Assessment of

Child Health and Health Care in Ohio

September 2018

Acknowledgements

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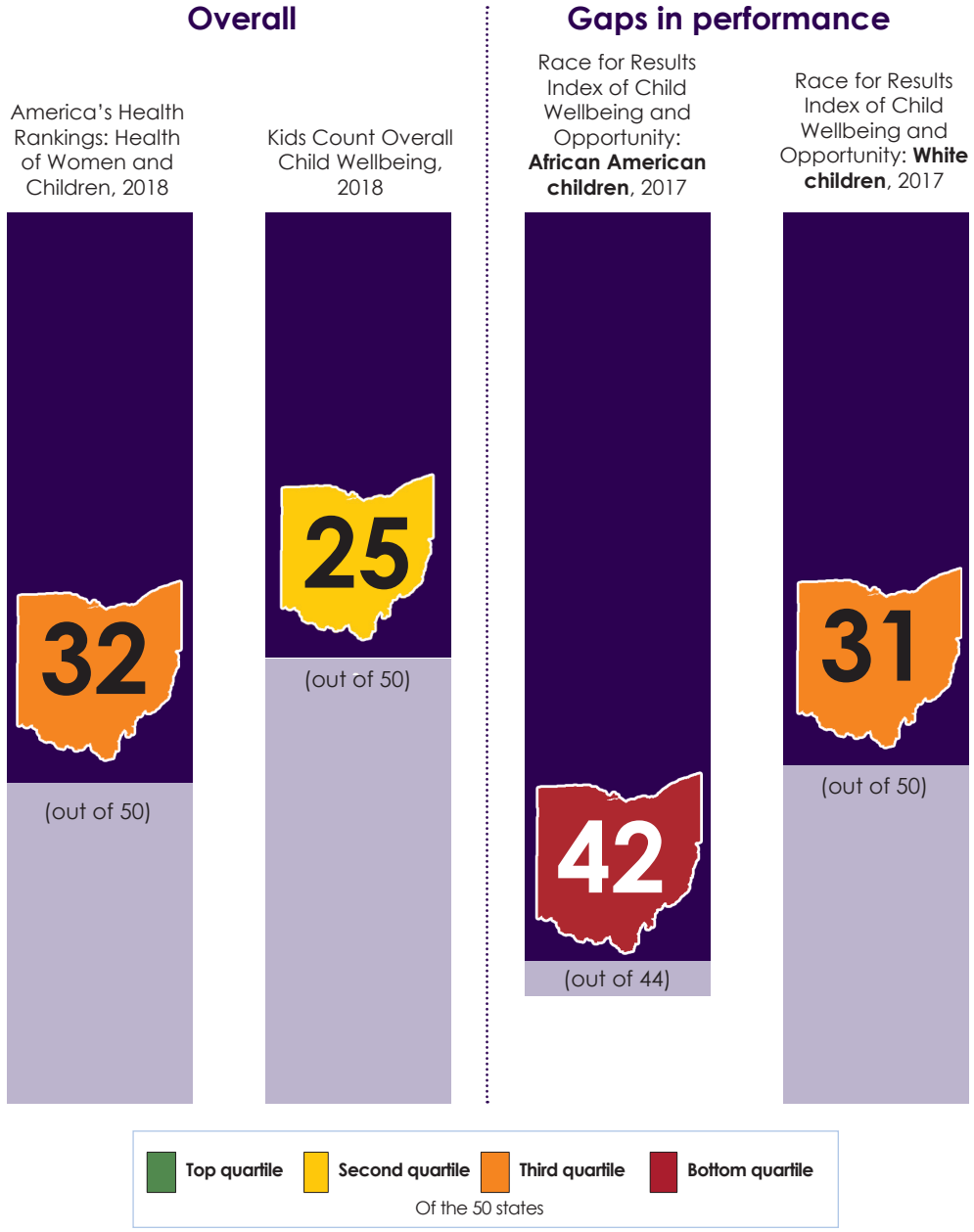
1 Overview

Ohio's performance is consistently in or near the bottom half of states on rankings of child health and wellbeing. For example, Ohio ranked 32nd (out of 50 states) on America's Health Rankings 2018 Health of Women and Children report, and 25th (out of 50 states) in the 2018 Kids Count Child Wellbeing report (see figure 1.1). Even more concerning, Ohio is in the bottom quartile of states for African-American child wellbeing based on the Annie E. Casey Foundation Race for Results Index of Child Wellbeing and Opportunity – indicating that not all children in Ohio have the same opportunities to achieve optimal health.

Figure 1.1 **Ohio's rank on child health and wellbeing**

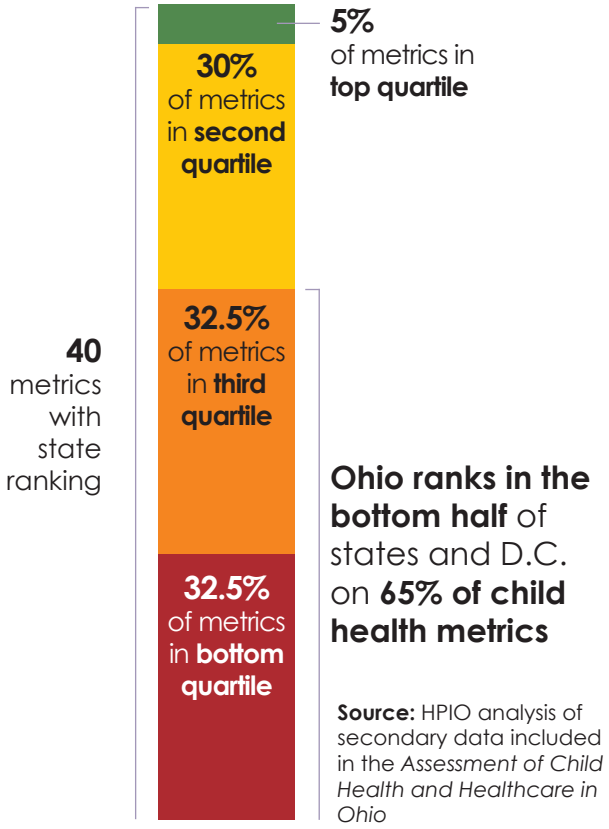


In the *Assessment of Child Health and Health Care*, Ohio ranked in the bottom half of states on 65 percent of metrics with national ranking data (see figure 1.2).

Over the past few decades, Ohioans have struggled with high healthcare spending and a steady decline in health outcomes relative to other states (see figure 1.3). According to the Health Policy Institute of Ohio's (HPIO's) *2017 Health Value Dashboard*, Ohio ranks 46th out of 50 states and D.C. on health value. This means that Ohioans live less healthy lives and spend more on health care than people in most other states. Ohioans cannot afford to continue this trajectory.

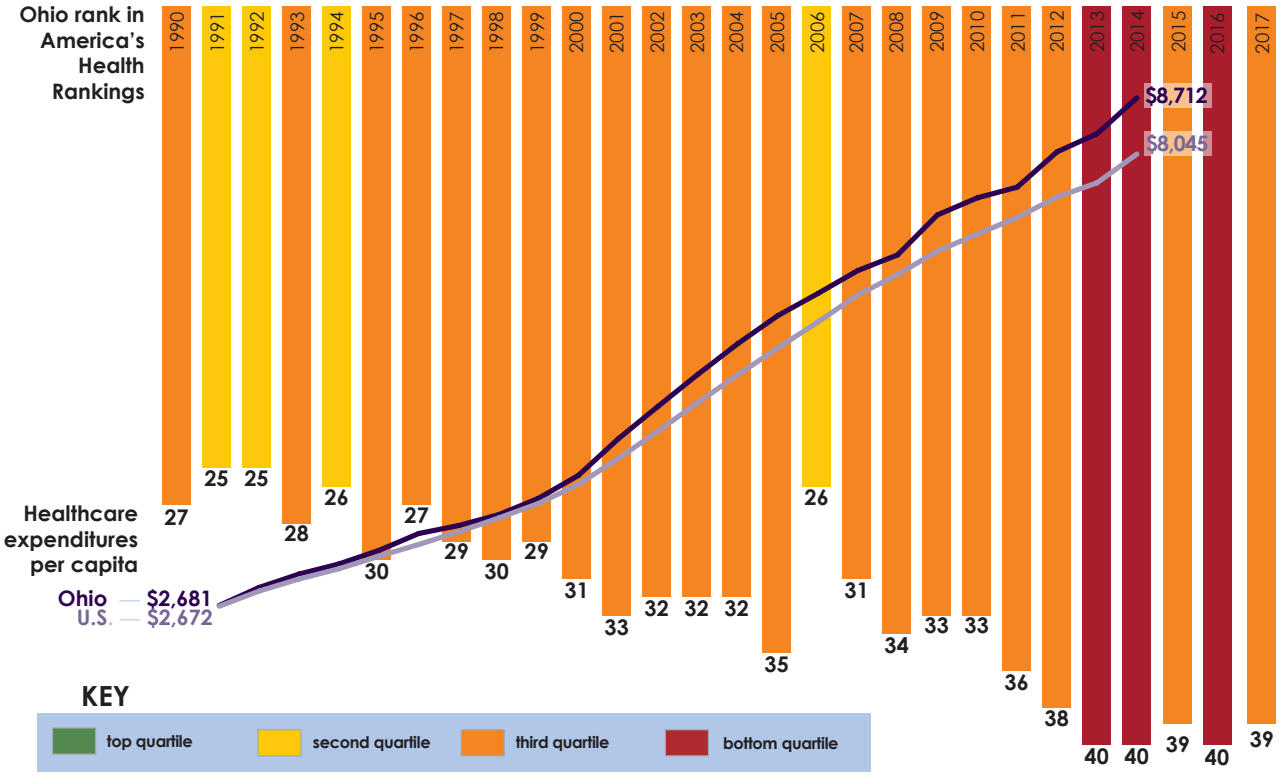
Many of the health challenges Ohioans face today are rooted in experiences and conditions that could have been prevented or better managed in childhood. Research confirms that focusing on the health of children is a wise investment because poor health outcomes during childhood can lead to permanent impairment later in life.[1] For example, children who lack access to healthy food are at greater risk for developing diabetes and heart disease in adulthood, and adolescent drug use increases the likelihood of addiction later in life.

Figure 1.2 **Ohio's performance on child health relative to other states**



Source: HPIO analysis of secondary data included in the *Assessment of Child Health and Healthcare in Ohio*

Figure 1.3 **Ohio's overall performance (all ages) over time on health and healthcare spending**

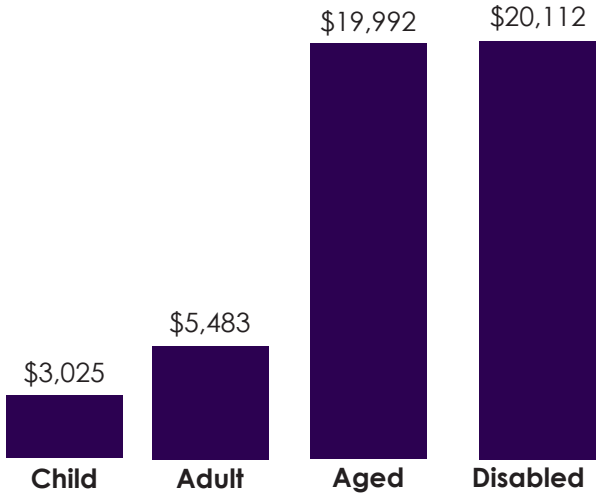


Source for health ranking: UnitedHealth Foundation, America's Health Rankings
Source for healthcare spending: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group, compiled by the Kaiser Family Foundation

Notably, healthcare spending is overwhelmingly allocated toward the treatment of diseases and conditions in adulthood. For example, Ohio's Medicaid program spent approximately $20,000 per every aged enrollee in 2014, which is 6.6 times more than the amount spent on children enrolled in Medicaid. Spending on adult Medicaid enrollees was more than 1.8 times the amount spent on children in Medicaid (see figure 1.4).

While Ohio has seen improvement on some child health indicators in recent years, our progress lags far behind other states. Over the past few decades, Ohio has had one of the highest infant mortality rates in the nation (see figure 1.5). Infant mortality is widely viewed as a "tip of the iceberg" issue because it serves as an indicator of the overall health and wellbeing of a state. In 2016, Ohio's black infant mortality rate (15.2 infant deaths per 1,000 live births) was almost three times as high as the white rate (5.8 infant deaths per 1,000 live births), highlighting the stark disparities that exist among children in Ohio.

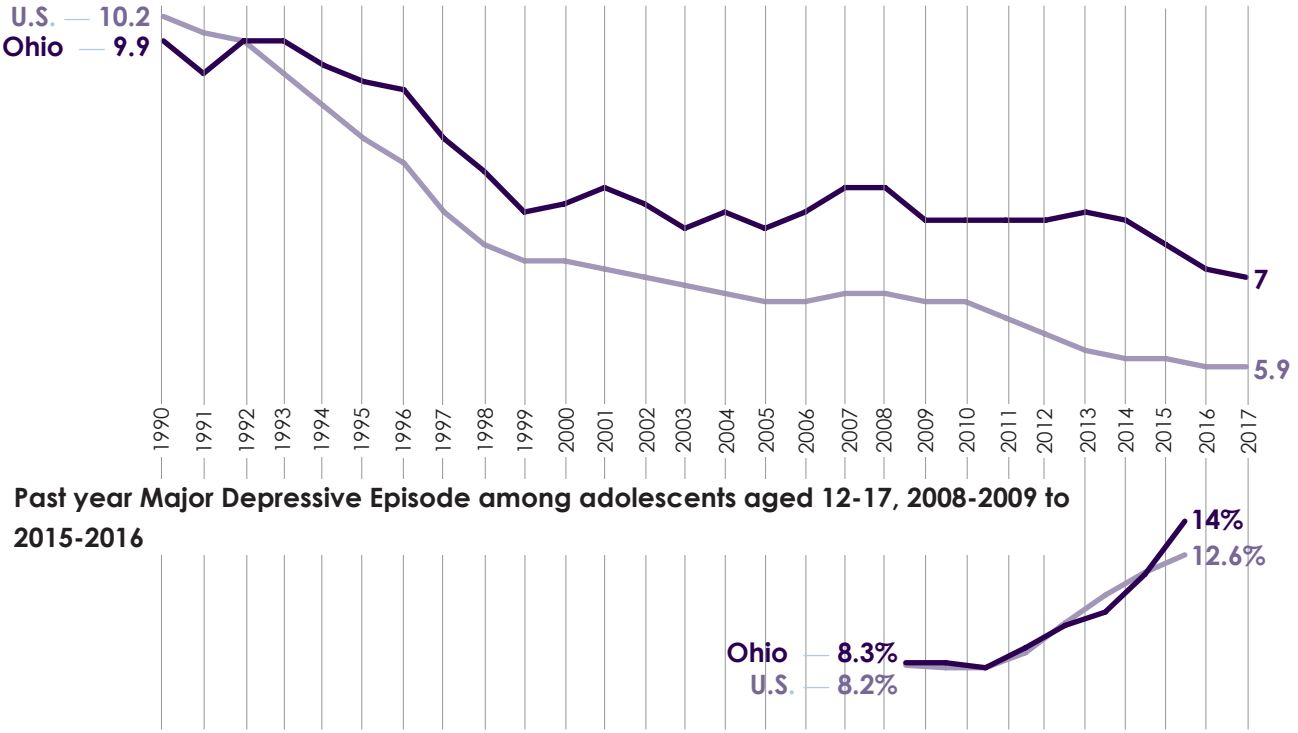
Figure 1.4 **Ohio Medicaid benefit spending per enrollee, by eligibility group, FY 2014**



Note: Disabled category includes children and adults
Source: Medicaid and CHIP Payment and Access Commission (MACPAC)

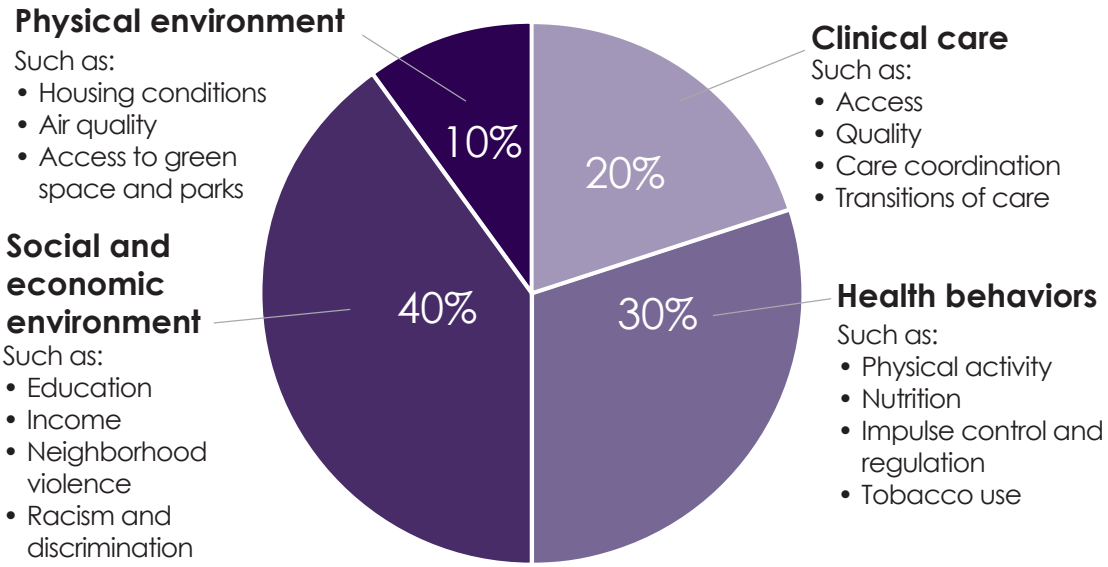
Figure 1.5 **Ohio's performance over time on key indicators of child health**

Infant mortality rate (deaths per 1,000 infants), 1990 to 2017 (America's Health Rankings edition years*)



*America's Health Rankings edition years are later than actual data years. Data for 2017 America's Health Rankings edition, for example, are from 2014-2015.
Source for infant mortality rates: National Vital Statistics System, as compiled by America's Health Rankings
Source for major depressive episodes: National Survey of Drug Use and Health

Figure 1.6 **Modifiable factors that influence health**



Source: Booske, Bridget C. et. al. County Health Rankings Working Paper: Different Perspectives for Assigning Weights to Determinants of Health. University of Wisconsin Public Health Institute, 2010.

Figure 1.5 also displays another troubling trend – the increase in depression among adolescents in Ohio, surpassing the U.S. rate. Ohio's poor performance on these indicators highlights both a growing need and significant opportunity to put children at the forefront of Ohio's health policy agenda.

Health is influenced by several modifiable factors, including clinical care access and quality, health behaviors and the social, economic and physical environments in which families live (see figure 1.6). Ohio has many strengths related to health care access, but performs worse than other states on the social, economic and physical environments, public health and prevention, and many health behaviors.[2] All of these factors contribute to Ohio's poor child health outcomes and affirm that a comprehensive approach to addressing child health is critical to improving the overall health of our state.

The *Assessment of Child Health and Health Care in Ohio* lays a strong foundation for a child-focused health policy agenda that can improve the health of all Ohio's children and pave the way for a healthier Ohio.

About the Assessment

There are many organizations working to improve child health and wellbeing in Ohio at both the state and local level. These organizations, however, do not share a common framework for their work. The *Assessment* was commissioned by the Ohio Children's Hospital Association (OCHA) and developed by HPIO, with input from a multi-sector advisory committee. This work builds on and aligns with Ohio's *2017-2019 State Health Improvement Plan* (see box on the following page), providing a focused analysis and framework to improve the health of all children in Ohio.

The *Assessment* identifies Ohio's top child health priorities and provides a starting place for a child-focused health policy agenda in Ohio. Top child health priorities identified in the *Assessment* are informed by:

- **Publicly-available secondary data:** HPIO created data profiles analyzing child-specific outcomes across 58 metrics. Data for some metrics are reported by race and ethnicity, income, sex and disability status to provide information on gaps in outcomes across groups of children. State rank, U.S. comparison and trend information are provided when available to put the data in context. HPIO also created a demographic profile of children in Ohio and compiled

data on leading causes of death in children and young adults.

- **Ohio Department of Medicaid (ODM) and Ohio Hospital Association (OHA) healthcare utilization and cost data:** ODM and OHA provided data on the most common diagnoses for children in Ohio across inpatient, outpatient and emergency department settings. ODM also provided data on the most commonly prescribed and highest-cost medications for children, as well as per capita cost for the highest cost conditions in children.
- **Children's hospital and local health department community health planning documents:** To identify child-focused health issues prioritized by children's hospitals and local health departments in Ohio, HPIO conducted a review of children's hospital and local health department community health planning documents. A total of 127 documents were reviewed; each document had been completed within the past six years.
- **Advisory committee feedback:** The advisory committee for the *Assessment* included health care, public health, behavioral health, advocacy, early childhood, business, health plan and state agency representatives (see Appendix C for list of advisory committee members). Committee members provided feedback on the conceptual framework for the *Assessment*, as well as metrics, priority areas, goals and evidence-based strategies highlighted in the *Assessment*.

The conceptual framework for the *Assessment* (see figure 1.7) highlights:

- The modifiable factors that impact overall health
- Five stages of child development – perinatal/infant (age 0 to 1), early childhood (age 2 to 5), childhood (age 6 to 11), adolescence (12 to 17) and young adult (18 to 25)
- The role of parental, family and caregiving support in addressing child health and wellbeing
- The need to eliminate inequities and achieve equity for all Ohio's children

Data in the *Assessment* focuses on the population health, healthcare spending, access to care, healthcare system and public health and prevention domains of the conceptual framework highlighted in figure 1.7.

2017-2019 State Health Improvement Plan (SHIP)

In February 2017, the Governor's Office of Health Transformation and the Ohio Department of Health released the **Ohio 2017-2019 State Health Improvement Plan (SHIP)**.

Developed with input from many state- and local-level stakeholders, the SHIP serves as a strategic menu of priorities, objectives and evidence-based strategies implemented by state agencies, local health departments, hospitals and other community partners engaged in community health improvement planning.

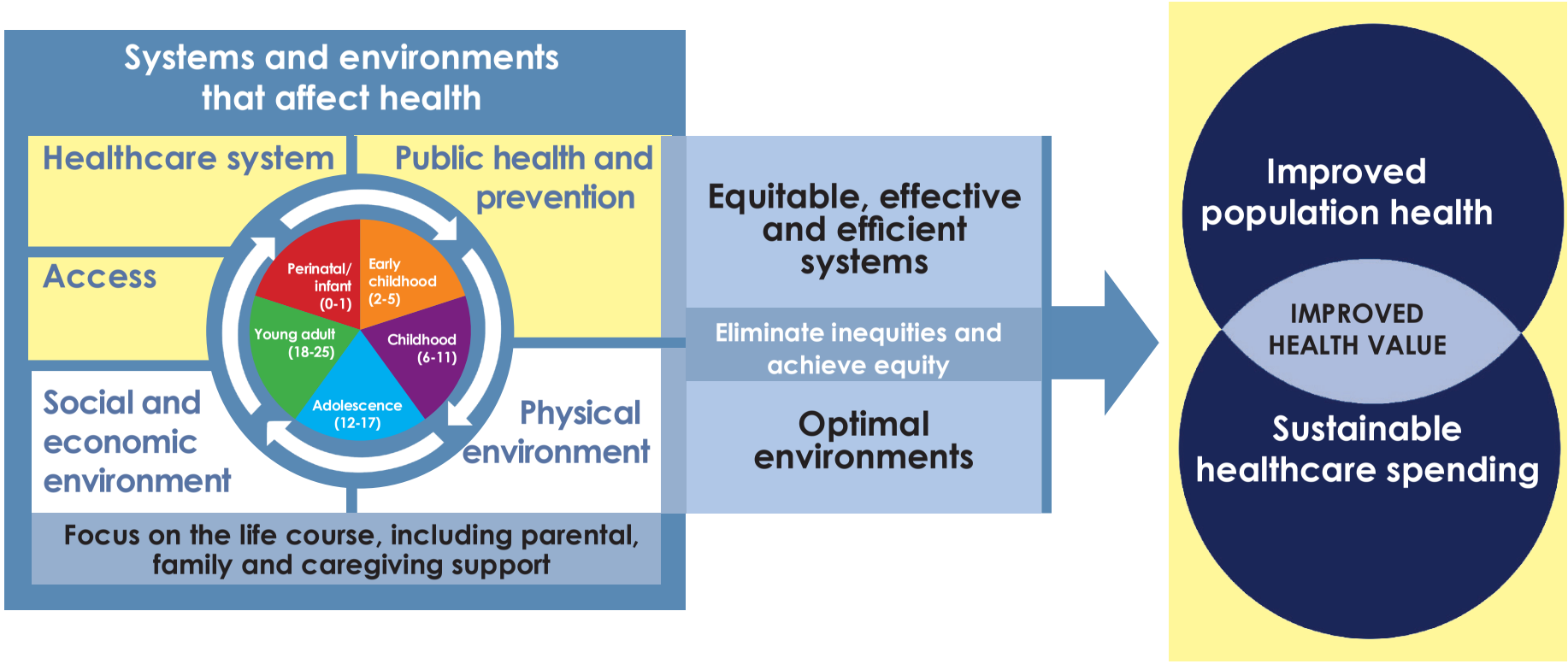
The SHIP prioritizes the following topics and outcomes:

- Mental health and addiction: Depression, suicide, drug dependency/abuse, and drug overdose deaths
- Chronic disease: Heart disease, diabetes, child asthma
- Maternal and infant health: Preterm birth, low birth weight, infant mortality

The SHIP identifies a comprehensive set of strategies designed to achieve improvements in these outcomes and reductions in disparities, including a focus on health equity and the social determinants of health.

To build a comprehensive, child-focused policy agenda for overall child health and wellbeing, more work is needed to address the key factors within a child's social, economic and physical environments that drive poor health, such as adverse childhood experiences (ACEs). ACEs refer to a child's exposure to trauma, stress and household dysfunction, and are strongly linked to the development of a wide range of health problems. Notably, children in Ohio are more likely than children in other states to be exposed to two or more ACEs.[3] Further examination of metrics related to ACEs and other social drivers of health, and the implementation of evidence-based strategies to address these social drivers, is imperative to advance the health of all children in Ohio.

Figure 1.7 **Conceptual framework for child health and wellbeing**



World Health Organization definition of health: Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Note: The *Assessment of Child Health and Healthcare in Ohio* provides data on the domains highlighted in yellow.

Note

1. Belli, Paolo C., Flavia Bustreo and Alexander Preker. "Investing in children's health: what are the economic benefits?" *Bulletin of the World Health Organization* 83, no. 10 (2005): 777-784.
2. Health Policy Institute of Ohio, *2017 Health Value Dashboard*
3. National Survey of Children's Health, 2016

2 Policy priority framework for improving child health: A starting place

Figure 2.1 lays out a policy priority framework for improving child health, informed by the findings of the *Assessment* and advisory committee feedback. The framework sets the stage for a child-focused health policy agenda in Ohio by identifying:

Four foundations for healthy children

Three top child health policy priority areas: Mental health and addiction, chronic disease and maternal and infant health
Fifteen specific priority outcomes to measure success:

Mental health and addiction
- Suicide deaths
- Depression
- Anxiety
- Attention Deficit/ Hyperactivity Disorder
- Tobacco/nicotine
- Alcohol
- Marijuana
- Unintentional drug overdose deaths

Chronic disease
- Asthma morbidity
- Physical activity
- Food insecurity
- Healthy weight

Maternal and infant health
- Infant mortality
- Preterm birth
- Prenatal care

Eight actionable policy goals that drive improved health for Ohio's children

22 **Twenty-two** examples of evidence-based strategies that align with the policy goals and can be deployed in the short-term to move the needle on Ohio's top three child health priorities

Ohio needs a comprehensive approach to address child health as outlined in the policy framework. Improving child health through this framework requires public and private sector leadership from a wide variety of entities including policymakers, providers of healthcare services, insurers, schools, community-based organizations and the support of parents, caregivers and families.

The framework in figure 2.1 identifies four "foundations for healthy children" that are instrumental in ensuring all Ohio children are healthy by recognizing the need to:

1. **Eliminate gaps in child outcomes.** All young Ohioans should have the opportunity to make healthy choices and achieve optimal health, regardless of their race and ethnicity, family income, where they live and other social, economic and demographic factors (for more detail, see **Achieving optimal health for all Ohio's children** on pg. 10).
2. **Promote economic vitality for Ohio families.** All families in Ohio should have the opportunity to achieve financial and housing stability. This includes access to self-sufficient employment[1] and safe, affordable and quality housing.
3. **Evaluate Ohio's progress towards improving child health.** Ohio needs to make strong investments in data collection, research and evaluation of evidence-based strategies implemented to improve the health of young Ohioans. This includes making child health data from payers, providers, schools, state agencies and other entities accessible and real-time tracking of outcomes at the state and local levels and disaggregated by race and ethnicity and other social, economic and demographic factors.
4. **Pay for child health and wellbeing.** Provider payments should incentivize child health and wellbeing, be based on population-level outcomes and address the modifiable factors that influence health. Payments must be stable, predictable and adequate.

For more information on the process used to select policy priority areas, outcomes, goals and evidence-based strategies highlighted in the policy framework, see **Section 6. Process and methodology.**

Figure 2.1 **Policy framework for improved child health in Ohio: A starting place**

Foundations for healthy children

Improved child health and wellbeing in Ohio can only be achieved if the following goals are met:

1. **Eliminate gaps in child outcomes.** All young Ohioans have the opportunity to make healthy choices and achieve optimal health, regardless of their race/ethnicity, family income, where they live or other other social, economic or demographic factors.
2. **Promote economic vitality for Ohio families.** All families in Ohio have the opportunity to achieve financial and housing stability.
3. **Evaluate Ohio's progress toward improving child health.** Ohio makes strong investments in data collection, research and evaluation of strategies to improve the health of young Ohioans.
4. **Pay for child health and wellbeing.** Payments to providers incentivize improved child health and wellbeing, are based on population-level outcomes, address the modifiable factors of health and are stable, predictable and adequate.

