

# Chronic Conditions Among Ohio Adults: 2019 Update

*June 2021*

# AUTHORS

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# EXECUTIVE SUMMARY

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## Chronic Diseases and Conditions in Ohio

Chronic diseases and conditions are the leading causes of death in the United States. This chart book makes use of data from the 2019 Ohio Medicaid Assessment Survey (OMAS) and Ohio Medicaid Administrative Data to document the prevalence of various chronic diseases and conditions in Ohio along with comorbidities, associated risk factors and risk behaviors. An additional focus is the association between chronic conditions and key demographic and socio-economic factors such as race/ethnicity, sex, age, health insurance, income, and employment.

## Key Findings

- The prevalence of chronic conditions and associated risk factors among adult Ohioans increased sharply from 2008 to 2012, with hypertension (34.0% in 2008 vs. 37.3% in 2012), diabetes (11.4% vs. 13.8%) and heart disease (9.2% vs. 10.3%), before leveling off more recently (to 36.7%, 14.0%, and 9.4% respectively in 2019). Prevalence of stroke increased more gradually between 2008 and 2019 (3.5% vs 4.2%). These increases were similar to what was observed nationally, though the prevalence of hypertension and stroke remained high compared to the US in terms of absolute levels.
- Significant disparities remain in the prevalence of certain chronic diseases, conditions, and associated risk factors among Ohio adults. More than four in ten (44.6%) Black or African American respondents reported having hypertension compared to 36.6% of white respondents, and individuals in rural Appalachian counties

were more likely to report having two or more chronic conditions (21.6% vs 17.3% for metropolitan counties, 18.2% for suburban counties, and 17.5% for rural non-Appalachian counties).

- There was a significant association between many risk factors and behaviors and chronic condition status. Both current and former smokers were more likely to report one or more conditions than nonsmokers (57.6% for former smokers, 51.7% for current smokers, and 41.9% for nonsmokers). Additionally, individuals who were obese or overweight were more likely to have one or more chronic conditions compared to those with a normal BMI (57.4% for obese, 46.8% for overweight vs. 37.1% for normal BMI).
- Many socio-economic factors were associated with chronic condition status. More than half (53.5%) of individuals with income equal to or less than 138% of the Federal Poverty Level (FPL) had one or more chronic conditions compared to 43.0% of individuals with income 401% FPL or greater, and among working age adults (ages 19-64), about one third (32.7%) of individuals who were working had a chronic condition versus 57.7% of those who were not working.
- Among the conditions examined in Medicaid administrative data, chronic pain increased for adult Medicaid enrollees between 2014 and 2019 (17.8% in 2014 vs. 21.0% in 2019).

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# BACKGROUND

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## Chronic diseases and conditions in Ohio

Seven of the top ten leading causes of death in the United States in 2019 were chronic conditions or diseases, including heart disease, cancer, chronic lower respiratory disease, stroke, diabetes, Alzheimer disease and kidney disease.<sup>1</sup> Many chronic diseases and associated risk factors are also common; according to the 2017 OMAS, over 40% of Ohioans had either heart disease, hypertension, or diabetes,<sup>2</sup> and the overall prevalence of chronic conditions was higher among Ohioans compared to the rest of the United States.<sup>3</sup> Chronic conditions are therefore a major concern with respect to the general health and wellbeing of Ohioans.

## Disparities in chronic conditions in Ohio

Some groups of individuals are more likely to develop certain chronic diseases and conditions than others. According to a 2015 study of chronic diseases and conditions in Ohio conducted by the Ohio Department of Health, Black or African Americans were more likely to have diabetes and asthma, males were more likely to have heart disease and cancer, females were more likely to have arthritis and asthma, and low-income individuals were more likely to have heart disease, cancer, stroke, diabetes, chronic obstructive pulmonary disease (COPD), asthma and arthritis.<sup>3</sup> One of the motivations for this chart book is to assess whether such disparities persisted using more recent data.

## Health risk behaviors, associated risk factors, and chronic conditions

Health behavior and other risk factors have an

important connection to the development of chronic diseases. Smoking is associated with cardiovascular disease, several forms of cancer, and is the dominant cause of COPD in the United States. Asthma is often underdiagnosed among older adults due to changes in physiology and presence of comorbid conditions.<sup>4</sup> High blood pressure or hypertension is one of the most common associated risk factors of chronic diseases including stroke, heart disease, cancer, and chronic kidney disease.<sup>5</sup> This chart book documents the association between chronic conditions and many risk behaviors and risk factors, including smoking, obesity, social isolation, mental health impairment, hypertension and high cholesterol.

## Social and economic costs of chronic disease burden

Ohio's chronic disease burden not only translates into health challenges for individuals but also increased social and economic costs through health care expenditures and reduced workforce productivity. In one estimate, 60% of Americans who have one or more chronic conditions account for 90% of health care spending, and 28% who have three or more chronic conditions account for two thirds (67%) of health care spending.<sup>6</sup> Individuals with chronic disease and conditions are also especially vulnerable to high costs of care, which may be borne by insurance providers or the individuals themselves.<sup>7</sup> Chronic diseases can also result in employment challenges and are associated with higher rates of absenteeism from work,<sup>8</sup> and individuals with one or more chronic conditions are more likely to be unemployed.<sup>9</sup> This chart book thus investigates the association between chronic condition status and socio-economic factors including health insurance status (including Medicaid coverage status), income, educational attainment, and employment.

# OBJECTIVES

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This chart book has several interrelated objectives aimed at illustrating the state of chronic diseases and conditions in Ohio organized into the following four sections:

1. The first objective is documenting the prevalence of several chronic diseases and conditions, associated risk factors, and comorbidities among adults in Ohio. Prevalence is examined across important demographic indicators such as race/ethnicity, sex, age, and region.
2. The second objective is to document the intersection between selected chronic diseases and conditions, and risk behaviors such as smoking and risk factors such as obesity, social isolation, hypertension and high cholesterol.
3. The third objective is to document the intersection between selected chronic diseases and conditions and socio-economic factors such as health insurance status (including Medicaid coverage status), income level, educational attainment, and employment status.
4. The fourth objective is to document change over time in the prevalence of selected chronic conditions and diseases among adult Medicaid enrollees that are not historically available in OMAS.

# METHODS

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## Description of Data Sources

- This chart book used data from the Ohio Medicaid Assessment Survey (OMAS) series, Ohio Medicaid administrative data, and the Ohio Behavioral Risk Factor Surveillance System (BRFSS).

## Further Details on the 2019 OMAS

- The 2019 OMAS is an Ohio-specific assessment that provides health status and health system-related information about residential Ohioans at the state, regional and county levels, with a concentration on Ohio's Medicaid, Medicaid-eligible, and non-Medicaid populations. This multi-mode study collected data through a sample of landline and cellular phones in Ohio through random digit dialing, as well as by web-based and paper versions through address-based sampling.
- The main topics for OMAS are health care access, health care utilization, insurance status, chronic and acute health conditions, mental health, health risk behaviors, and health demographics such as employment, income, and socioeconomic indicators. These topics assist the Ohio Department of Medicaid and Ohio's other health-associated state and local agencies in identifying health services and system gaps and assists in developing strategies for improving health services to Ohio's population.
- OMAS is widely used for health system research and program development by Ohio's colleges and universities, state and local governments, private sector organizations, and policy makers. OMAS data have been used for grant applications, community health initiatives, academic publications and presentations, health system planning activities, and philanthropic activities. These uses comply with the OMAS project's purpose to serve Ohio's Medicaid population and the state's health and socioeconomic vulnerable populations.
- Medicaid administrative data including Medicaid claims and enrollment records were included in this report to assess the prevalence of conditions not covered in the 2019 OMAS but considered important in relation to work and chronic disease management, including chronic pain, COPD, and cancer. Analyses using Medicaid administrative data were limited to full-benefit enrollees in the Aged, Blind, Disabled (non-dually enrolled), Covered Families and Children, and Group VIII programs.
- Findings from the Ohio Department of Health's *The Impact of Chronic Disease in Ohio: 2015* were also used to provide additional context to findings from the 2019 OMAS.

# METHODS

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## Variable Definitions

- Any Chronic Disease/Condition is defined as having any one of the following diseases or conditions: myocardial infarction, coronary artery disease, congestive heart failure, stroke, diabetes, asthma, and arthritis. This was based off of the definition from Ohio Department of Health's in the Behavioral Risk Factor Surveillance System. This was further divided into having just one of the mentioned conditions or two or more.
- Associated Risk Factors For the purposes of this chartbook, hypertension and high cholesterol are referred to as "Associated Risk Factors".
- Heart Disease is defined as reporting a diagnosis of any of the following three conditions: myocardial infarction, coronary artery disease, and/or congestive heart failure.
- Binge drinking is defined as consuming four or more drinks in a sitting in the past month if an individual is female, or five or more drinks in a sitting in the past month if the individual is male.
- Loneliness is constructed as a count of the number of times a person answers 'sometimes or often' to questions about the frequency of lacking companionship, feeling left out, and feeling isolated from others.<sup>10</sup> Loneliness in this case can range from a count greater than or equal to three, but less than or equal to nine. Here, we consider the state of being lonely as having a score greater than or equal to six.
- Mental health impairment is the inability to work or carry out other normal daily activities due to mental health issues for at least 14 of the last 30 days.



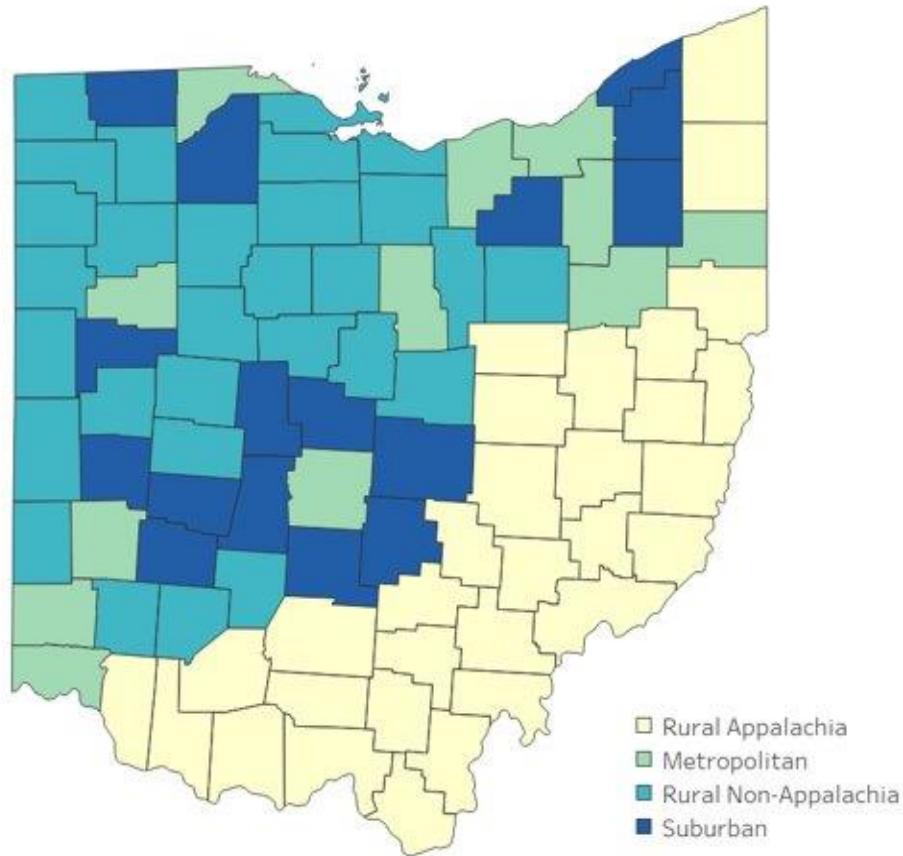
# METHODS

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## Variable Definitions *(cont.)*

- Smoking Status was divided into the follow three categories:
  - Current Smoker: Smoked at least 100 cigarettes in a lifetime and now smoking every day or some days.
  - Former Smoker: Smoked at least 100 cigarettes in a lifetime and now smoking rarely or not at all.
  - Never Smoker: No history of smoking at least 100 cigarettes in a lifetime.
- Current e-cigarette Use: Every day or some day use of e-cigarettes.
- Current Smokeless Tobacco Use: Every day or someday use of smokeless tobacco.
- Body Mass Index (BMI): Individual's weight in kg/height in meters<sup>2</sup> which was categorized as follows:
  - Underweight: BMI < 18.5
  - Normal: BMI 18.5 – 24.9
  - Overweight: BMI 25-29.9
  - Obese: BMI >= 30

# OMAS County Types



This chart book contains analyses that refer to county types, which are Ohio counties grouped into demographic characteristics. OMAS defines these county types in accordance with federal definitions, as follows: (1) Appalachia is defined using the Appalachian Regional Commission (ARC) standard; (2) Metropolitan is defined using US Census Bureau definitions incorporating urban areas and urban cluster parameters; (3) rural is defined by the Federal Office of Rural Health Policy at the Health Resources and Services Administration (HRSA), excluding Appalachian counties; and (4) suburban is defined by the US Census Bureau and is characterized as a mixed-use or predominantly residential area within commuting distance of a city or metropolitan area. These designations were originally set by the Ohio Department of Health in 1997 for the 1998 Ohio Family Health Survey (OFHS) and were slightly adjusted in 2004 and again adjusted in 2010 to include Ashtabula and Trumbull counties as Appalachian, in accordance with a federal re-designation. Guidance for these categories was provided by National Research Council's Committee on Population and Demography staff – for original designations and revisions.



**RESULTS: STATEWIDE  
PREVALENCE OF CHRONIC  
DISEASES AND CONDITIONS,  
ASSOCIATED RISK FACTORS,  
AND COMORBIDITIES IN OHIO**

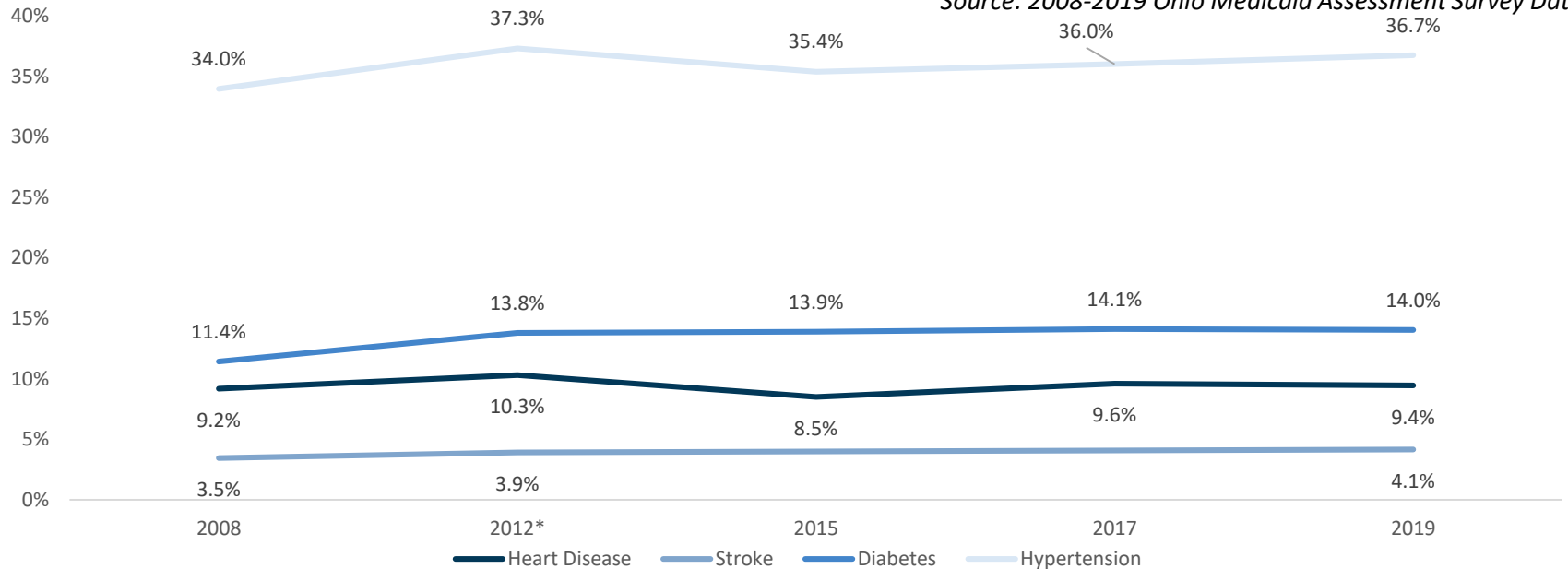
# Key Findings: Statewide Prevalence of Chronic Diseases & Conditions, Associated Risk Factors & Comorbidities in Ohio

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- The prevalence of several chronic conditions and associated risk factors among adult Ohioans increased sharply from 2008 to 2012 before leveling off. Following this trend was hypertension (which moved from 34.0% in 2008 to 37.3% in 2012 before fluctuating between 35.4% in 2015 and 36.7% in 2019), diabetes (which jumped from 11.4% in 2008 to 13.8% in 2012 and remained at 14.0% in 2019) and heart disease (which jumped from 9.2% in 2008 to 10.3% in 2012 before fluctuating between 8.5% in 2015 and 9.4% in 2019). For stroke, diabetes, and hypertension, the trends in terms of minimal or modest increase in prevalence is the same between the US and Ohio. However, in terms of absolute levels while stroke is very similar, Ohio is high in terms of hypertension and diabetes prevalence relative to the rest of the country.<sup>11</sup>
- Nearly half (47.8%) of Ohioans ages 19 years and older had been diagnosed with at least one of the following chronic diseases or conditions: arthritis, asthma, coronary heart disease, congestive heart failure, diabetes, heart attack, hypertension, or stroke. Nearly one-in-five (18.1%) had ever been told they had two or more chronic diseases or conditions.
- Women more often reported a diagnosis of a chronic disease or condition than men, with 50.1% reporting one or more disease or condition and 19.3% reporting two or more, compared to 45.5% of men reporting one or more conditions and 16.9% reporting two or more conditions. Women were more likely to report having arthritis or asthma, while men were more likely to report a diagnosis of hypertension or heart disease.
- Black or African American adults in Ohio had higher rates of hypertension (44.6% vs. 36.6% for whites) and diabetes (17.1% vs. 13.6% for whites). Both Black or African American as well as Hispanic adults in Ohio had higher rates of asthma compared to white Ohioans (22.1% for both vs 16.5% among whites).
- Residents of Appalachian counties were more likely to report a diagnosis of two or more chronic conditions compared to residents of Metropolitan, Suburban, or Rural non-Appalachian counties (21.6% vs 17.3%, 18.2%, and 17.5% respectively).

