevention (CDC). Arkansas BRFSS contracts with an outside agency to conduct the survey, using a Computer-Aided Telephone Interviewing System. Respondents are selected using a “Disproportionate Stratified Random Sampling” design using a two-stage process. First, a telephone number is randomly selected from listed and unlisted telephone numbers. Second, according to BRFSS protocol, when a residence is selected, a random household member (age 18 or older) is chosen to interview.

*Indicates self-reported data
• Youth Risk Behavior Survey (YRBS)*

  The CDC’s Youth Risk Behavior Survey is the only surveillance system designed to monitor a wide range of priority health risk behaviors – unintentional injuries and violence; tobacco, alcohol, and other drug use; sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection; unhealthy dietary behaviors; physical inactivity; obesity; and asthma – among high school students. It uses a stratified random sample of schools and students at both the national and state levels. It is a paper-based classroom survey.

• Arkansas Youth Tobacco Survey (YTS)*

  The Youth Tobacco Survey is similar to the YRBS. However, the YTS includes middle school students and focuses more on tobacco-related issues. The YTS was last conducted in Arkansas in 2010.

*Indicates self-reported data
Arkansas Center for Health Improvement (ACHI)

The Arkansas Center for Health Improvement is a nonpartisan, independent health policy center dedicated to improving the health of Arkansans. At the request of the Arkansas Departments of Education and Health, in the 2003–2004 school year, ACHI created and implemented the BMI screening process for all public school children in the state. To accomplish this, ACHI put together a BMI Task Force in partnership with local school districts, the Arkansas Departments of Education and Health and Human Services, staff from Arkansas Children’s Hospital, and the UAMS College of Public Health. In 2007, during the 86th Arkansas General Assembly, Act 201 was passed to strengthen the protocol followed by school and nursing staff in performing the assessment, required parents to advise schools in writing if they do not wish to have their child's BMI assessed, and changed the periodicity of assessments to even grades (kindergarten through grade 10). ACHI continues to work closely with the Arkansas Departments of Education and Health to facilitate BMI data collection, conduct analyses, and deliver reports.
Women, Infants, and Children Participant and Program Characteristics (WIC)

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is administered by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA). Since 1988, FNS has produced biennial reports on participant and program characteristics in WIC. The report contains information on a census of WIC participants in April of the reporting year which includes demographic, income, and nutritional risk characteristics of WIC participants; breastfeeding initiation and duration by state; WIC participation for migrant farm worker families; and other topics that are deemed appropriate by the Secretary of Agriculture.

*Indicates self-reported data
The End