Data-driven policy priorities and priority outcomes

Evidence-informed policy goals

Mental health and addiction

- Suicide deaths
- Depression
- Anxiety
- Attention Deficit/ Hyperactivity Disorder
- Tobacco/nicotine
- Alcohol
- Marijuana
- Unintentional drug overdose deaths

Young Ohioans:

- Are socially and emotionally healthy
- Do not use or abuse tobacco, nicotine, alcohol, marijuana and opiates
- Have access to high-quality, coordinated behavioral health services

Chronic disease

- Asthma morbidity
- Physical activity
- Food insecurity
- Healthy weight

Young Ohioans:

- With asthma live in healthy, smoke-free homes
- Are physically active and eat healthy
- Have access to high-quality, coordinated health services for asthma and healthy weight management

Maternal and infant health

- Infant mortality
- Preterm birth
- Prenatal care

Ohioans:

- Have access to high-quality, coordinated pregnancy and infant health services

All policy priorities

Ohio families have access to high-quality early childhood services

22 Examples of evidence-based strategies

1. **Universal K-12 school-based prevention programs** (Hi-5 and WWFH)

2. **Increase the price of tobacco and alcohol products*** (Hi-5 and WWFH); and tobacco 21 (WWFH)
3. **Mass-reach communications campaigns** (Hi-5, CG and WWFH)

4. Universal school-based programs: Alcohol misuse and impaired driving (WWFH)
5. Higher education financial incentives for health professionals serving underserved areas* (WWFH)
6. Evidence-based behavioral health services in schools including but not limited to school-based or school-linked health centers* (CG)
7. Telemedicine* specific to delivery of evidence-based behavioral health services (WWFH)
8. Access to evidence-based addiction counseling and treatment services, including medication-assisted treatment (WWFH and WSIPP)

9. **Home improvement loans and grants*** (Hi-5 and WWFH)
10. **Healthy home environmental assessments/home visits to reduce home asthma triggers and improve self-management education*** (6/18 and WWFH)
11. Smoking cessation for families of children with asthma such as quitline and related interventions* (CG and WWFH)

12. **School-based programs to increase physical activity** (HI-5, CG and WWFH)
13. Green space and parks* (WWFH)
14. School breakfast programs* (WWFH)
15. Healthy food initiatives in food banks* that provide for client choice (WWFH)

16. **Evidence-based asthma medical management; access and adherence to asthma medications and devices; intensive self-management education** (6/18)
17. Screening and referral to comprehensive weight management interventions (USPSTF)
18. Medical homes (also referred to as Patient-centered Medical Homes)* (WWFH)

19. **Long-acting reversible contraception (LARC) access including provider reimbursement for immediate postpartum insertion of LARC by unbundling payment and removing administrative and logistical barriers to LARCs** (6/18 and WWFH)
20. Evidence-based programs that support pregnant women and improve access to prenatal care, such as CenteringPregnancy* (WWFH)

21. **Early childhood education*** (Hi-5 and CG)
22. Evidence-based early childhood home visiting programs* (WWFH)

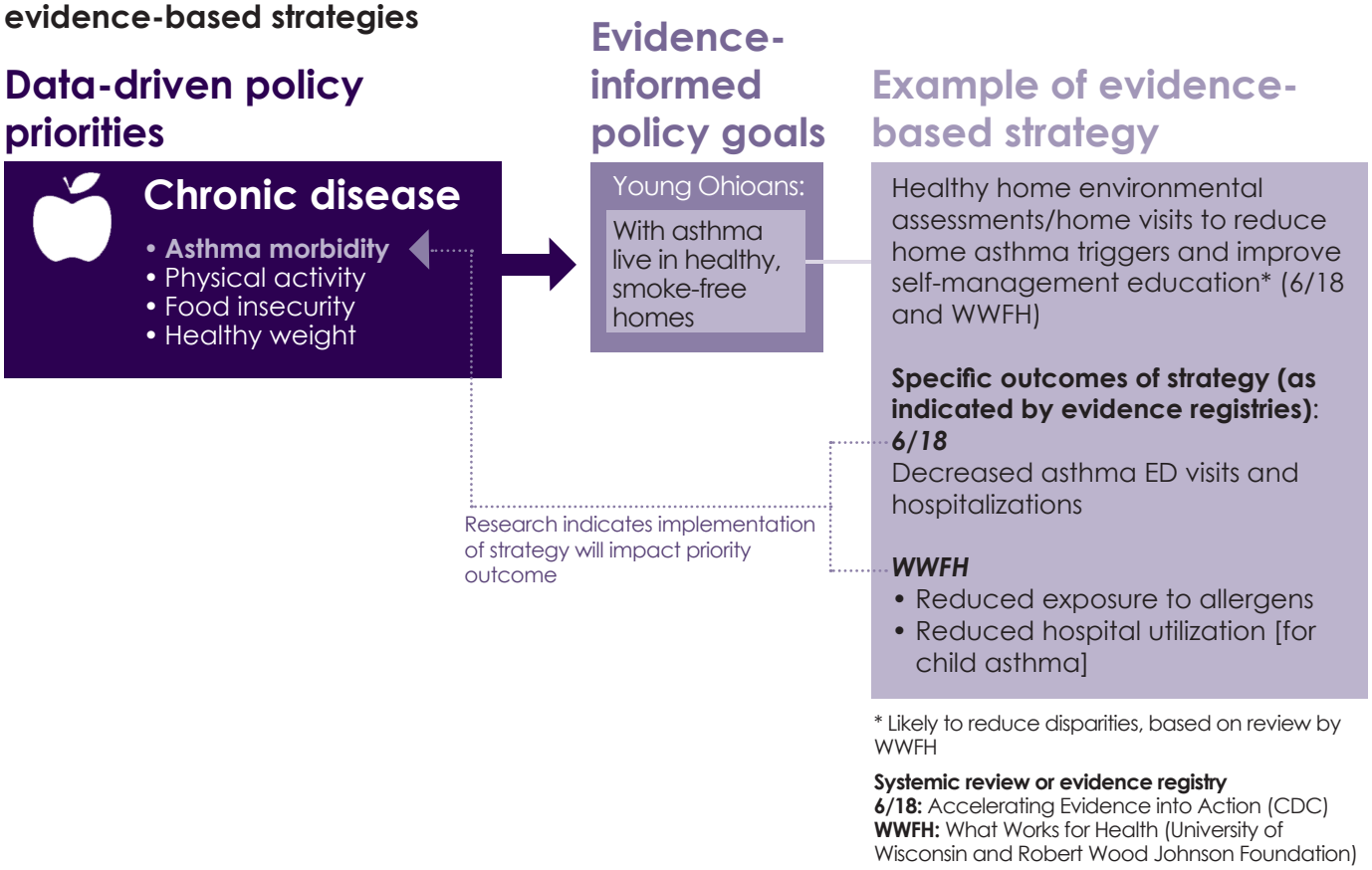
* Likely to reduce disparities, based on review by WWFH and CG

Bold font: Strategies recommended by Hi-5 and 6/18, which include cost-effectiveness considerations

Systemic review or evidence registry
Hi-5: Health impact in five years (U.S. Centers for Disease Control and Prevention [CDC])
6/18: Accelerating Evidence into Action (CDC)
CG: The Guide to Community Prevention Services (CDC)
WWFH: What Works for Health (University of Wisconsin and Robert Wood Johnson Foundation)
USPSTF: U.S. Preventive Services Task Force recommendations (Agency for Healthcare Research and Quality)
WSIPP: Washington State Institute for Public Policy

Figure 2.2 provides an example of the connection between a priority goal, strategy and impact on a desired priority outcome. Progress on each priority outcome can be tracked at the population level for Ohio using the metrics identified in figure 2.3.

Figure 2.2 **Example of connection between priority outcomes, goals and prioritized evidence-based strategies**



Achieving optimal health for all Ohio children

There are many children in Ohio that experience poorer health outcomes when compared to peers. Depending on a child's race or ethnicity, where he or she lives, family income or other social, economic or demographic factors, he or she may not have the same opportunities to live a healthy life as other children in the state.

State policymakers and other stakeholders must work together to ensure all children in Ohio have the opportunity to achieve optimal health by:

- Focusing resources, policies and programs towards children who are at the greatest risk of experiencing poor health outcomes
- Prioritizing investment in evidence-based strategies that decrease health gaps in children and address the underlying causes of these gaps, such as improving the social and economic conditions for children living in struggling Ohio communities
- Increasing collection of and access to disaggregated data for children to identify gaps in health outcomes (such as by race and ethnicity, family income, disability status, sexual orientation, zip code, gender, age, etc.) in real time
- Evaluating the impact of policies and actions taken to improve reach and to assess impact on reducing health disparities

To highlight the needs of children most at-risk for poor health outcomes, the *Assessment* identifies priority populations for each outcome in the policy framework for which notable disparities exist (see figure 2.3). Priority populations are a subgroup of a population that are most at-risk for poor health outcomes. Data on the gaps in outcomes for children in Ohio are included in **Section 4. Secondary data analysis**.

Figure 2.3 **Priority outcomes, metrics and priority populations**

Priority outcome	Priority metric(s)	Priority population*
1. Suicide deaths	**Suicide, youth.** Crude rate of suicide deaths per 100,000 population for ages 8-17 (Source: Ohio Department of Health Bureau of Vital Statistics and Centers for Disease Control and Prevention, Vital Statistics)	Males ages 8-17
	Suicide, young adult. Crude rate of suicide deaths per 100,000 population for ages 18-25 (Source: Ohio Department of Health Bureau of Vital Statistics and Centers for Disease Control and Prevention, Vital Statistics)	Males ages 18-25
2. Depression	**Major depressive episode.** Percent of youth ages 12-17 who experienced a major depressive episode within the past year (Source: National Survey of Drug Use and Health)	Female youth
3. Anxiety	**Anxiety.** Percent of children ages 3-17 with current anxiety problems (Source: National Survey of Children's Health)	Youth with low income
4. Attention Deficit/ Hyperactivity Disorder (ADD/ ADHD)	**Attention Deficit/Hyperactivity Disorder.** Percent of children ages 3-17 who currently have ADD/ADHD (Source: National Survey of Children's Health)	Males under age 17
5. Tobacco/ nicotine	**Tobacco use, youth.** Percent of youth ages 12-17 that report using tobacco products in the past month [Note: Does not include e-cigarettes] (Source: National Survey of Drug Use and Health)	All youth
	E-cigarette use. Percent of Ohio students grades 6-12 that report current e-cigarette use (Source: Ohio Youth Tobacco Survey)	Disparity data not available
6. Alcohol	**Alcohol use, youth.** Percent of youth ages 12-17 that report using alcohol in the past month (Source: National Survey of Drug Use and Health)	All youth
	Heavy alcohol use, young adult. Percent of men ages 18-24 who have more than 14 drinks per week and women ages 18-24 who have more than seven drinks per week (Source: Behavioral Risk Factor Surveillance System)	All young adults
7. Marijuana	**Marijuana use, youth.** Percent of youth ages 12-17 that report using marijuana in the past month (Source: National Survey on Drug Use and Health)	All youth
	Marijuana use, young adult. Percent of young adults ages 18-25 that report using marijuana in the past month (Source: National Survey of Drug Use and Health)	All young adults
8. Unintentional drug overdose deaths	**Unintentional drug overdose death, young adult.** Crude rate of unintentional drug overdose deaths per 100,000 population ages 18-25 (Source: Ohio Department of Health Bureau of Vital Statistics)	White male young adults

*Priority populations were identified based on the best publicly available population-level data regarding the population of children (or women in the case of maternal and infant health) who are most at risk for poor outcomes.
Note: Youth are generally defined as children ages 12-17, but may also include other school-age children.

Figure 2.3 **Priority outcomes, metrics and priority populations** (cont.)

Priority outcome	Priority metric(s)	Priority population*
9. Asthma morbidity	**Asthma emergency department visits.** Emergency department visits for pediatric asthma, per 10,000 children, ages 0-17 [Note: Excludes patients with cystic fibrosis or abnormalities of the respiratory system, and transfers from other institutions] (Source: Ohio Hospital Association Clinical-Financial Data Set)	Black children under age 18
10. Physical activity	**Physical activity**. Percent of children ages 6-17 who exercise, play a sport, or participate in physical activity for at least 60 minutes every day (Source: National Survey of Children's Health)	All children under age 18
11. Food insecurity	**Food insecurity**. Percent of children under age 18 living in households where, in the previous 12 months, there was an uncertainty of having, or an inability to acquire, enough food for all household members because of insufficient money or other resources (Source: Population Reference Bureau, analysis of data from the U.S. Census Bureau, Current Population Survey, Food Security Supplement as compiled by the Kids Count Data Center)	All children under age 18
12. Healthy weight	**Healthy weight**. Percent of children ages 10-17 with body mass index between the 5th and 84th percentile (Source: National Survey of Children's Health)	Youth with low income
13. Infant mortality	**Infant mortality**. Rate of infant deaths per 1,000 live births (Source: Ohio Department of Health Bureau of Vital Statistics)	Black women and infants
14. Preterm birth	**Preterm birth**. Percent of babies born prior to 37 weeks of pregnancy (gestation) (Source: Centers for Disease Control and Prevention Vital Statistics)	Black women and infants
15. Prenatal care	**Prenatal care.** Percent of births where mothers received prenatal care in the first trimester (Source: Centers for Disease Control and Prevention Vital Statistics)	Black women

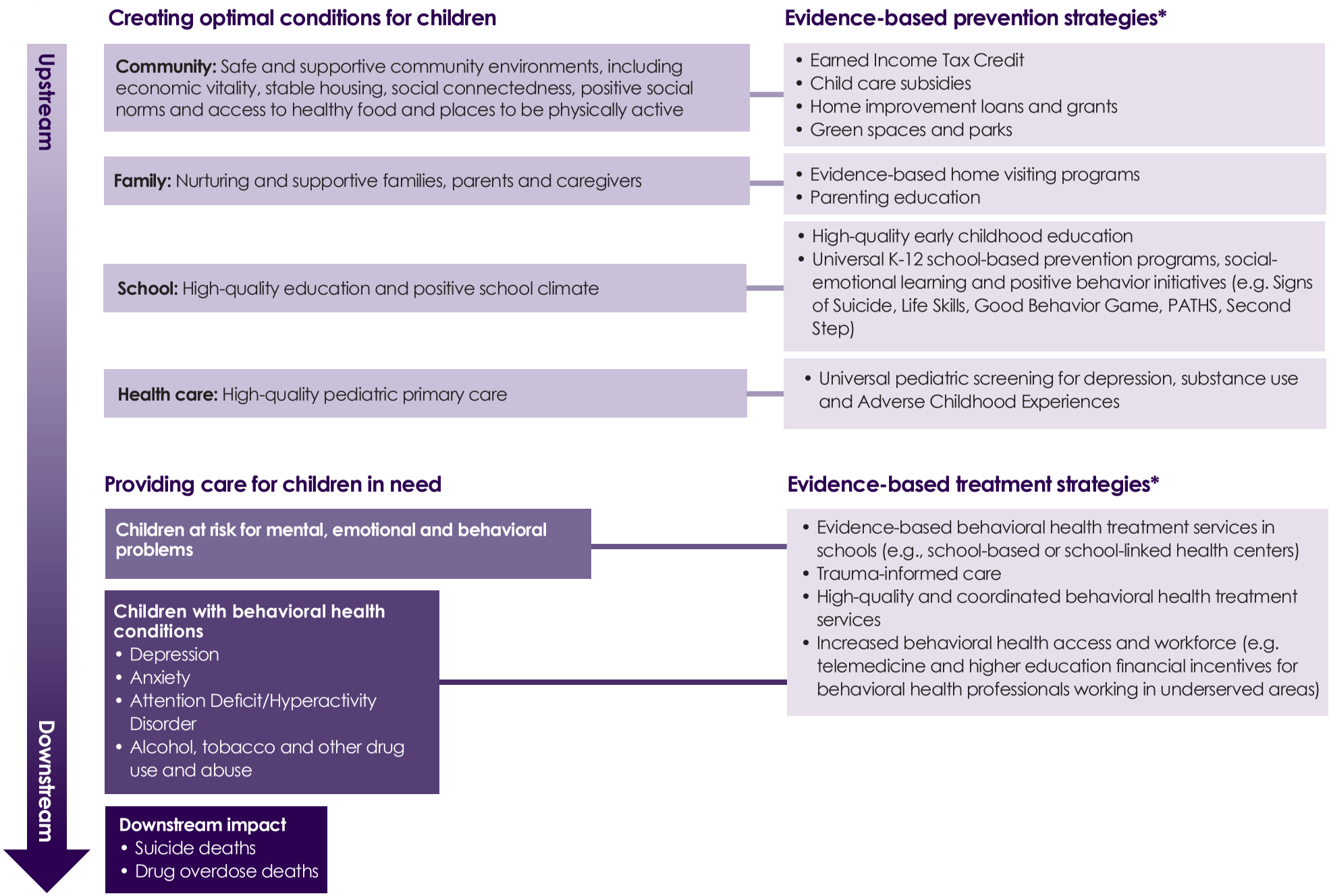
*Priority populations were identified based on the best publicly available population-level data regarding the population of children (or women in the case of maternal and infant health) who are most at risk for poor outcomes.
Note: Youth are generally defined as children ages 12-17, but may also include other school-age children.

Evidence-based strategies to achieve policy goals

In order to achieve the policy goals outlined in figure 2.1, it is critical that evidence-based strategies be deployed in a coordinated and sustained way to ensure optimal conditions for child health and wellbeing. Figure 2.4 applies this comprehensive approach to the mental health and addiction policy priority. The diagram in figure 2.4 provides examples of upstream evidence-based polices and programs that promote child wellbeing and prevent mental, emotional and behavioral problems in children, as well as downstream strategies to treat children and young adults who are at risk for or have behavioral health conditions.

Widespread and effective implementation of upstream prevention strategies can reduce downstream consequences of mental illness and addiction, such as suicide and drug overdose deaths. A similar approach can be implemented to reduce the downstream impacts for Ohio's other top child health priorities — chronic disease and maternal and infant health. Most importantly, the optimal conditions for children in Ohio outlined in figure 2.4, such as safe communities and nurturing families, are critical to address all of Ohio's top child health priorities.

Figure 2.4 **Example of a public and private prevention and treatment approach to mental health and addiction**



*__Sources:__ *Assessment of Child Health and Health Care in Ohio* and 2017-2019 State Health Improvement Plan

Stages of child development

In alignment with the conceptual framework for the *Assessment* (see figure 1.7), the child health priority areas, outcomes, goals and evidence-based strategies highlighted in the policy framework (figure 2.1) span the stages of child development from perinatal through young adulthood (see figures 2.5 and 2.6).

Figure 2.5 **Priority outcomes by stage of child development**

Policy priorities and outcomes*	Perinatal/ infant (0-1)	Early childhood (2-5)	Childhood (6-11)	Adolescence (12-17)	Young adult (18-25)
Mental health and addiction					
Suicide deaths			■	■	■
Depression				■	■
Anxiety		■	■	■	
Attention Deficit/ Hyperactivity Disorder		■	■	■	
Tobacco/nicotine			■	■	■
Alcohol				■	■
Marijuana				■	■
Unintentional drug overdose deaths	■	■	■	■	■
Chronic disease					
Childhood asthma morbidity	■	■	■	■	
Physical activity			■	■	
Food insecurity	■	■	■	■	
Healthy weight			■	■	
Maternal and infant health					
Infant mortality	■				
Preterm birth	■			■	■
Prenatal care	■			■	■

Note: Age categories for outcomes reflect the age groups most effected by the priority outcome and for which there is population-level publicly available data.

Figure 2.6 **Policy goals and prioritized evidence-based strategies by stage of child development**

Policy goals and strategies*	Perinatal/ infant (0-1)	Early childhood (2-5)	Childhood (6-11)	Adolescence (12-17)	Young adult (18-25)
Policy goal 1. Young Ohioans are socially and emotionally healthy					
1. Universal K-12 school-based prevention programs including: • school-based suicide awareness and education programs (e.g. Signs of Suicide and Youth Aware of Mental Health Program) • school-based violence prevention programs (e.g. life skills training, Good Behavior Game and Promoting Alternative Thinking Strategies [PATHS]) • school-based social and emotional instruction (SEL) (e.g. Second Step and PATHS) • school-wide Positive Behavioral Interventions and Supports (Tier 1)* (Hi-5 and WWFH)					
Policy goal 2. Young Ohioans do not use or abuse tobacco, nicotine, alcohol, marijuana and opiates					
2. Increase the price of tobacco and alcohol products, including increasing the unit price for tobacco products and alcohol taxes* (Hi-5 and WWFH); and increase minimum age to purchase tobacco products (tobacco 21) (WWFH)					
3. Mass-reach tobacco prevention communications campaigns (strategy within Hi-5 "tobacco control")					
4. Universal school-based programs: Alcohol misuse and impaired driving (WWFH)					
Policy goal 3. Young Ohioans have access to high-quality, coordinated behavioral health services					
5. Higher education financial incentives for health professionals serving underserved areas* (WWFH)					
6. Evidence-based behavioral health services in schools including but not limited to school-based or school-linked health centers* (CG) (Note: cognitive behavioral therapy for trauma and anxiety are examples of evidence-based strategies that can be provided in schools that also show evidence of cost-effectiveness according to WSIPP. Effectiveness of cognitive behavioral therapy was not separately evaluated for provision in schools.)					

Note: Age categories for strategies reflect the age group the strategy is delivered to and/or the age group intended to benefit from the strategy. Some strategies are by definition directed toward specific age groups (e.g., school-based prevention and early childhood education), while others should be universally-available for all age groups (e.g. parks and green space and telehealth).
*Strategy likely to reduce disparities, based on review by What Works for Health (WWFH) or Community Guide (CG).

Figure 2.6 **Policy goals and prioritized evidence-based strategies by stage of child development** (cont.)

Policy goals and strategies*	Perinatal/ infant (0-1)	Early childhood (2-5)	Childhood (6-11)	Adolescence (12-17)	Young adult (18-25)
Policy goal 3. Young Ohioans have access to high-quality, coordinated behavioral health services (cont.)					
7. Telemedicine* specific to delivery of evidence-based behavioral health services (WWFH) (Note: cognitive behavioral therapy for trauma and anxiety are examples of evidence-based strategies that also show evidence of cost-effectiveness according to WSIPP. Effectiveness of cognitive behavioral therapy was not separately evaluated for provision via telemedicine.)					
8. Evidence-based addiction counseling and treatment services, including medication-assisted treatment (WWFH and WSIPP)					
Policy goal 4. Young Ohioans with asthma live in healthy, smoke-free homes					
9. Home improvement loans and grants* (Hi-5 and WWFH)					
10. Healthy home environmental assessments/home visits to reduce home asthma triggers and improve self-management education* (6/18 and WWFH)					
11. Smoking cessation for families of children with asthma such as quitline and related interventions* (CG)					
Policy goal 5. Young Ohioans are physically active and eat healthy					
12. School-based programs to increase physical activity including: active recess, physically active classrooms, enhanced school-based education, extracurricular activities for physical activity, safe routes to school (HI-5, CG and WWFH)					
13. School breakfast programs* (WWFH)					
14. Healthy food initiatives in food banks* that provide for client choice (WWFH)					
15. Green space and parks* (WWFH)					

Note: Age categories for strategies reflect the age group the strategy is delivered to and/or the age group intended to benefit from the strategy. Some strategies are by definition directed toward specific age groups (e.g., school-based prevention and early childhood education), while others should be universally-available for all age groups (e.g. parks and green space and telehealth).
*Strategy likely to reduce disparities, based on review by What Works for Health (WWFH) or Community Guide (CG).

Figure 2.6 **Policy goals and prioritized evidence-based strategies by stage of child development** (cont.)

Policy goals and strategies*	Perinatal/ infant (0-1)	Early childhood (2-5)	Childhood (6-11)	Adolescence (12-17)	Young adult (18-25)
Policy goal 6. Young Ohioans have access to high-quality, coordinated health services for asthma and healthy weight management					
16. Evidence-based asthma medical management; access and adherence to asthma medications and devices; intensive self-management education (6/18 control asthma strategy)					
17. Screening and referral to comprehensive weight management interventions (USPSTF)					
18. Medical homes (also referred to as Patient-centered Medical Homes)* (WWFH)					
Policy goal 7. Ohioans have access to high-quality, coordinated pregnancy and infant health services					
19. Evidence-based programs that support pregnant women and improve access to prenatal care, such as CenteringPregnancy* (WWFH)					
20. LARC access including provider reimbursement for immediate postpartum insertion of LARC by unbundling payment and removing administrative and logistical barriers to LARCs (6/18 and WWFH)					
Policy goal 8. Ohio families have access to high quality early childhood services					
21. Early childhood education* including full implementation of Ohio's Step Up to Quality rating system and expanding access to child care subsidies (Hi-5)					
22. Evidence-based early child home visiting programs* (WWFH) including Nurse Family Partnership, Healthy Families America and other evidence-based home visiting programs supported by Ohio Help Me Grow and that meet the criteria established by the U.S. Department of Health and Human Services					

Note: Age categories for strategies reflect the age group the strategy is delivered to and/or the age group intended to benefit from the strategy. Some strategies are by definition directed toward specific age groups (e.g., school-based prevention and early childhood education), while others should be universally-available for all age groups (e.g. parks and green space and telehealth).
*Strategy likely to reduce disparities, based on review by What Works for Health (WWFH) or Community Guide (CG).

Note

1. HPIO defines self-sufficient employment as employment that: (1) pays a sufficient income to cover basic needs, such as housing, food, transportation, child care and health care (2) offers health insurance coverage

3 Findings

A summary of findings from **Section 4. Secondary data analysis** is provided below. This data was used to identify Ohio's greatest child health challenges and strengths, as well as opportunities to improve child health outcomes.

Ohio's child health challenges

Leading causes of death (see pages 29 to 35)
Several key health challenges rose to the top when looking at the leading causes of death for Ohio infants, children ages 1-17 and young adults ages 18-25. The top three leading causes of death in 2017 for each of these age groups are listed below.

Infants (less than 1 year old)
- Preterm birth and low birth weight
- Congenital malformations, congenital deformation and chromosome abnormalities
- Pregnancy maternal complications

Children (1-17)
- Unintentional injuries (includes motor vehicle accidents, drowning and other injuries)
- Suicide
- Homicide

Young adults (18-25)
- Unintentional injuries (includes drug overdoses, motor vehicle accidents and other injuries)
- Suicide
- Homicide

Ohio has seen an increase in unintentional injury deaths in children ages 1-17 from 2012 to 2017. Notably, the majority of unintentional injury deaths for children ages 1-17 were caused by motor vehicle crashes. Ohio performs slightly better than the U.S. for ages 0 to 17 for motor vehicle crash deaths with a crude rate (i.e. not age-adjusted) of 3.3 deaths per 100,000 children compared to the U.S. rate of 3.5 deaths. However, Ohio has experienced a 41 percent increase in motor vehicle crash deaths for ages 1-17 from 2012 (70 total deaths) to 2017 (99 total deaths).

Ohio's unintentional injury crude death rate for young adults ages 18-25 was more than 1.3 times that of the U.S. in 2016 (Ohio: 54.4 and U.S.: 41.1). In 2017, the majority of unintentional injury deaths in Ohio for young adults were attributed to accidental poisoning and exposure to noxious substances, including unintentional drug overdose deaths. Unintentional drug overdose deaths in Ohio for ages 18 to 25 has more than tripled from 2007 at 138 deaths to 448 deaths in 2017.

Suicide deaths for Ohio's children and young adults have also increased from 2007 to 2017 by nearly 1.5 times for ages 18-25 (155 to 225 deaths) and by more than two-fold for ages 8-17 (35 deaths to 80 deaths). The majority of suicide deaths in Ohio for children and young adults involve use of a firearm or strangulation. The youngest child to die by suicide during the 2007 to 2017 time period was eight years old.

Data profiles (see pages 36 to 42)
Ohio ranks in the bottom half of states on 65 percent of metrics for which national ranking was provided in the data profiles section of the *Assessment*. Even more troubling, Ohio is squarely in the bottom quartile of states on nearly one-third of metrics.

Figure 3.1 identifies Ohio's top child health challenges from the data profiles, including metrics for which Ohio ranked in the bottom quartile and metrics where Ohio's performance is worsening. Metrics for which Ohio is both in the bottom quartile and moving in the wrong direction include:
- Drug overdose deaths, young adult
- Infant mortality
- Major depressive episode

In addition, the following metrics stand out because Ohio is in the bottom half of states and also moving in the wrong direction:
- Marijuana use, young adult
- Preterm birth

Figure 3.1 **Ohio's top child health challenges**

Bottom quartile metrics

Domain	Metric	Ohio's rank	Trend
Population health	**Drug overdose death, young adult.** Crude rate of drug overdose deaths per 100,000 population ages 18-25 (2016)	40 (out of 43)	Getting worse
	Infant mortality.** Rate of infant deaths per 1,000 live births (2015)	40	Getting worse
	Major depressive episode. Percent of youth ages 12-17 who experienced a major depressive episode within the past year (2015-2016)	40	Getting worse
	Attention Deficit/Hyperactivity Disorder. Percent of children ages 3-17 who currently have Attention Deficit Disorder or Attention Deficit-Hyperactivity Disorder (2016)	44	*
	Asthma. Percent of children ages 0-17 who currently have asthma (2016)	46	*
Access to care	**Hospital emergency room visit.** Percent of children ages 0-17 who had 2 or more hospital emergency room visits in the past year (2016)	45	*
Public health and preven	**Percent ever breastfed.** Percent of children who were ever breastfed by birth year (2014)	42	Getting better
	Smoker in household. Percent of children ages 0-17 who live in households where someone uses cigarettes, cigars or pipe tobacco (2016)	42	*
	Tobacco use, young adult. Percent of young adults ages 18-25 that report using tobacco products in past month [Note: Does not include e-cigarettes] (2015-2016)	46	Getting better
	Exclusively breastfed first six months. Percent of children, ages 19 months to 35 months, who were exclusively breastfed or fed breast milk for the first six months of life by birth year (2014)	47	Getting better
Healthcare system	**Asthma hospital admissions.** Rate of hospital admissions for asthma for children ages 2-17 per 100,000 population (2013)	31 (out of 41)	Getting better
	Shared decision making. Percent of children ages 0-17 whose families usually or always feel that they are partners in decision making around issues important to their child's health (2016)	42	*
	Transition in care. Percent of youth ages 12-17 who did not receive the services necessary for transition to adult health care (2016)	47	*

* Data not available for trend analysis
** 2016 data is available for Ohio, but not for other states, and was used for the trend column. 2015 data was used for Ohio's rank.

Other metrics that worsened

Domain	Metric	Ohio's rank	Trend
Population health	**Suicide, young adult.** Crude rate of suicide death per 100,000 population ages 18-25 (2016)	15	Getting worse
	Drug abuse and dependence at time of delivery. Total number of delivering mothers diagnosed with one or more drug abuse/dependence conditions at time of delivery (2015)	NR	Getting worse
Healthcare spending	**Medicaid spending per enrollee, children.** Average amount Medicaid spends per enrollee per year, all children (FY 2014)	NR	Getting worse
Access to care	**Unmet vision care.** Percent of children ages 5-17 with an unmet need for vision care (2015)	NR	Getting worse
Public health and prevention	**Heavy alcohol use, young adults.** Percent of men ages 18-24 who have more than 14 drinks per week and women ages 18-24 who have more than seven drinks per week (2016)	24	Getting worse
	Marijuana use, youth. Percent of youth ages 12-17 that report using marijuana in the past month (2015-2016)	25	Getting worse
	Marijuana use, young adult. Percent of young adults ages 18-25 that report using marijuana in the past month (2015-2016)	32	Getting worse
	Preterm birth. Percent of babies born prior to 37 weeks of pregnancy (gestation) (2016)	36 (out of 50)	Getting worse
	Breastfed at hospital discharge. Percent of infants who were exclusively breastfed at hospital discharge (2016)	NR	Getting worse
	Motor vehicle accident deaths, youth. Crude rate of motor vehicle accident deaths per 100,000 population ages 0-17 (2016)	NR	Getting worse
	Neonatal Abstinence Syndrome hospitalizations. Total number of inpatient hospital discharges for infants with a primary or secondary diagnosis of Neonatal Abstinence Syndrome (2015)	NR	Getting worse
Healthcare system	**Diabetes hospital admissions.** Rate of hospital admissions for diabetes with short-term complications for children ages 6-17 per 100,000 population (2013)	NR	Getting worse

Note: Trend indicates whether the data has changed in the desired direction from base year to most-recent year.

Top quartile | Second quartile | Third quartile | Bottom quartile | NR No rank
Of the 50 states and D.C.

Medicaid and Ohio hospital utilization and cost data (see pages 51 to 60)
Data from the Ohio Department of Medicaid on the top-10 highest cost conditions for children enrolled in Ohio Medicaid highlight many of the same themes that arose in the secondary data analysis and review of hospital community planning documents.

The top-10 highest cost conditions for children ages 0-17 enrolled in Ohio Medicaid were primarily related to:
- Ear, nose and throat diagnoses
- Mental health conditions
- Respiratory conditions

Pregnancy and birth-related conditions accounted for six percent of the top-10 highest cost conditions but had the highest per-capita cost compared to other diagnoses at just under $6,500 per capita.

The top-10 highest cost conditions for young adults ages 18-25 enrolled in Ohio Medicaid were primarily related to:
- Mental health and substance use conditions
- Pregnancy and birth-related conditions

Neurological disorders accounted for a smaller portion of the top-10 highest cost conditions but had the highest per-capita cost at more than $15,000 per capita.

When looking at the top-10 inpatient diagnoses, the majority were related to pregnancy and birth-related conditions for both ages 0-17 and 18-25, followed by mental health conditions for ages 0-17 as well as substance use for ages 18-25.