# Figure 1: Chronic Diseases, Conditions, & Associated Risk Factors among Ohioans Ages 19 Years & Older, 2008-2019

Source: 2008-2019 Ohio Medicaid Assessment Survey Data

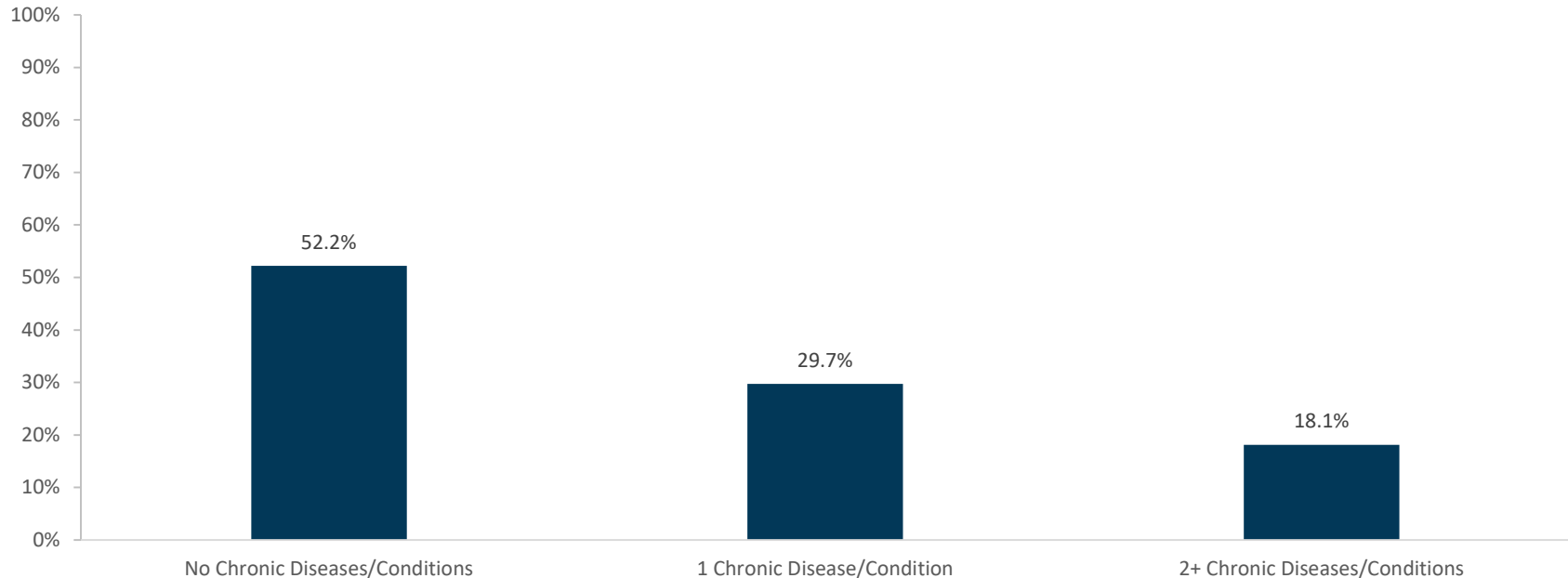


Note: Prevalence of stroke unavailable for 2015 & 2017 OMAS.

The prevalence of heart disease and stroke has remained relatively stable over the past decade among adult Ohioans, though an increase in prevalence of heart disease was noted in 2012. Similar jumps were observed in the prevalence of both hypertension (34.0% in 2008 to 37.3% in 2012) and diabetes (11.4% in 2008 to 13.8% in 2012) before both leveled out.

# Figure 2: Levels of Chronic Diseases & Conditions among Ohioans Ages 19 Years & Older

Source: 2019 Ohio Medicaid Assessment Survey Data

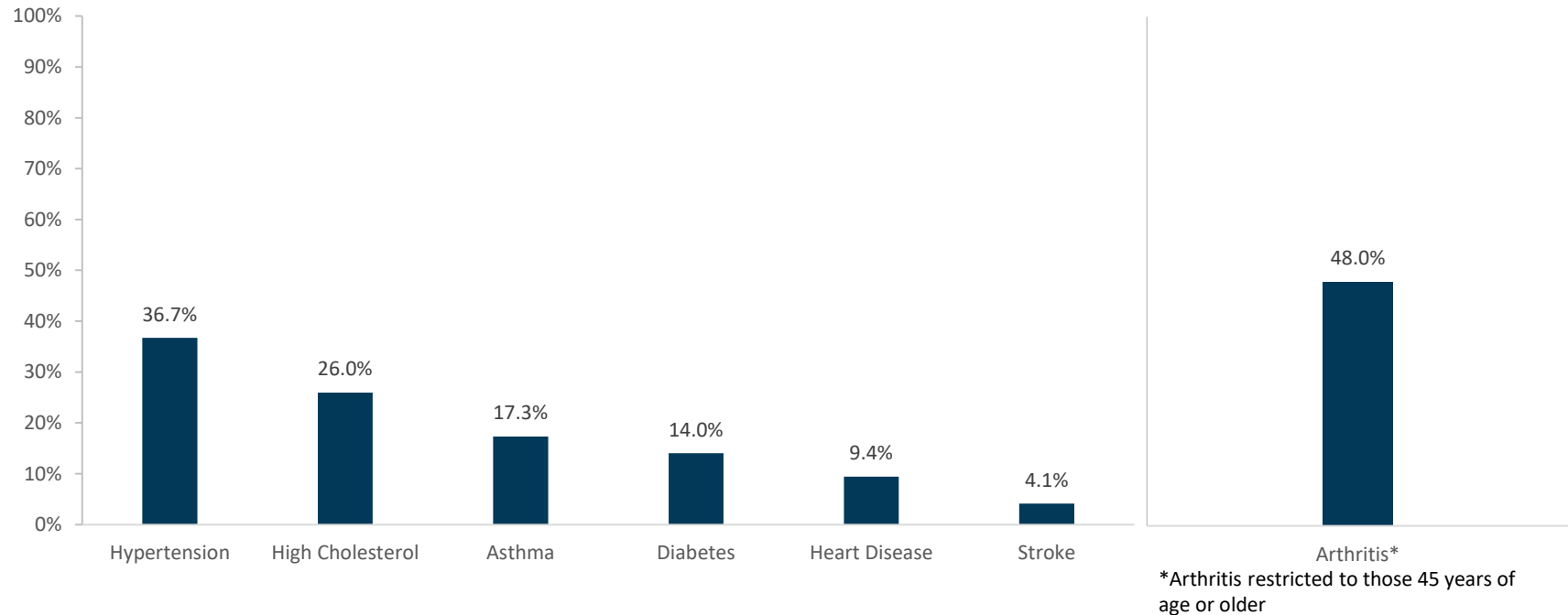


\*Note that hypertension and high cholesterol were not included when calculating level of chronic disease for consistency with the Ohio Behavioral Risk Factor Surveillance System definition.

Close to half (47.8%) of Ohioans ages 19 years and older report having one or more chronic diseases or conditions. The conditions which were included were arthritis, diabetes, stroke, heart attack, coronary heart disease, or congestive heart failure. The prevalence of chronic diseases and conditions in Ohio is of special concern more recently given the relationship between several of these conditions and increased risk of complications and infection with COVID-19.<sup>12</sup>

# Figure 3: Chronic Diseases, Conditions, & Associated Risk Factors among Ohioans Ages 19 Years & Older\*

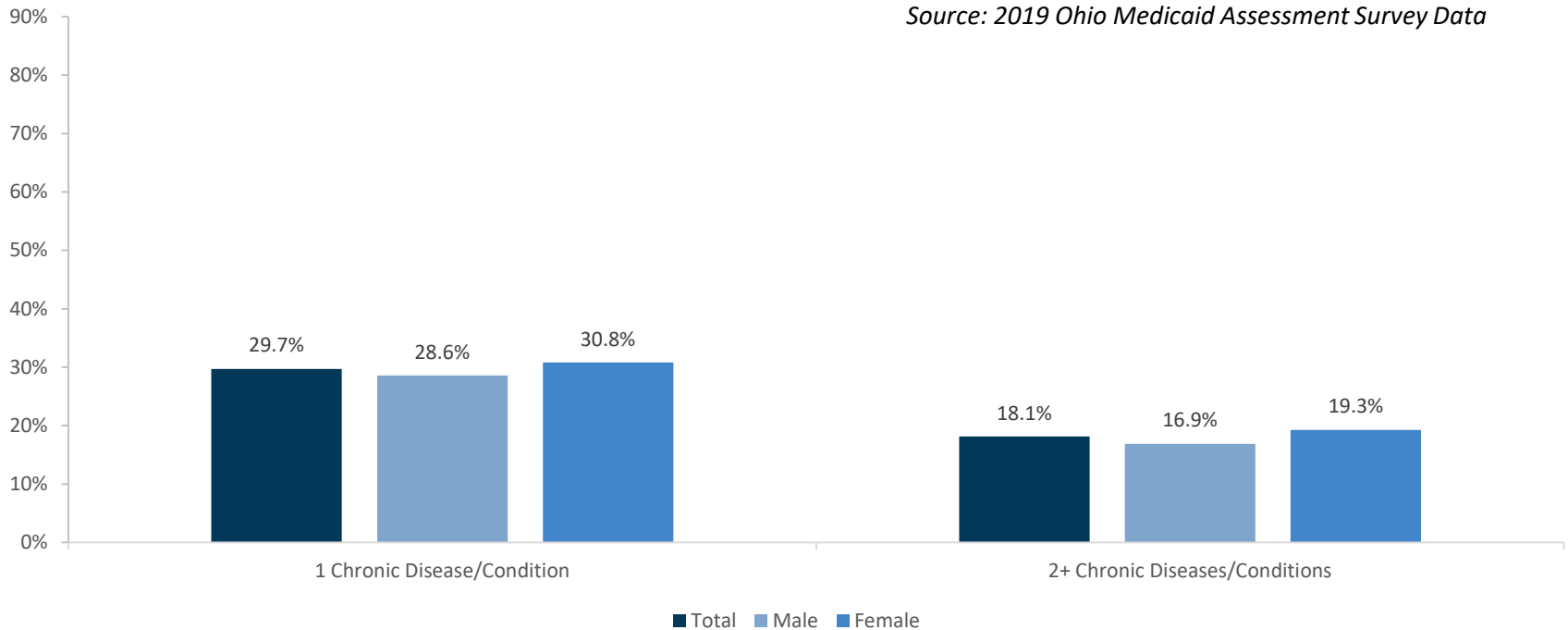
Source: 2019 Ohio Medicaid Assessment Survey Data



Nearly half (48%) of Ohioans 45 years of age or older reported having some form of arthritis, including rheumatoid, gout, lupus, or fibromyalgia. Hypertension was the most frequently reported condition among Ohioans ages 19 years and older. As an associated risk factor for chronic disease, hypertension contributes to increased risk for heart disease and stroke, two of the leading causes of death nationally.<sup>13</sup> Of special concern during the global COVID-19 pandemic is the association between hypertension, heart disease, and diabetes with increased risk of severe disease and mortality from COVID-19.<sup>14</sup>

# Figure 4: Levels of Chronic Diseases & Conditions among Ohioans Ages 19 Years & Older, by Sex

Source: 2019 Ohio Medicaid Assessment Survey Data

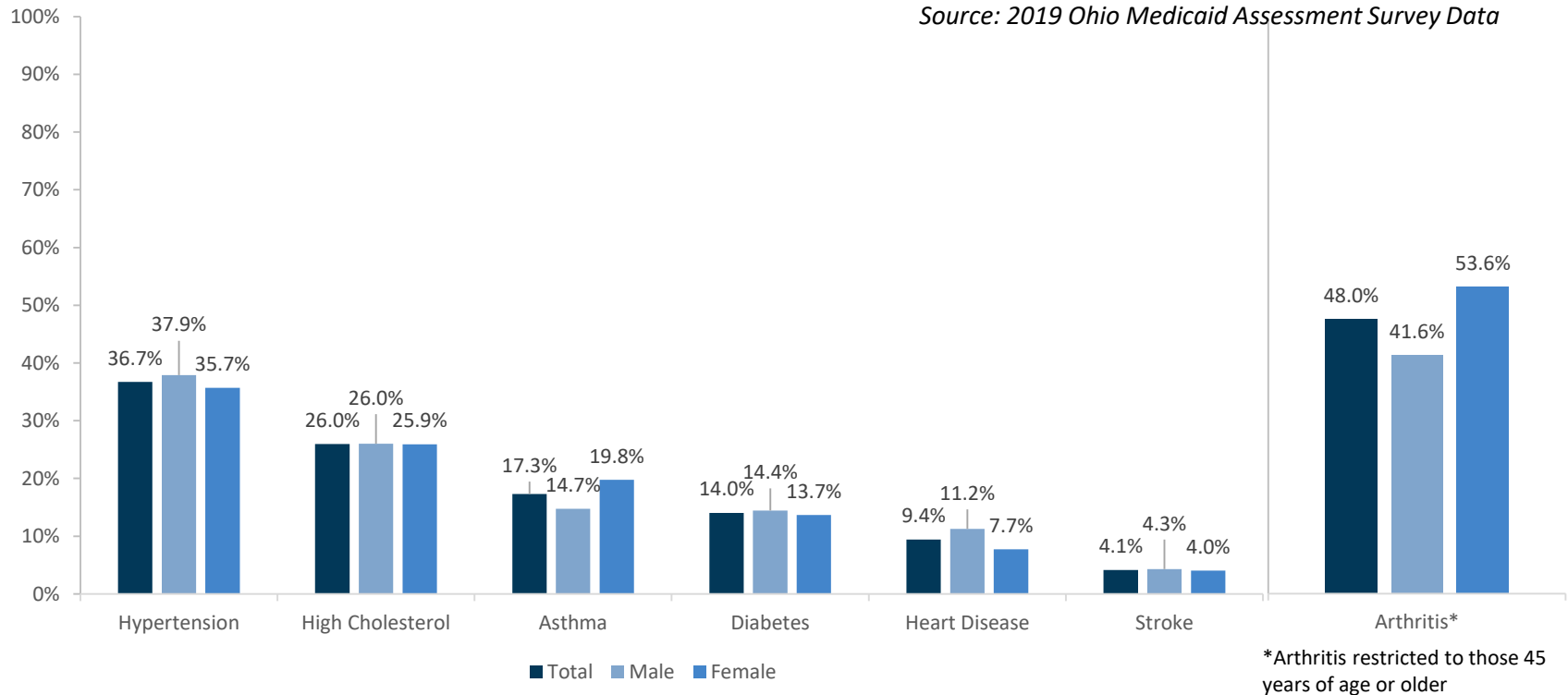


\*Note that hypertension and high cholesterol were not included when calculating level of chronic disease for consistency with the Ohio Behavioral Risk Factor Surveillance System definition.

Adult women were more likely than men to report having a chronic disease or condition (50.1% reported one or more chronic condition vs 45.5% for men). The conditions which were included in this analyses were arthritis, diabetes, stroke, heart attack, coronary heart disease, or congestive heart failure.