Medications to treat attention deficit hyperactivity disorder (ADHD) were the most commonly prescribed drugs for Medicaid enrollees ages 0-17 in 2017. The most commonly prescribed drugs for young adults, ages 18-25, enrolled in Medicaid included antibiotics, non-steroidal anti-inflammatory drugs (i.e. ibuprofen), respiratory drugs and oral contraceptives.

Utilization data from the Ohio Hospital Association also identify some of the same themes. For example, when looking at the most common conditions for Ohio children receiving inpatient treatment, the following diagnoses rise to the top by age group:
- Ages 0-1: Pregnancy and birth-related conditions
- Ages 2-5: Respiratory-related diagnosis
- Ages 6-11: Mental health-related diagnosis
- Ages 12-17: Mental health-related diagnosis
- Ages 18-25: Pregnancy and birth-related diagnosis

Gaps in outcomes (see pages 43 to 50)
Children in Ohio experience gaps in outcomes across race and ethnicity, household income level, sex, disability status and various other social, economic and demographic factors. Some of the most notable disparities in Ohio from the secondary data analysis are highlighted below:
- Compared to white women, black women are less likely to receive prenatal care during the first trimester of pregnancy and are more likely to deliver their baby preterm, before 37 weeks of gestation.
- Children who are black are 4.3 times more likely to have an emergency department visit related to asthma compared to white peers.
- Children living in families at or below 99 percent of the federal poverty level (FPL) are more than two times as likely to experience anxiety compared to children living in families with incomes between 200 and 399 percent of FPL.
- Young adult males ages 18-25 are 4.6 times as likely to die from suicide than their female peers and are more than two times as likely to die from a drug overdose.
- Twenty percent of children with developmental disabilities had problems getting needed health care compared to 6 percent of children without developmental disabilities.

Community health planning documents (see pages 61 to 72)
The top three priorities for the children's hospitals and local health departments combined—drug dependence and use, mental health and healthy weight/obesity—were each identified by at least half of the assessments/plans, reflecting a widespread desire to address these issues. Health priorities

that rose to the top across both the children's hospital and local health department documents were:

- Mental health
- Drug dependence and use
- Healthy weight/obesity
- Infant mortality
- Chronic disease (general)
- Violence[1]
- Access to health care/medical care

Notably, top-10 priorities identified by children's hospitals, but not local health departments, include:

- Childhood asthma
- Diabetes
- Injury
- Education

Top-10 child-focused health priorities identified by local health departments, but not children's hospitals, include:

- Tobacco
- Nutrition
- Maternal and infant health (general)
- Physical activity

Ohio's child health strengths

While Ohio's children face many health challenges, there are a few key strengths highlighted in the *Assessment* that Ohio can build on. Figure 3.2 identifies Ohio's top child health strengths from the data profiles, including metrics for which Ohio ranked in the top quartile out of 50 states and D.C. and metrics where Ohio's performance is improving. Metrics for which Ohio is in the top quartile are:

- Alcohol use, youth
- Care coordination (includes percent of children with a medical home)

Metrics for which Ohio is in the top half of states and also moving in the right direction are:

- Uninsured children
- Breastfeeding support in hospitals

Figure 3.2 **Ohio's top child health strengths**

Top quartile metrics

Domain	Metric	Ohio's rank	Trend
Population health	**Alcohol use, youth.** Percent of youth ages 12-17 that report using alcohol in the past month (2015-2016)	12	Getting better
Healthcare system	**Care coordination.** Percent of children ages 2-17 who did not receive effective care coordination (2016)	11	*

* Data not available for trend analysis

Other metrics that improved

Domain	Metric	Ohio's rank	Trend
Population health	**Suicide, youth.** Crude rate of suicide deaths per 100,000 population ages 8-17 (2016)	NR	Getting better
Access to care	**Uninsured children**. Percent of children ages 0-17 that are uninsured (2016)	25	Getting better
	Trouble accessing routine care, Medicaid. Percent of ambulatory care patients ages 0-17 enrolled in Medicaid who had an appointment in the last six months who sometimes or never got an appointment for routine care as soon as they wanted (2015)	NR	Getting better
	Trouble accessing specialist, Medicaid. Percent of ambulatory care patients ages 0-17 enrolled in Medicaid who needed to see a specialist in the last 6 months and sometimes or never found it easy to see a specialist (2015)	NR	Getting better
	Unmet dental care. Percent of children ages 3-17 with an unmet need for dental care (2015)	NR	Getting better
	Unmet prescription medication. Percent of children with an unmet need for prescription medication due to cost (2015)	NR	Getting better
	Unmet treatment for major depressive episode. Percent of children ages 12-17 with a major depressive episode in the past year who did not receive treatment (2011-2015)	NR	Getting better
Public health and preven	**Teen birth rate**. Total birth rate for females ages 15-19 per 1,000 births (2016)	28 (out of 50)	Getting better
	Food insecurity. Percent of children under age 18 living in households where, in the previous 12 months, there was an uncertainty of having, or an inability to acquire, enough food for all household members becaues of insufficient money or other resources (2013-2015)	28	Getting better
	Tobacco use, youth. Percent of youth ages 12-17 that report using tobacco products in the past month [Note: Does not include e-cigarettes] (2015-2016)	32	Getting better
	Child vaccination series. Percent of children ages 19 to 35 months with combined 7-series vaccine coverage (2014)	37	Getting better
	Percent ever breastfed. Percent of children who were ever breastfed by birth year (2014)	42	Getting better
	Tobacco use, young adult. Percent of young adults ages 18-25 that report using tobacco products in the past month [Note: Does not include e-cigarettes] (2015-2016)	46	Getting better
	Exclusively breastfed first six months. Percent of children, ages 19 months to 35 months, who were exclusively breastfed or fed breast milk for the first six months of life by birth year (2014)	47	Getting better
	Unintended pregnancy. Percent of women who were pregnant who never intended to be pregnant or who planned to be pregnant later (2015)	NR	Getting better
Healthcare system	**Breastfeeding support in hospitals.** Average Maternity Practice in Infant Nutrition and Care (mPINC) score among hospitals and birthing facilities to support breastfeeding (2015)	22	Getting better
	Asthma hospital admissions. Rate of hospital admissions for asthma for children ages 2-17 per 100,000 population (2013)	31 (out of 41)	Getting better
	Prenatal care. Percent of births where mothers received prenatal care in the first trimester (2016)	32	Getting better

Note: Trend indicates whether the data has changed in the desired direction from base year to most-recent year.

Top quartile | Second quartile | Third quartile | Bottom quartile | NR No rank

Of the 50 states and D.C.

Data gaps

The best publicly-available data was used to inform the findings of the *Assessment*, supplemented with Ohio Department of Medicaid and Ohio Hospital Association data. In conducting the *Assessment*, it was clear that access to data on child health outcomes is limited at the population level. Access to data disaggregated by social, economic and demographic factors for children is even more limited. Ohio has an opportunity to improve the availability of child-specific data at both the state and local-level and disaggregated by social, economic and demographic factors.

Data gaps and limitations are highlighted below. To provide a more comprehensive picture of the health and wellbeing of children in Ohio in future assessments and to ensure that policies implemented and strategies deployed to improve child health are having an impact, these limitations must be addressed:

- **Survey data.** The majority of metrics on population-level prevalence of health conditions and related risk factors in children is derived from health surveys, such as the National Survey of Children's Health (NSCH). Although these surveys often use validated measures, they rely on self-reporting of conditions and behaviors. Access to administrative (e.g. electronic health records) and claims-based data, which provide more accurate reporting of condition diagnoses, is very limited. Access to disaggregated data by social, economic or demographic factors is also very limited.
- **Trend analysis.** Multiple years of data is not available for some metrics. For example, metrics from the NSCH cannot be evaluated for trend due to a change to the data collection methodology. However, U.S. data is available for comparison. As of 2016, the Census Bureau is collecting data for the NSCH on an annual basis (previously every 4-5 years). This will provide a basis for trend analysis in the future.
- **U.S. data.** Data for some metrics is only available for Ohio and U.S. data is not available for comparison. For example, trend data is available from the Ohio Medicaid Assessment Survey, although comparable U.S. data is not available.
- **Data lag.** There is typically a lag of one to three years for data compiled from publicly-available sources. As a result, data available may predate implementation of an important policy change or system/delivery reform.
- **Adolescent health survey data.** Sample sizes for the school-administered Ohio Youth Risk Behavioral Survey and Ohio Healthy Youth Environments Survey were not sufficient to provide state-level data within the past four years.

Note

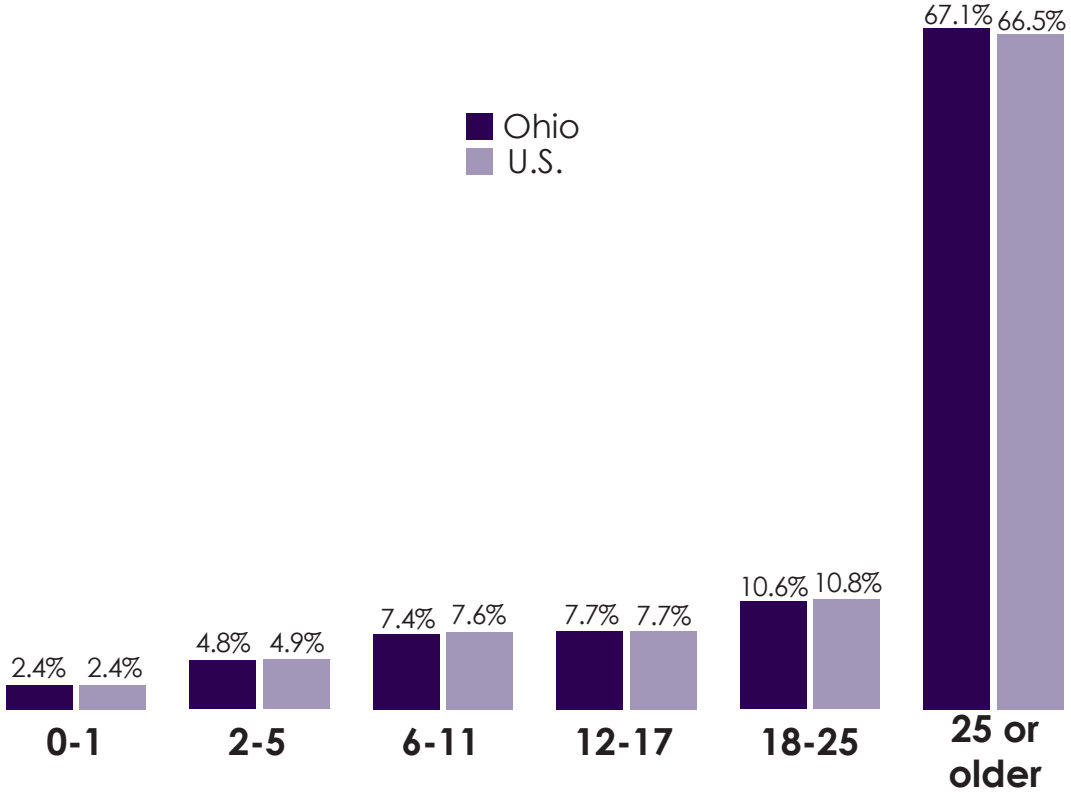
1. Includes physical and emotional violence, such as relationship or intimate partner violence, domestic violence, teen dating violence, street violence, bullying, self-harm, or other violence and crime general. Child maltreatment, trafficking and sexual violence were included in other priority categories.

4 Analysis of secondary data

Demographic characteristics

Figure 4.1 shows the percent of the population in Ohio and the U.S. over the age of 25 as well as the percent of the population under the age of 25 based on the age categories outlined in the conceptual framework for the *Assessment* (see figure 1.7). There were 3,840,977 Ohioans under the age of 25 in 2017, comprising 33 percent of the total population. Twenty-two percent of Ohioans (2,605,235) were under the age of 18 and 10.6 percent (1,235,742) were between the ages 18-25. The age distribution of Ohio's population generally mirrors that of the U.S.

Figure 4.1 **Ohio and U.S. total population, by age, 2017**
(Total Ohio population: 11,658,609; total U.S. population: 325,719,178)



Source: Centers for Disease Control and Prevention, Bridged-Race Population Estimates. Accessed Aug. 1, 2018.

Ohioans under age 25 are concentrated in or near the larger metropolitan areas of the state, including Cleveland, Columbus, Cincinnati and Toledo (see figures 4.2 and 4.3). However, nearly one third of Ohioans under age 25 live in Ohio's rural and Appalachian counties.

Figure 4.2 **Total population for ages 0-17 across Ohio counties, 2017**
(Total Ohio population, ages 0-17: 2,605,235)

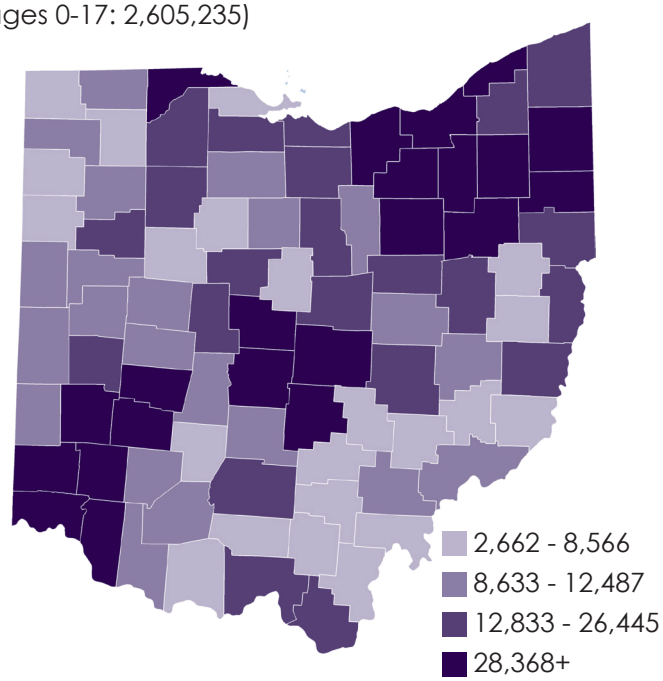
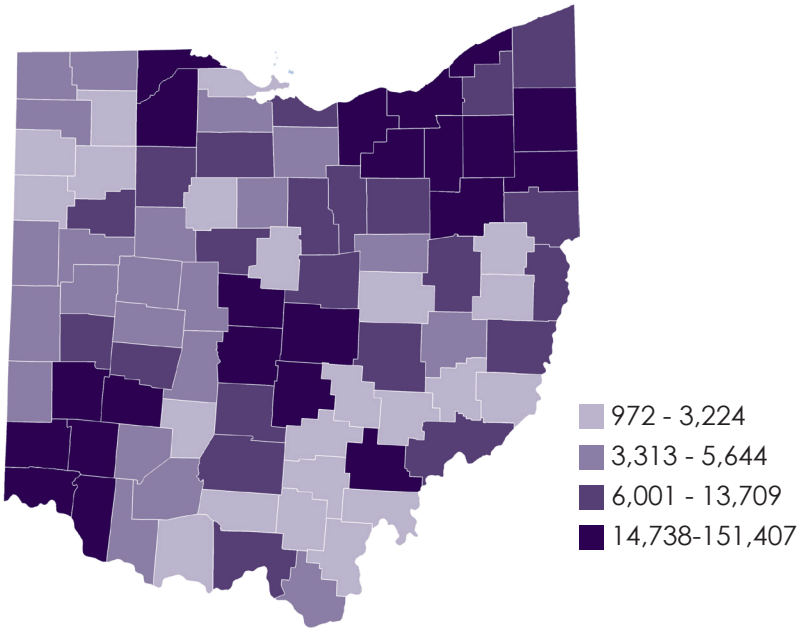


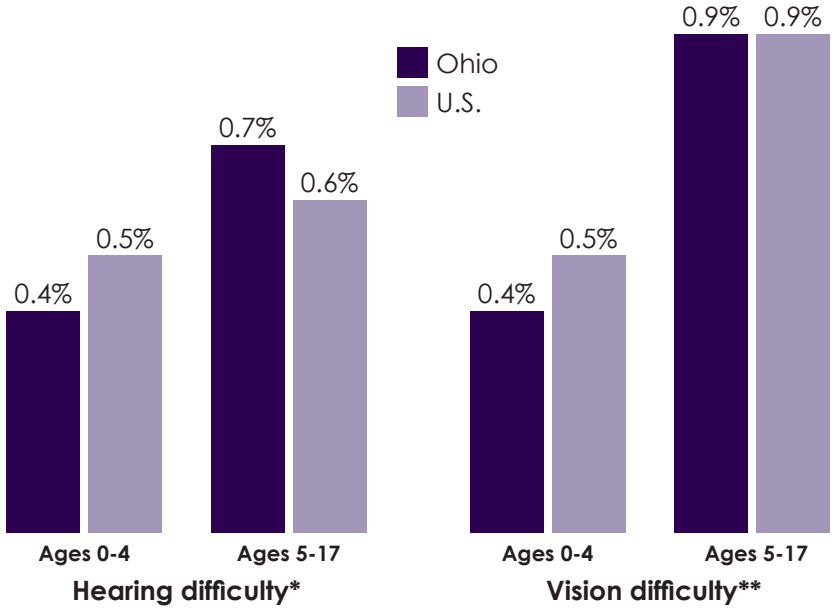
Figure 4.3 **Total population for ages 18-25 across Ohio counties, 2017**
(Total Ohio population, ages 18-25: 1,235,742)



Source: HPIO analysis of data from the Centers for Disease Control and Prevention, Bridged-Race Population Estimates

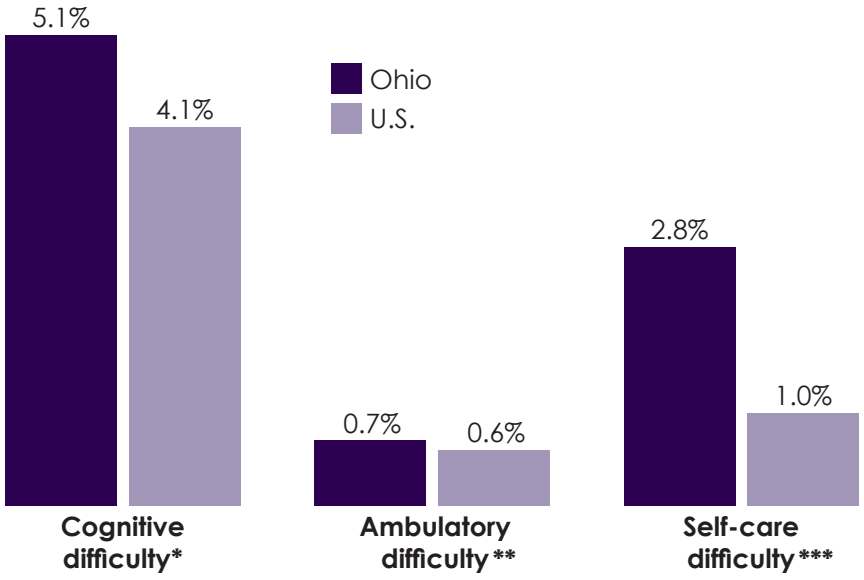
Figures 4.4 and 4.5 provide information on children with disabilities in Ohio. The percent of children with serious hearing and vision difficulties in Ohio is comparable to the U.S. Notably, 5.1 percent of children in Ohio report having a cognitive difficulty compared to 4.1 percent of children in the U.S.

Figure 4.4 **Children under age 18 with hearing or vision difficulty, Ohio and U.S., 2016**



* Deaf or having serious difficulty hearing
** Blind or having serious difficulty seeing, even when wearing glasses
Source: 2012-2016 American Community Survey 5-year estimates

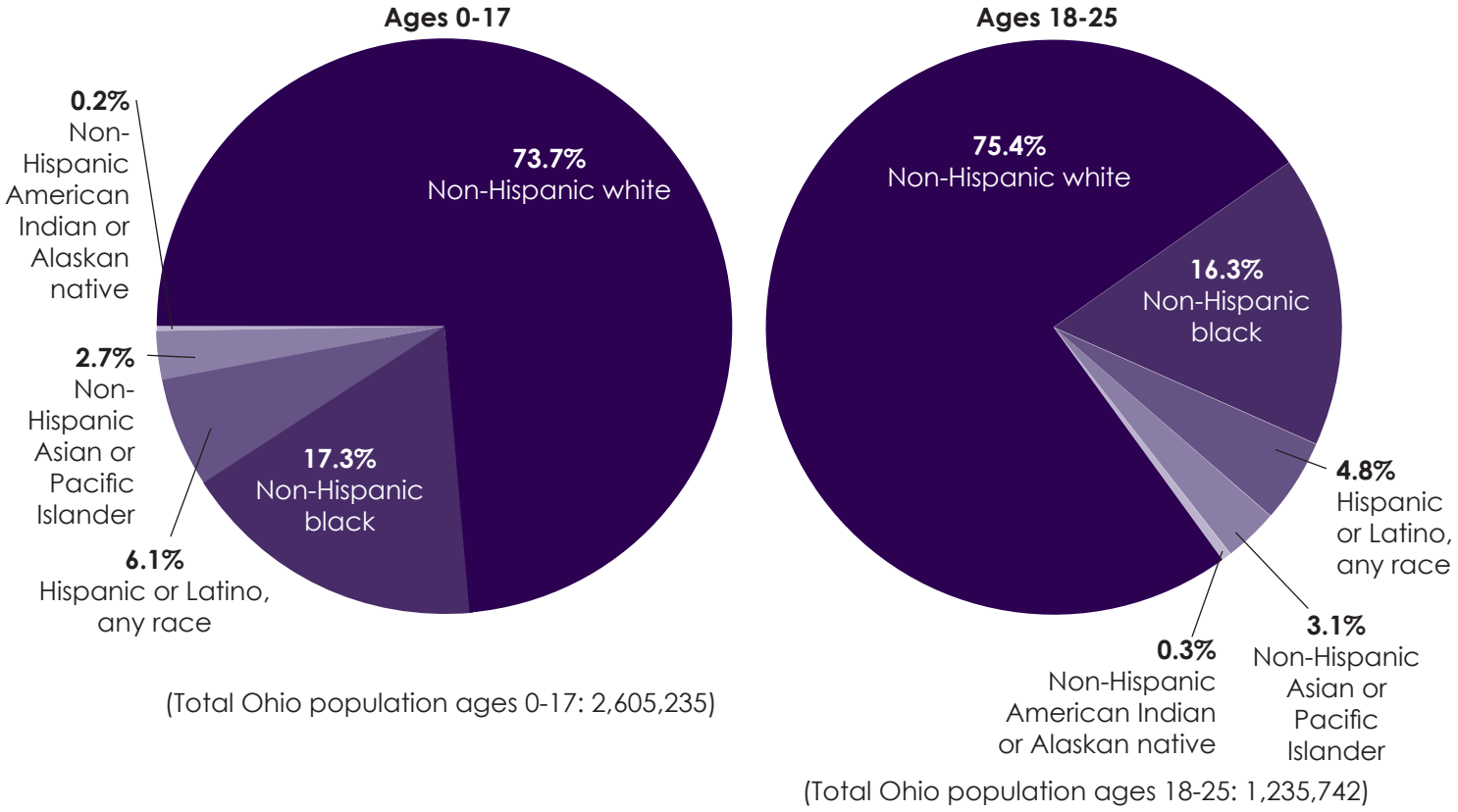
Figure 4.5 **Children ages 0-17 with a cognitive, ambulatory or self-care difficulty, Ohio and U.S., 2016**



* Difficulty remembering, concentrating or making decisions because of a physical, mental or emotional problem
** Serious difficulty walking or climbing stairs
*** Difficulty bathing or dressing
Source: 2012-2016 American Community Survey 5-year estimates

In 2017, the largest racial and ethnic groups for Ohio's population under the age of 25 were non-Hispanic white, non-Hispanic black, followed by Hispanic or Latino (any race) (see figure 4.6). The percent of the non-Hispanic black and Hispanic or Latino population was slightly larger in the 0-17 age group as compared to the 18-25 age group. Notably, in 2017, there was a much larger population of children and young adults in the U.S. who were Hispanic or Latino as compared to Ohio. In 2017, 5.7 percent of Ohioans ages 0-25 were Hispanic or Latino compared to 24.2 percent in the U.S.[1] However, Ohio had a larger percentage of the population aged 0-25 that was non-Hispanic black in 2017—16.9 percent in Ohio and 15.2 percent in the U.S.[2]

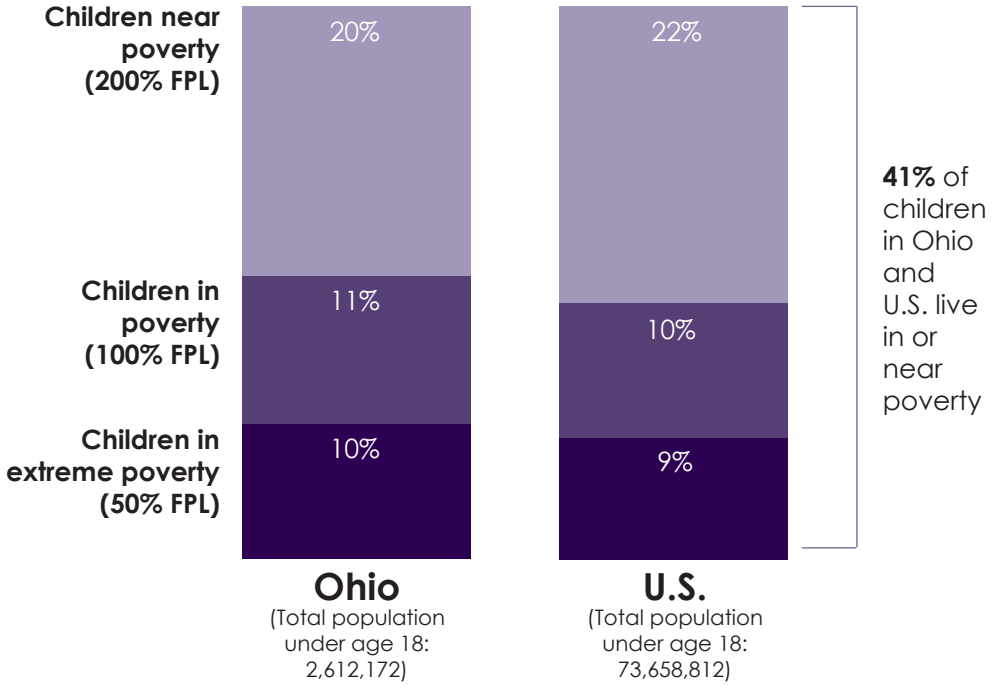
Figure 4.6 **Young Ohioans, by race and ethnicity, 2017**



Source: Centers for Disease Control and Prevention, Bridged-Race Population Estimates. Accessed August 1, 2018.

In 2016, 41 percent of children under age 18 lived in households with incomes at or below 200 percent of the federal poverty level (FPL) in both the U.S. and Ohio (see figure 4.7).

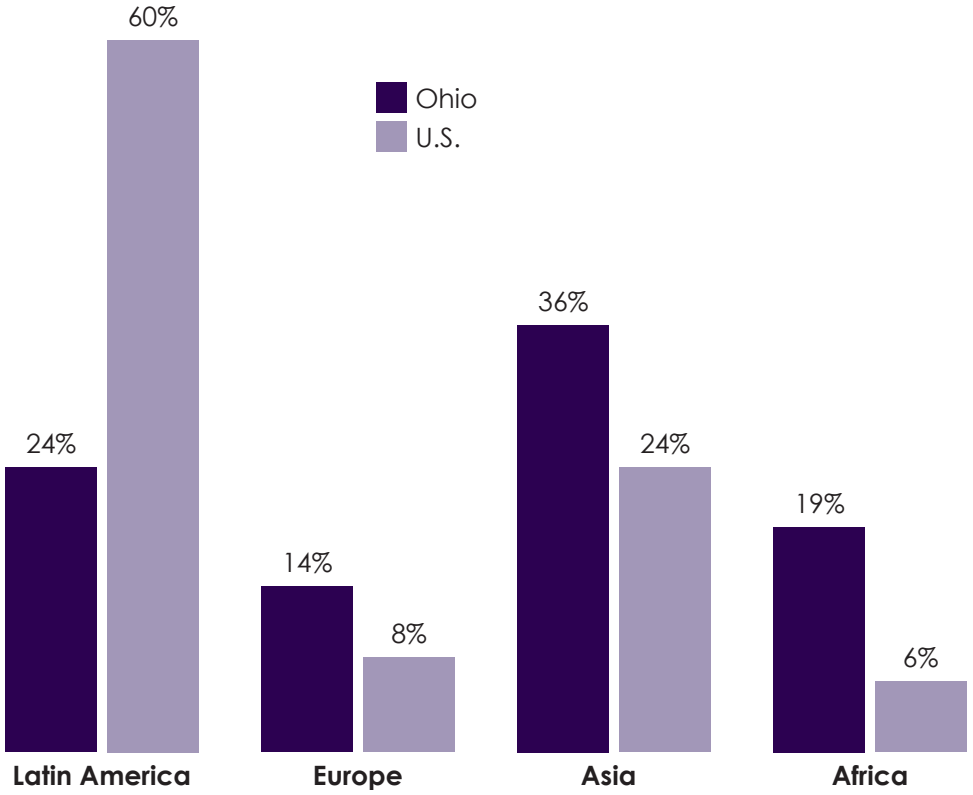
Figure 4.7 **Children under age 18 living in or near poverty, Ohio and U.S., 2016**



Source: Kids Count Data Center

In 2016, eight percent (211,000) of children in Ohio ages 0-17 were foreign-born or had at least one foreign-born parent.[3] Notably, when looking at the percent of children in immigrant families by parent's region of origin, Ohio has a higher percentage of parents immigrating from Asia, Africa and Europe than the U.S., and a lower percentage immigrating from Latin America (see figure 4.8).

Figure 4.8 **Children ages 0-17 in immigrant families, by parent's region of origin, Ohio and U.S., 2016** (Total Ohio children ages 0-17 in foreign-born families: 211,000)



Source: Kids Count Data Center

Note: Immigrant families are defined as families in which either the child or at least one parent was born outside the United States.