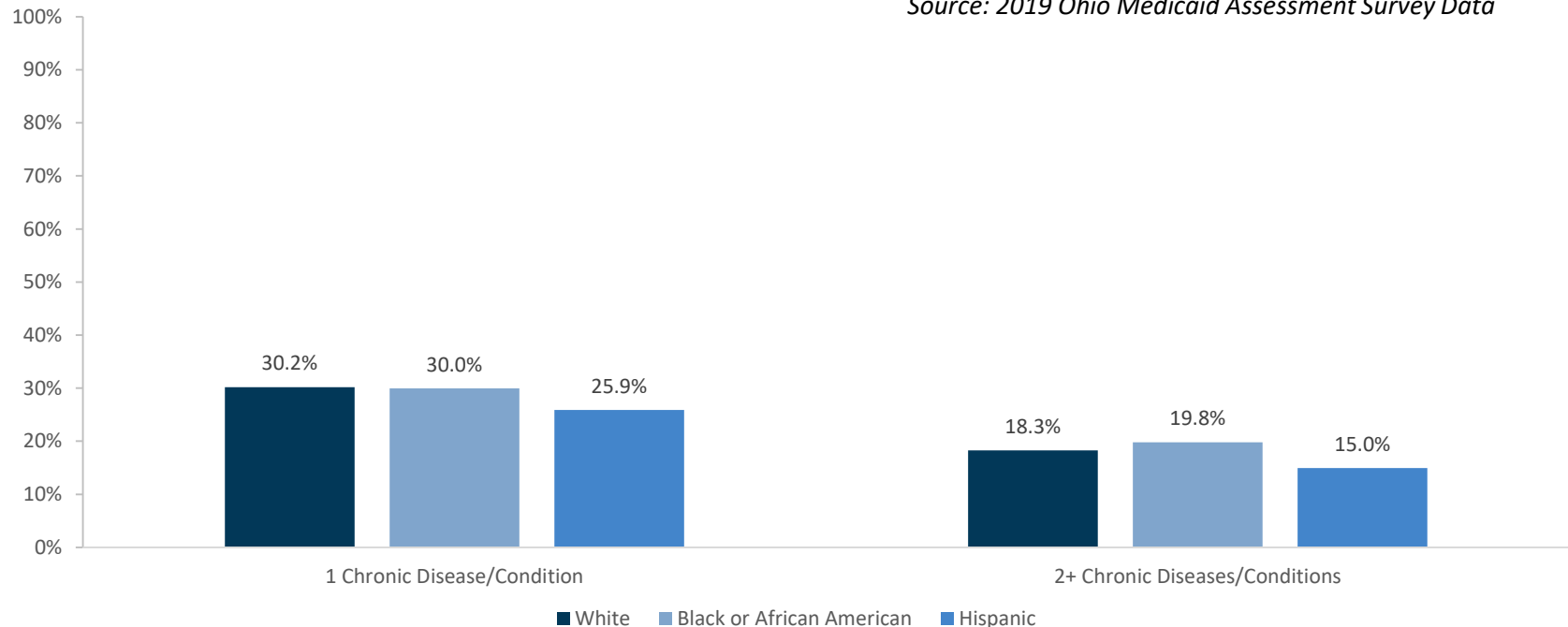
# Figure 5: Chronic Diseases & Conditions, & Associated Risk Factors among Ohioans Ages 19 Years & Older, by Sex



Compared to men, women more often reported receiving a diagnosis for arthritis (53.6% in women vs 41.6% in men), and asthma (19.8% women vs 14.7% for men). Men were more likely to report having a diagnosis of hypertension (37.9% in men vs. 35.7% in women) or heart disease (11.2% for men vs. 7.7% for women).

# Figure 6: Levels of Chronic Diseases & Conditions among Ohioans Ages 19 Years & Older, by Race/Ethnicity, 2019

Source: 2019 Ohio Medicaid Assessment Survey Data

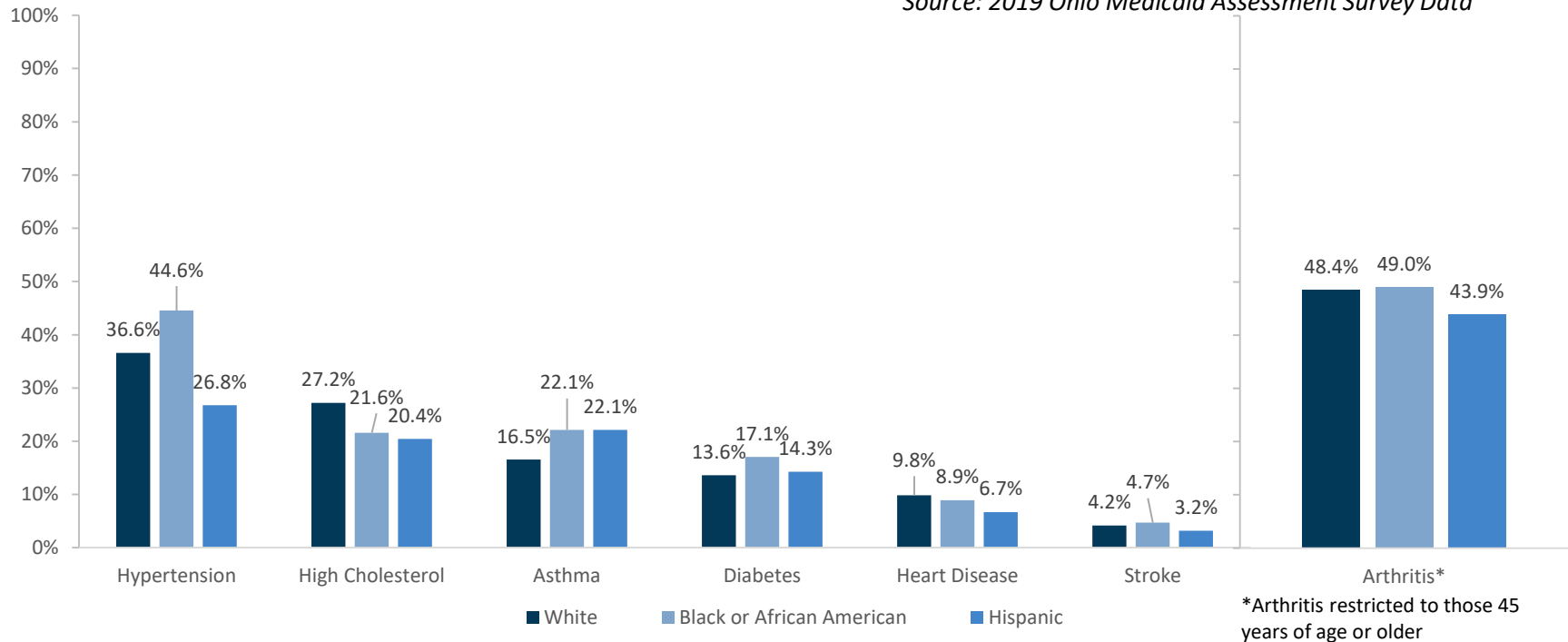


\*Note that hypertension and high cholesterol were not included when calculating level of chronic disease for consistency with the Ohio Behavioral Risk Factor Surveillance System definition.

Both white and Black or African American Ohioans 19 years of age or older were more likely to have two or more chronic diseases or conditions compared to Hispanic respondents (18.3% for white and 19.8% for Black or African American vs. 15.0% for Hispanic race). Black or African American, and Hispanic are defined as mutually exclusive groups for this analysis.

# Figure 7: Chronic Diseases, Conditions, & Associated Risk Factors among Ohioans Ages 19 Years & Older, by Race/Ethnicity, 2019

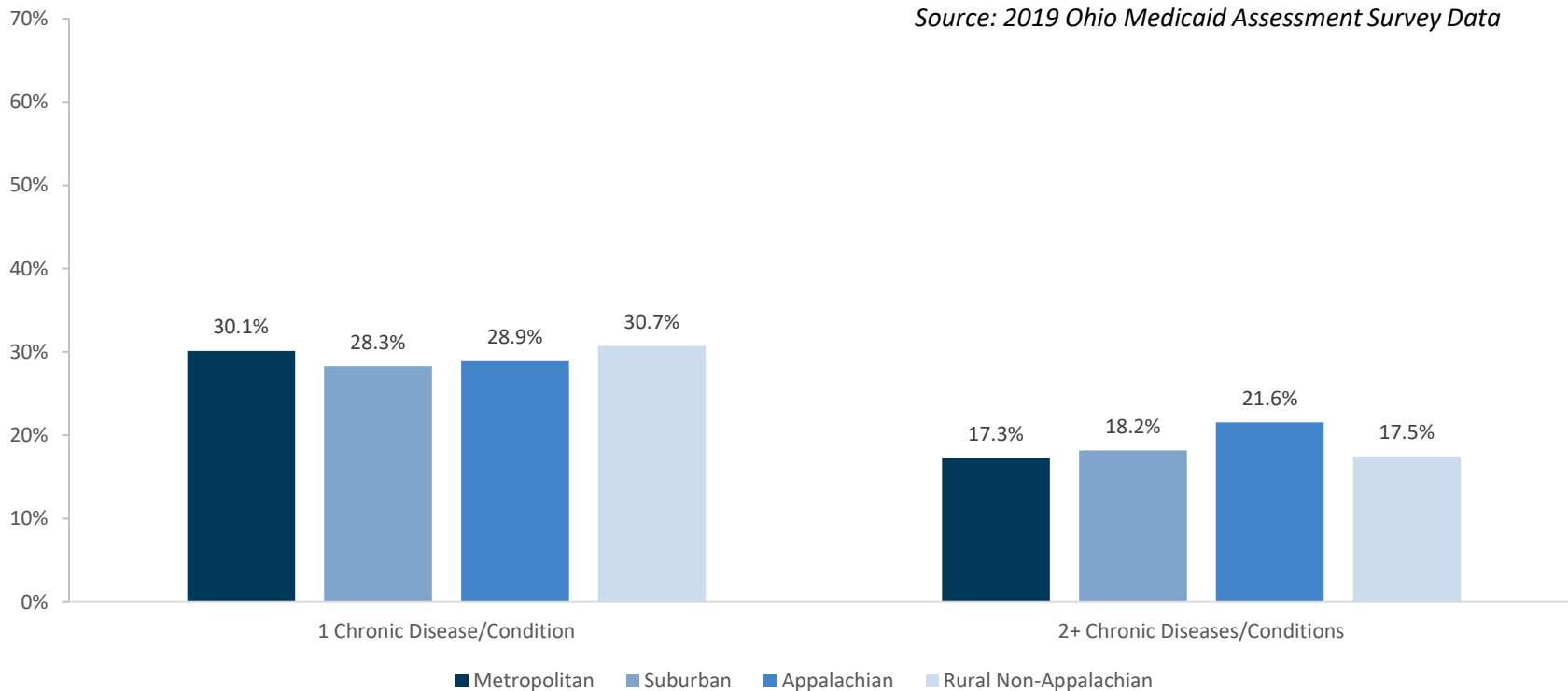
Source: 2019 Ohio Medicaid Assessment Survey Data



Black or African American adults in Ohio had higher rates of hypertension (44.6%) and diabetes (17.1%) compared to whites (36.6% and 13.6% respectively). Both Black or African American as well as Hispanic adults in Ohio also had higher rates of asthma compared to white Ohioans (22.1% vs 16.5%). It is also important to note that though rates of heart disease may be lower compared to white Ohioans, black or African American adults in Ohio experienced higher rates of heart disease-related mortality.<sup>3</sup>

# Figure 8: Levels of Chronic Diseases & Conditions among Ohioans Ages 19 Years & Older, by OMAS County Type, 2019

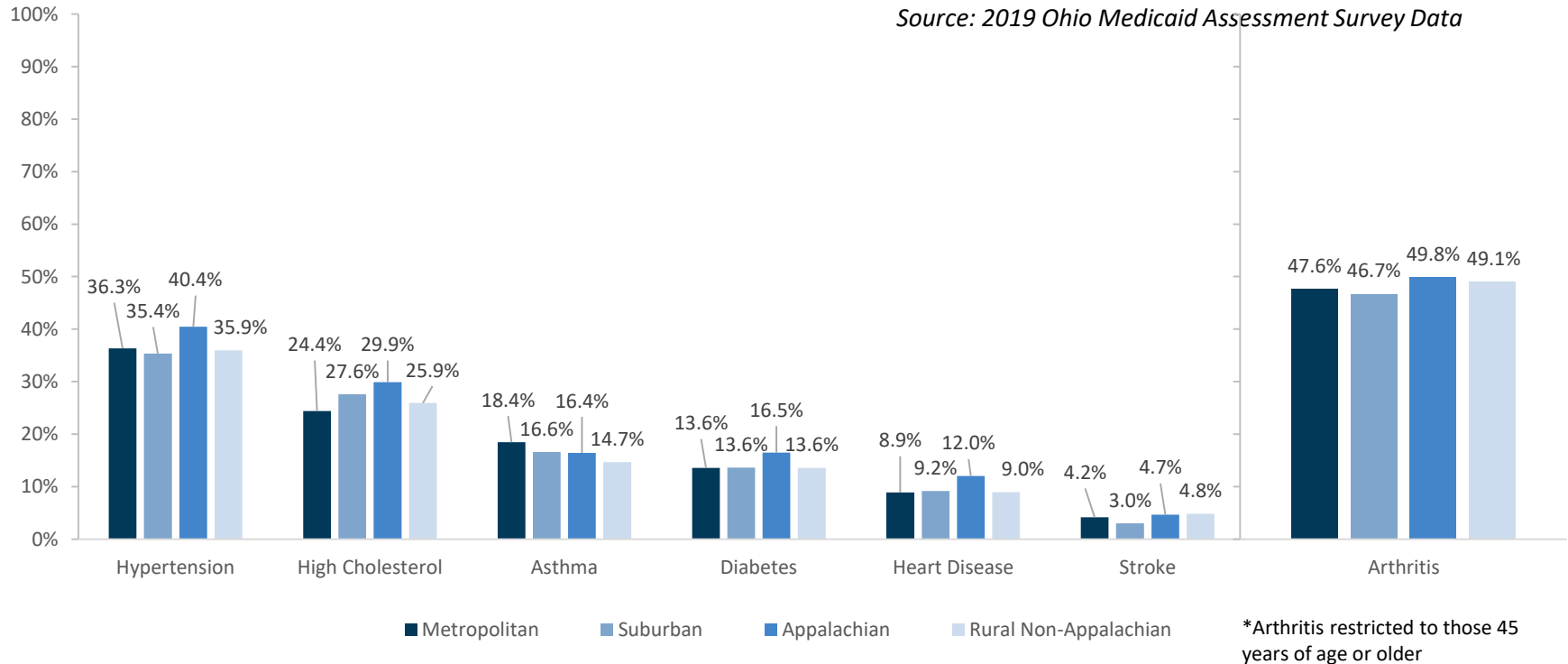
Source: 2019 Ohio Medicaid Assessment Survey Data



\*Note that hypertension and high cholesterol were not included when calculating level of chronic disease for consistency with the Ohio Behavioral Risk Factor Surveillance System definition.

Across the four county types as classified in the OMAS, there was no significant difference in the number of Ohioans with one chronic disease or condition. However, more adult Ohioans in Appalachian counties reported a diagnosis of two or more chronic diseases or conditions compared to those in metropolitan, suburban, and rural non-Appalachian counties (21.6% vs 17.3%, 18.2%, and 17.5%, respectively).

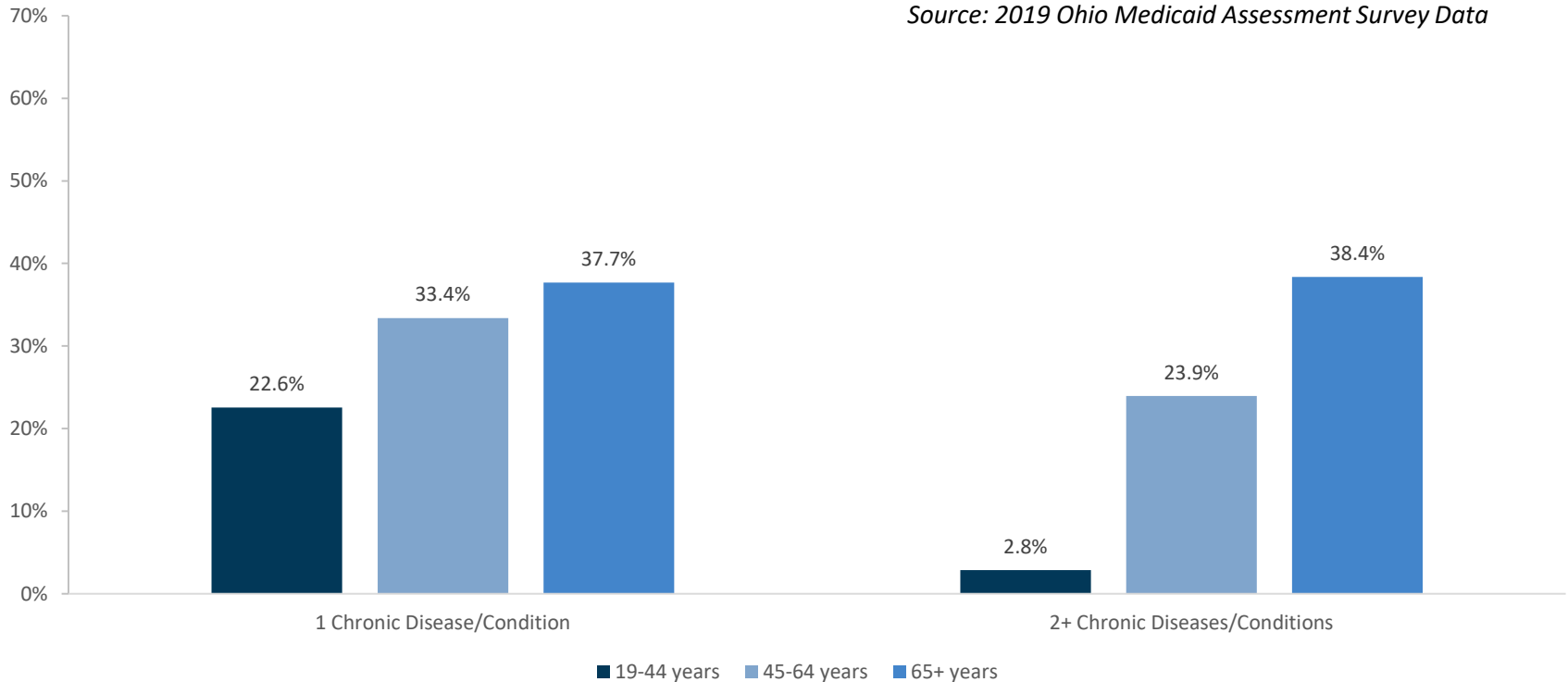
# Figure 9: Chronic Diseases, Conditions, & Associated Risk Factors among Ohioans Ages 19 Years & Older, by OMAS County Type, 2019



Diabetes, heart disease, and hypertension were reported more often among Appalachian residents than for residents in metropolitan, suburban or rural non-Appalachian counties. Asthma was most often reported among residents in metropolitan counties compared to other OMAS county types.

# Figure 10: Chronic Diseases & Conditions among Ohioans Ages 19 Years & Older, by Categorized Age in Years, 2019

Source: 2019 Ohio Medicaid Assessment Survey Data

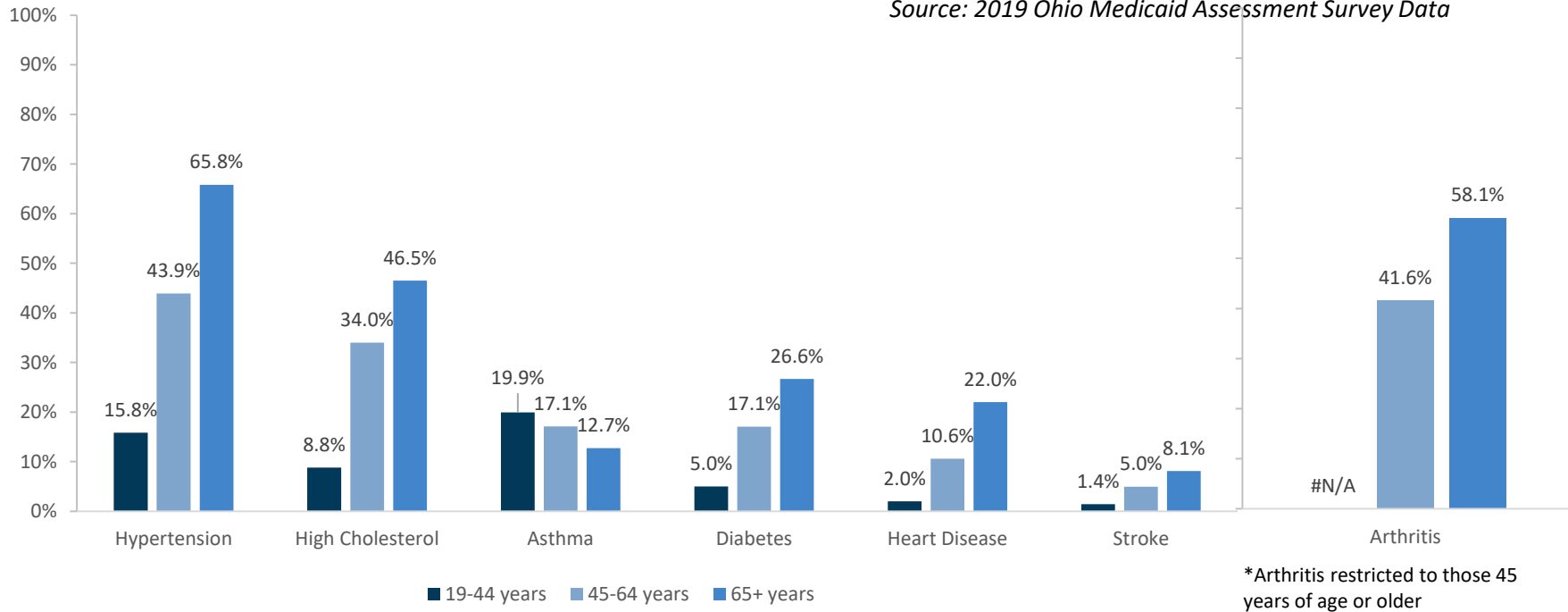


\*Note that hypertension and high cholesterol were not included when calculating level of chronic disease for consistency with the Ohio Behavioral Risk Factor Surveillance System definition.

The incidence of chronic diseases and conditions generally increases with age. More than one third (37.7%) of Ohioans over age 65 had one chronic condition, compared to 33.4% for Ohioans ages 45-64 and only 22.6% for ages 19-44. Older individuals are also more likely to experience multiple co-morbidities.<sup>15</sup> In Ohio, nearly four in ten (38.4%) of those age 65 or older reported two or more chronic conditions compared to 2.8% for adults ages 19-44.

# Figure 11: Chronic Diseases, Conditions, & Associated Risk Factors among Ohioans Ages 19 Years & Older, by Categorized Age in Years, 2019

Source: 2019 Ohio Medicaid Assessment Survey Data



The proportion of Ohioans reporting individual chronic diseases, conditions, and associated risk factors generally increased with age. Hypertension was most commonly reported condition, especially among those 65 years of age or older (65.8% vs. 15.8% for adults ages 19-44). While it is not a chronic condition itself, hypertension contributes to increased risk for heart disease and stroke, two of the leading causes of death nationally.<sup>13</sup> The one condition that followed a different pattern was asthma, which was more commonly reported among younger individuals (19.9% among those 19-44 years of age vs 12.7% for individuals age 65 and over).

The background of the slide is a solid blue color. Overlaid on this background are several faint, semi-transparent silhouettes of hands. One hand in the foreground is holding a white Contour brand glucose meter. The meter has a circular display screen and several buttons. The word 'CONTOUR' is printed vertically on the side of the device. The overall aesthetic is clean and professional, suggesting a medical or health-related theme.

**RESULTS: HEALTH RISK  
BEHAVIORS AND ASSOCIATED  
RISK FACTORS BY CHRONIC  
CONDITION STATUS**



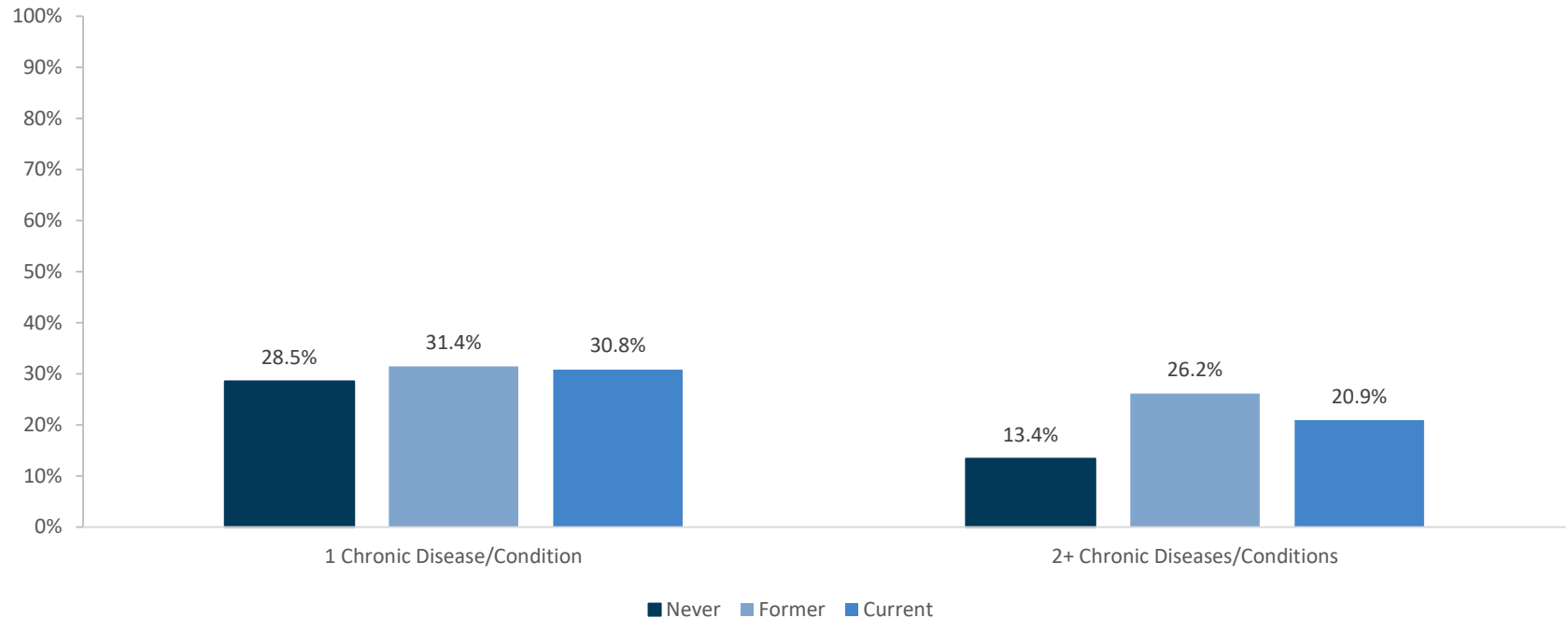
# Key Findings: Health Risk Behaviors & Associated Risk Factors by Chronic Condition Status

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- Current and former smokers were more likely than never smokers to have at least one chronic disease or condition, with former smokers more likely than both current and never smokers to have two or more chronic diseases or conditions (26.2% vs 20.9% and 13.4% respectively).
- Being overweight or obese also increases the risk of developing chronic conditions, such as heart disease, stroke, diabetes, and cancer. Among individuals who were overweight or obese, there was a higher prevalence of chronic conditions compared to those with a normal BMI. More than three in ten (30.9%) overweight individuals and 31.6% of obese individuals had one chronic condition compared to 25.8% among those with normal BMI.
- The prevalence of chronic diseases, conditions, and associated risk factors was greater among those flagged for higher levels of loneliness or social isolation compared to lower levels of loneliness, including diabetes (18.1% vs 13.1%), heart disease (14.1% vs 8.5%), and stroke (7.0% vs 3.3%).
- Levels of chronic diseases and conditions were higher among those with associated risk factors such as hypertension or high cholesterol. For example, individuals who were hypertensive were more likely to have diabetes (27.7% vs 6.1% among non-hypertensive individuals), heart disease (20.2% vs 3.3%), and stroke (8.0% vs. 1.9%). Additionally, individuals with high cholesterol levels were more likely to report a diagnosis of hypertension (67.1% vs 26.0%), diabetes (30.2% vs 8.3%), heart disease (21.5% vs 5.2%), and stroke (9.2% vs 2.3%).

# Figure 12: Levels of Chronic Disease among Ohioans Ages 19 Years & Older, by Smoking Status, 2019

Source: 2019 Ohio Medicaid Assessment Survey Data

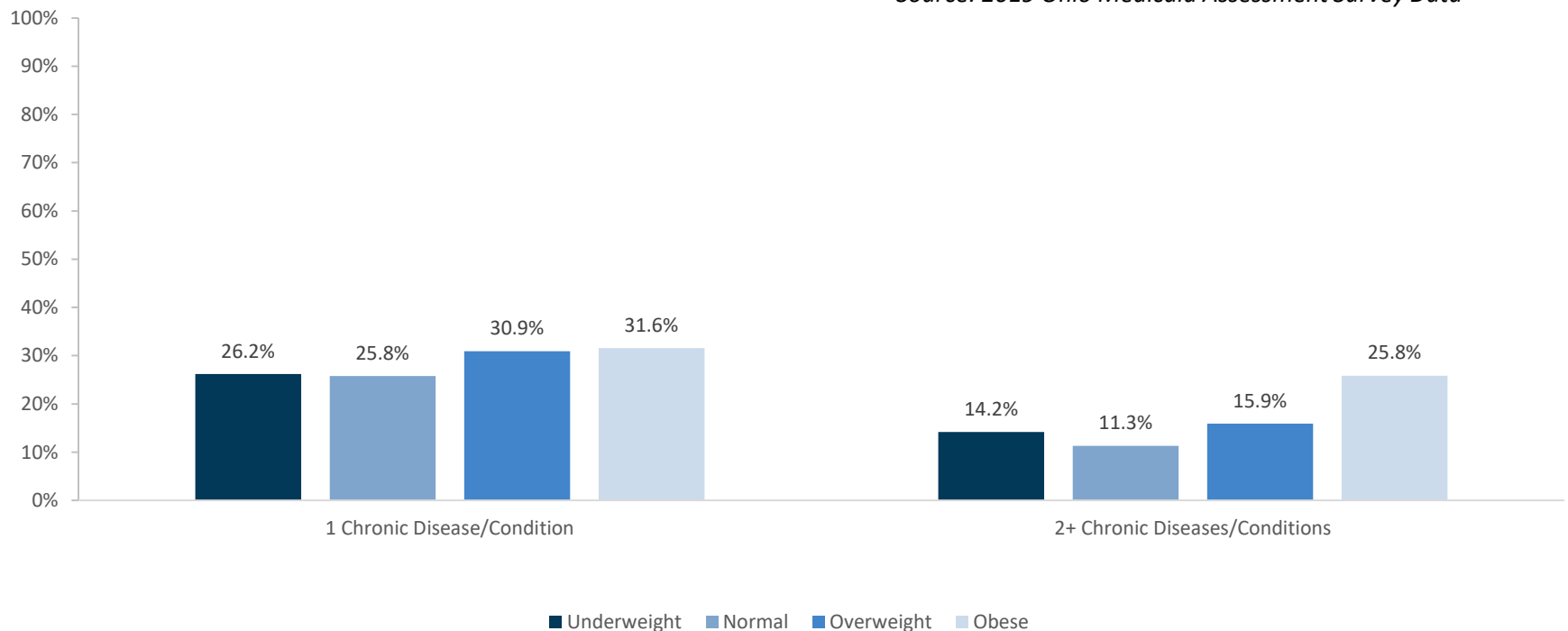


\*Note that hypertension and high cholesterol were not included when calculating level of chronic disease for consistency with the Ohio Behavioral Risk Factor Surveillance System definition.

Risk behaviors, such as smoking, can contribute to the development of chronic diseases and conditions.<sup>16</sup> In 2019 OMAS data, those who were current and former smokers were more likely than never smokers to have at least one chronic disease or condition (51.7% for current smokers and 57.6% for former smokers vs 41.9% for nonsmokers). Former smokers were more likely than both current and never smokers to have two or more chronic diseases and conditions, and current smokers were more likely than never smokers to have two or more chronic disease or conditions (26.2% for former smokers vs 20.9% for current smokers vs 13.4% for nonsmokers).

# Figure 13: Levels of Chronic Disease among Ohioans Ages 19 Years & Older, by Body Mass Index (BMI), 2019

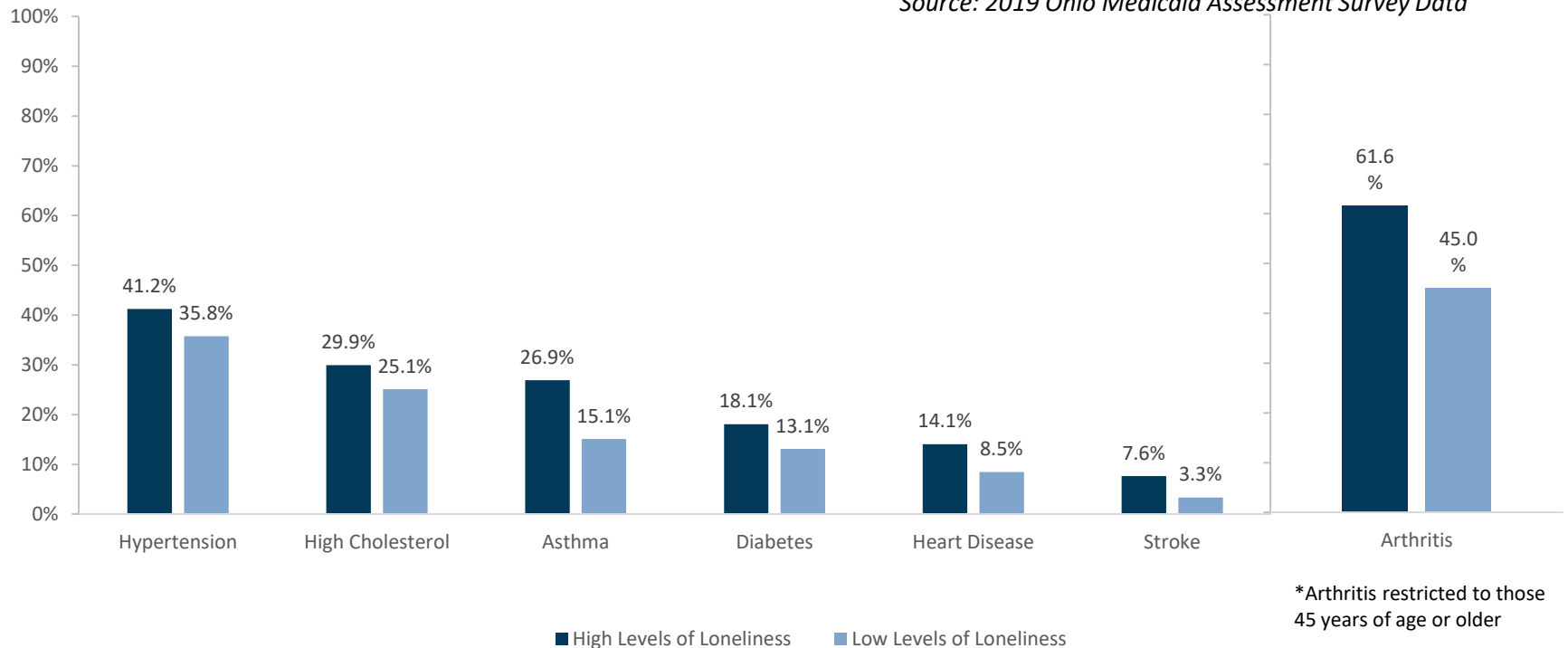
Source: 2019 Ohio Medicaid Assessment Survey Data



The presence of risk factors such as high body mass index (BMI) contribute to many chronic conditions. Being overweight or obese increases the risk of developing heart disease, stroke, diabetes, and cancer.<sup>17</sup> Among individuals who were obese or overweight there was a higher prevalence of one chronic condition compared to those with a normal BMI (31.6% for obese 30.9% for overweight vs. 25.8% for normal BMI). A higher prevalence was also seen for two or more chronic conditions (25.8% for obese 15.9% for overweight vs. 11.3% for normal BMI).