Leading causes of death

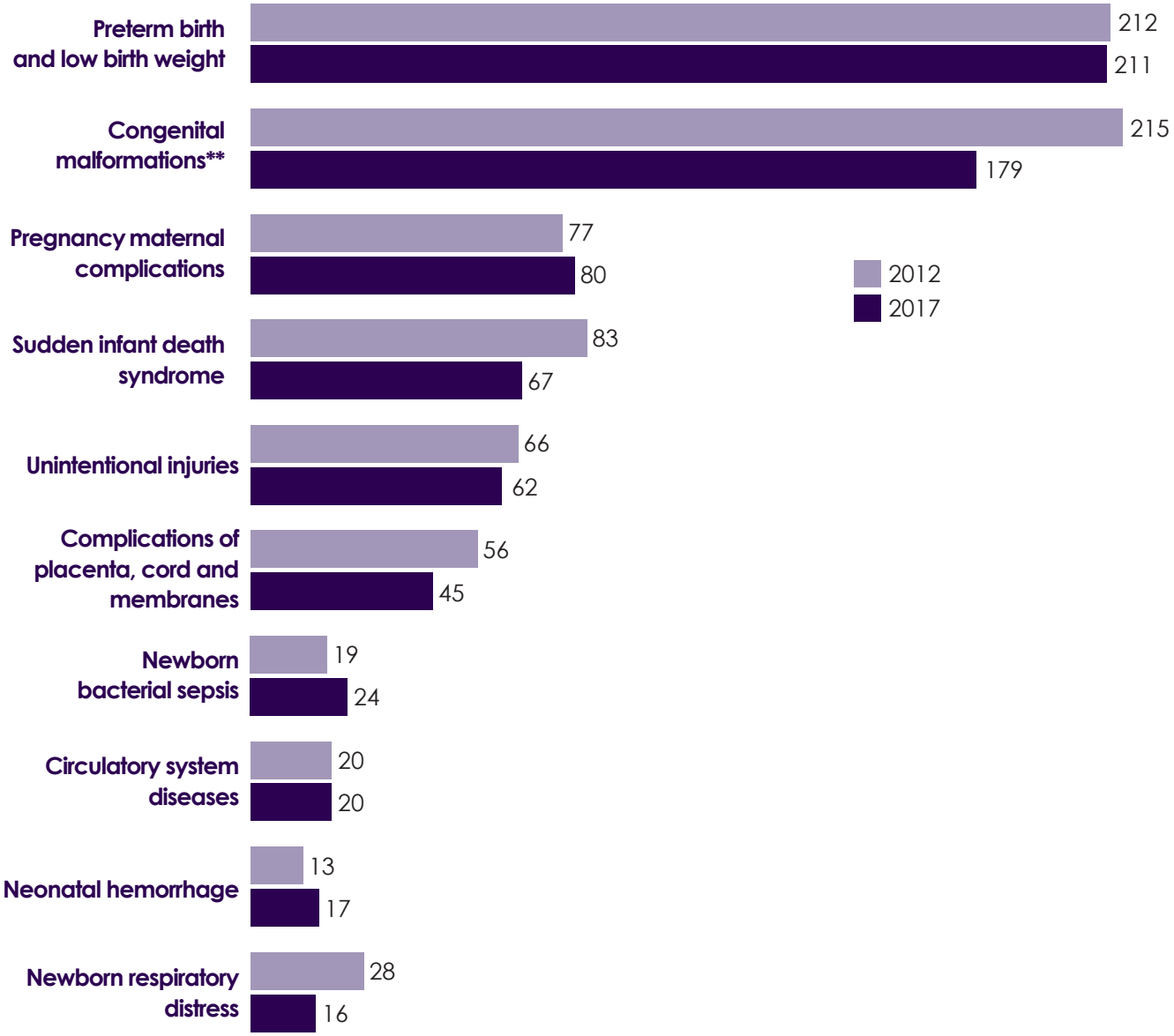
Figures 4.9 through 4.11 display the top 10 leading causes of death in 2017 for Ohio's children ages 0-1 and 1-17, as well as young adults ages 18-25. The leading cause of death for infants in Ohio is preterm birth and low birth weight. Unintentional injuries were by far the leading cause of death in Ohio for ages 1-17 and 18-25 followed by suicide and homicide.

Ohio has seen an increase in unintentional injury deaths in children ages 1-17 from 2012 to 2017. Notably, the majority of unintentional injury deaths for children ages 1 to 17 were caused by motor vehicle crashes. Ohio performs slightly better than the U.S. for ages 0 to 17 for motor vehicle crash deaths with a crude rate of 3.3 deaths per 100,000 children compared to the U.S. rate of 3.5 deaths.[4] However, Ohio has seen a 41 percent increase in motor vehicle crash deaths for ages 1-17 from 2012 (70 total deaths) to 2017 (99 total deaths)(see figure 4.10).

Ohio's unintentional injury crude death rate for young adults ages 18-25 was more than 1.3 times that of the U.S. in 2016 (Ohio: 54.4 and U.S.: 41.1)(see figure 4.12). In 2017, the majority of unintentional injury deaths in Ohio for young adults were attributed to accidental poisoning and exposure to noxious substances, including unintentional drug overdose deaths.

Figure 4.9 **Top ten leading causes of death for Ohio infants (less than 1 year old), by total count, 2012 and 2017***

(Total number of 2012 deaths: 1,047 Total number of 2017 deaths: 983)

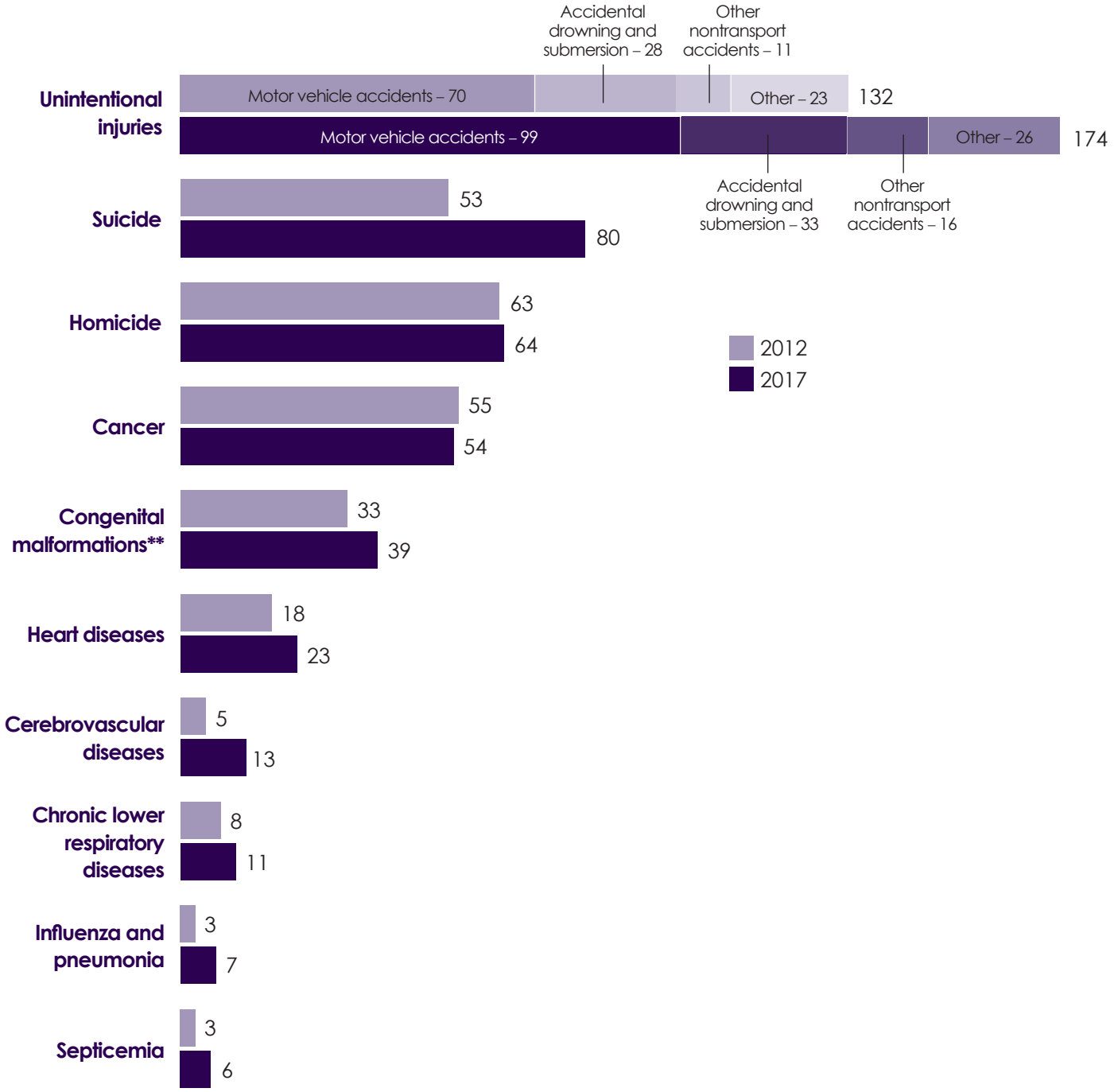


*2017 data is preliminary

**Congenital malformations include congenital deformation and chromosome abnormalities.

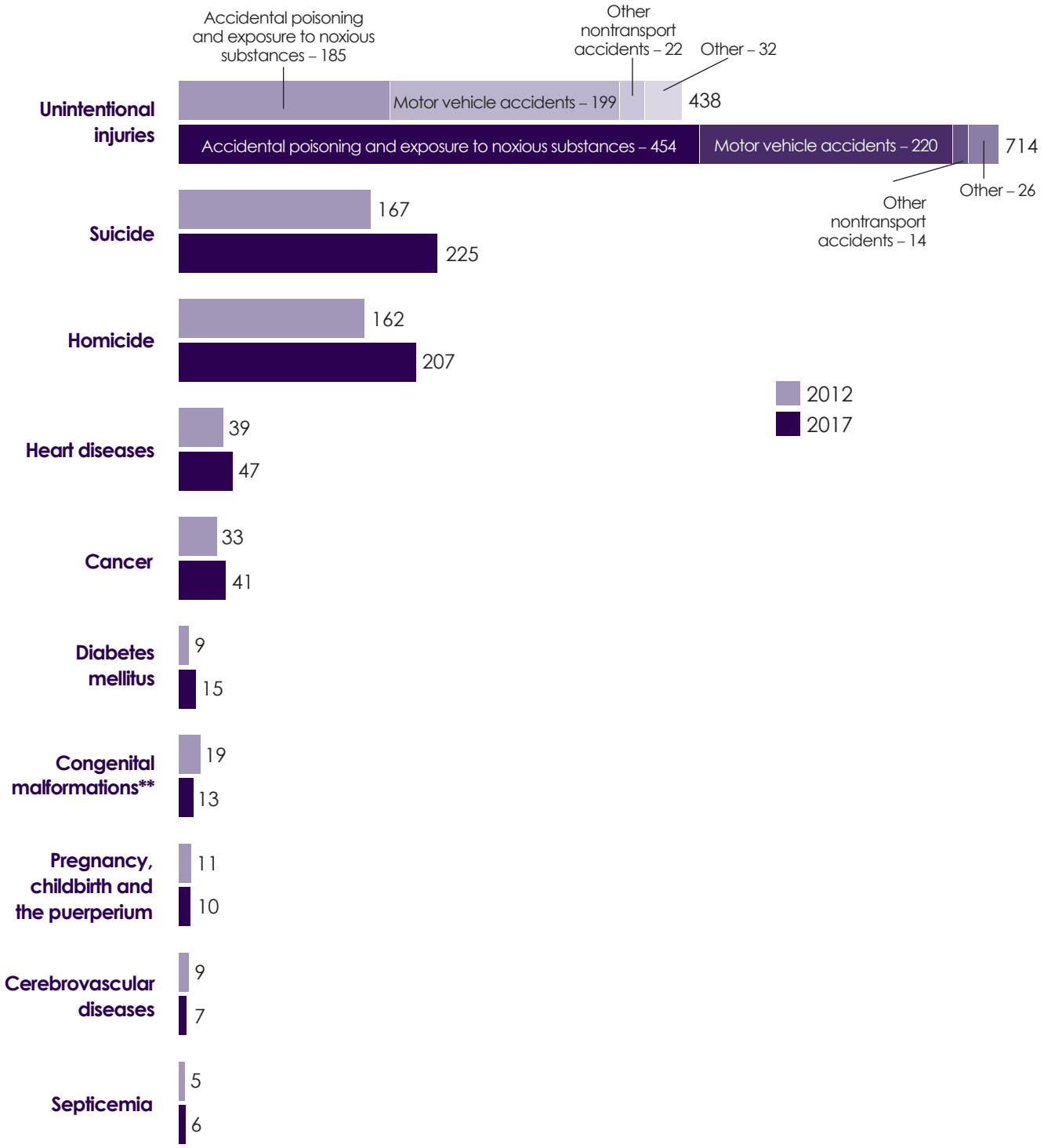
Source: Ohio Department of Health (ODH), Bureau of Vital Statistics. Compiled by HPIO staff using the ODH Public Health Data Warehouse. 2017 data accessed July 27, 2018. 2012 data accessed Aug. 8, 2018.

Figure 4.10 **Top ten leading causes of death for Ohio children ages 1-17, by total count, 2012 and 2017*** (Total number of 2012 deaths: 504; Total number of 2017 deaths: 594)



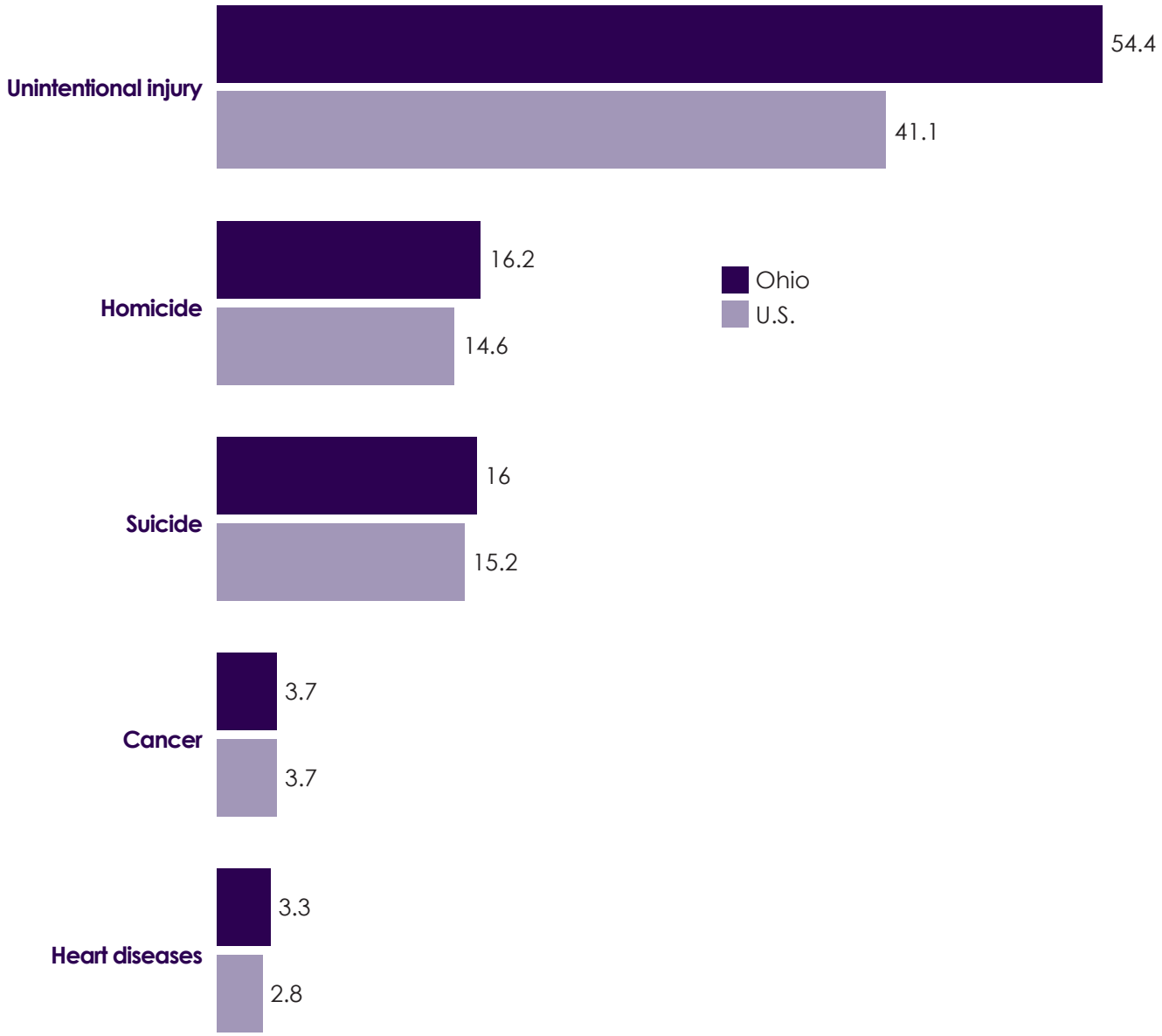
*2017 data is preliminary
**Congenital malformations include congenital deformation and chromosome abnormalities.
Source: Ohio Department of Health (ODH), Bureau of Vital Statistics. Compiled by HPIO staff using the ODH Public Health Data Warehouse. 2017 data accessed July 27, 2018. 2012 data accessed Aug. 8, 2018.

Figure 4.11 **Top ten leading causes of death for Ohio young adults ages 18-25, by total count, 2012 and 2017*** (Total number of 2012 deaths: 1,036; Total number of 2017 deaths: 1,440)



*2017 data is preliminary
**Congenital malformations include congenital deformation and chromosome abnormalities.
Source: Ohio Department of Health (ODH), Bureau of Vital Statistics. Compiled by HPIO staff using the ODH Public Health Data Warehouse. 2017 data accessed July 27, 2018. 2012 data accessed Aug. 8, 2018.

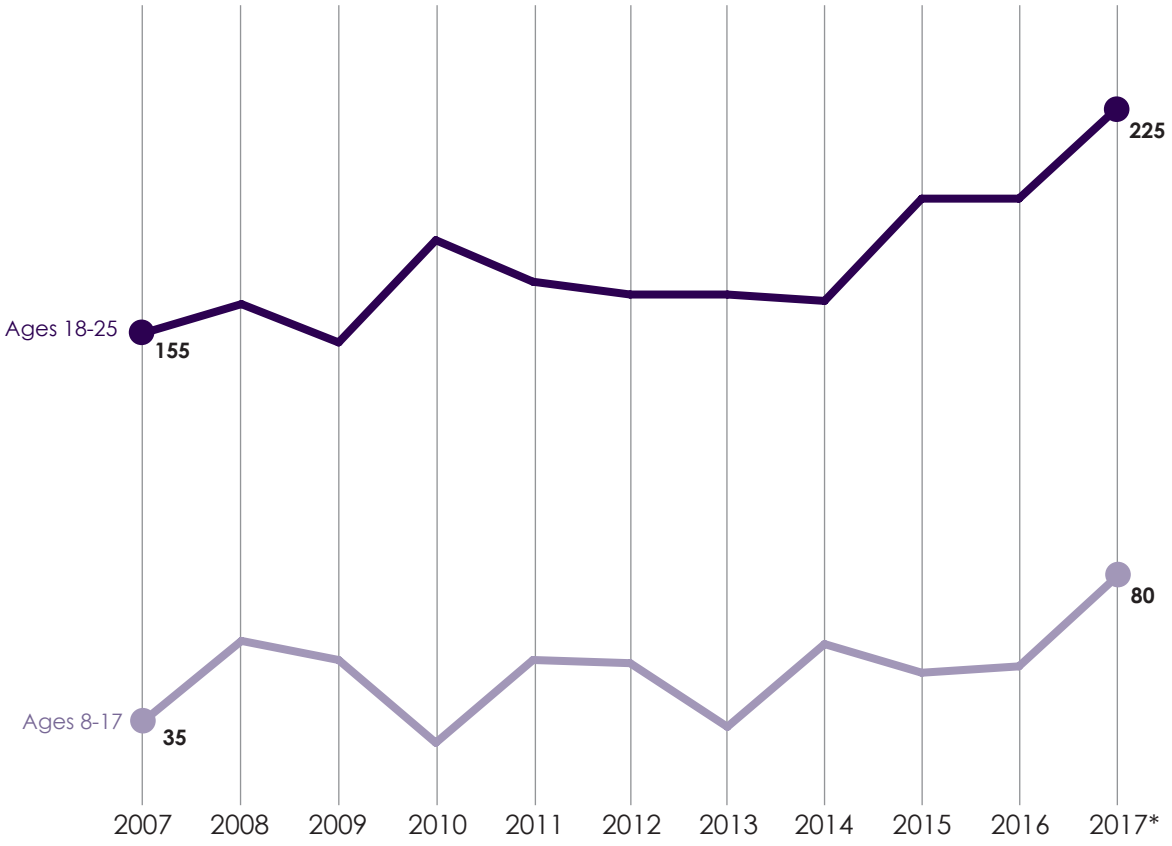
Figure 4.12 **Top five leading causes of death for young adults ages 18-25 in Ohio and U.S., by crude death rate (per 100,000 population), 2016**



Source: Centers for Disease Control and Prevention Vital Statistics

Suicide deaths for Ohio's children and young adults have increased from 2007 to 2017 (see figure 4.13) by nearly 1.5 times for ages 18-25 (155 to 225 deaths) and by more than two-fold for ages 8-17 (35 deaths to 80 deaths).

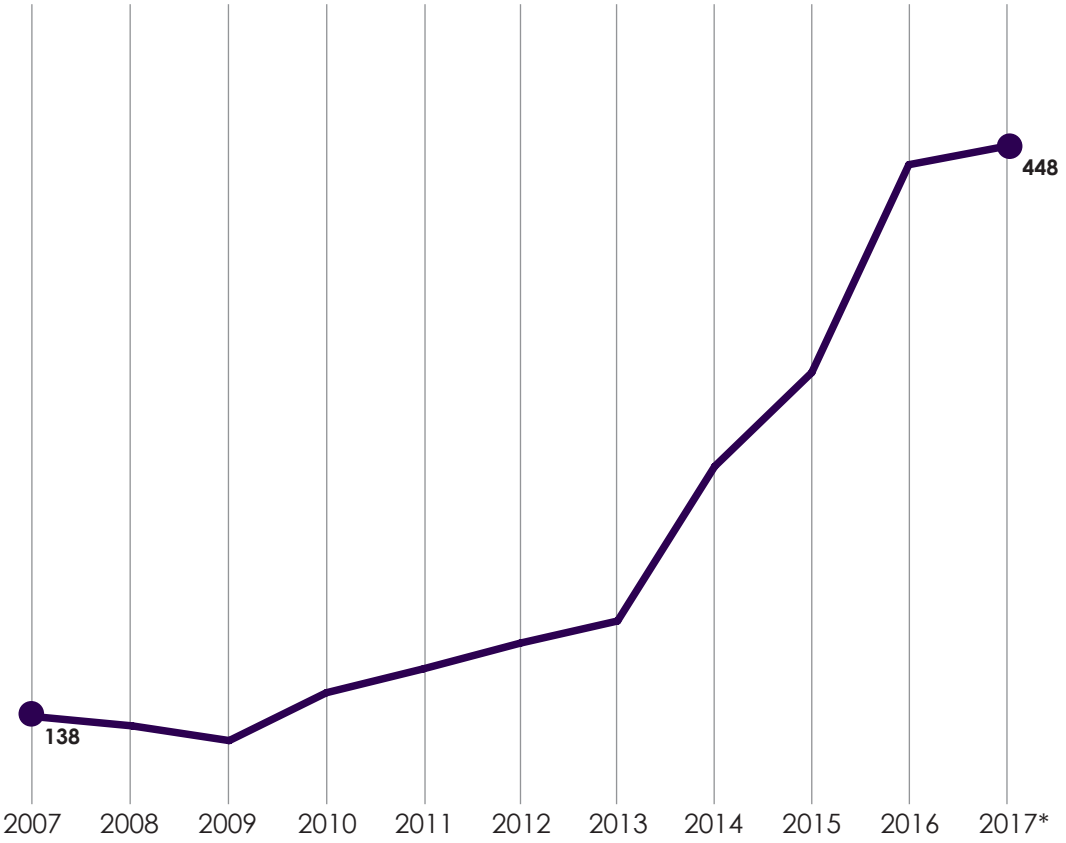
Figure 4.13 **Suicide deaths for Ohio children ages 8-17 and young adults ages 18-25, 2007-2017***



*2017 data is preliminary
Source: Ohio Department of Health (ODH), Bureau of Vital Statistics. Compiled by HPIO staff using the ODH Public Health Data Warehouse. Accessed July 27, 2018

Figure 4.14 also shows a dramatic increase in unintentional drug overdose deaths for ages 18-25 from 2007 to 2017.

Figure 4.14 **Unintentional drug overdose deaths for Ohio young adults ages 18-25, 2007-2017**



*2017 data is preliminary

Source: Ohio Department of Health (ODH), Bureau of Vital Statistics. Compiled by HPIO staff using the ODH Public Health Data Warehouse. Accessed July 27, 2018

Data profiles

The data profiles section provides analysis of 58 metrics across the highlighted domains in the *Assessment* conceptual framework (see figure 1.7). The metrics included in the data profiles follow a life course perspective addressing the various stages of child development from perinatal to young adulthood. The data profiles include data related to:

- Population health
- Healthcare spending
- Healthcare system
- Access to care
- Public health and prevention

The data profiles put data in context by providing:

- **Ohio rank.** Ohio's rank relative to other states and the District of Columbia is provided when there are no more than 10 states with missing data.
- **Ohio trend.** The three most recently-available years of Ohio data are provided for each metric, as well as an indication of whether Ohio is getting better, getting worse or has experienced no change from a base year to the most-recent year for which data is available.
- **U.S. comparison.** U.S. data for most-recent year is provided when available, as well as an indication of whether Ohio's performance is better, worse than or the same as the U.S. for the most-recent year.

More information about the process used to select metrics and the analysis included in the Data profiles is in **Section 6. Process and Methodology**. See Appendix A. for a list of all metrics and sources used in the data profiles.

Data profile: **Population health**

Ohio's rank	Metric	Ohio data values: Base year	Ohio data values: Mid year	Ohio data values: Most recent year	Trend*	U.S. data values (Most recent year)
14	**Physical activity.** Percent of children ages 6-17 who exercise, play a sport or participate in physical activity for at least 60 minutes every day	N/A	N/A	26.3% (2016)	N/A	24.2% (2016)
15	**Substance use disorder.** Percent of youth ages 12-17 with past-year illicit drug or alcohol dependence or abuse	N/A	N/A	4.3% (2015-2016)	N/A	4.6% (2015-2016)
15	**Suicide, young adult.** Crude rate of suicide deaths per 100,000 population for ages 18-25	13.2 (2014)	15.8 (2015)	16.0 (2016)	–	15.2 (2016)
19	**Oral health problems.** Percent of children ages 1-17 who had one or more oral health problems in the past 12 months	N/A	N/A	12.2% (2016)	N/A	13.4% (2016)
25	**Anxiety.** Percent of children ages 3-17 with current anxiety problems	N/A	N/A	7.6% (2016)	N/A	7.1% (2016)
29	**Health status.** Percent of children ages 0-17 who have excellent or very good health	N/A	N/A	90.4% (2016)	N/A	89.7% (2016)
37	**Healthy weight.** Percent of children ages 10-17 with body mass index between the 5th and 84th percentile	N/A	N/A	60.4% (2016)	N/A	62.6% (2016)
40 (out of 43)	**Drug overdose death, young adult.** Crude rate of drug overdose deaths per 100,000 population ages 18-25	23.1 (2014)	27.5 (2015)	37.3 (2016)	–	18.3 (2016)
40	**Infant mortality.**** Rate of infant deaths per 1,000 live births	6.9 (2014)	7.2 (2015)	7.4 (2016)	–	5.9 (2015)
40	**Major depressive episode.** Percent of youth ages 12-17 who experienced a major depressive episode within the past year	10.3% (2013-2014)	11.9% (2014-2015)	14% (2015-2016)	–	12.6% (2015-2016)
44	**Attention Deficit/Hyperactivity Disorder.** Percent of children ages 3-17 who currently have Attention Deficit Disorder or Attention Deficit-Hyperactivity Disorder	N/A	N/A	12% (2016)	N/A	8.9% (2016)
46	**Asthma.** Percent of children ages 0-17 who currently have asthma	N/A	N/A	11.2% (2016)	N/A	8.4% (2016)
NR	**Drug abuse and dependence at time of delivery.** Total number of delivering mothers diagnosed with one or more drug abuse/dependence conditions at time of delivery	3,777 (2013)	4,353 (2014)	4,013 (2015)	–	N/A
NR	**Suicide, youth.** Crude rate of suicide deaths per 100,000 population for ages 8-17	3.9 (2014)	3.3 (2015)	3.5 (2016)	+	3.7 (2016)

Ranking

Top quartile | Second quartile | Third quartile | Bottom quartile | NR Not ranked

of the 50 states and D.C.

Ohio performance is better than U.S.

Ohio performance is worse than U.S.

Trend

+ Getting better | – Getting worse | = No change | N/A Data not available for trend analysis

* Trend indicates whether the data changed in the desired direction from base year to most-recent year.

** 2016 data is available for Ohio, but not for other states, and was used for most recent data and trend columns. 2015 data was used for Ohio's rank.

Data profile: **Healthcare spending**

Ohio's rank	Metric	Ohio data values			Trend*	U.S. data values (Most recent year)
		Base year	Mid year	Most recent year		
25	**Out-of-pocket healthcare expenses.** Percent of children ages 0-17 who are currently insured whose out-of-pocket healthcare costs are only sometimes or never reasonable	N/A	N/A	22.1% (2016)	N/A	22.2% (2016)
38	**Problems paying medical bills.** Percent of children ages 0-17 whose family had problems paying for their child's medical or healthcare bills	N/A	N/A	11.8% (2016)	N/A	10.1% (2016)
NR	**Medicaid spending per enrollee, children.** Average amount Medicaid spends per enrollee per year, all children	$2,457 (FY 2012)	$2,483 (FY 2013)	$3,025 (FY 2014)	N/A	N/A

Ranking

Top quartile | Second quartile | Third quartile | Bottom quartile | NR Not ranked

of the 50 states and D.C.

Ohio performance is better than U.S.

Ohio performance is worse than U.S.

Trend

+ Getting better | – Getting worse | = No change | N/A Data not available for trend analysis

* Trend indicates whether the data changed in the desired direction from base year to most-recent year.

Data profile: **Access to care**

Ohio's rank	Metric	Ohio data values: Base year	Ohio data values: Mid year	Ohio data values: Most recent year	Trend*	U.S. data values (Most recent year)
16	**Unmet substance use disorder treatment need.** Percent of youth ages 12-17 who needed but did not receive treatment at a specialty facility for substance use in the past year	N/A	N/A	4.1% (2015-2016)	N/A	4.4% (2015-2016)
19	**Medical home.** Percent of children ages 0-17 whose health care does not meet medical home criteria	N/A	N/A	47.7% (2016)	N/A	51.3% (2016)
25	**Uninsured children.** Percent of children ages 0-17 that are uninsured	4.8% (2014)	4.4% (2015)	3.6% (2016)	+	4.5% (2016)
29	**Mental health care.** Percent of children ages 3-17 who needed and received treatment or counseling from a mental health professional during the past year	N/A	N/A	10.6% (2016)	N/A	10.2% (2016)
45 (out of 49)	**Hospital emergency room visit.** Percent of children ages 0-17 who had 2 or more hospital emergency room visits in the past year	N/A	N/A	7.9% (2016)	N/A	5% (2016)
NR	**Trouble accessing routine care, Medicaid.** Percent of ambulatory care patients ages 0-17 enrolled in Medicaid who had an appointment in the last six months who sometimes or never got an appointment for routine care as soon as they wanted	12.9% (2011)	10.4% (2014)	8.9% (2015)	+	12.1% (2015)
NR	**Trouble accessing specialist, Medicaid.** Percent of ambulatory care patients ages 0-17 enrolled in Medicaid who needed to see a specialist in the last 6 months and sometimes or never found it easy to see a specialist	19% (2011)	17.6% (2014)	15.2% (2015)	+	19.9% (2015)
NR	**Unmet dental care.** Percent of children ages 3-17 with an unmet need for dental care	6.8% (2010)	5.4% (2012)	4.6% (2015)	+	N/A
NR	**Unmet need for health care.** Percent of children ages 0-17 who did not receive needed health care	N/A	N/A	3% (2016)	N/A	3% (2016)
NR	**Unmet prescription medication.** Percent of children with an unmet need for prescription medication due to cost	3.4% (2010)	3.5% (2012)	3.1% (2015)	+	N/A
NR	**Unmet treatment for major depressive episode.** Percent of children ages 12-17 with a major depressive episode in the past year who did not receive treatment	59.9% (2008-2012)	61.5% (2009-2013)	56% (2011-2015)	+	N/A
NR	**Unmet vision care.** Percent of children ages 5-17 with an unmet need for vision care	2.8% (2012)	N/A	3% (2015)	–	N/A

Ranking

Top quartile | Second quartile | Third quartile | Bottom quartile | NR Not ranked

of the 50 states and D.C.

Ohio performance is better than U.S.

Ohio performance is worse than U.S.

Ohio performance is same as U.S.

Trend

+ Getting better | – Getting worse | = No change | N/A Data not available for trend analysis

* Trend indicates whether the data changed in the desired direction from base year to most-recent year.