# Figure 14: Chronic Conditions and Associated Risk Factors Among Ohioans Ages 19 Years and Older, by Levels of Loneliness (Social Isolation), 2019

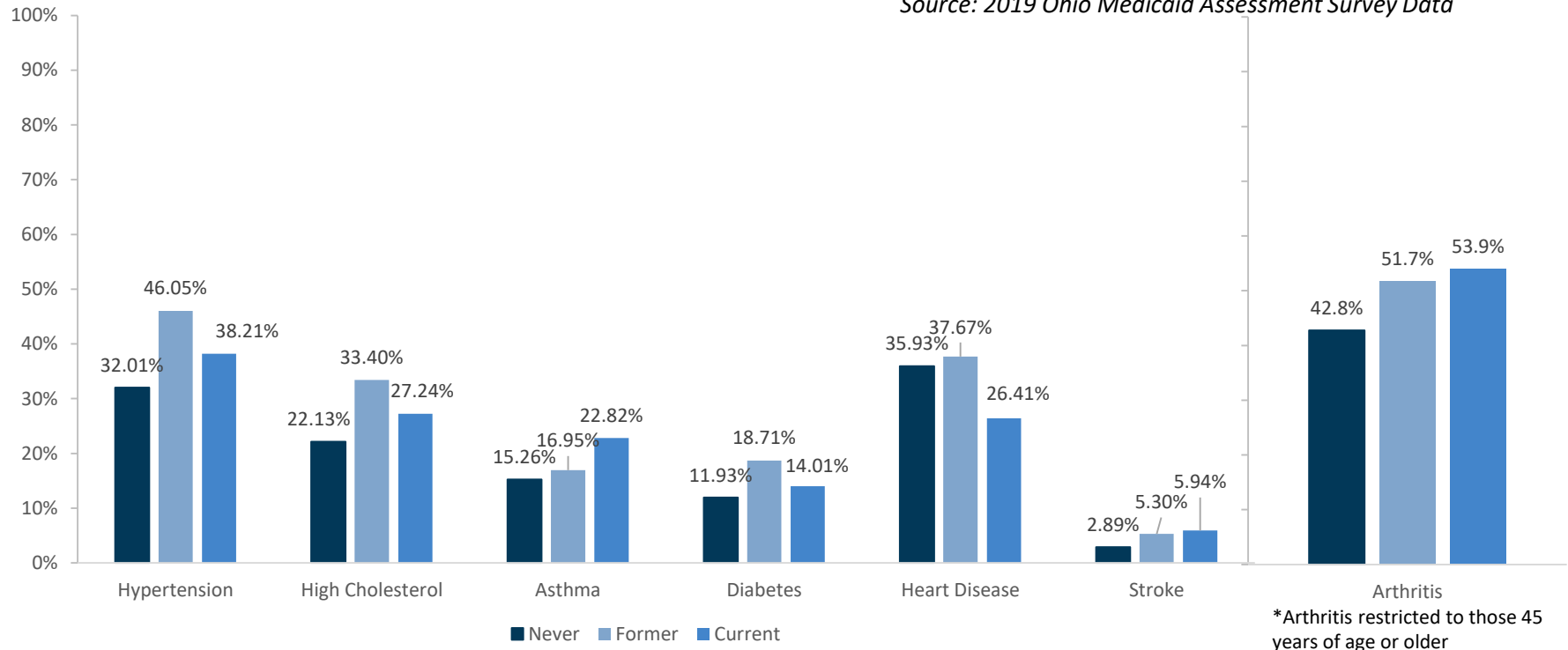
Source: 2019 Ohio Medicaid Assessment Survey Data



Loneliness, or social isolation, is associated with many chronic conditions.<sup>18</sup> Here the loneliness measure is created based on the frequency of answering “sometimes or often” to three questions about lack of companionship, feeling left out, and feeling isolated with a minimum possible score of three and a high score of nine.<sup>10</sup> A person with a score between six and nine is counted as experiencing high levels of social isolation. In the 2019 OMAS, there was a positive relationship between chronic diseases, conditions, and associated risk factors and the prevalence of loneliness. Across all noted conditions, those with a diagnosis were more likely to have high levels of loneliness. For instance, 18.1% of those flagged for high levels of loneliness also reported a diabetes diagnosis compared to 13.1% among those who experienced low levels of loneliness.

# Figure 15: Chronic Conditions & Associated Risk Factors among Ohioans Ages 19 Years & Older, by Smoking Status, 2019

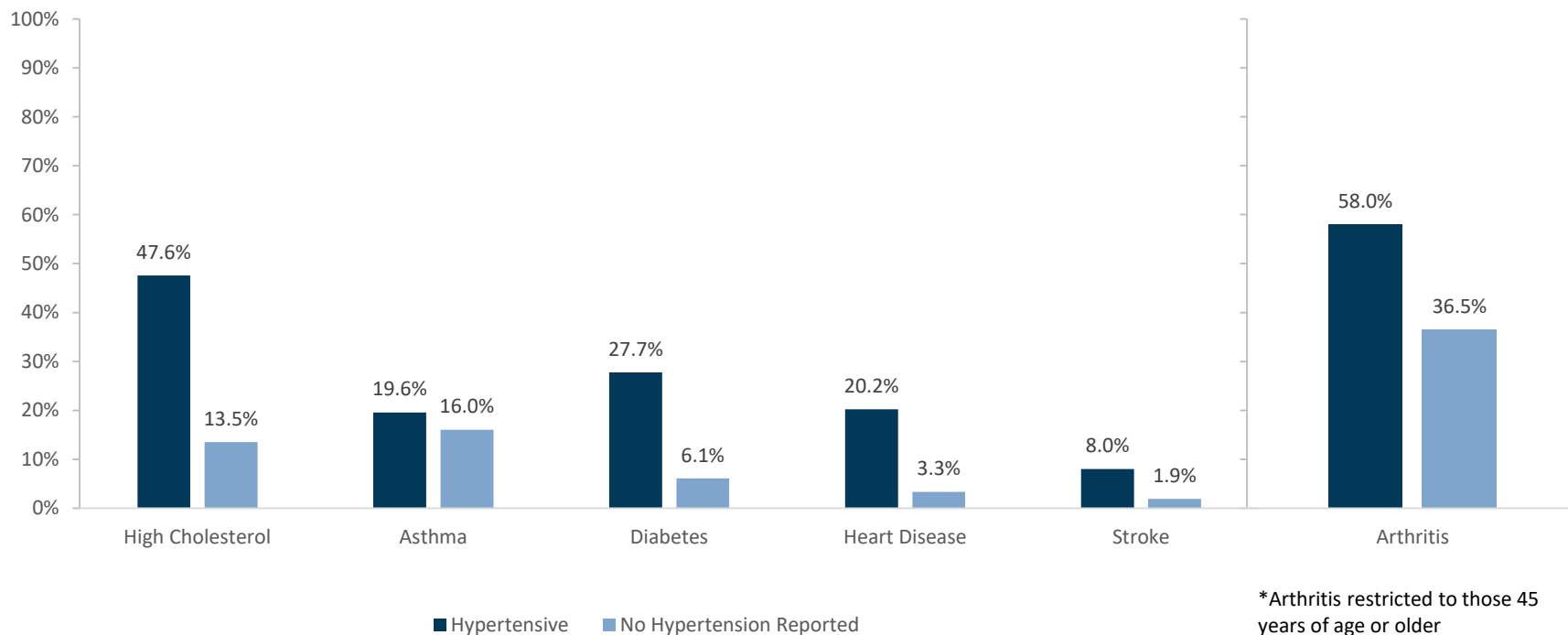
Source: 2019 Ohio Medicaid Assessment Survey Data



Current and prior smoking status was associated with all chronic conditions in the 2019 OMAS. Former smokers were more likely than both current smokers and those who never smoked to have heart disease, diabetes, and hypertension, and current smokers were more likely to report an asthma diagnosis. Both current and former smokers were more likely than non-smokers to have had a stroke. It is important to note that among the age group where chronic conditions were most prevalent, those 65 years or older (Slide 23), 11.0% were current smokers while 38.2% were former smokers.

# Figure 16: Chronic Conditions Among Ohioans Ages 19 Years and Older, by Hypertensive Status, 2019

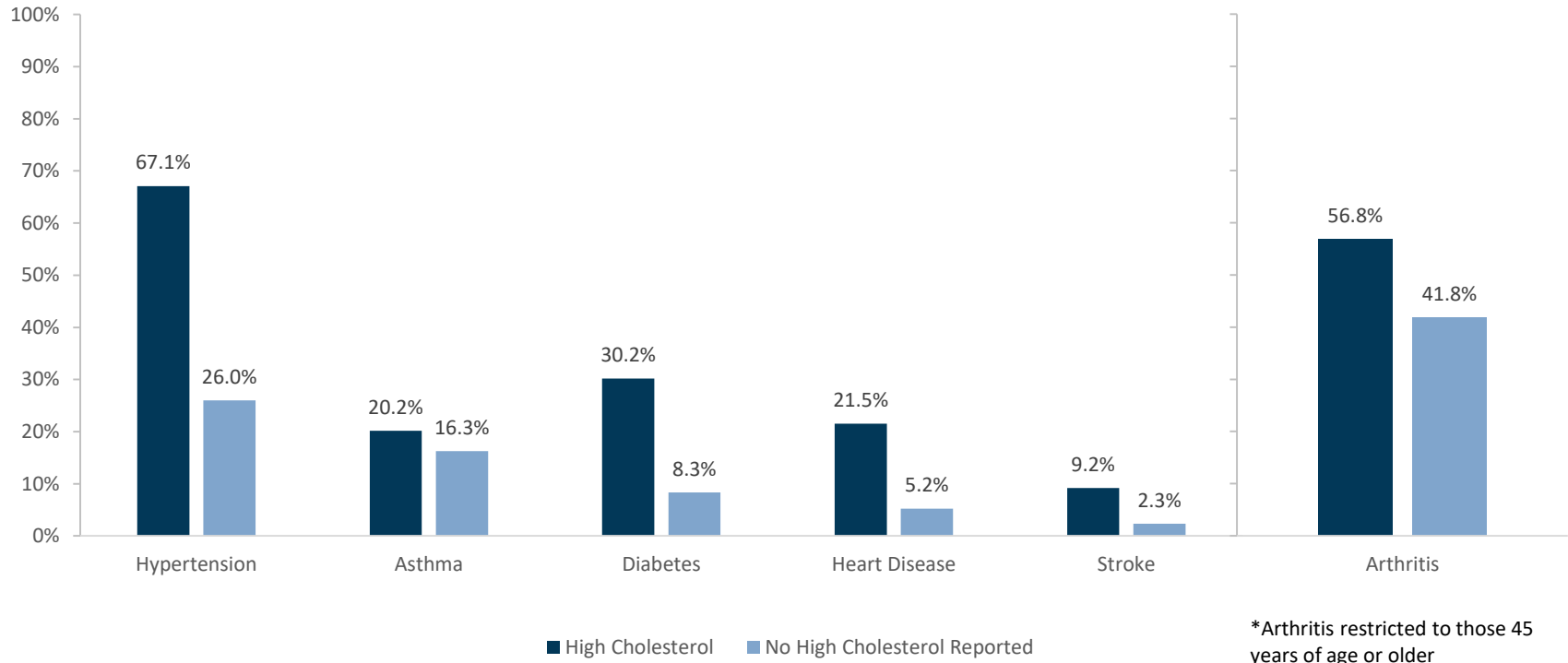
Source: 2019 Ohio Medicaid Assessment Survey Data



Hypertension, or high blood pressure, is a risk factor associated with several chronic conditions, including heart disease, stroke, and kidney disease.<sup>5</sup> 2019 OMAS respondents with hypertension were more likely to also report having heart disease, stroke, diabetes, asthma, and arthritis.

# Figure 17: Chronic Conditions & Associated Risk Factors among Ohioans Ages 19 Years & Older, by High Cholesterol Status, 2019

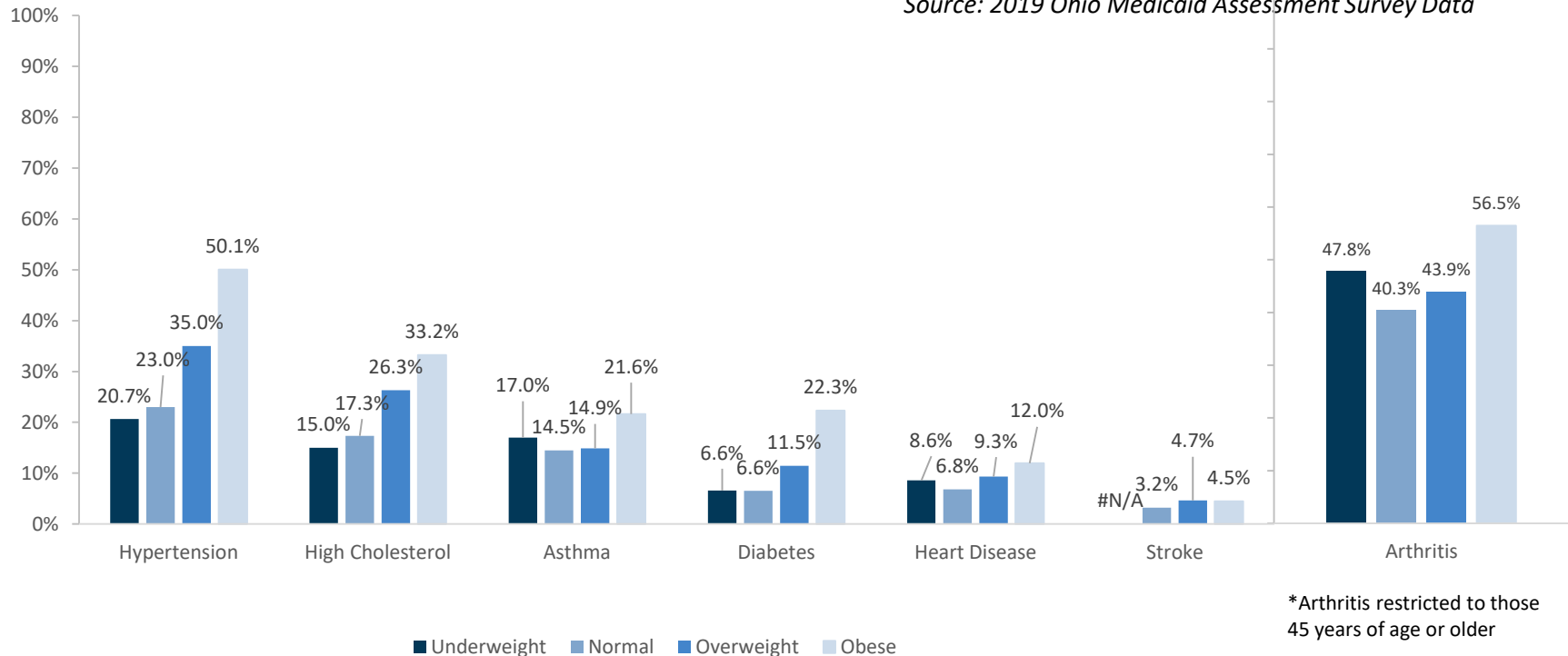
Source: 2019 Ohio Medicaid Assessment Survey Data



Higher levels of cholesterol can lead to increased risk for chronic disease, particularly heart attack and stroke.<sup>19</sup> 2019 OMAS respondents with high cholesterol were more likely than those with normal cholesterol levels to have heart disease, stroke, diabetes, asthma, arthritis, or hypertension.