Data profile: **Healthcare system**

Ohio's rank	Metric	Ohio data values: Base year	Ohio data values: Mid year	Ohio data values: Most recent year	Trend*	U.S. data values (Most recent year)
11	**Care coordination.** Percent of children ages 2-17 who did not receive effective care coordination	N/A	N/A	12.4% (2016)	N/A	14.2% (2016)
22	**Breastfeeding support in hospitals.** Average Maternity Practice in Infant Nutrition and Care (mPINC) score among hospitals and birthing facilities to support breastfeeding	71 (2011)	76 (2013)	80 (2015)	+	79 (2015)
28	**Vision testing.** Percent of children ages 0-17 who did not receive age-appropriate vision screening	N/A	N/A	30.6% (2016)	N/A	30.4% (2016)
32	**Prenatal care.** Percent of births where mothers received prenatal care in the first trimester	73% (2014)	73.9% (2015)	74.4% (2016)	+	74.9% (2016)
31 (out of 41)	**Asthma hospital admissions.** Rate of hospital admissions for asthma for children ages 2-17 per 100,000 population	142.7 (2011)	127.9 (2012)	124.8 (2013)	+	107.4 (2013)
42	**Shared decision making.** Percent of children ages 0-17 whose families usually or always feel that they are partners in decision making around issues important to their child's health	N/A	N/A	13.9% (2016)	N/A	15.2% (2016)
47	**Transition in care.** Percent of youth ages 12-17 who did not receive the services necessary for transition to adult health care	N/A	N/A	89.2% (2016)	N/A	85.2% (2016)
NR	**Birth trauma.** Rate of injury trauma to neonate per 1,000 live births	1.8 (2011)	1.5 (2012)	1.8 (2013)	=	1.9 (2013)
NR	**Diabetes hospital admissions.** Rate of hospital admissions for diabetes with short-term complications for children ages 6-17 per 100,000 population	36.4 (2011)	38.7 (2012)	38.4 (2013)	–	26.3 (2013)
NR	**Asthma emergency department visits.**** Emergency department visits for pediatric asthma, per 10,000 children, ages 0-17 [Note: Excludes patients with cystic fibrosis or abnormalities of the respiratory system, and transfers from other institutions]	84.3 (2014)	75.2 (2015)	72.3 (2016)	N/A**	N/A

Ranking

Top quartile | Second quartile | Third quartile | Bottom quartile | NR Not ranked

of the 50 states and D.C.

Ohio performance is better than U.S.

Ohio performance is worse than U.S.

Trend

+ Getting better | – Getting worse | = No change | N/A Data not available for trend analysis

* Trend indicates whether the data changed in the desired direction from base year to most-recent year.
** Differences between 2014 and future years should be interpreted with caution. The transition from ICD-9-CM to ICD-10-CM, which began October 1, 2015 may decrease reporting of emergency department visits for asthma.

Data profile: **Public health and prevention**

Ohio's rank	Metric	Ohio data values: Base year	Ohio data values: Mid year	Ohio data values: Most recent year	Trend*	U.S. data values (Most recent year)
12	**Alcohol use, youth.** Percent of youth ages 12-17 that report using alcohol in the past month	11% (2013-2014)	10.3% (2014-2015)	8.9% (2015-2016)	+	9.4% (2015-2016)
24	**Heavy alcohol use, young adult.** Percent of men ages 18-24 who have more than 14 drinks per week and women ages 18-24 who have more than seven drinks per week	6.1% (2015)	N/A	6.4% (2016)	–	6.5% (2016)
25	**Marijuana use, youth.** Percent of youth ages 12-17 that report using marijuana in the past month	6% (2013-2014)	6.1% (2014-2015)	6.4% (2015-2016)	–	6.8% (2015-2016)
28	**Food insecurity.** Percent of children under age 18, living in households where, in the previous 12 months, there was an uncertainty of having, or an inability to acquire, enough food for all household members because of insufficient money or other resources	24% (2011-2013)	22% (2012-2014)	20% (2013-2015)	+	19% (2013-2015)
28 (out of 50)	**Teen birth rate.** Total birth rate for females ages 15-19 per 1,000 births	25.1 (2014)	23.2 (2015)	21.8 (2016)	+	20.3 (2016)
29	**Human papillomavirus vaccine.** Percent of adolescents ages 13-17 years with human papillomavirus vaccine up to date coverage	N/A	N/A	41.8% (2016)	N/A	43.4% (2016)
32	**Marijuana use, young adult.** Percent of young adults ages 18-25 that report using marijuana in the past month	17.9% (2013-2014)	19.6% (2014-2015)	20.8% (2015-2016)	–	20.3% (2015-2016)
32	**Tobacco use, youth.** Percent of youth ages 12-17 that report using tobacco products in the past month [Note: Does not include e-cigarettes]	9.4% (2013-2014)	7.9% (2014-2015)	6.9% (2015-2016)	+	5.7% (2015-2016)
36 (out of 50)	**Preterm birth.** Percent of babies born prior to 37 weeks of pregnancy (gestation)	10.3% (2014)	10.3% (2015)	10.4% (2016)	–	9.9% (2016)
37	**Child vaccination series.** Percent of children ages 19 to 35 months with combined 7-series vaccine coverage	66.8% (2012)	61.7% (2013)	68.1% (2014)	+	71.6% (2014)
42	**Percent ever breastfed.** Percent of children who were ever breastfed by birth year	71.9% (2012)	77.7% (2013)	76.8% (2014)	+	82.5% (2014)
42	**Smoker in household.** Percent of children ages 0-17 who live in households where someone uses cigarettes, cigars or pipe tobacco	N/A	N/A	21.6% (2016)	N/A	16.2% (2016)

Ranking

Top quartile | Second quartile | Third quartile | Bottom quartile | NR Not ranked

of the 50 states and D.C.

Ohio performance is better than U.S.

Ohio performance is worse than U.S.

Trend

+ Getting better | – Getting worse | = No change | N/A Data not available for trend analysis

* Trend indicates whether the data changed in the desired direction from base year to most-recent year.

Data profile: **Public health and prevention** (cont.)

Ohio's rank	Metric	Ohio data values: Base year	Ohio data values: Mid year	Ohio data values: Most recent year	Trend*	U.S. data values (Most recent year)
46	**Tobacco use, young adult.** Percent of young adults ages 18-25 that report using tobacco products in the past month [Note: Does not include e-cigarettes]	42.5% (2013-2014)	42.5% (2014-2015)	39.1% (2015-2016)	+	31.5% (2015-2016)
47	**Exclusively breastfed first six months.** Percent of children, ages 19 months to 35 months, who were exclusively breastfed or fed breast milk for the first six months of life by birth year	14.5% (2012)	22.3% (2013)	16.7% (2014)	+	24.9% (2014)
NR	**Breastfed at hospital discharge.** Percent of infants who were exclusively breastfed at hospital discharge	52.7% (2015)	N/A	52.2% (2016)	–	N/A
NR	**E-cigarette use.** Percent of Ohio students grades 6-12 that report current e-cigarette use	14.6% (2014)	N/A	7% (2016)	+	N/A
NR	**Motor vehicle accident deaths, youth.** Crude rate of motor vehicle accident deaths per 100,000 population ages 0-17	2.4 (2014)	2.4 (2015)	3.3 (2016)	–	3.5 (2016)
NR	**Neonatal Abstinence Syndrome hospitalizations.** Total number of inpatient hospital discharges for infants with a primary or secondary diagnosis of Neonatal Abstinence Syndrome	1,717 (2013)	1,919 (2014)	2,174 (2015)	–	N/A
NR	**Unintended pregnancy.** Percent of pregnant women who never intended to be pregnant or who planned to be pregnant later	42.2% (2012)	42.2% (2014)	38.1% (2015)	+	34.2% (2015)

Ranking

Top quartile | Second quartile | Third quartile | Bottom quartile | NR Not ranked

of the 50 states and D.C.

Ohio performance is better than U.S.

Ohio performance is worse than U.S.

Trend

+ Getting better | – Getting worse | = No change

* Trend indicates whether the data changed in the desired direction from base year to most-recent year.

Gaps in outcomes for Ohio's children

Data in this section is provided disaggregated by race and ethnicity, income, sex and disability status. U.S. data was used when Ohio data was not available.

Disparities by race and ethnicity

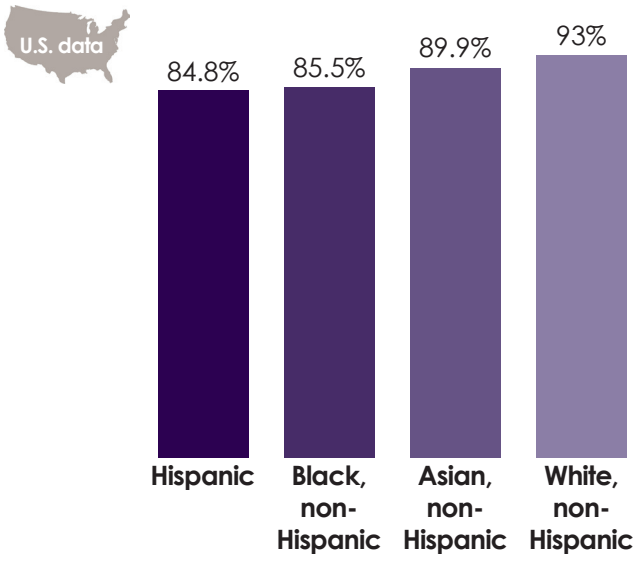
In the U.S., children who are Hispanic or black, non-Hispanic were less likely to report having excellent or very good health as compared to Asian and white children in 2016 (see figure 4.15). Disparities by race and ethnicity exist across many indicators of child health for children in Ohio and across the U.S. For example:

- Related to addiction, white children were more likely to use tobacco and die of a drug overdose death as compared to their peers (see figures 4.16 and 4.17).
- Black children in Ohio are more than four times as likely than white children to land in the emergency department for an asthma-related diagnosis (see figure 4.18).
- Families with black, non-Hispanic and Hispanic children in the U.S. are more likely to report that they sometimes or often could not afford enough to eat compared to white children (see figure 4.19).
- The racial disparities that black children face in Ohio, particularly related to the early stages of life, are sobering. Compared to white Ohioans, black women in Ohio are less likely to receive prenatal care during their first trimester of pregnancy (see figure 4.20) and are more likely to deliver a baby preterm, before 37 weeks of gestation (see figure 4.21). Even more troubling, Ohio's infant mortality rate for black infants is nearly three times as high as that of white infants (see figure 4.22).

Disparities by race and ethnicity

Overall health

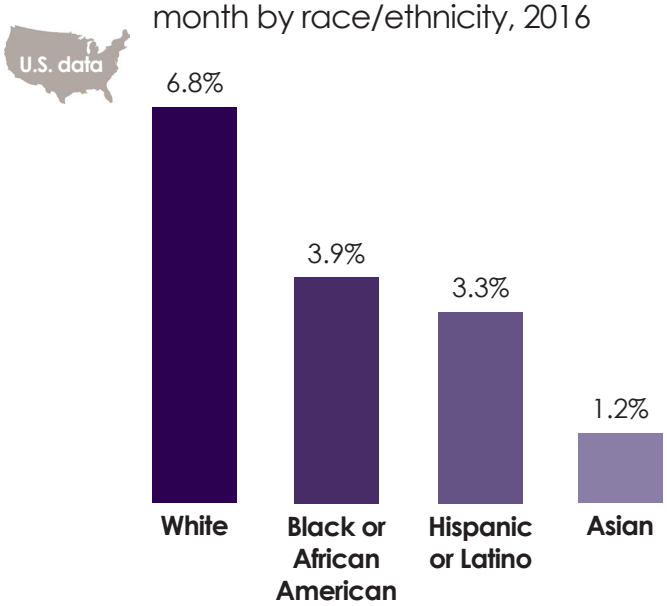
Figure 4.15 **Health status.** Percent of children ages 0-17 who have excellent or very good health by race/ethnicity, 2016



Source: National Survey of Children's Health

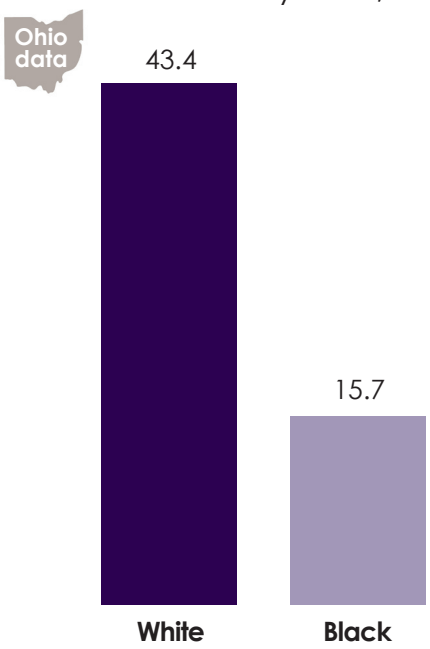
Mental health and addiction

Figure 4.16 **Tobacco use, youth.** Percent of children ages 12-17 who used tobacco product(s) in the past month by race/ethnicity, 2016



Source: National Survey of Drug Use and Health

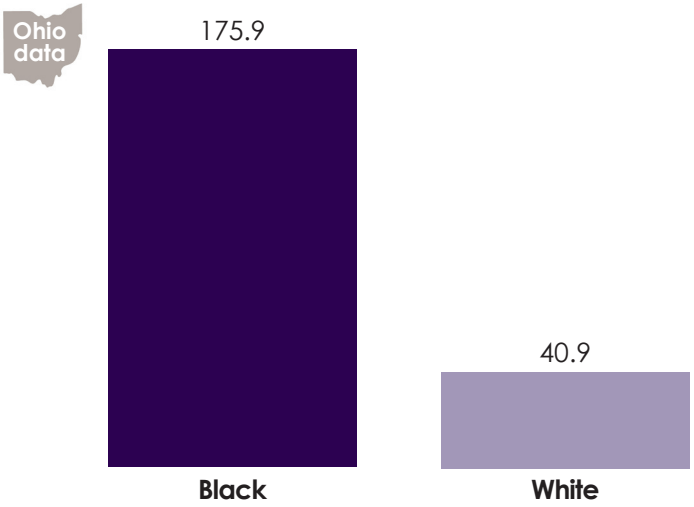
Figure 4.17 **Drug overdose death, young adult.** Death rate per 100,000 young adults ages 18-25 due to drug overdose by race, 2016



Source: Centers for Disease Control and Prevention, Vital Statistics

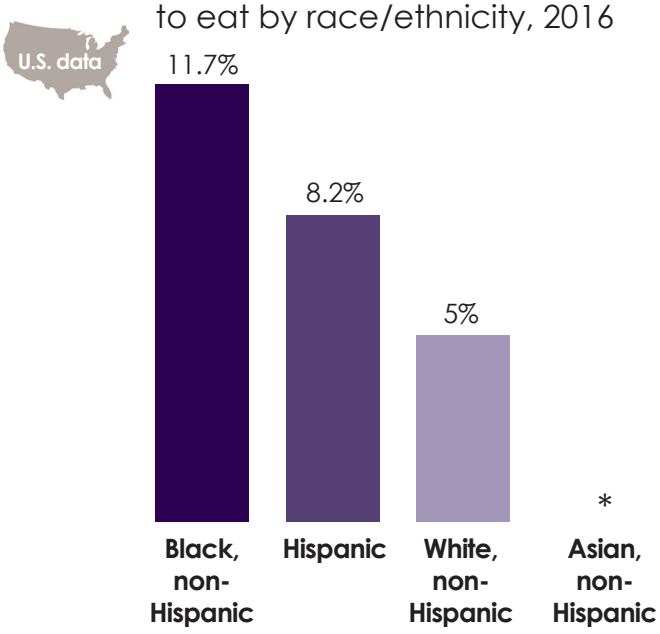
Chronic disease

Figure 4.18 **Asthma emergency department visits.** Emergency department visit rate per 10,000 children ages 0-17 for patients with a primary diagnosis of asthma by race, 2016



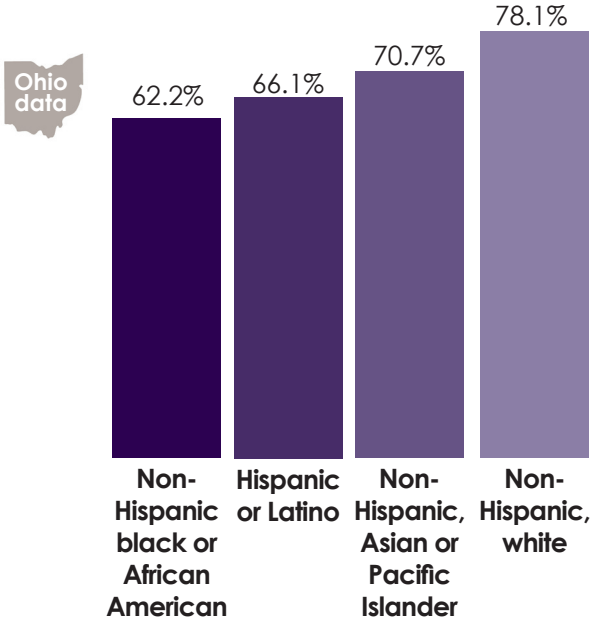
Source: Ohio Department of Health, data provided upon request

Figure 4.19 **Food insufficiency.** Percent of families with children ages 0-17 who sometimes or often could not afford enough to eat by race/ethnicity, 2016



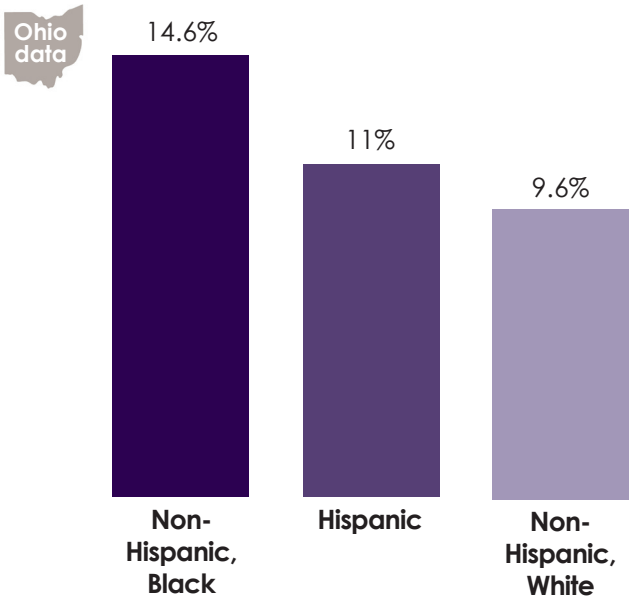
*Data value is unreliable
Source: National Survey of Children's Health

Figure 4.20 **Prenatal care.** Percent of women who begin receiving prenatal care during the first trimester of a pregnancy by race/ethnicity, 2016



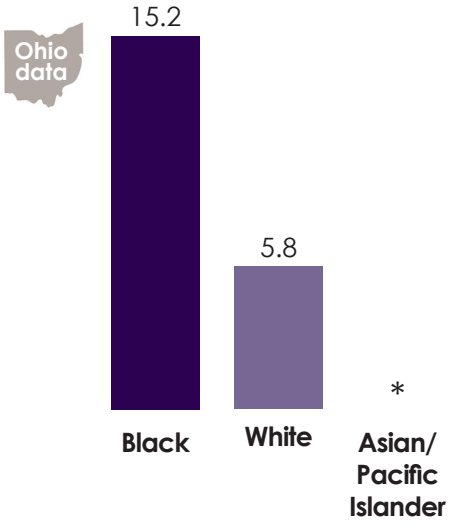
Source: Centers for Disease Control and Prevention, Vital Statistics

Figure 4.21 **Preterm birth.** Percent of births occurring before 37 weeks of gestation (preterm births) by race/ethnicity, 2016



Source: Centers for Disease Control and Prevention, National Vital Statistics Reports, Vol 67, No. 1

Figure 4.22 **Infant mortality.** Rate of infant mortality per 1,000 live births by race, 2016



*Data value is unreliable
Source: Ohio Department of Health Bureau of Vital Statistics

Disparities by income level

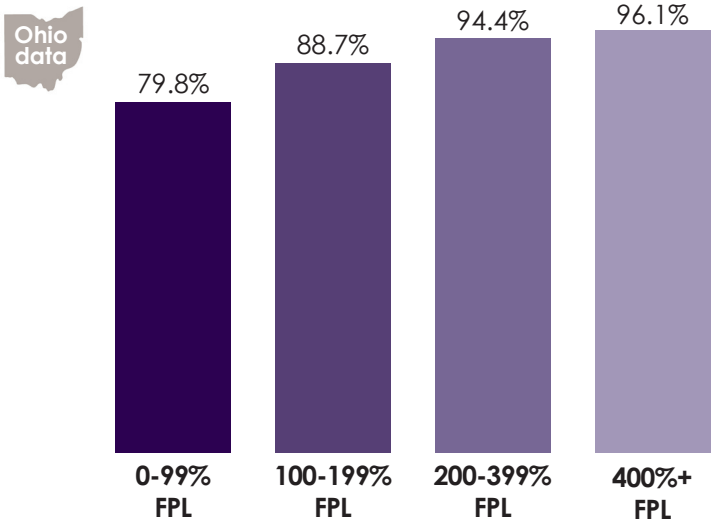
Children in Ohio and across the U.S. also experience troubling gaps in outcomes based on family income level. For example:

- There is a 16.3 percentage point difference in excellent or very good health for children living in families with incomes at or above 400 percent of the federal poverty level (FPL) compared to children living in families with incomes below 99 percent of FPL (see figure 4.23)
- Children in the U.S. living in families with incomes at or above 200 percent FPL are more likely to report using alcohol (see figure 4.24). Conversely, children in Ohio living in families with lower incomes are more likely to live with a smoker than children living in families with higher incomes (see figure 4.25).
- Ohio children living in families at or below 99 percent FPL are more than two times as likely to experience anxiety compared to children living in families with incomes between 200 and 399 percent FPL (see figure 4.26).
- Children in the U.S. living in poverty (0-99 percent FPL) were nearly two times as likely to visit the emergency department in the past year than children in families living at or above 400 percent FPL (see figure 4.27).

Disparities by income

Overall health

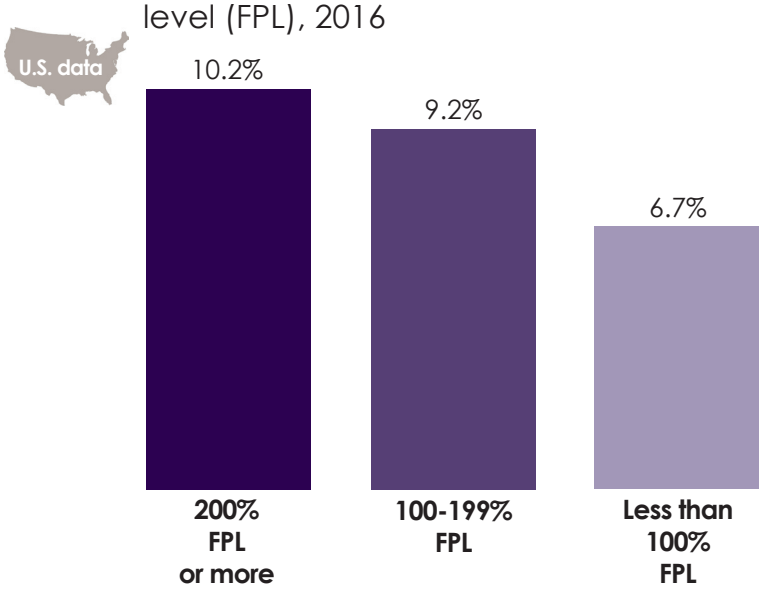
Figure 4.23 **Health status.** Percent of children (0-17) who have excellent or very good health by household income as a percent of federal poverty level (FPL), 2016



Source: National Survey of Children's Health

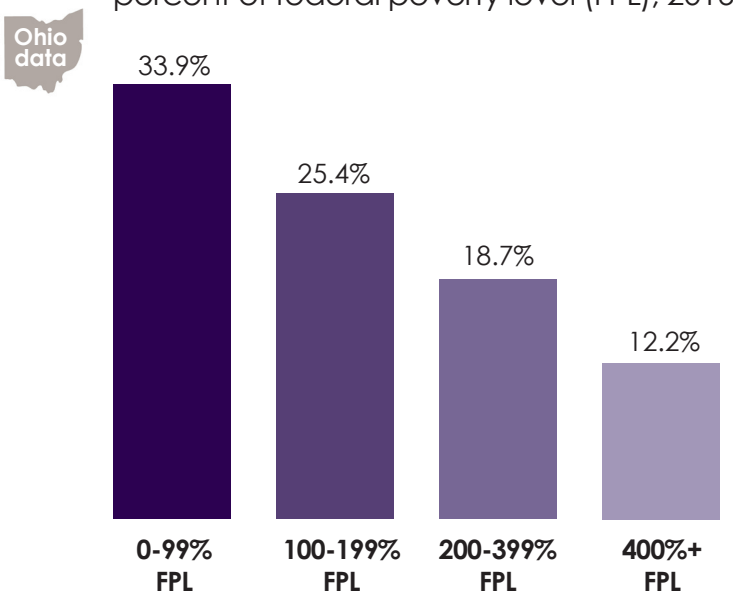
Mental health and addiction

Figure 4.24 **Alcohol use.** Percent of children ages 12-17 who report using alcohol in the past month by household income as a percent of federal poverty level (FPL), 2016



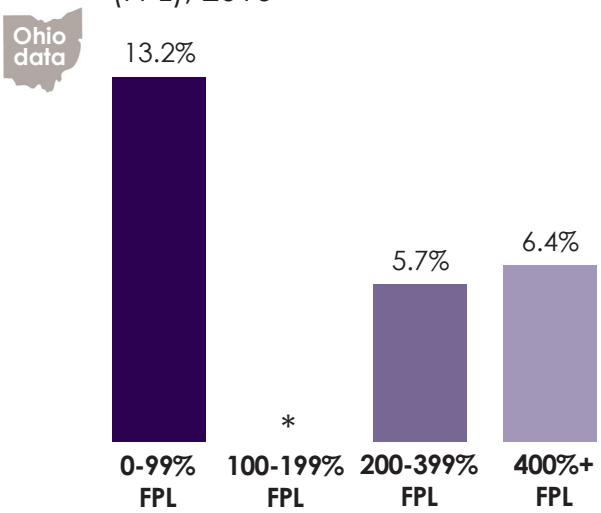
Source: National Survey of Drug Use and Health

Figure 4.25 **Smoker in household.** Percent of children ages 0-17 who live in households where someone uses cigarettes, cigars, or pipe tobacco by household income as a percent of federal poverty level (FPL), 2016



Source: National Survey of Children's Health

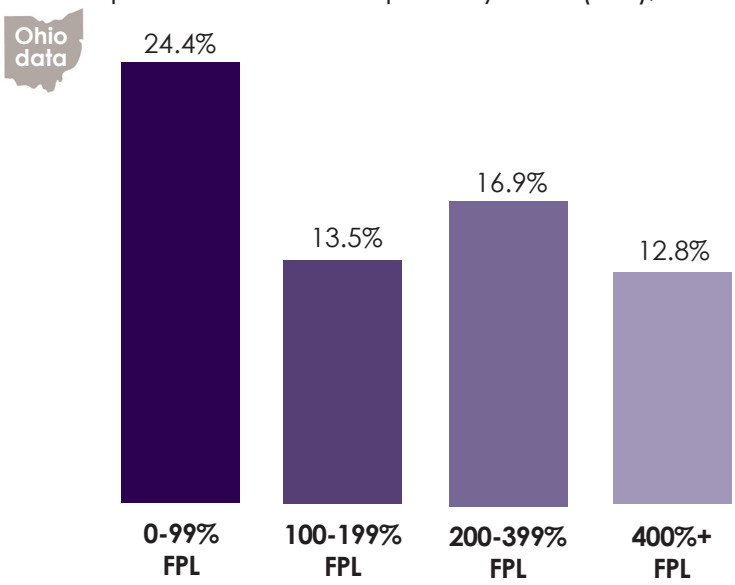
Figure 4.26 **Anxiety.** Percent of children ages 3-17 currently with anxiety problems by household income as percent of the federal poverty level (FPL), 2016



*Data value is unreliable
Source: National Survey of Children's Health

Other

Figure 4.27 **Hospital emergency room visits.** Percent of children ages 0-17 who had 1 hospital emergency room visit during the past 12 months by household income as a percent of federal poverty level (FPL), 2016



Source: National Survey of Children's Health

Disparities by sex

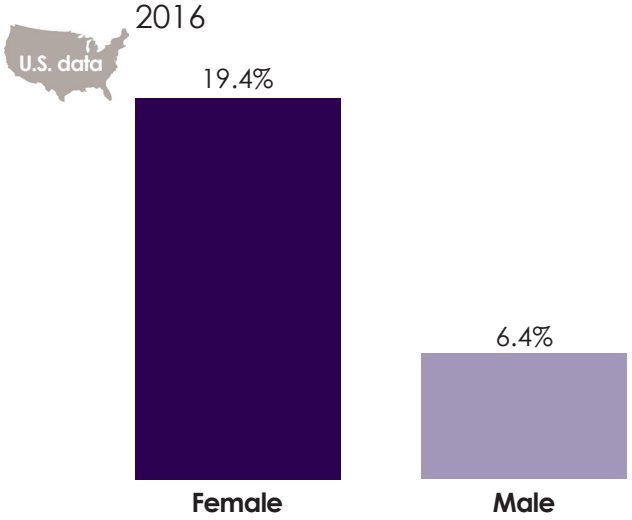
Children in Ohio and across the U.S. experience troubling differences in outcomes by sex on a wide variety of health indicators, but particularly related to mental health and addiction issues. For example:

- Females in the U.S. are three times more likely to experience depression than males (see figure 4.28), while males in Ohio are 3.5 times more likely to be diagnosed with Attention Deficit or Attention Deficit Hyperactivity Disorder than females (see figure 4.29).
- Young adult males in Ohio ages 18-25 are more than two times as likely to die from a drug overdose (see figure 4.30) and 4.6 times as likely to die from suicide (see figure 4.31) than female peers.

Disparities by sex

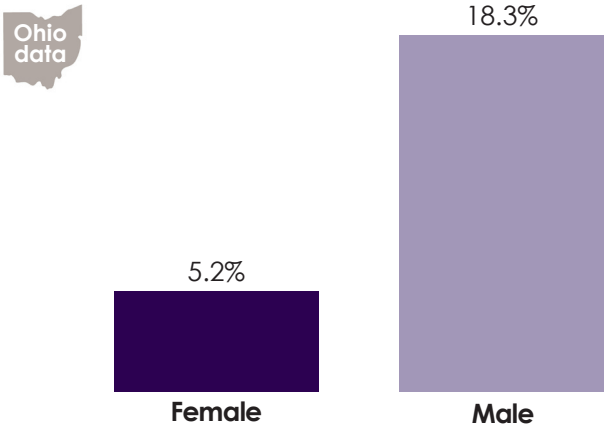
Mental health and addiction

Figure 4.28 **Major depressive episodes.** Percent of children ages 12-17 who had at least one Major Depressive Episode (MDE) or MDE with severe impairment in the past year by sex, 2016



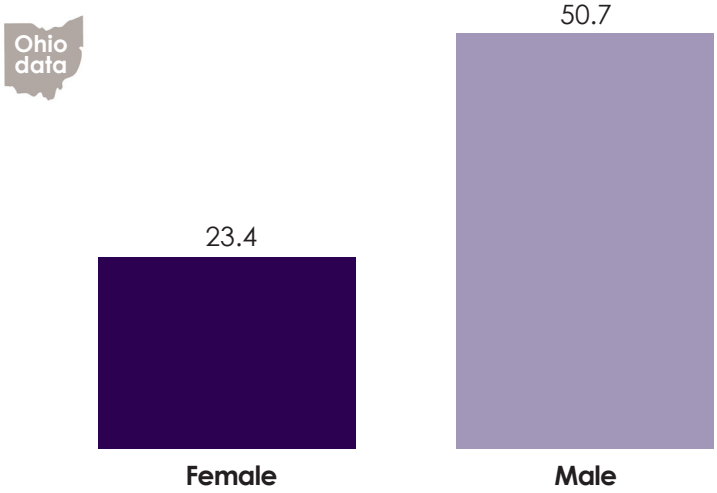
Source: National Survey of Drug Use and Health

Figure 4.29 **Attention Deficit/Hyperactivity Disorder.** Percent of children ages 3-17 who currently have Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder by sex of child, 2016



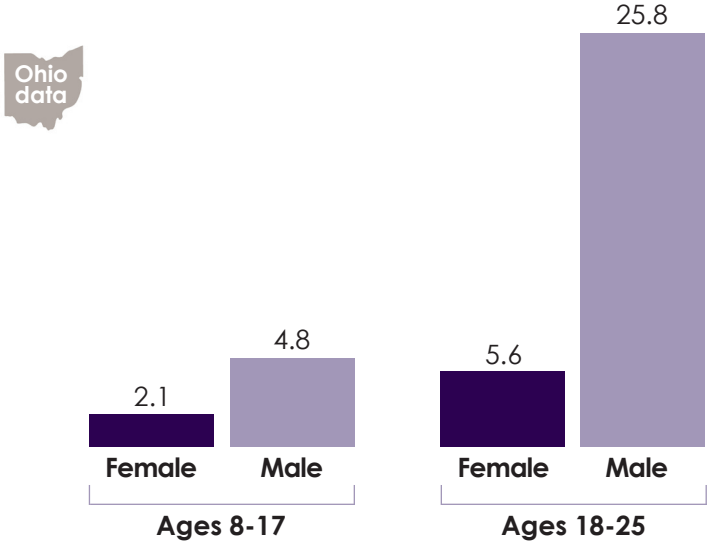
Source: National Survey of Children's Health

Figure 4.30 **Drug overdose death, young adults.** Death rate per 100,000 young adults ages 18-25 due to drug overdose by sex of decedent, 2016



Source: Centers for Disease Control and Prevention, Vital Statistics

Figure 4.31 **Suicide.** Death rate per 100,000 children and young adults due to suicide by age and gender, 2016



Source: Ohio Department of Health Bureau of Vital Statistics

Disparities by disability status

Children in Ohio also experience differences in outcomes based on disability status. These gaps exist in both health outcomes and access to health care. For example:

- Ohio children with developmental disabilities were 25 times more likely to report fair or poor health than children without developmental disabilities in 2015.[5]
- In 2015, 20 percent of Ohio children with developmental disabilities had problems getting needed health care compared to 6 percent of children without developmental disabilities.[6]

Ohio Department of Medicaid utilization and cost data for Ohio children

Unduplicated encounters and total cost data were provided by the Ohio Department of Medicaid (ODM) for the top-10 highest cost conditions, most common inpatient diagnoses and most common emergency department visits for children and young adults in Ohio Medicaid. Data in this section is provided for all children ages 0-17 and young adults ages 18-25 enrolled in Medicaid. HPIO coded the data and grouped similar services and/or diagnoses into the categories displayed in the graphics to facilitate easier interpretation of the information. Per-capita cost was calculated by dividing the total cost for all encounters by the total number of encounters.

ODM also provided data on the top-10 most common drug claims and the top-10 highest-cost drug claims for young Medicaid enrollees. Data was provided for the overall Medicaid population ages 0-17 and 18-25. HPIO grouped drugs by therapeutic class.

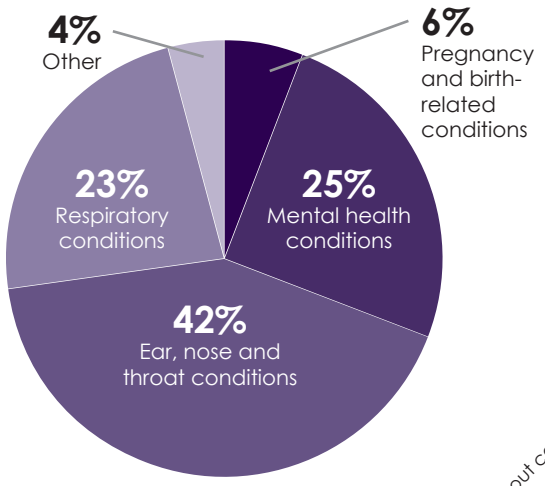
Data on the aged, blind and disabled (ABD) group and the non-ABD group is in Appendix D.

Highest cost conditions for young Medicaid enrollees

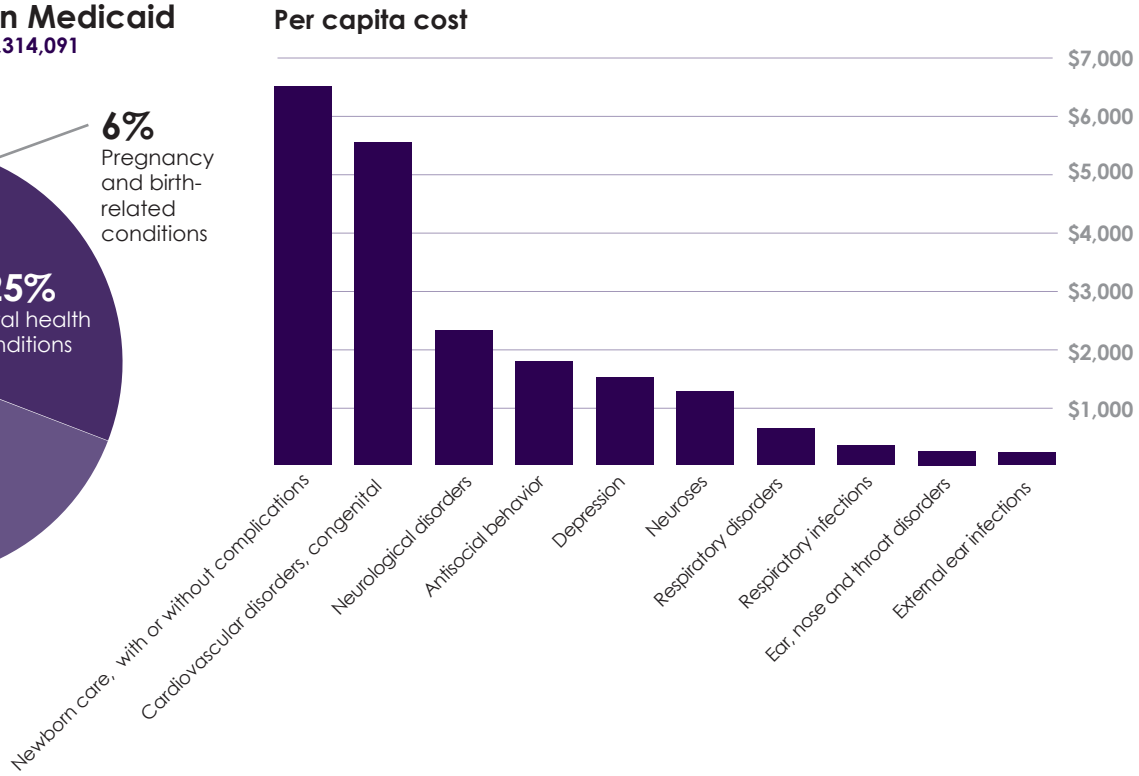
Ear, nose and throat conditions were the most common diagnoses for children ages 0-17 enrolled in Medicaid, followed by mental health conditions and respiratory conditions. Newborn care only represented 6 percent of the top-10 highest cost medical encounters but had the highest per-person cost (approximately $6,500) for the 0-17 age group (see figure 4.32). Mental health conditions and pregnancy- and birth-related conditions were the most common of the highest cost conditions among young adults ages 18-25 enrolled in Medicaid. Neurological disorders had the highest per-capita cost for this age group at more than $17,000 (see figure 4.33).

Figure 4.32 **Highest cost conditions for children ages 0-17 in Medicaid**

Total 2017 encounters: **1,314,091**



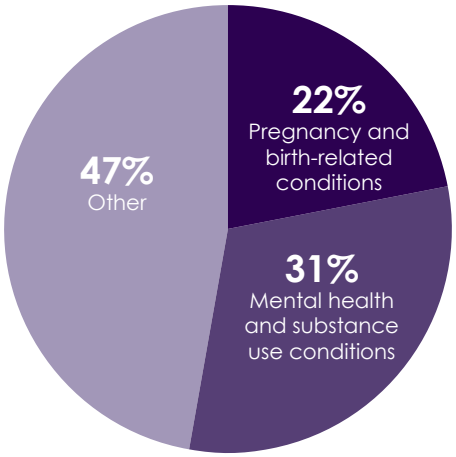
Note: Other includes neurological and congenital cardiovascular disorders



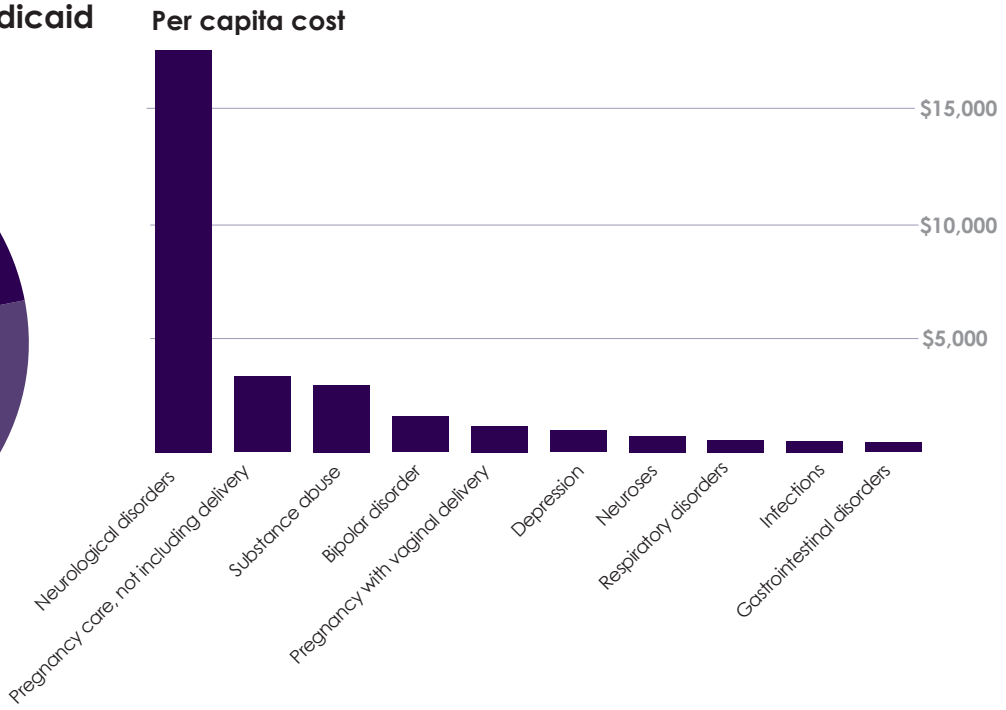
Source: Ohio Department of Medicaid

Figure 4.33 **Highest cost conditions for young adults ages 18-25 in Medicaid**

Total 2017 encounters: **356,575**



Note: Other includes infections and neurological, gastrointestinal and respiratory disorders



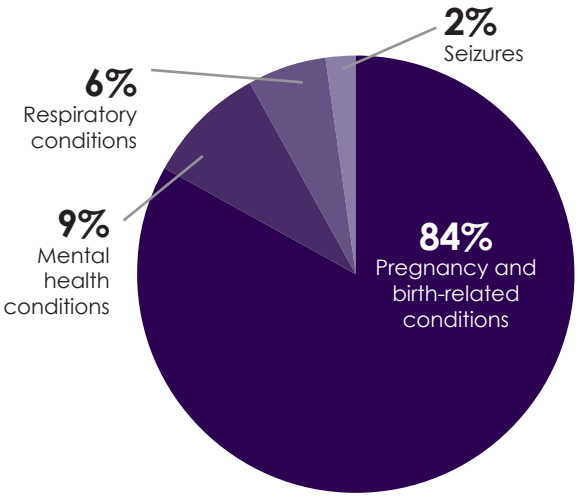
Source: Ohio Department of Medicaid

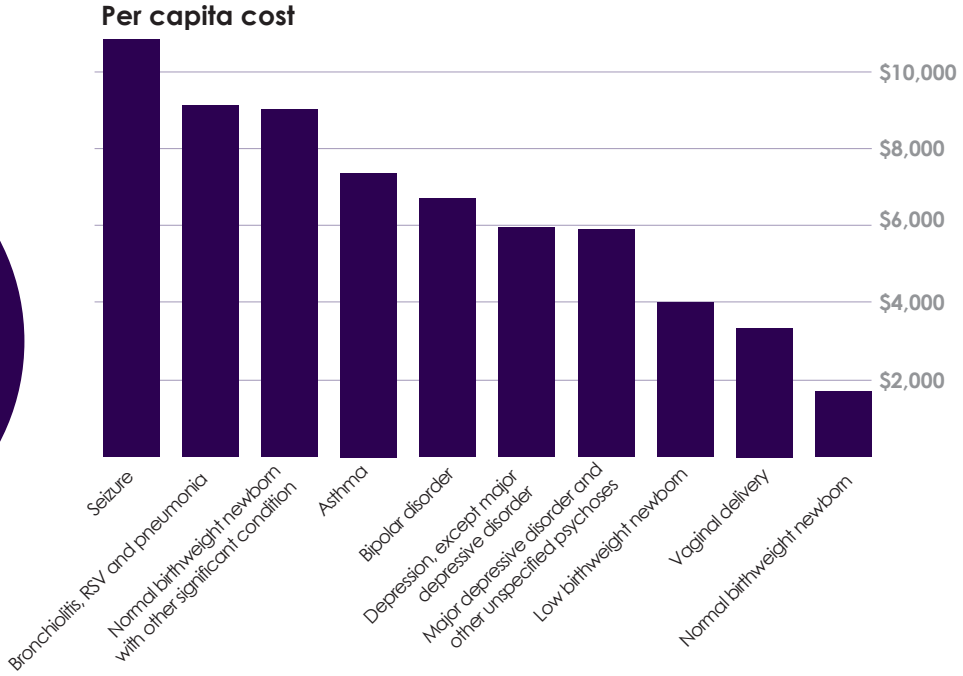
Most common inpatient diagnoses for young Medicaid enrollees

Pregnancy- and birth-related conditions were the most common reasons for inpatient hospitalizations among young Medicaid enrollees, accounting for 84 percent of the top-10 most common inpatient hospitalizations for children (ages 0-17) and 79 percent of hospitalizations among young adults (ages 18-25). Mental health conditions were the next most common for both age groups including substance use for ages 18-25. Seizures had the highest per-capita cost for children in Medicaid, at more than $10,000 (see figure 4.34). For young adults, septicemia and other disseminated infections had the highest per-person cost, followed by schizophrenia (see figure 4.35).

Figure 4.34 **Most common inpatient diagnoses for children ages 0-17 in Medicaid**

Total 2017 encounters: **67,674**

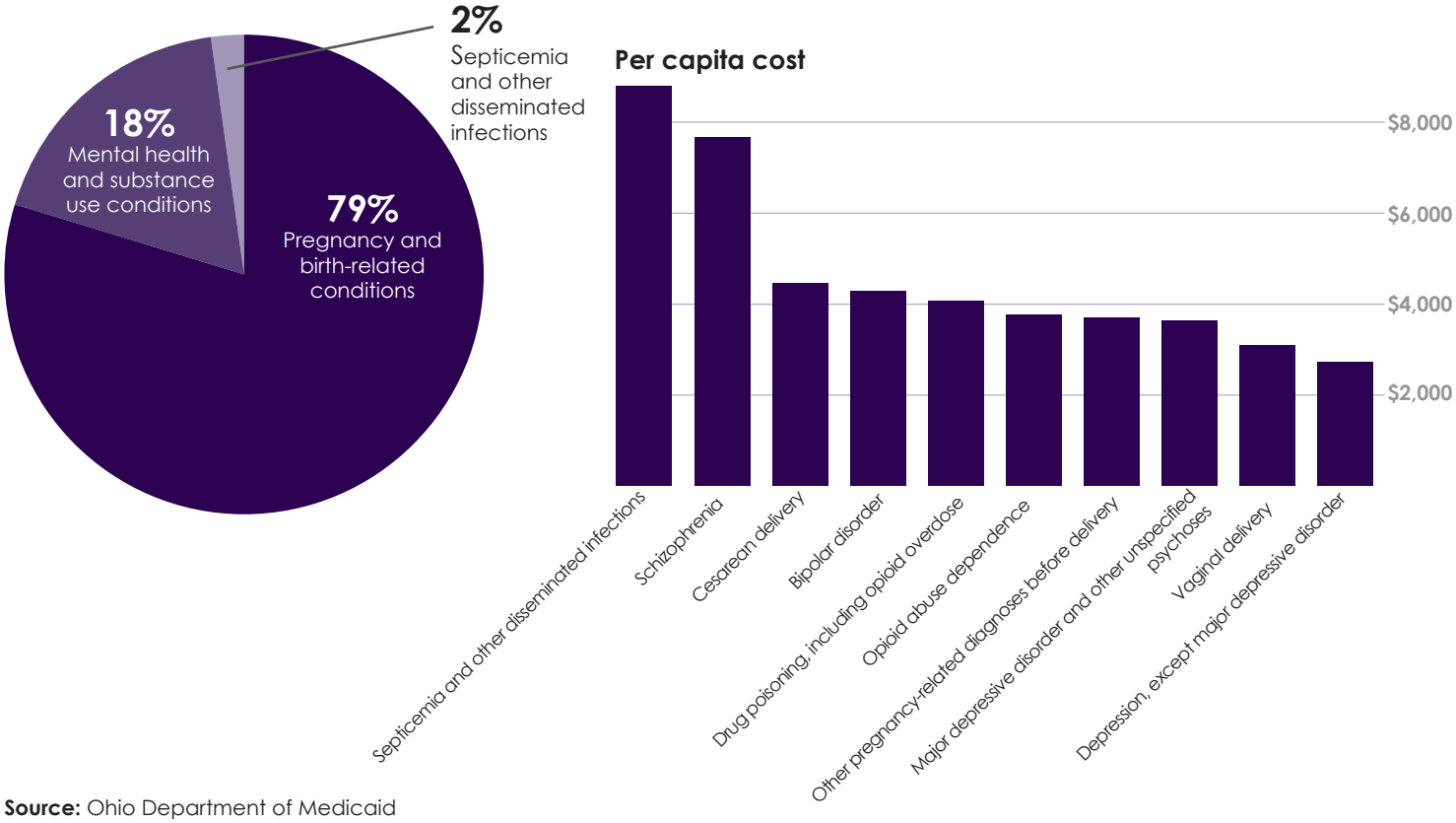




Source: Ohio Department of Medicaid

Figure 4.35 **Most common inpatient diagnoses for young adults ages 18-25 in Medicaid**

Total 2017 encounters: **39,052**



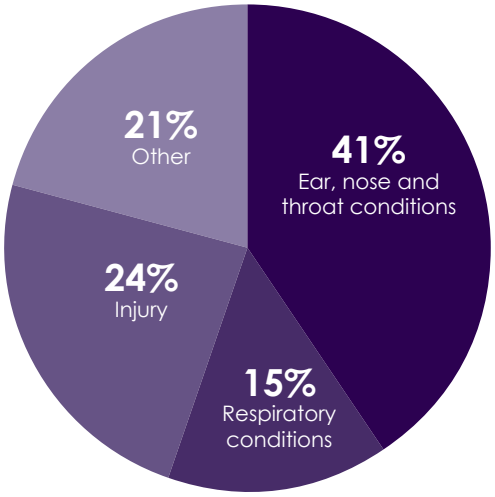
Source: Ohio Department of Medicaid

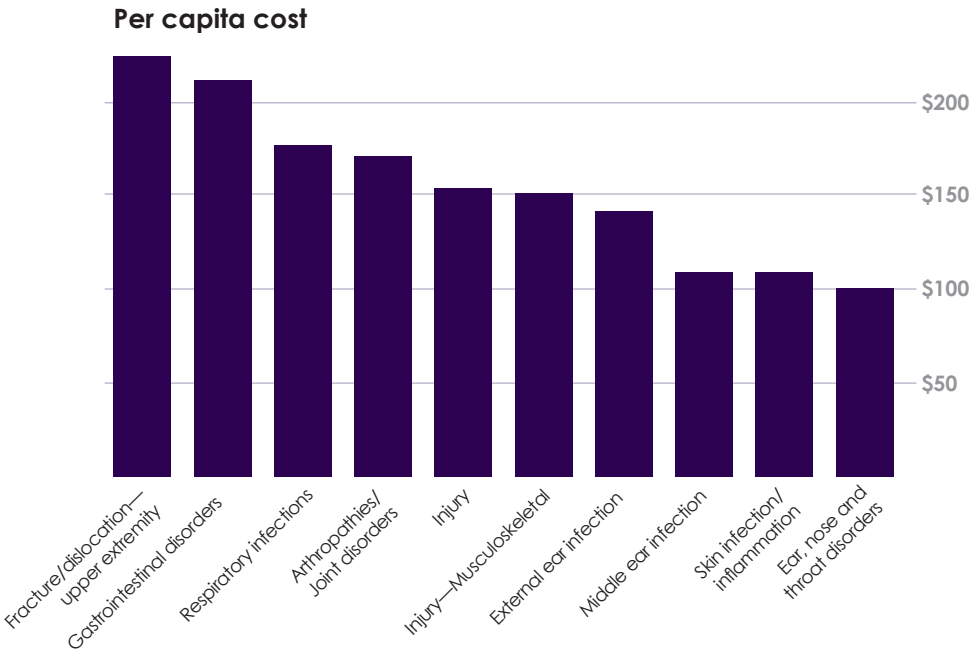
Most common emergency department visits for young Medicaid enrollees

Children in Medicaid most commonly visited the emergency department (ED) for ear, nose and throat conditions and injuries, while infections were the most common reason for young adults in Medicaid to visit the ED. Fractures and dislocations of upper extremities had the highest per capita cost for child ED visits (see figure 4.36). For young adults, pregnancy care (not including delivery) was the costliest reason for ED visits (see figure 4.37).

Figure 4.36 **Most common emergency department visits for children ages 0-17 in Medicaid**

Total 2017 encounters: **500,041**

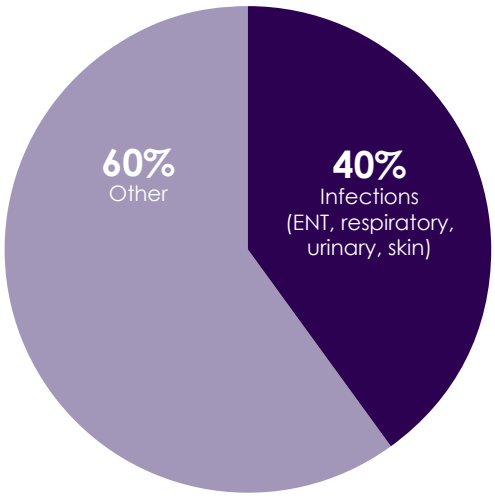


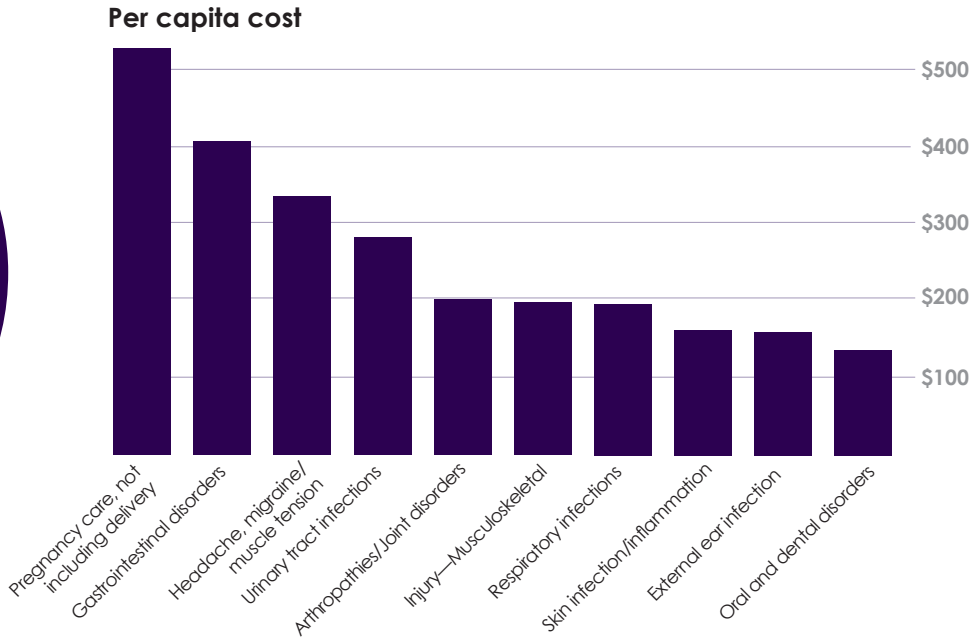


Note: Other includes gastrointestinal and arthropathies/joint disorders; skin infection/inflamation
Source: Ohio Department of Medicaid

Figure 4.37 **Most common emergency department visits for young adults ages 18-25 in Medicaid**

Total 2017 encounters: **179,565**



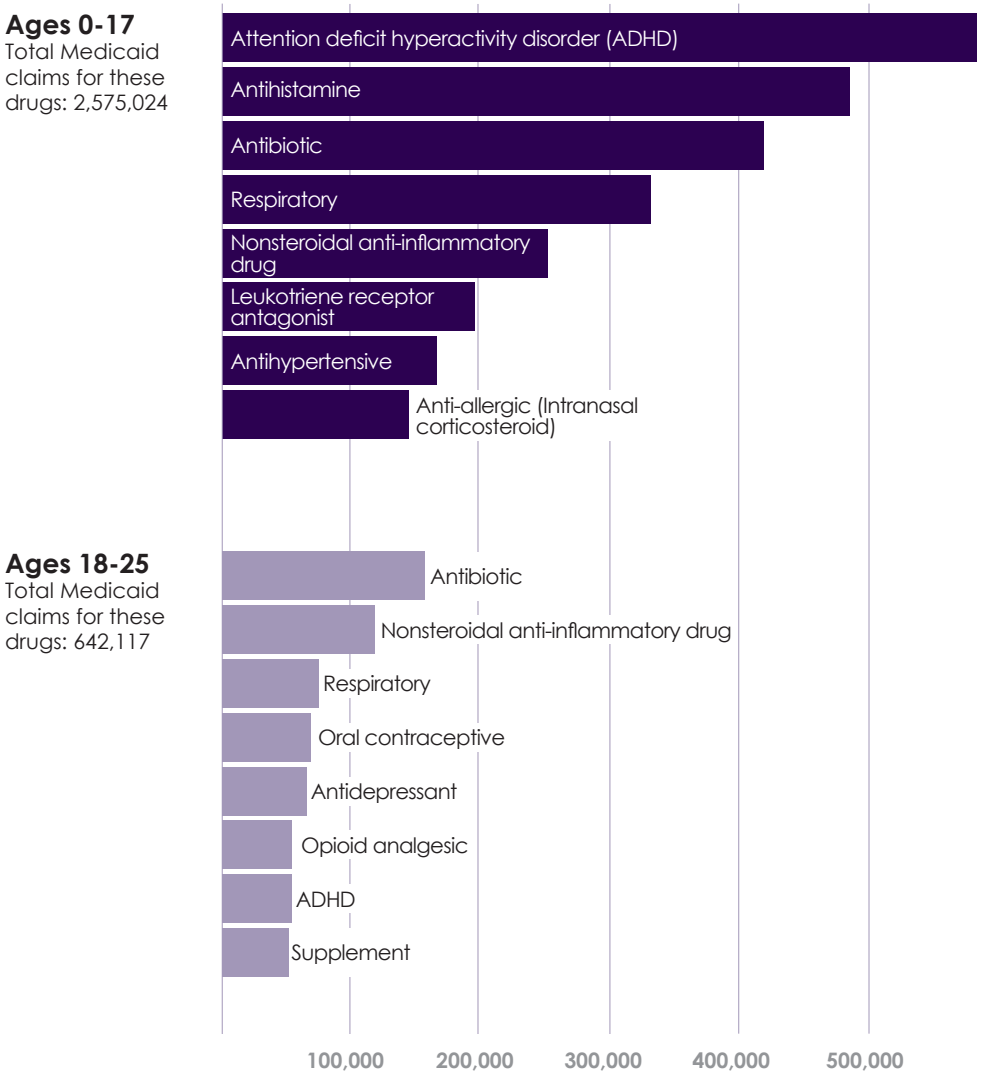


Note: Other includes pregnancy care, not including delivery; injury-musculoskeletal; gastrointestinal and arthropathies/joint disorders; headache, migraine/muscle tension; oral and dental disorders
Source: Ohio Department of Medicaid

Most common drugs for young Medicaid enrollees

Medications to treat attention deficit hyperactivity disorder (ADHD) were the most commonly prescribed drugs for Medicaid enrollees ages 0-17 in 2017. Antihistamines, antibiotics and respiratory drugs were also frequently prescribed to children covered by Medicaid. The most commonly prescribed drugs for young adults ages 18-25 who are covered by Medicaid include antibiotics, nonsteroidal anti-inflammatory drugs (i.e. ibuprofen), respiratory drugs and oral contraceptives (see figure 4.38).

Figure 4.38 **Most common drugs for all Medicaid enrollees by therapeutic class, 2017**

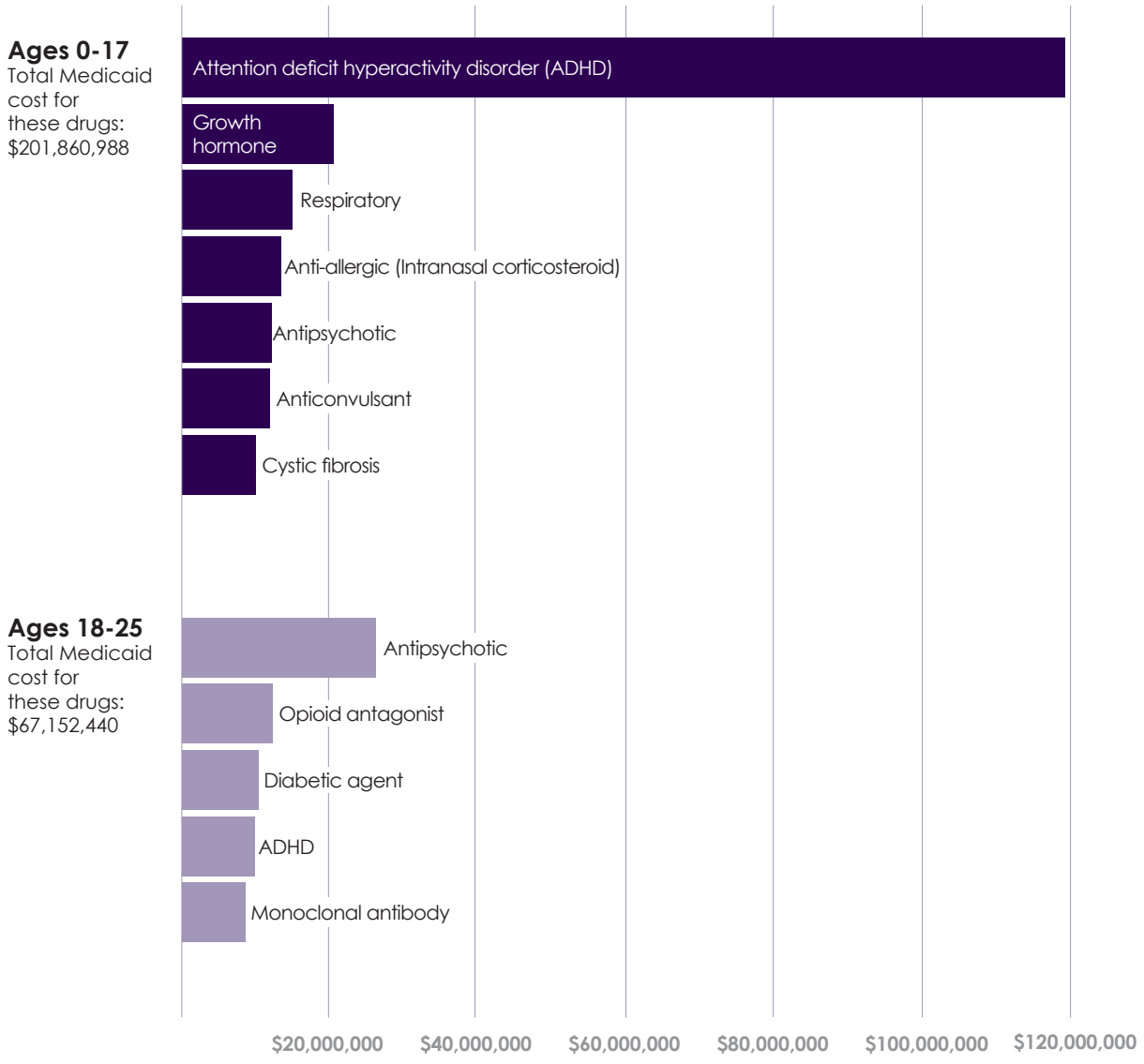


Source: Ohio Department of Medicaid

Highest cost drugs for young Medicaid enrollees

Not only are ADHD medications the most commonly prescribed drugs for all Medicaid enrollees 0-17, but they are also the highest cost drugs (in terms of total spend) covered by Medicaid for that age group. Medicaid spent nearly $120 million on ADHD medications in 2017. The next highest cost class of drugs—growth hormones—cost Medicaid just over $20 million in 2017. Other high-cost drugs for children covered by Medicaid include respiratory, anti-allergic and antipsychotic drugs. For young adults, the highest cost drugs covered by Medicaid include antipsychotic drugs, opioid antagonists and diabetic agents (see figure 4.39).