# Figure 18: Chronic Conditions & Associated Risk Factors among Ohioans Ages 19 Years & Older, by Body Mass Index (BMI), 2019

Source: 2019 Ohio Medicaid Assessment Survey Data

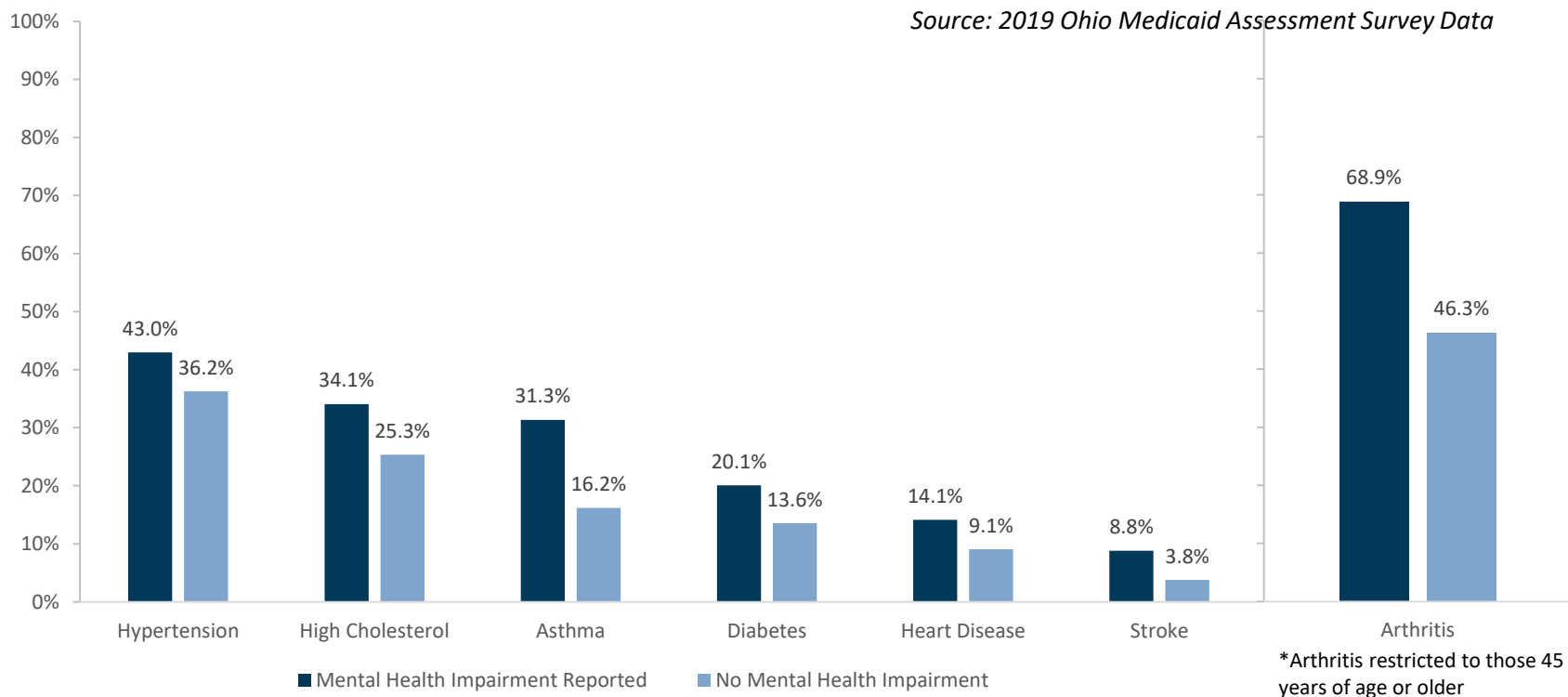


#N/A: Result suppressed as estimate was considered unreliable (relative standard error > 30%)

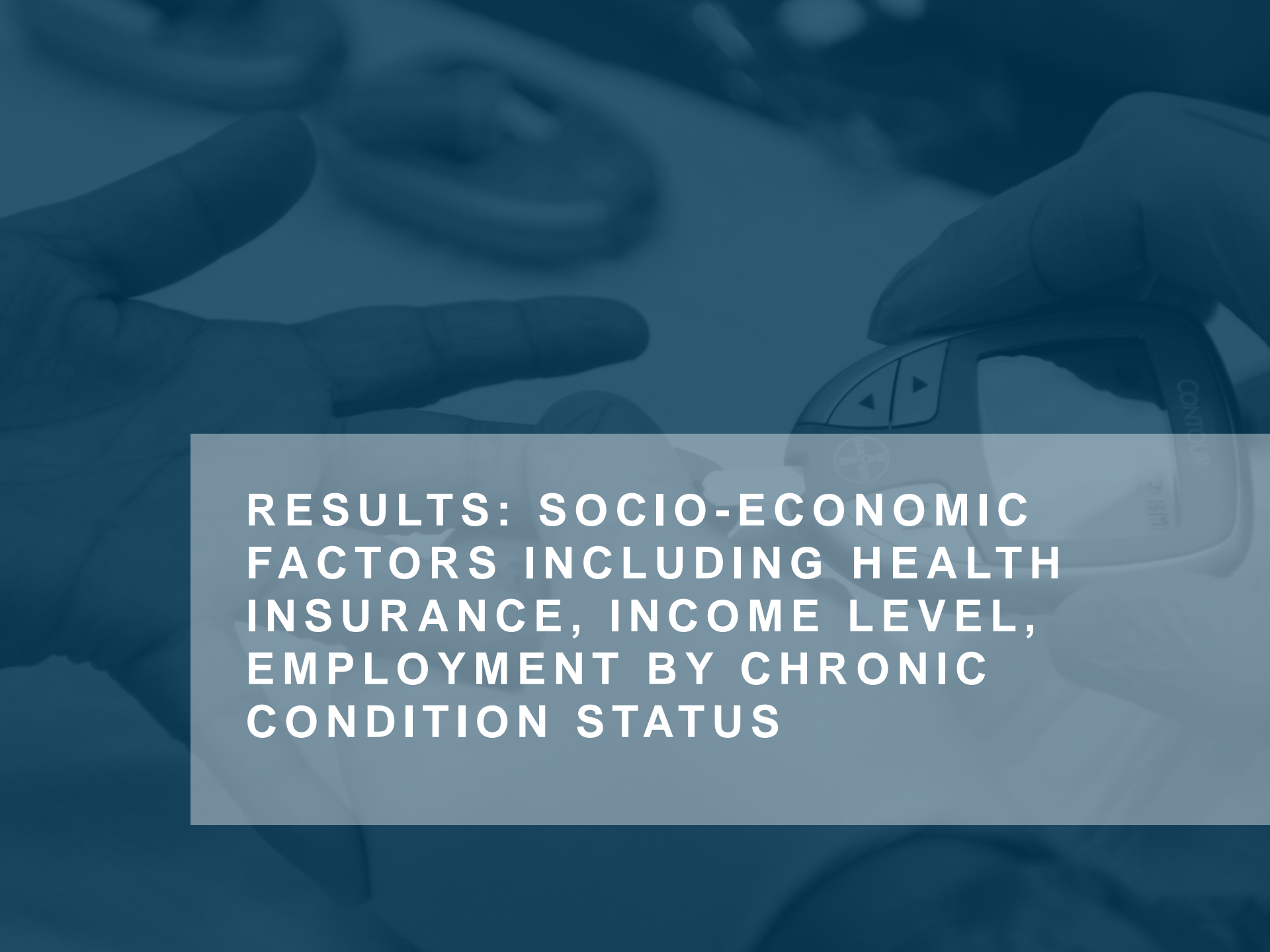
Being overweight or obese is linked to increased risk for many serious health conditions relative to those within a normal BMI.<sup>18</sup> Among those classified as overweight or obese, the prevalence of conditions such as hypertension, high cholesterol, diabetes, heart disease, and stroke were elevated relative to those with normal BMI. The prevalence of asthma was highest among those classified as obese (21.6%), as was arthritis (56.5%).



# Figure 19: Chronic Conditions & Associated Risk Factors Among Ohioans Ages 19 Years & Older, by Mental Health Impairment (MHI), 2019



Mental health impairment (MHI), defined as inability to work or other normal daily activities due to mental health issues for at least 14 of the last 30 days, was associated with the presence of chronic diseases/conditions. Those with mental health impairment were also more likely to report a diagnosis of conditions such as asthma (31.3% vs 16.2%), diabetes (20.1% vs 13.6%), heart disease (14.1% vs 9.1%), stroke (8.8% vs 3.8%) and arthritis (68.9% vs 46.3%).



**RESULTS: SOCIO-ECONOMIC  
FACTORS INCLUDING HEALTH  
INSURANCE, INCOME LEVEL,  
EMPLOYMENT BY CHRONIC  
CONDITION STATUS**

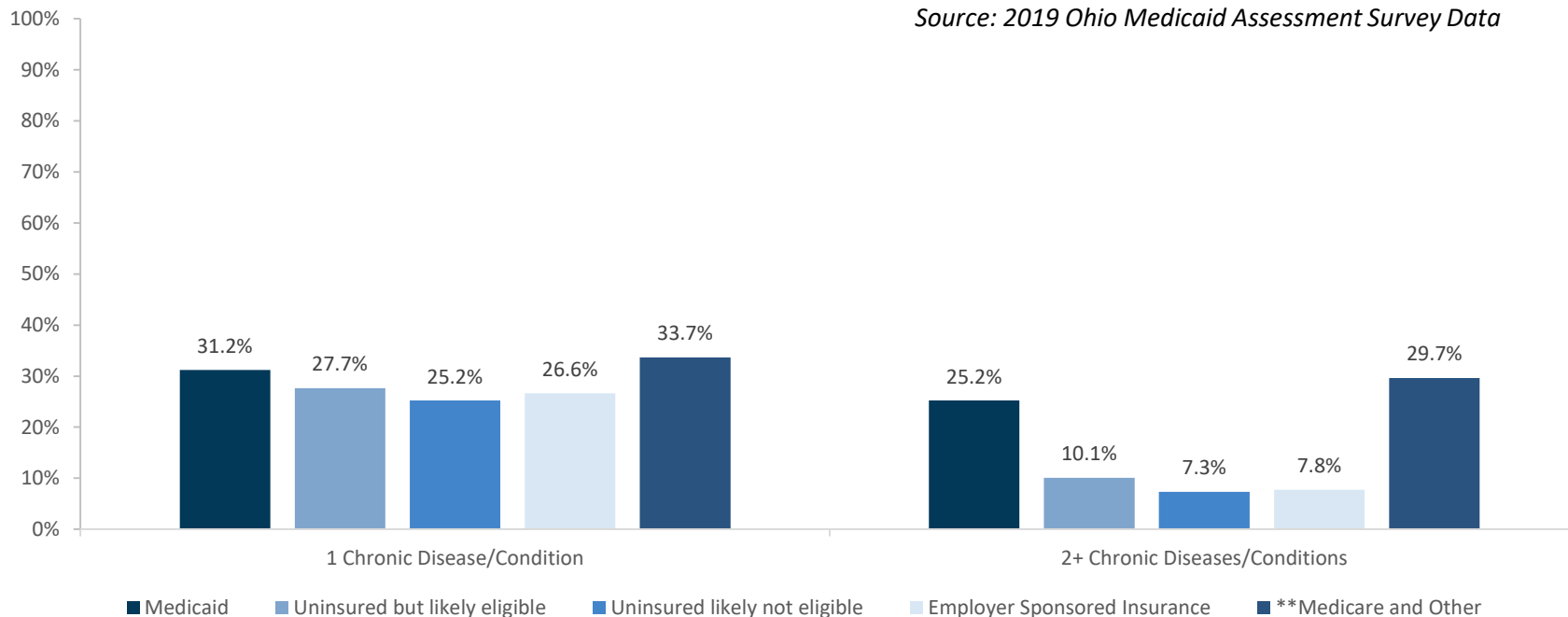
# Key Findings: Socio-Economic Factors Including Health Insurance, Income Level, & Employment by Chronic Condition Status

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- More than half (56.1%) of Medicaid enrollees reported a diagnosis of at least one chronic disease/condition, and a quarter (25.2%) reported a diagnosis of two or more. By contrast, one third (34.4%) of respondents with Employer Sponsored Insurance (ESI) had at least one chronic condition, and 7.8% had two or more.
- Low income is associated with having multiple chronic conditions, with nearly one quarter (24.3%) of individuals with incomes at or below 138% of the Federal Poverty Level (FPL) having two or more chronic conditions compared to 12.8% among individuals with income at or above 401% FPL.
- Individuals with less than high school education were more likely than those achieving a high school diploma or beyond to have a diagnosis of two or more chronic diseases or conditions (21.9% for less than high school vs. 12.7% for high school diploma and 12.0% for greater than high school, respectively).
- Not working was associated with chronic disease status among Ohioans. Whereas 25.8% of working Ohioans had one chronic condition and 6.9% had two or more chronic conditions, 31.7% of non-working Ohioans had one chronic condition and 26.0% had two or more chronic conditions.

# Figure 20: Levels of Chronic Diseases & Conditions Among Ohioans Ages 19 Years & Older, by Insurance Status, 2019

Source: 2019 Ohio Medicaid Assessment Survey Data

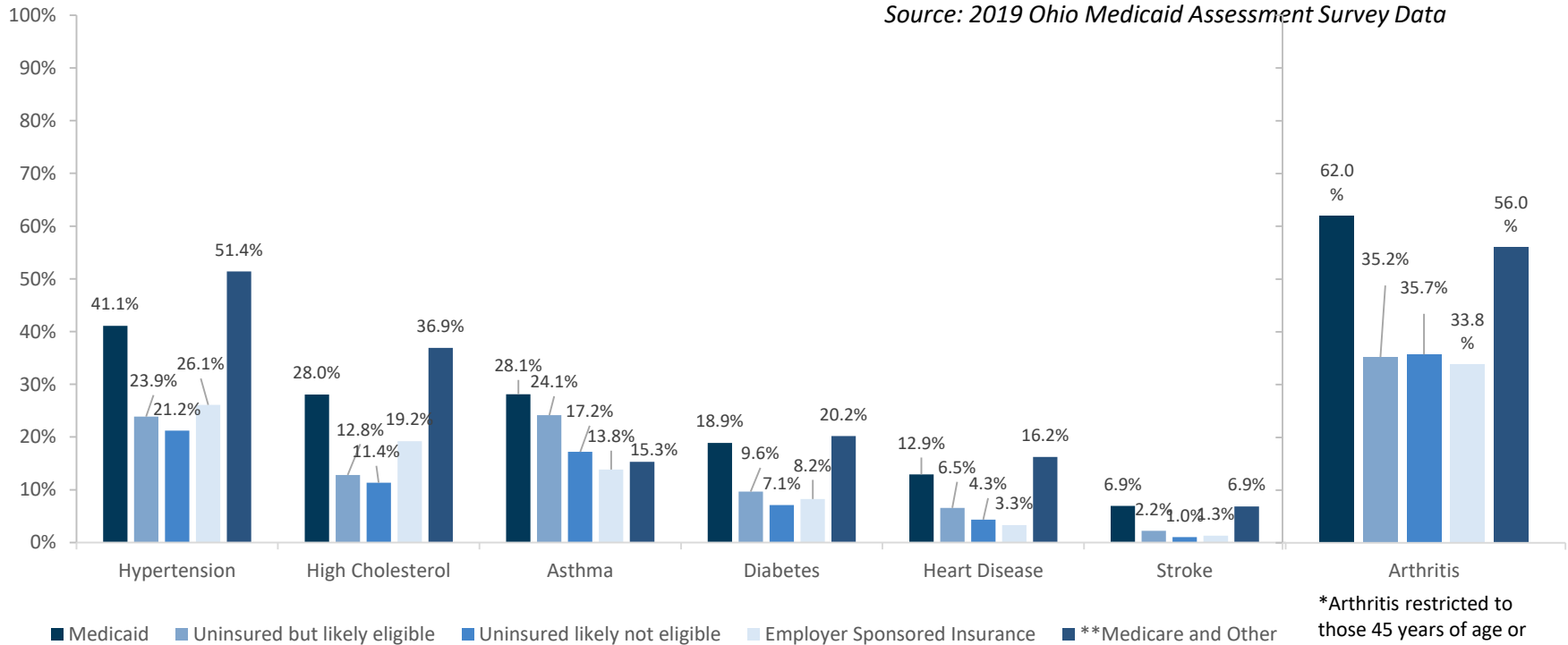


\*\*Medicare and Other insurance includes those enrolled in Medicare (no Medicaid), Other directly purchased private insurance, “other” insurance, and unknown insurance type.

More than half (56.4%) of Medicaid enrollees reported a diagnosis of at least one chronic disease/condition, and a quarter (25.2%) reported a diagnosis of two or more. By contrast, one third (34.4%) of respondents with Employer Sponsored Insurance (ESI) had at least one chronic condition, and 7.8% had two or more.

# Figure 21: Chronic Diseases, Conditions, & Associated Risk Factors among Ohioans Ages 19 Years & Older, by Insurance Status, 2019

Source: 2019 Ohio Medicaid Assessment Survey Data



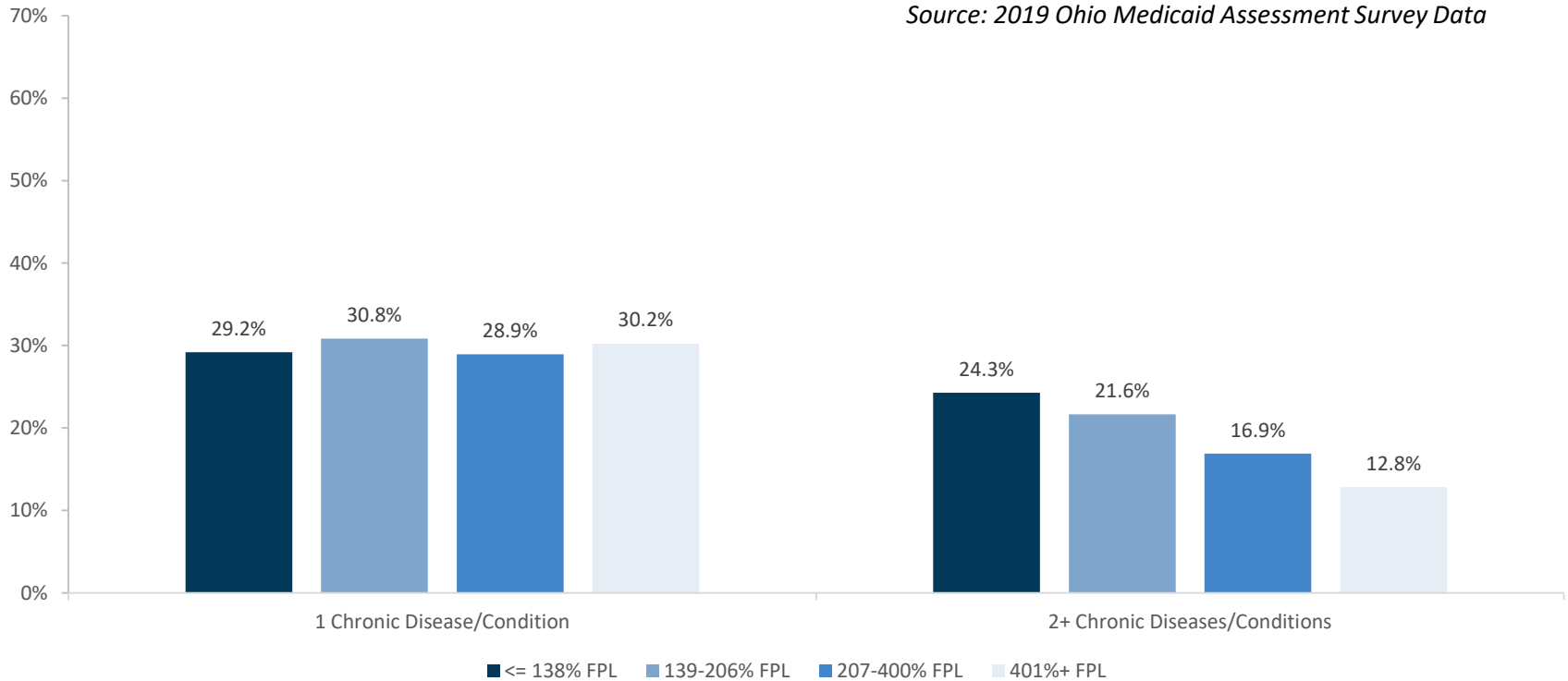
\*Arthritis restricted to those 45 years of age or older

\*\*Medicare and Other insurance includes those enrolled in Medicare (no Medicaid), Other directly purchased private insurance, “other” insurance, and unknown insurance type.

Individuals with Other Insurance, which includes other directly purchased insurance, other insurance, insurance unknown, or Medicare in the 2019 OMAS, had a higher prevalence of several of the chronic diseases and conditions of interest, including arthritis, diabetes, heart disease, and stroke. Among those on Medicaid and those who were uninsured but likely eligible for Medicaid, asthma was more prevalent compared to those in other insurance groups.

# Figure 22: Levels of Chronic Diseases & Conditions among Ohioans Ages 19 Years and Older & Income, by % Federal Poverty Level 2019

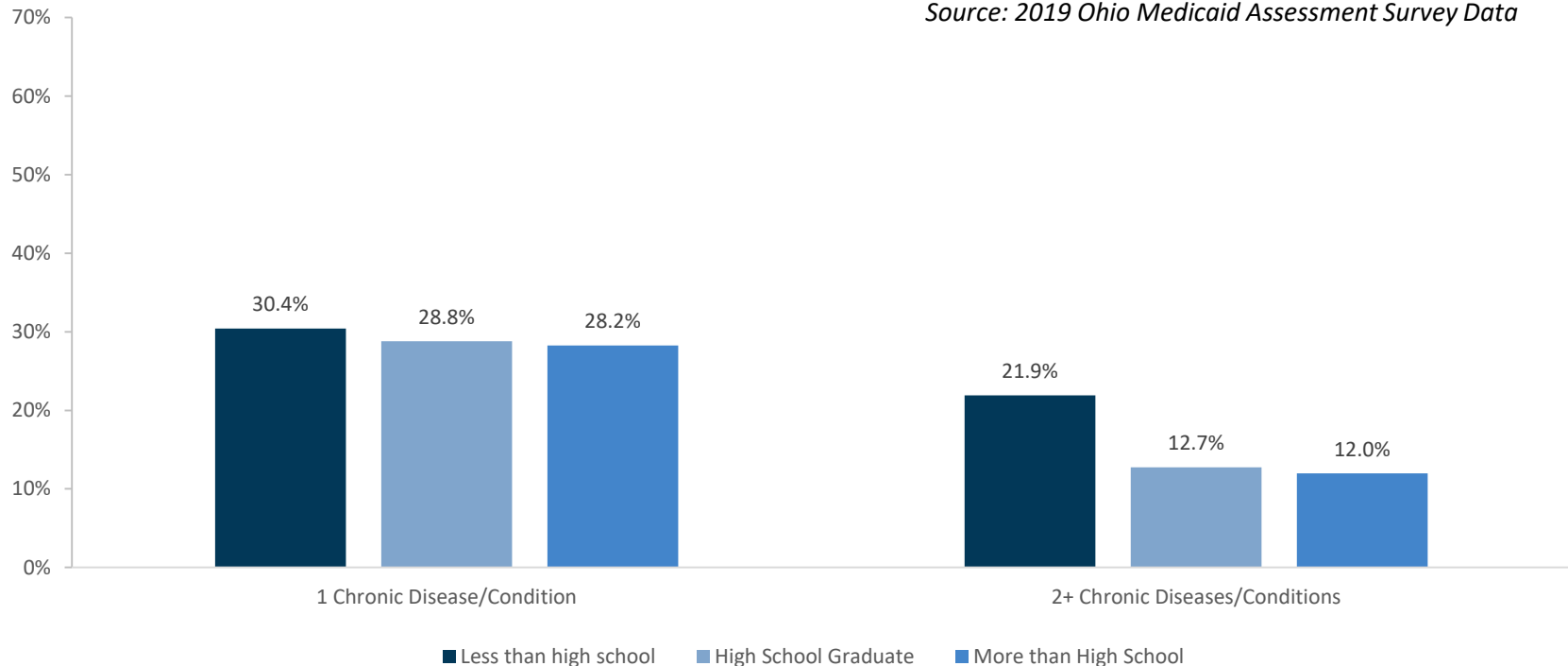
Source: 2019 Ohio Medicaid Assessment Survey Data



Income level, represented here as the percent of the federal poverty level or FPL, was linked to multiple chronic diseases and conditions: 24.3% of individuals with incomes at or below 138% FPL had two or more chronic conditions compared to only 12.8% of individuals with incomes 401% FPL or greater. No significant difference was observed across the four income groups in the reporting of one chronic disease or condition.

# Figure 23: Levels of Chronic Diseases & Conditions among Ohioans Ages 19 Years & Older, by Educational Attainment, 2019

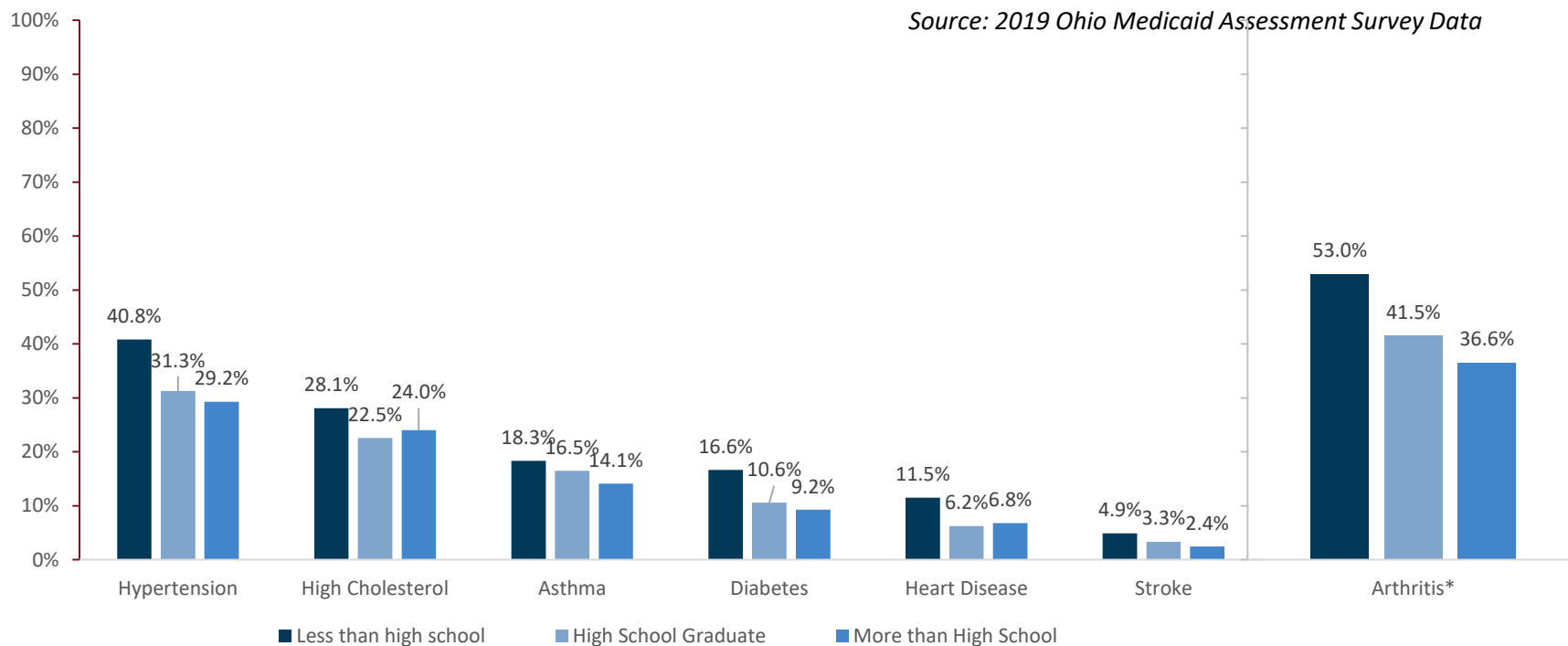
Source: 2019 Ohio Medicaid Assessment Survey Data



\*Please note that hypertension and high cholesterol were not included when calculating level of chronic disease for consistency with the Ohio Behavioral Risk Factor Surveillance System definition.

Among Ohioans 19 years of age and older, there was an association between educational attainment and chronic condition status; individuals with less than high school education were more likely to have two or more chronic conditions (21.9% for individuals with less than high school, 12.7% for high school graduates, and 12.0% for individuals with education higher than higher school).

# Figure 24: Chronic Diseases, Conditions, & Associated Risk Factors among Ohioans Ages 19 Years & Older, by Educational Attainment, 2019



\*Arthritis restricted to those 45 years of age or older

Educational attainment was inversely related to the prevalence of chronic diseases, conditions, and associated risk factors. As an example, the prevalence of heart disease among those with less than a high school education (11.5%) was nearly twice the prevalence of high school graduates (6.2%) or those with more than a high school education (6.8%).



# Table 1: Work Status among Ohioans Ages 19 - 64 years, by Chronic Condition Status, 2019

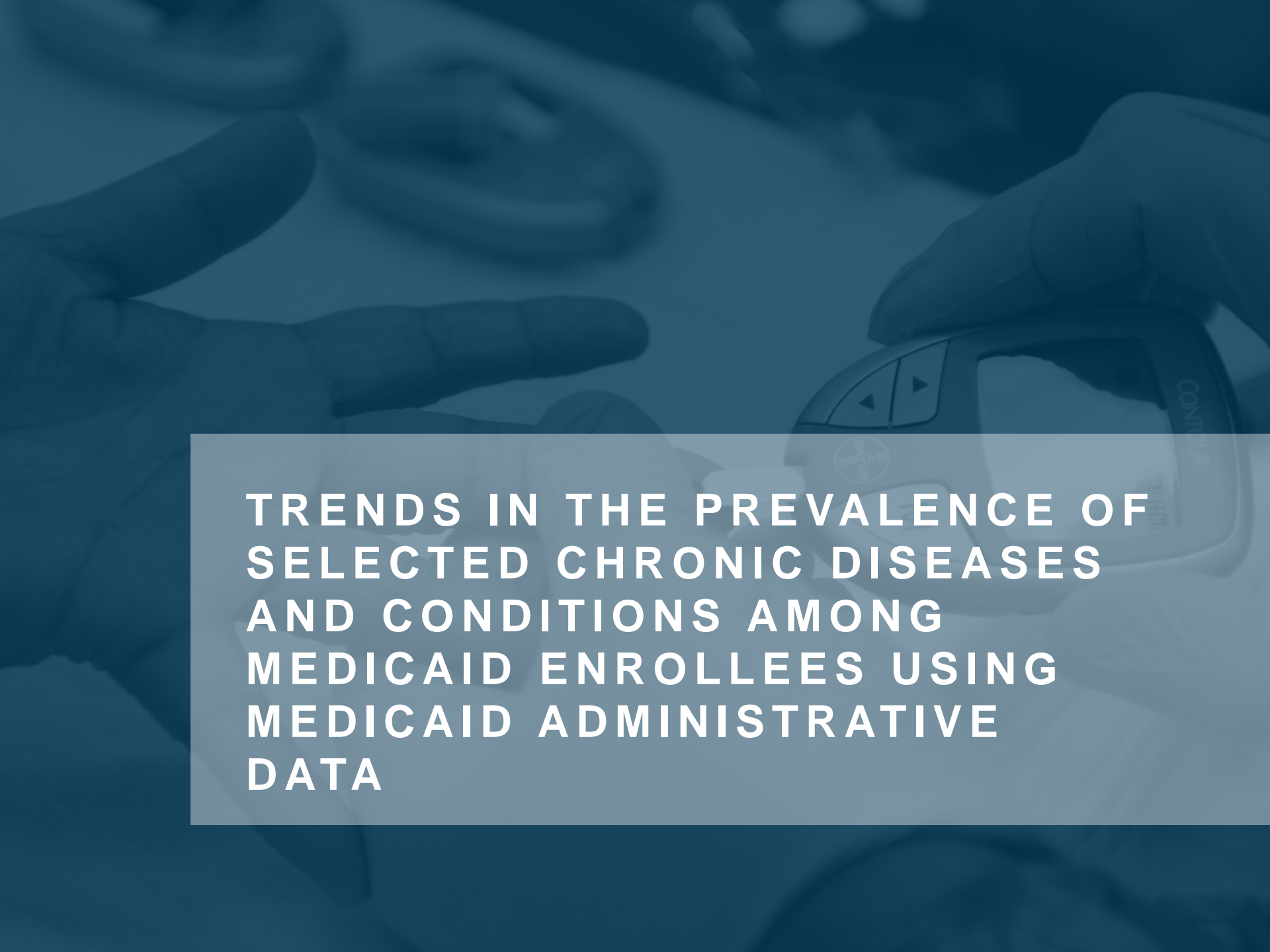
Source: 2019 Ohio Medicaid Assessment Survey Data

	Working	Not Working
No chronic diseases or conditions	67.4%	42.3%
One chronic disease or condition	25.8%	31.7%
Two or more chronic diseases/conditions	6.9%	26.0%
Arthritis*	32.0%	56.8%
Asthma	15.9%	25.5%
Diabetes	7.2%	18.5%
Heart Disease**	3.2%	12.5%
Stroke	1.7%	6.3%

\* Arthritis restricted to adults 45-64 years of age only

\*\* Heart disease defined as a diagnosis of any of the following: myocardial infarction (heart attack), coronary heart disease, or congestive heart failure

Not working was strongly associated with chronic disease status among Ohioans. Whereas 25.8% of working Ohioans had one chronic condition and 6.9% had two or more chronic conditions, 31.7% of non-working Ohioans had one chronic condition and 26.0% had two or more chronic conditions. Arthritis, asthma, diabetes, heart disease, and stroke were all individually associating with not working.

The background is a solid blue color with a semi-transparent overlay of a person's hand holding a white glucometer. The glucometer has the word 'CONTOUR' printed on its side. In the background, there are faint, light-colored icons of a stethoscope, a pill, and a hand holding a pulse oximeter. The text is centered in a white, bold, sans-serif font.