Figure 4.39 **Highest cost drugs for all Medicaid enrollees by therapeutic class, 2017**



Source: Ohio Department of Medicaid

Ohio Hospital Association utilization data for Ohio children

Data was provided by the Ohio Hospital Association on the top-10 most common diagnoses for children receiving services from all Ohio hospitals (both children and adult facilities) across emergency department, inpatient and outpatient treatment settings. Data is based on duplicated encounter counts for ICD-10 diagnoses and is provided for the age categories outlined in the conceptual framework for the *Assessment* (see figure 1.7).

Respiratory-related diagnoses were the most common reasons for children ages 0-17 to visit the emergency department, whereas pain or injury-specific diagnoses were the most common among young adults ages 18-25 (see figure 4.40).

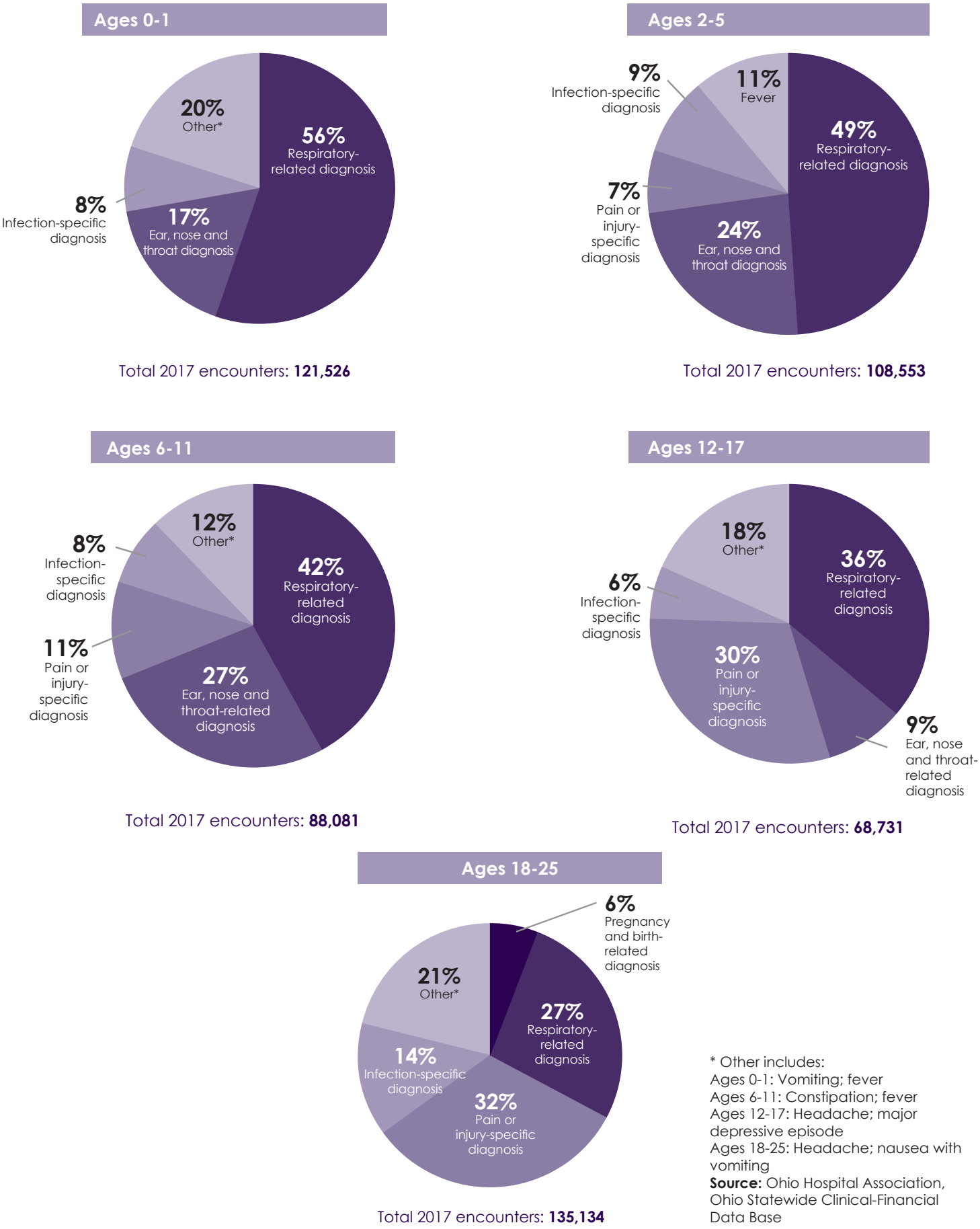
Figure 4.41 shows that the most common conditions for Ohio children receiving inpatient treatment. The following diagnoses rise to the top by age group:

- Ages 0-1: Pregnancy and birth-related conditions
- Ages 2-5: Respiratory-related diagnoses
- Ages 6-11: Mental health-related diagnoses
- Ages 12-17: Mental health-related diagnoses
- Ages 18-25: Pregnancy and birth-related conditions

Figure 4.42 shows the most common conditions for Ohio children receiving outpatient treatment. Well-child care was the most common reason for outpatient treatment among all age groups. The second most common diagnoses for each age group were:

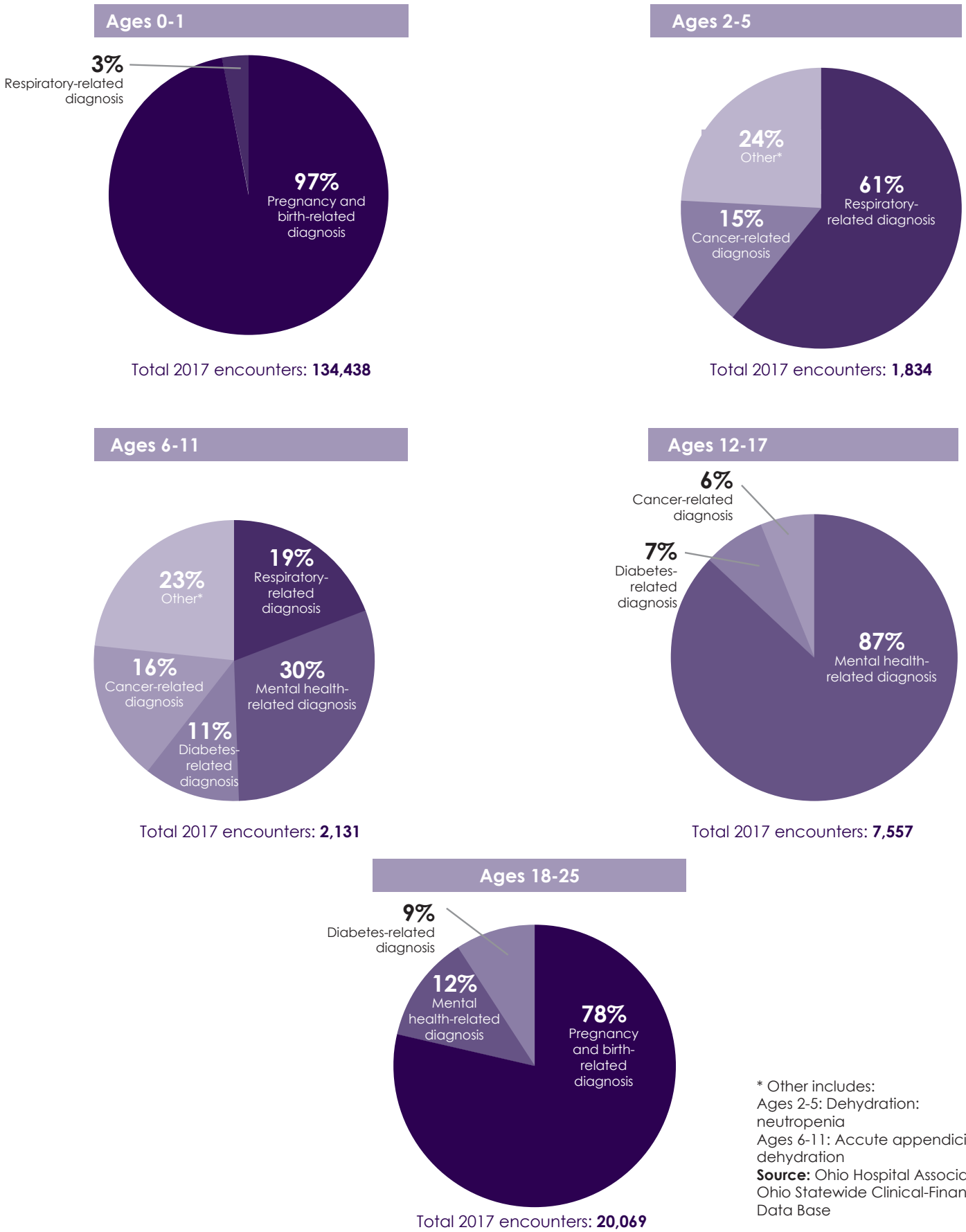
- Ages 0-1: Pregnancy and birth-related conditions
- Ages 2-5: Mental health-related diagnoses
- Ages 6-11: Respiratory-related diagnoses (tied with well-child care for most common)
- Ages 12-17: Pain or injury-specific diagnoses
- Ages 18-25: Pregnancy and birth-related conditions

Figure 4.40 **Most common diagnoses for emergency department visits for Ohio children receiving treatment from Ohio hospitals, as percent of top 10 emergency department visits, 2017**



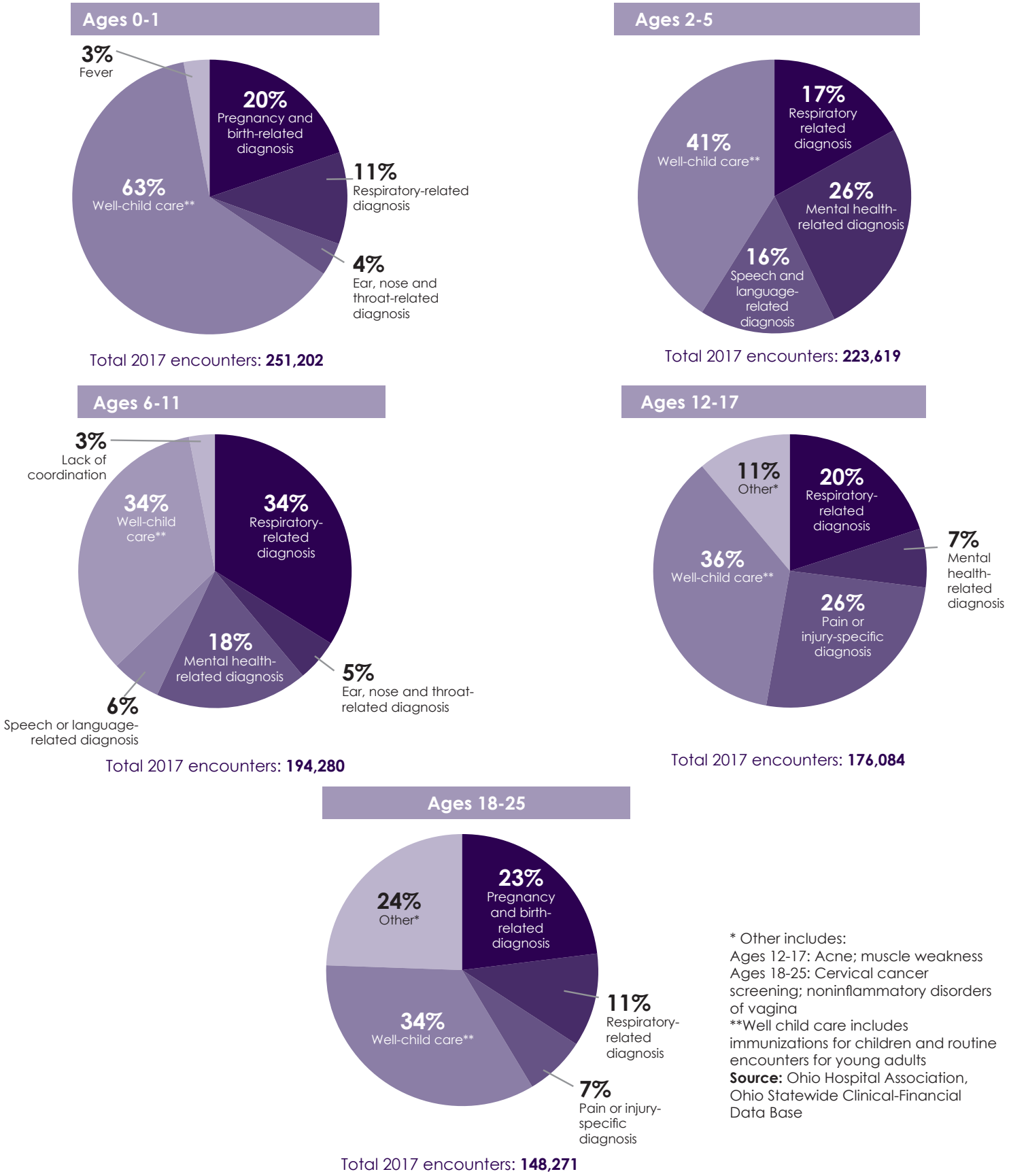
* Other includes:
Ages 0-1: Vomiting; fever
Ages 6-11: Constipation; fever
Ages 12-17: Headache; major depressive episode
Ages 18-25: Headache; nausea with vomiting
Source: Ohio Hospital Association, Ohio Statewide Clinical-Financial Data Base

Figure 4.41 **Most common conditions for Ohio children receiving inpatient treatment from Ohio hospitals, as a percent of top ten inpatient encounters, 2017**



* Other includes:
Ages 2-5: Dehydration: neutropenia
Ages 6-11: Accute appendicitis: dehydration
Source: Ohio Hospital Association, Ohio Statewide Clinical-Financial Data Base

Figure 4.42 **Most common diagnoses for outpatient encounters for Ohio children receiving treatment from Ohio hospitals, as a percent of top ten outpatient encounters, 2017**



* Other includes:
Ages 12-17: Acne; muscle weakness
Ages 18-25: Cervical cancer screening; noninflammatory disorders of vagina
**Well child care includes immunizations for children and routine encounters for young adults
Source: Ohio Hospital Association, Ohio Statewide Clinical-Financial Data Base

Notes

1. Centers for Disease Control and Prevention. Bridged-Race Population Estimates. Accessed Aug. 3, 3018.
2. Ibid.
3. Kids Count Data Center, 2016
4. Centers for Disease Control and Prevention. "CDC WONDER- Detailed Mortality." Accessed Aug. 3, 2018.
5. Yang, Emily et al. *Ohio Children with Developmental Disabilities and Special Health Care Needs: 2015 OMAS Health and Health Care Findings*. Ohio Medicaid Assessment Survey, 2016.
6. Ibid.

5 Analysis of children's hospital and local health department community health planning documents

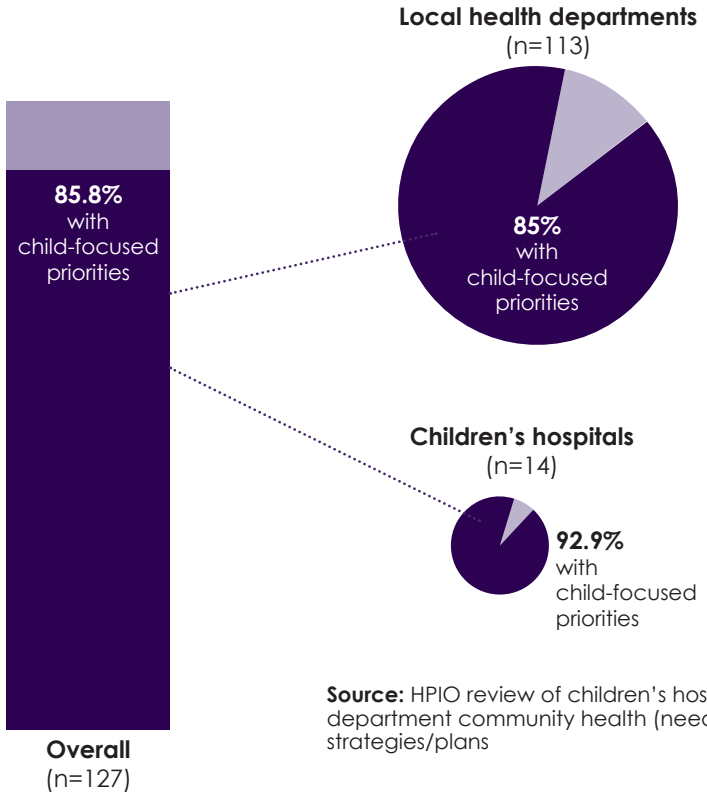
HPIO reviewed all Ohio children's hospital community health needs assessment and implementation strategy documents, as well as all local health department community health assessment and improvement plan documents available on the Ohio Department of Health Population Health Plans and Assessments **page**. HPIO reviewed these documents to identify child-focused health issues prioritized by each children's hospital and local health department in its assessment or strategy/plan. A total of 127 documents were reviewed; each document had been completed within the past six years.

HPIO found that 109 (85.8 percent) of the documents included child-focused health priorities[1] and covered 87.5 percent of Ohio's counties (see figures 5.1 and 5.2). Priorities were analyzed by entity type (children's hospital vs. local health department), region and county type (i.e., urban, suburban, Appalachian, rural non-Appalachian).

Top child-focused health priorities

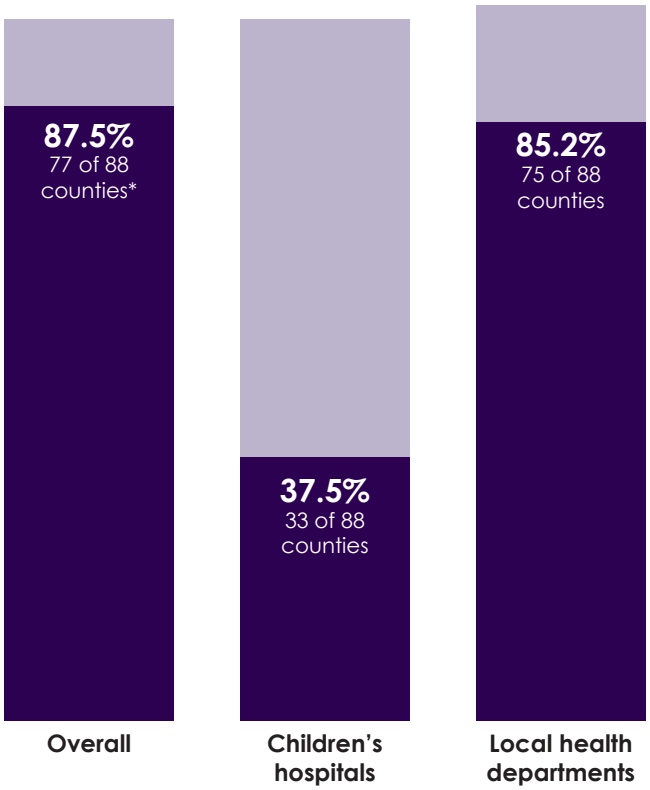
The top-10 child-focused health priorities selected by Ohio children's hospital and local health department documents are listed in figures 5.3 through 5.5. The top three priorities for the children's hospitals and local health departments combined—drug dependence and use, mental health and healthy weight/obesity— were each identified by at least

Figure 5.1 **Percent of children's hospitals and local health departments with documents that identified child-focused priorities**



Source: HPIO review of children's hospital and local health department community health (needs) assessments and strategies/plans

Figure 5.2 **Percent of Ohio counties covered by a document with child-focused priorities**



*Counties not covered are Adams, Clinton, Coshocton, Harrison, Highland, Jackson, Jefferson, Morgan, Noble, Paulding, Pike

Source: HPIO review of children's hospital and local health department community health (needs) assessments and strategies/plans

half of the assessments/plans, reflecting a widespread desire to address these issues (see figure 5.3). Health priorities that rose to the top across both the children's hospital and local health department documents were:

- Drug dependence and use
- Mental health
- Healthy weight/obesity
- Chronic disease (general)
- Access to health care/medical care
- Infant mortality
- Violence[2]

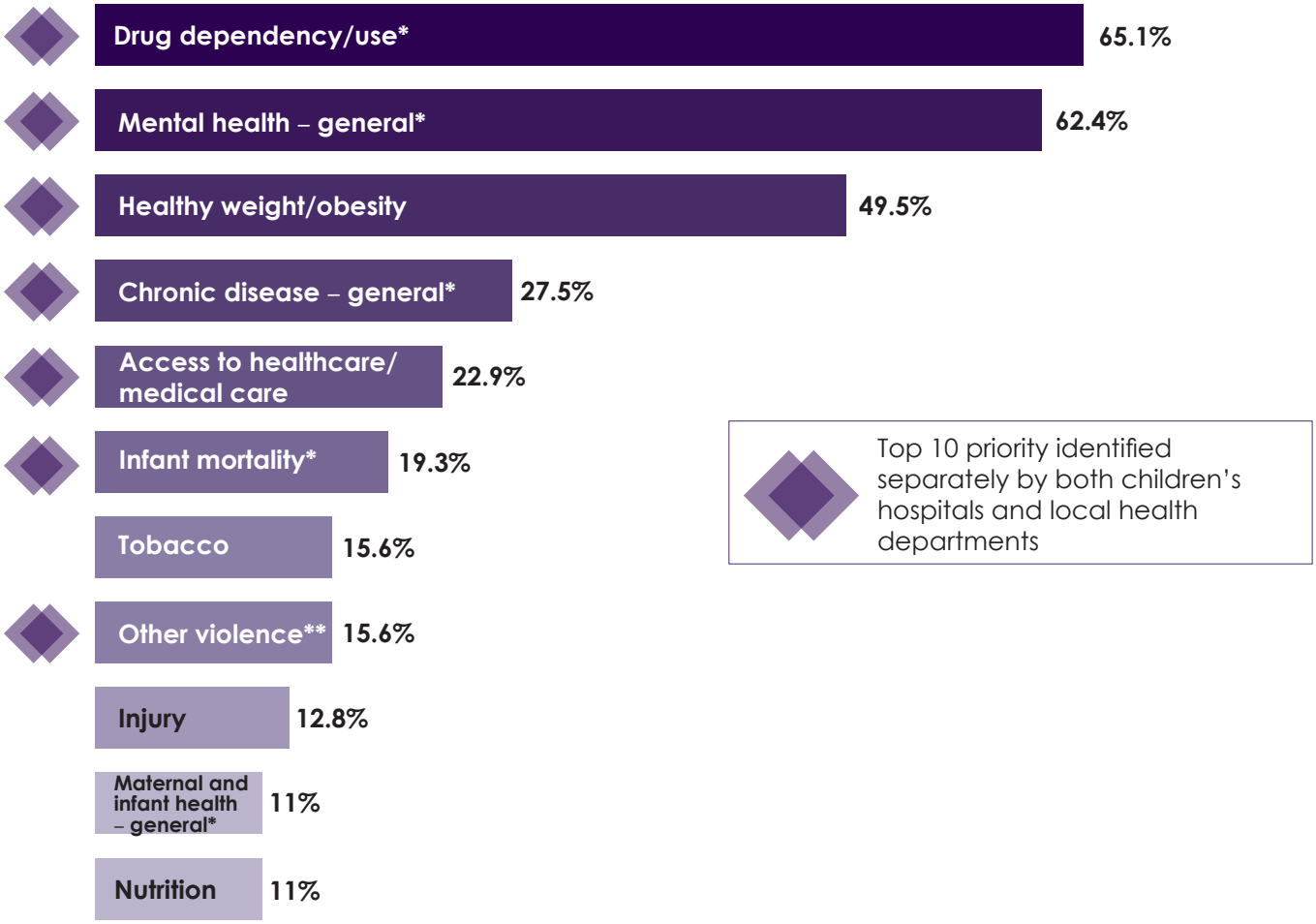
Notably, top-10 priorities identified by children's hospitals (see figure 5.4), but not local health departments, were:

- Childhood asthma
- Injury
- Education
- Diabetes

Top-10 child-focused health priorities identified by local health departments (see 5.5), but not children's hospitals, were:

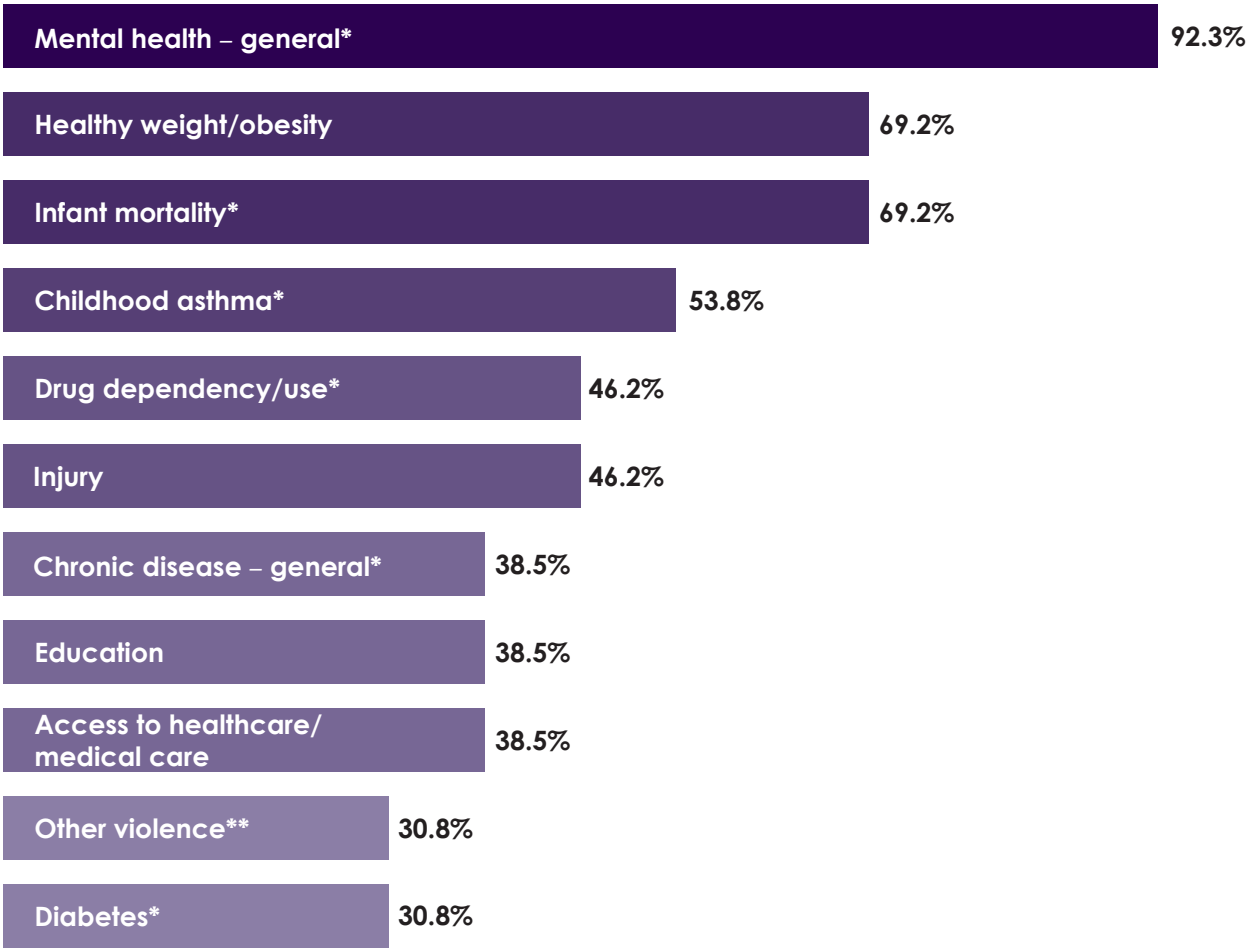
- Tobacco
- Nutrition
- Maternal and infant health (general)
- Physical activity

Figure 5.3 **Top ten child-focused health priorities identified in children's hospital and local health department community health planning documents, combined** (n=109)



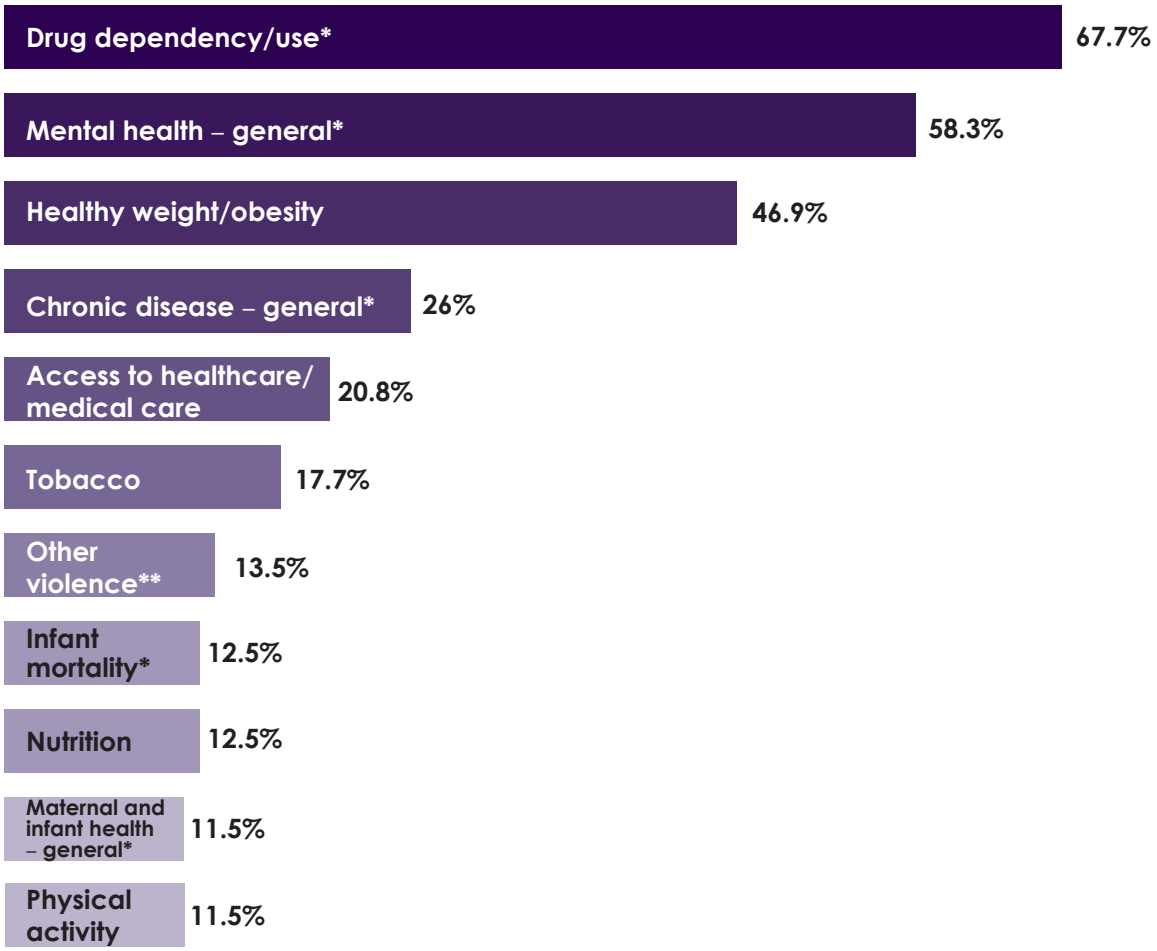
Note: May have more than 10 priorities listed due to ties
*Aligned with *2017-2019 State Health Improvement Plan* three priority topics: Chronic disease, mental health and addiction, maternal and infant health
** Includes physical and emotional violence, such as relationship or intimate partner violence, domestic violence, teen dating violence, street violence, bullying, self-harm, or other violence and crime general
Source: HPIO review of children's hospital and local health department community health needs assessments and strategies/plans