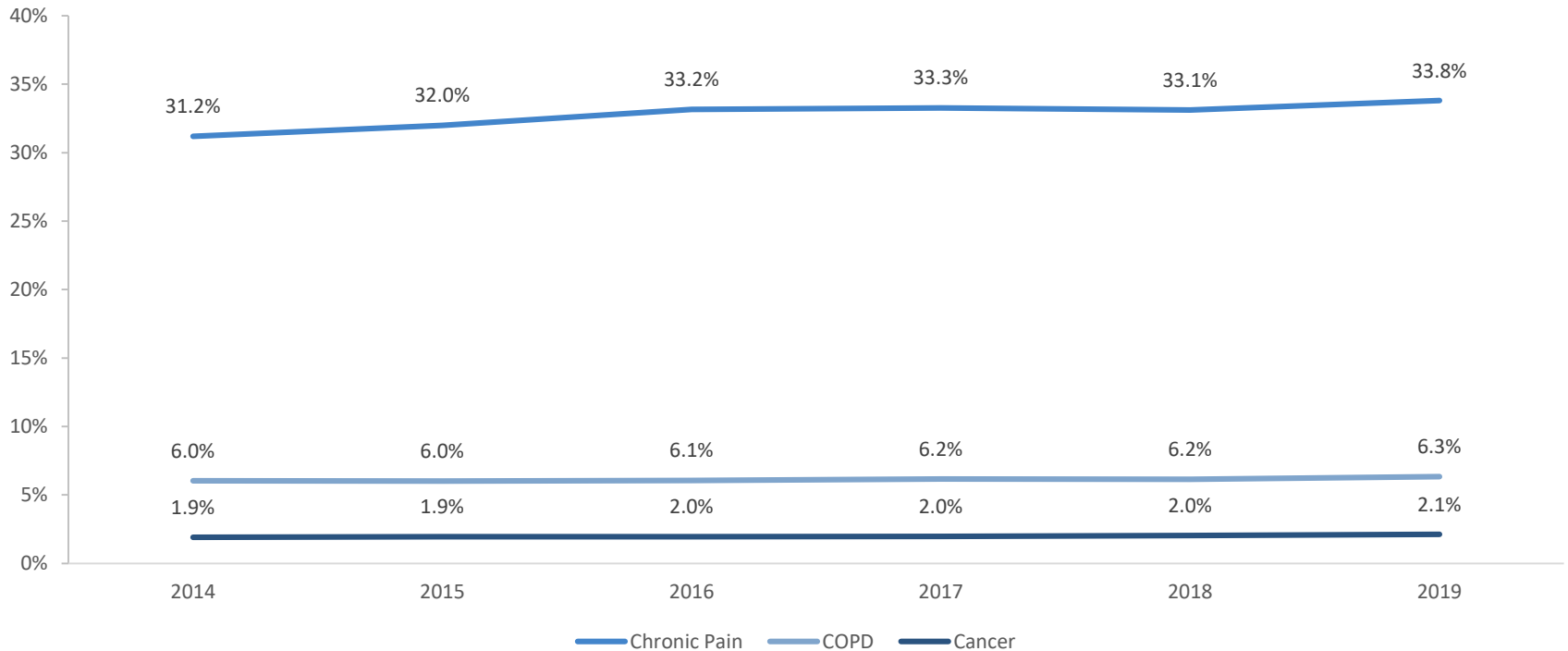
**TRENDS IN THE PREVALENCE OF  
SELECTED CHRONIC DISEASES  
AND CONDITIONS AMONG  
MEDICAID ENROLLEES USING  
MEDICAID ADMINISTRATIVE  
DATA**

# Key Findings: Trends in the Prevalence of Selected Chronic Diseases & Conditions among Medicaid Enrollees using Medicaid Administrative Data

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- From 2014 to 2019, the rates of rates of both chronic obstructive pulmonary disease (COPD) and cancer have changed little among Medicaid enrollees ages 19-64 (all analyses in this section are limited to non-dual Aged, Blind, Disabled, Covered Families and Children, and Group VIII enrollees). The prevalence of chronic pain increased from 31.2% in 2014 to 33.8% in 2019.
- During the same period, rates of COPD remained low (> 5%) and even decreased among Medicaid enrollees 44 years of age and younger, fell modestly among those between 45 and 54 years of age, and significantly increased among enrollees 55-64 (19.2% in 2014 to 22.2% in 2019).
- The Medicaid enrollee age groups with the most notable increases in chronic pain were ages 45-54 (41.0% in 2014 to 45.0% in 2019) and ages 55-64 (40.0% in 2014 to 47.3% in 2019).
- Rates of cancer were largely unchanged among enrollees 19-54 years of age, but gradually increased among enrollees ages 55-64 (6.6% in 2014 to 7.2% in 2019).

# Figure 25: Annual Rate of Select Chronic Conditions among Medicaid Enrollees, 2014- 2019 Medicaid Administrative Data

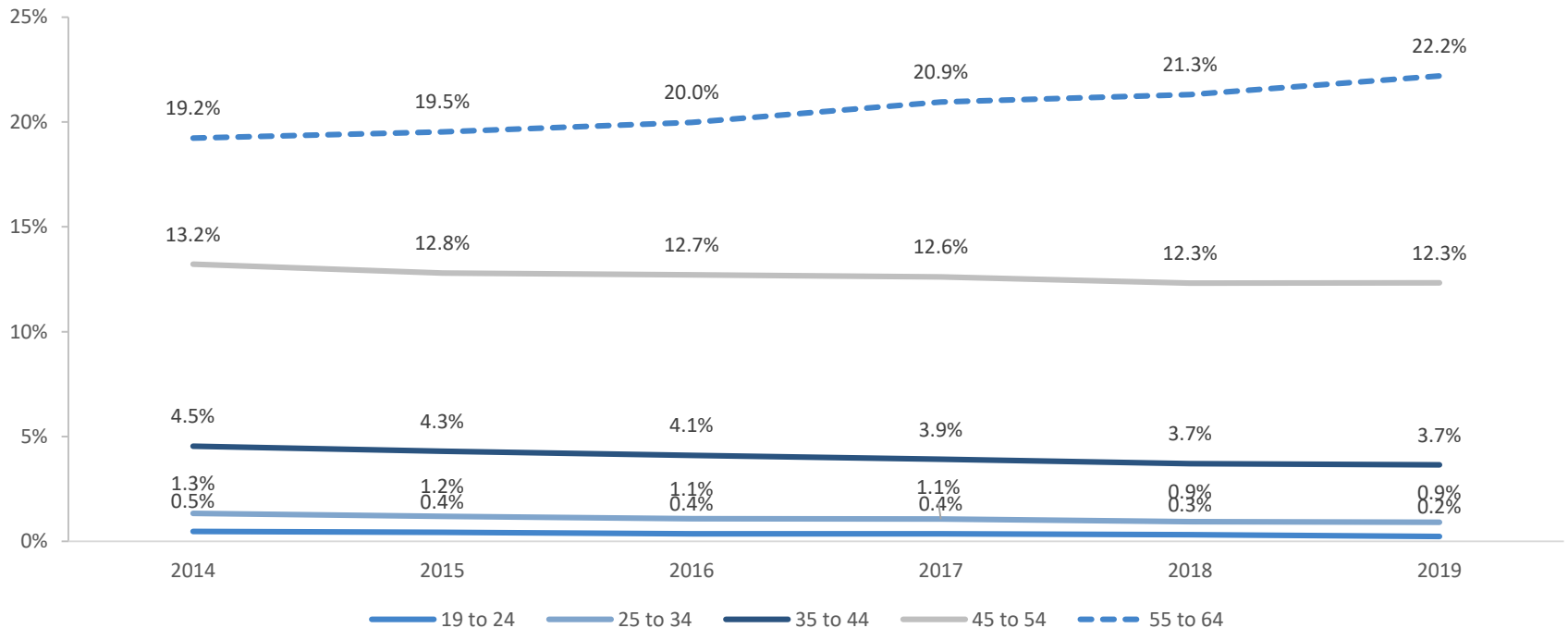


Source: 2014-2019 Ohio Medicaid Administrative Data

**Analyses were limited to non-dual Aged, Blind, Disabled, Covered Families and Children and Group VIII Medicaid enrollees ages 19-64.**

According to analyses of Medicaid enrollees using Medicaid administrative data, levels of COPD and cancer remained relatively stable from 2014 to 2019, although there was an increase in the prevalence of chronic pain from 31.2% in 2014 to 33.8% in 2019.

# Figure 26: Chronic Obstructive Pulmonary Disease (COPD) among Medicaid Enrollees, 2014-2019 Medicaid Administrative Data

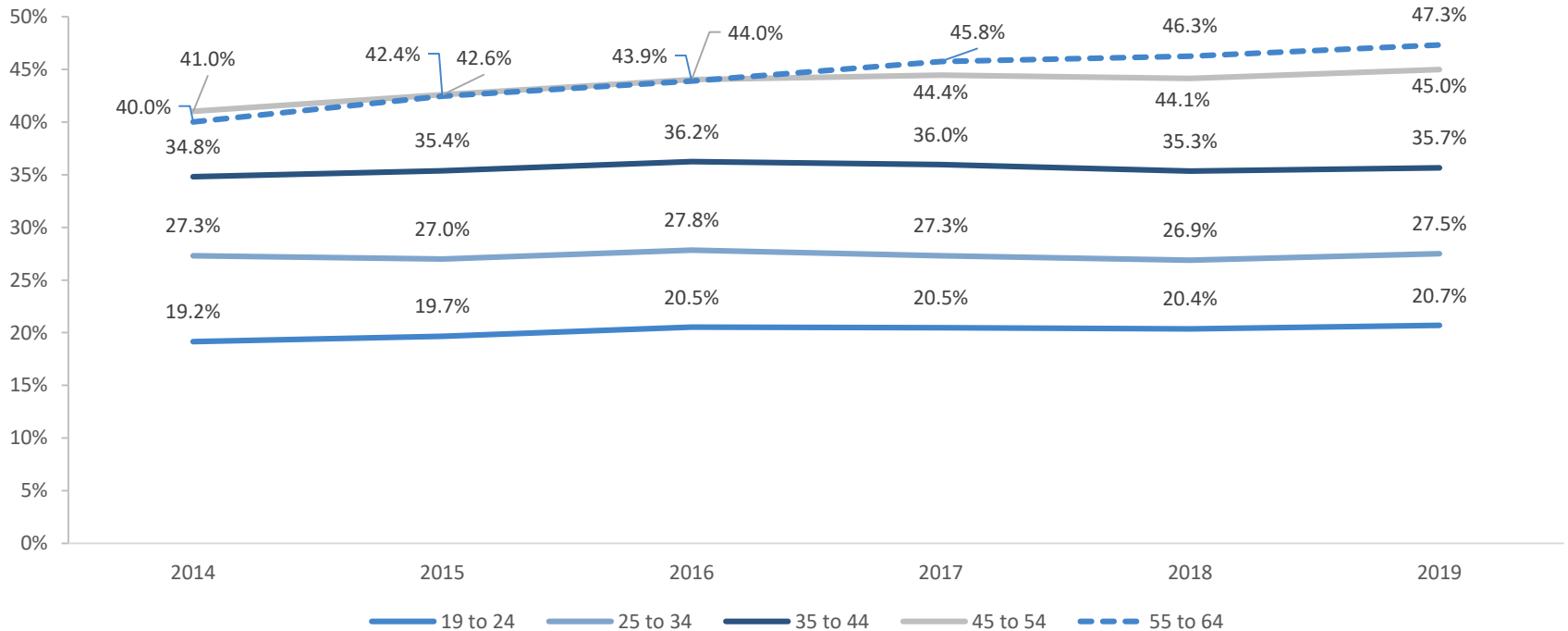


Source: 2014-2019 Ohio Medicaid Administrative Data

**Analyses were limited to non-dual Aged, Blind, Disabled, Covered Families and Children and Group VIII Medicaid enrollees ages 19-64.**

The rates of chronic obstructive pulmonary disease generally increased with age. Between 2014 and 2019, however, a decreasing trend was observed among those 54 years of age and younger (notably 13.2% to 12.3% among those 45 to 54 years and 4.5% to 3.7% among those 35 to 44 years). Among those 55-64 years of age, an increase was seen during this time period (19.2% to 22.2%).

# Figure 27: Chronic Pain among Medicaid Enrollees, 2014-2019 Medicaid Administrative Data

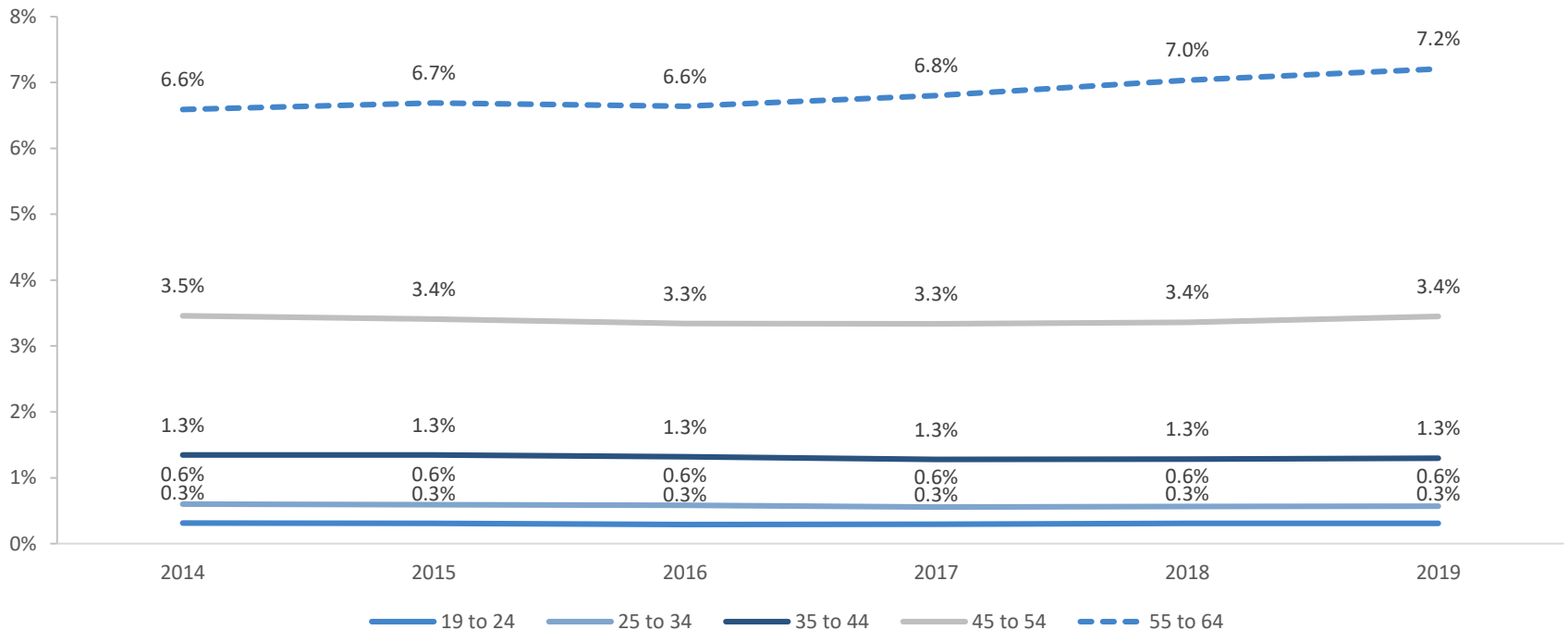


Source: 2014-2019 Ohio Medicaid Administrative Data

**Analyses were limited to non-dual Aged, Blind, Disabled, Covered Families and Children and Group VIII Medicaid enrollees ages 19-64.**

Chronic pain among Medicaid enrollees 19-44 years of age modestly increased from 2014 to 2019. There was a more notable increase among enrollees ages 45-54 over this same time period (41.0% to 45.0%), and an even larger increase among enrollees ages 55-64 (40.0% to 47.3%).

# Figure 28: Cancer among Medicaid Enrollees, 2014-2019 Medicaid Administrative Data



Source: 2014-2019 Ohio Medicaid Administrative Data

**Analyses were limited to non-dual Aged, Blind, Disabled, Covered Families and Children and Group VIII Medicaid enrollees ages 19-64.**

Among Medicaid enrollees 19-44 years of age, the rates of cancer diagnoses remained stable between 2014 and 2019. There were some moderate fluctuations among those 45 to 54 years (with rates moving between 3.5% and 3.3% over the same time period). An upward trend from 6.6% to 7.2% was seen among those enrollees 55 to 64 years of age.



# SUMMARY OF RESULTS



# Summary of Results

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## **Persistent Chronic Disease and Associated Risk**

**Factors:** Since 2008, there were increases in the prevalence of hypertension (34.0% vs. 36.7%) and diabetes (11.4% vs. 14.0%) were observed, while heart disease and stroke remained relatively stable during the same time. These moderate increases were similar to what was observed nationally, however, in terms of absolute levels, Ohio remained high compared to the US with regards to hypertension and diabetes.

**Demographics and Chronic Disease:** Black or African American adults in Ohio had higher rates of hypertension (44.6%) and diabetes (17.1%) compared to individuals who were white (36.6% and 13.6% respectively). Both Black or African American as well as Hispanic adults in Ohio had higher rates of asthma compared to white Ohioans (22.1% for both Black and Hispanic vs 16.5% for white). Additionally, residents of Appalachian counties were more likely to report a diagnosis of two or more chronic conditions compared to Metropolitan, Suburban, or Rural non-Appalachian counties (21.6% vs 17.3%, 18.2%, and 17.5% respectively). Age also remains one of the most important contributing factors to the development of chronic conditions, with the prevalence of those with one condition increasing from 26.2% among those age 19-44 years to 37.7% for those age 65 or older. The difference for those reporting two or more conditions was more pronounced, impacting 2.8% of 19-44 year olds and 38.4% of those 65 or older. The prevalence increased with age for individual chronic conditions except for asthma, where reported prevalence fell from 19.9% for 19-44 year olds to 12.7% for those 65 or older.

**Risk Behaviors and Risk Factors:** Health risk behaviors, such as smoking, as well as comorbidities like hypertension, high cholesterol, and obesity, continue to be closely related to higher levels of chronic diseases and conditions among individuals in Ohio. In addition, there is an association between social isolation and chronic condition status.

**Socio-economic Factors and Chronic Disease:** Over half (56.4%) of adult Medicaid enrollees ages 19-64 have a diagnosis of one or more chronic condition, while a quarter (25.2%) reported a diagnosis of two or more conditions. By contrast, one third (34.4%) of respondents with Employer Sponsored Insurance (ESI) had at least one chronic condition, and 7.8% had two or more. Additionally, low income is associated with having multiple chronic conditions, with nearly one quarter (24.3%) of individuals with incomes at or below 138% of the Federal Poverty Level (FPL) having two or more chronic conditions compared to 12.8% among individuals with income at or above 401% FPL.

**Work and Chronic Diseases:** Among working age adults (ages 19-64), about one third (32.7%) of individuals who were working had a chronic condition versus 57.7% among those who were not working. The chronic conditions most commonly reported by individuals who were not working were arthritis (56.8%), asthma (25.5%), and diabetes (18.5%).

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# ACKNOWLEDGEMENTS

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Department of  
Aging



Department  
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Department of Mental Health and  
Addiction Services