Figure 5.4 **Top ten child-focused health priorities identified in children's hospital community health planning documents** (n=13)



Note: May have more than 10 priorities listed due to ties
* Aligned with *2017-2019 State Health Improvement Plan* three priority topics: Chronic disease, mental health and addiction, maternal and infant health
** Includes physical and emotional violence, such as relationship or intimate partner violence, domestic violence, teen dating violence, street violence, bullying, self-harm, or other violence and crime general
Source: HPIO review of children's hospital and local health department community health needs assessments and strategies/plans

Figure 5.5 **Top ten child-focused health priorities identified in local health department community health planning documents** (n=96)



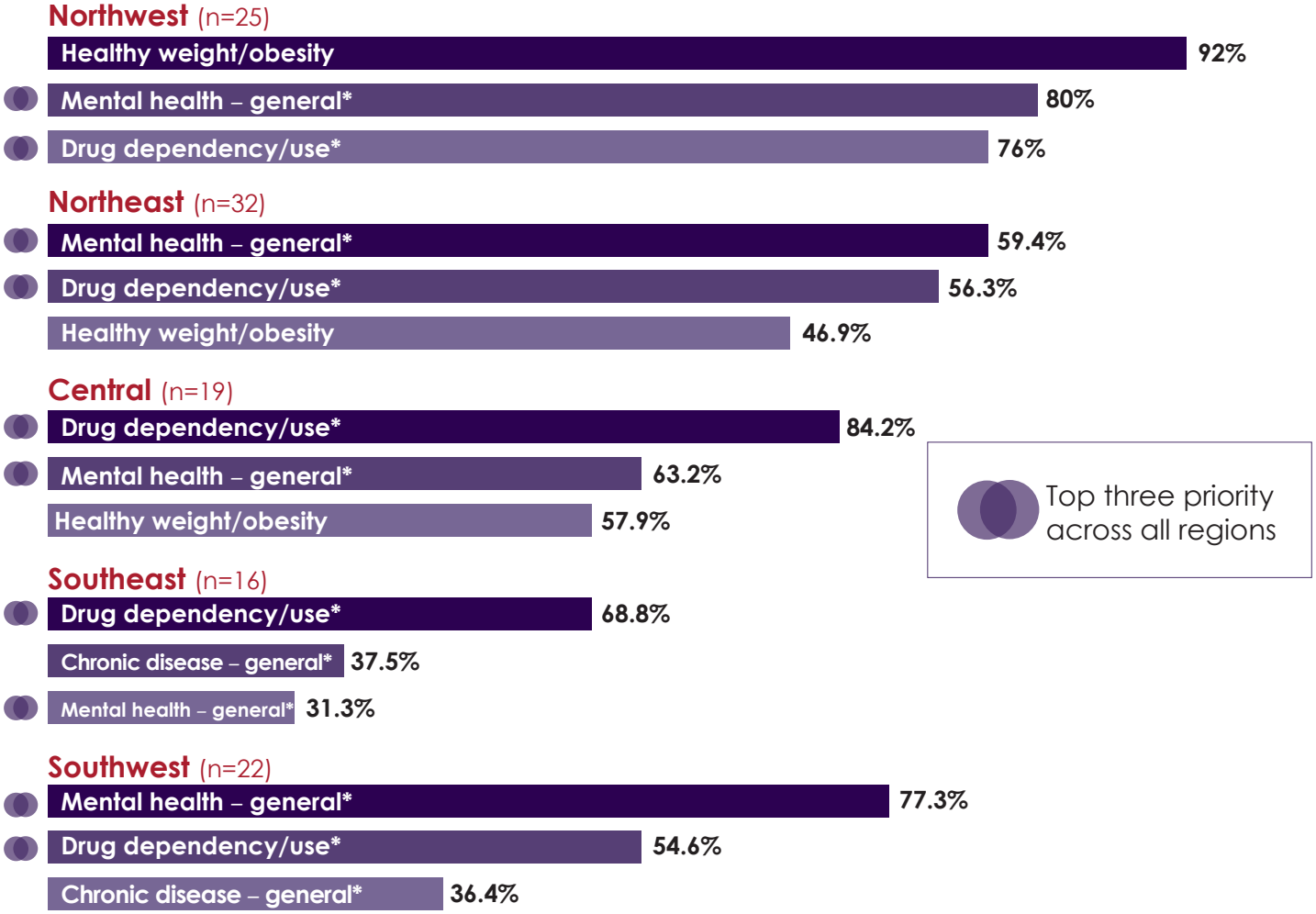
Note: May have more than 10 priorities listed due to ties
*Aligned with *2017-2019 State Health Improvement Plan* three priority topics: Chronic disease, mental health and addiction, maternal and infant health
** Includes physical and emotional violence, such as relationship or intimate partner violence, domestic violence, teen dating violence, street violence, bullying, self-harm, or other violence and crime general
Source: HPIO review of children's hospital and local health department community health needs assessments and strategies/plans

Top child-focused health priorities by region

HPIO analyzed the findings by region, using the region boundaries as defined by the Association of Ohio Health Commissioners.[3] Some documents covered more than one region (i.e. covered more than one county, including counties in two different regions).

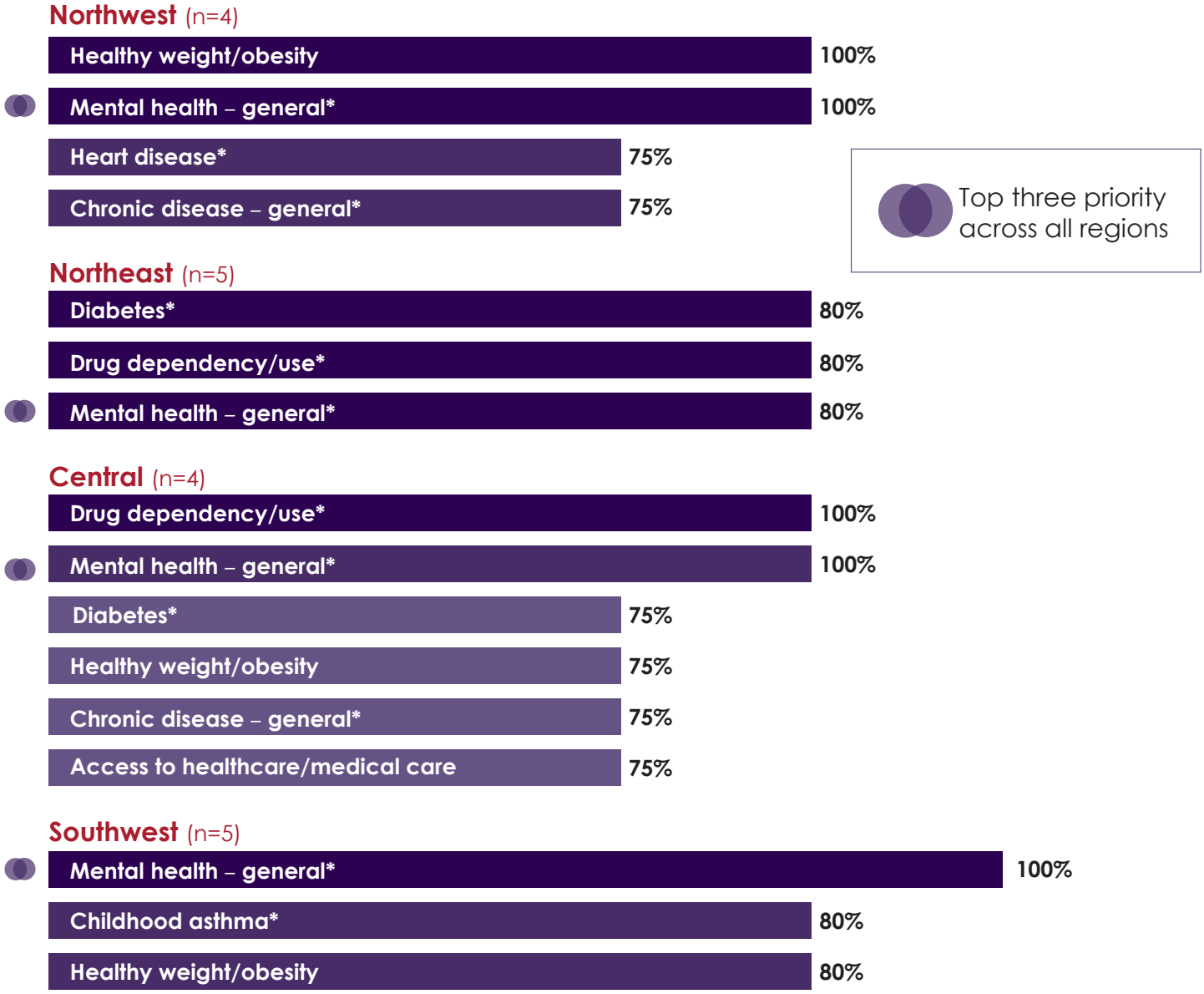
Figures 5.6 through 5.8 display the top three health priorities by region for children's hospital and local health department documents combined and separately. A strong focus on mental health was a general theme across regions for the children's hospitals (see figure 5.7). In addition to mental health, local health departments also identified drug dependence and use as a priority across regions (see figure 5.8).

Figure 5.6 **Top three child-focused health priorities identified in children's hospital and local health department community health planning documents, combined, by region(s) covered by the document**



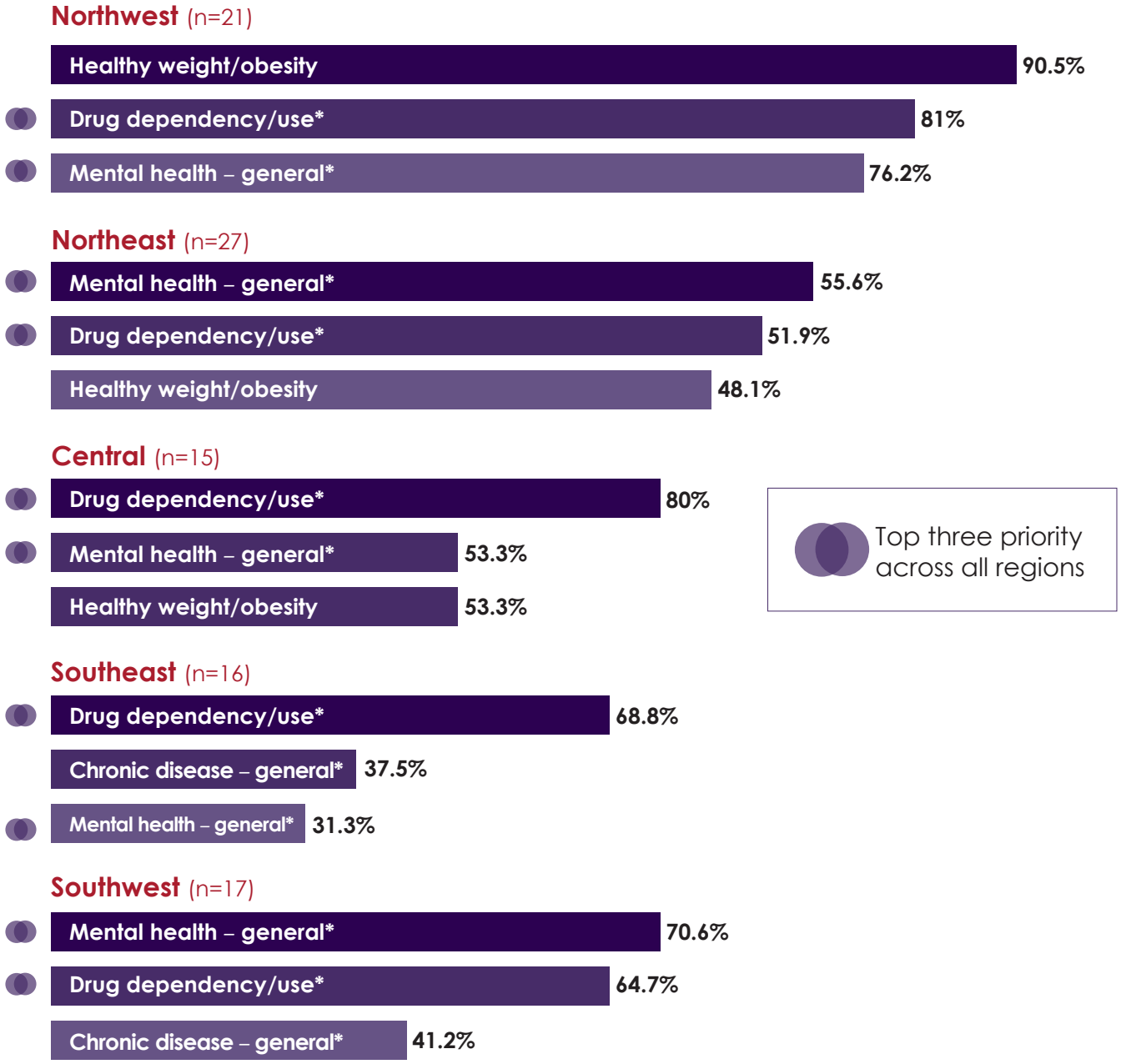
Note: May have more than three priorities due to ties; There were no children's hospital documents covering the southeast region of the state.
*Aligned with *2017-2019 State Health Improvement Plan* three priority topics: Chronic disease, mental health and addiction, maternal and infant health

Figure 5.7 **Top three child-focused health priorities identified in children's hospital community health planning documents, by region(s) covered by the document**



Note: May have more than three priorities due to ties; There were no children's hospital documents covering the southeast region of the state
*Aligned with *2017-2019 State Health Improvement Plan* three priority topics: Chronic disease, mental health and addiction, maternal and infant health
Source: HPIO review of children's hospital and local health department community health needs assessments and strategies/plans

Figure 5.8 **Top three child-focused health priorities identified in local health department community health planning documents, by region(s) covered by the document**



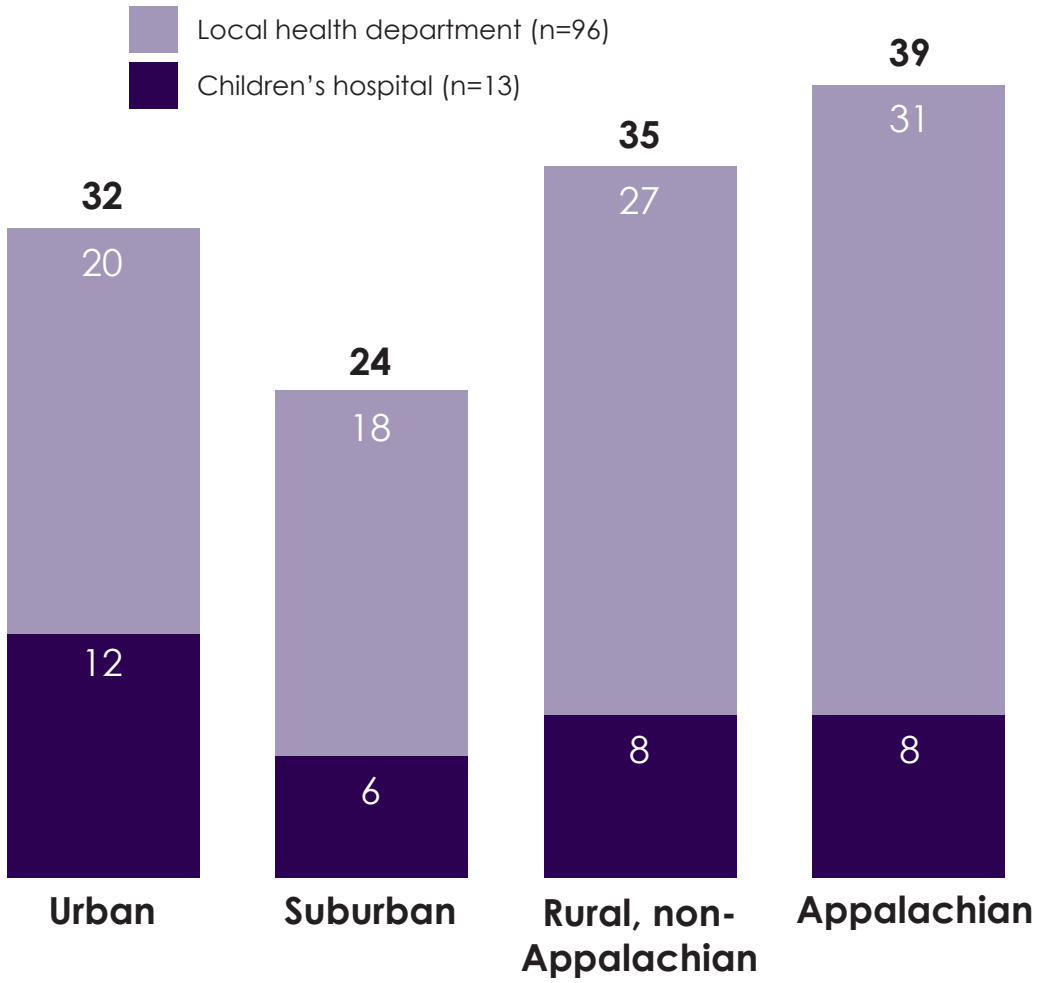
Note: May have more than three priorities due to ties
*Aligned with *2017-2019 State Health Improvement Plan* three priority topics: Chronic disease, mental health and addiction, maternal and infant health
Source: HPIO review of children's hospital and local health department community health needs assessments and strategies/plans

Top child-focused health priorities by county type

HPIO also analyzed the priority findings by county type, using categories defined by the Ohio Medicaid Assessment Survey.[4] Figure 5.9 displays the percent of children's hospitals and local health departments with child-focused priorities by county type covered by the document.

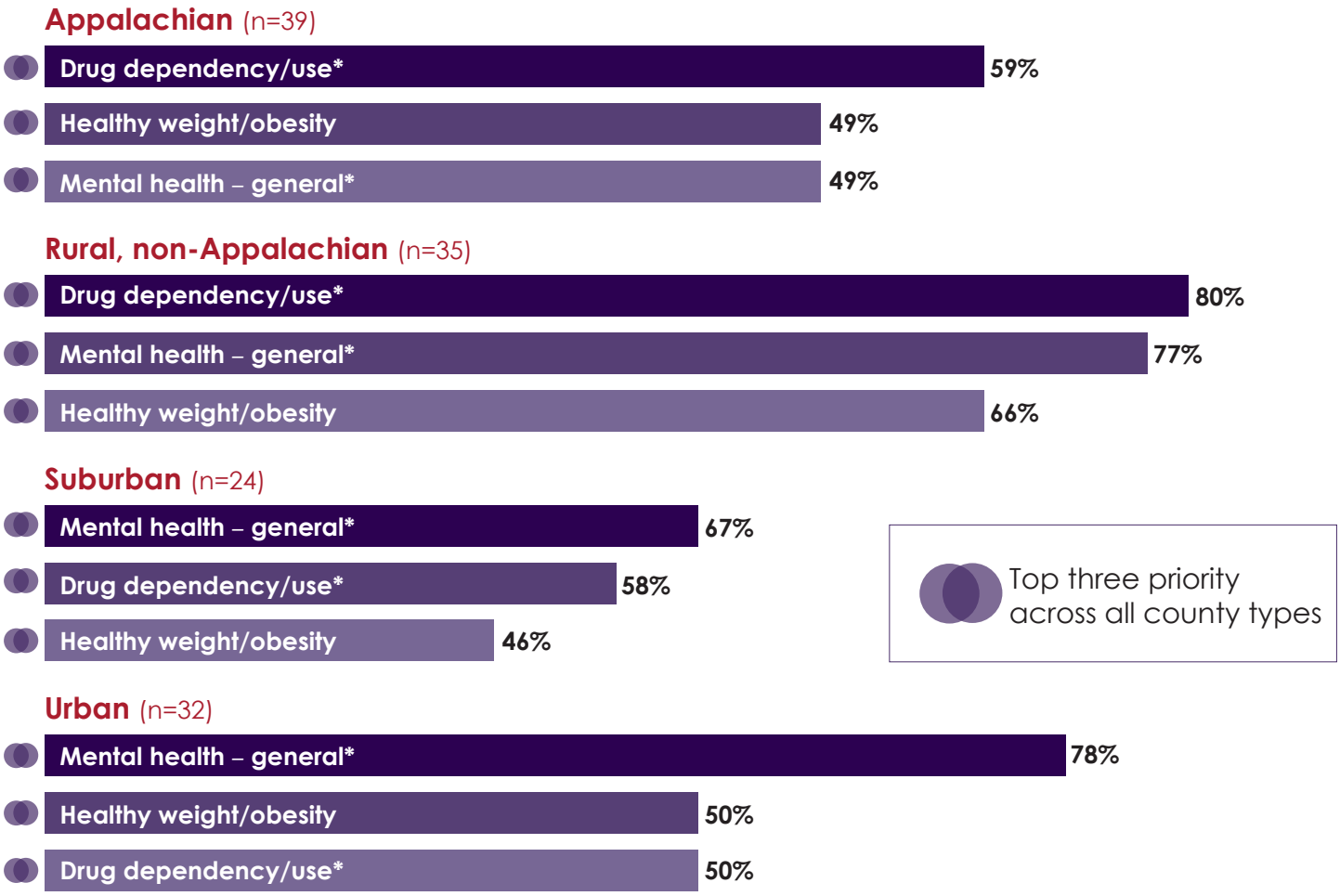
As shown in figures 5.10 through 5.12, there was a great deal of consistency in the top three health issues prioritized across different county types. Drug dependence and use, mental health and healthy weight/obesity were the top three issues for all four types of counties—Appalachian, rural non-Appalachian, suburban and urban (see figure 5.10). Infant mortality, child asthma and chronic disease also rose to the top in both children's hospital and local health department planning documents when analyzed by county type (see figures 5.11 and 5.12).

Figure 5.9 **Percent of children's hospital and local health department documents with child-focused priorities that were reviewed, by county type(s) covered by the document**



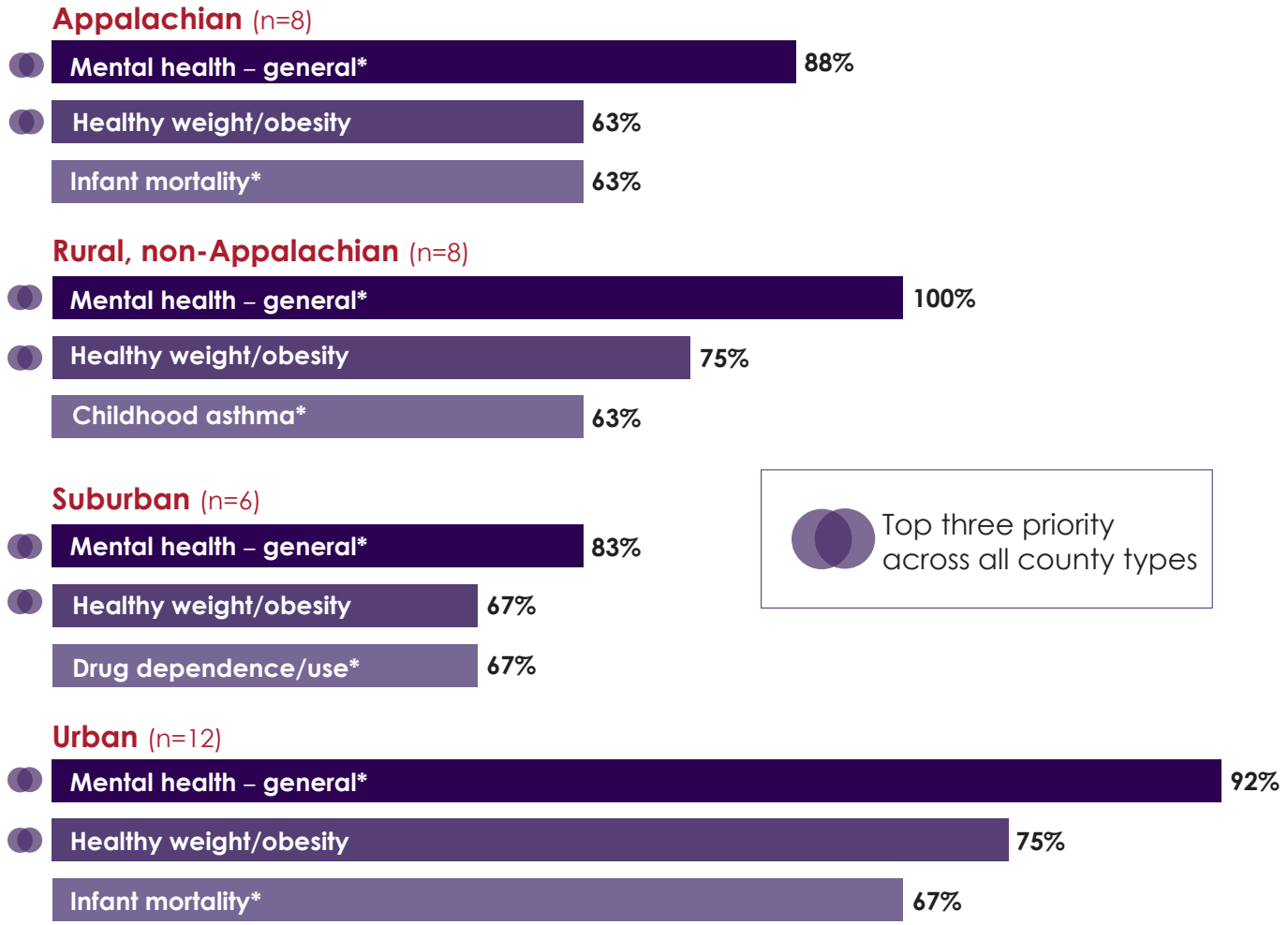
Note: Numbers across regions do not add up to "n" because documents may cover more than one county type
Source: HPIO review of children's hospital and local health department community health (needs) assessments and strategies/plans

Figure 5.10 **Top three child-focused health priorities identified in children's hospital and local health department community health planning documents, combined, by county type covered by the document**



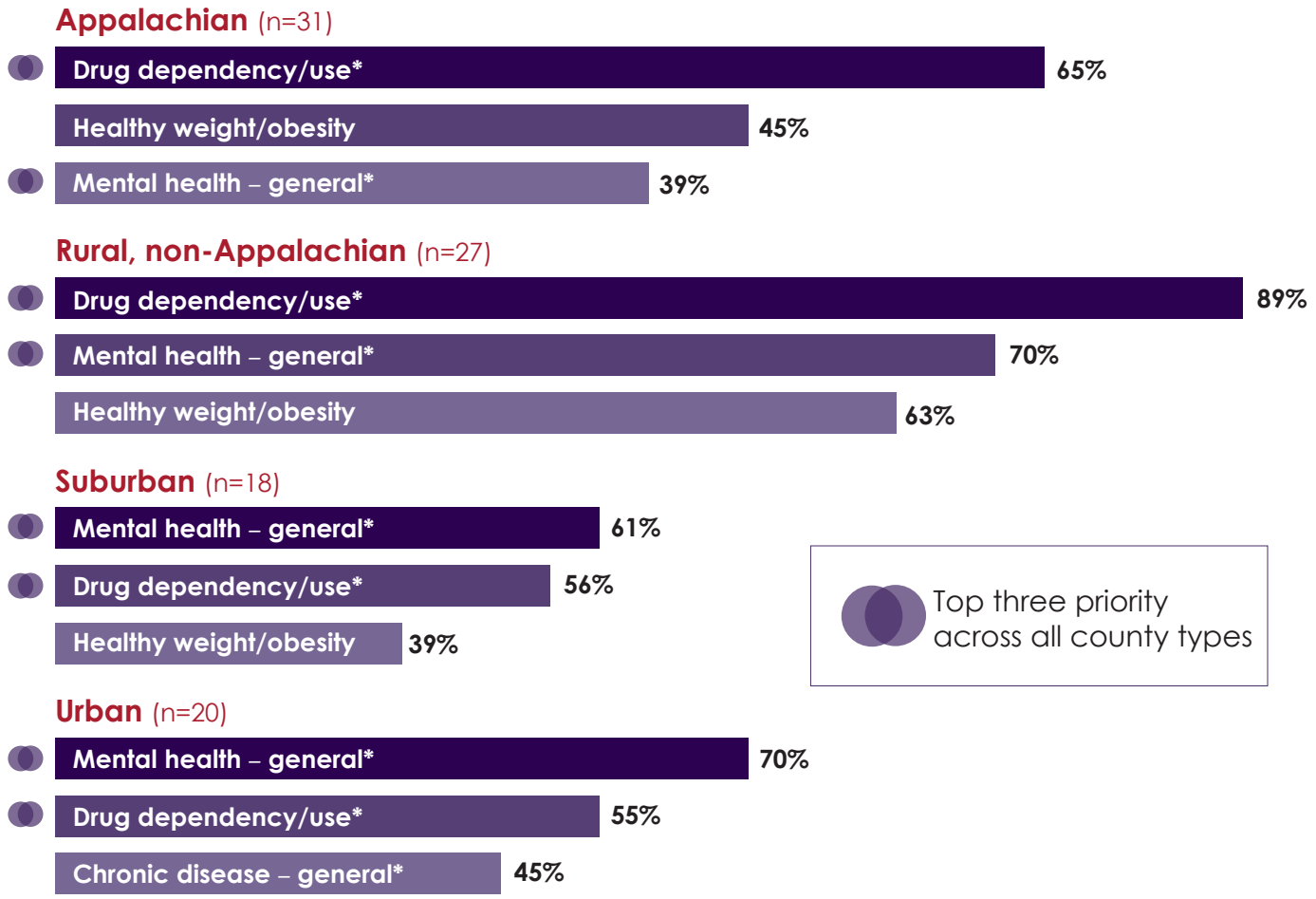
*Aligned with *2017-2019 State Health Improvement Plan* three priority topics: Chronic disease, mental health and addiction, maternal and infant health

Figure 5.11 **Top three child-focused health priorities identified in children's hospital health assessment and plan/strategy documents, by county type covered by the document**



*Aligned with *2017-2019 State Health Improvement Plan* three priority topics: Chronic disease, mental health and addiction, maternal and infant health

Figure 5.12 **Top three child-focused health priorities identified in local health department health assessment and plan documents, by county type covered by the document**



*Aligned with *2017-2019 State Health Improvement Plan* three priority topics: Chronic disease, mental health and addiction, maternal and infant health

Notes

1. Child-focused priorities were those that were identified as a children's hospital or local health department priority and included a child focus as determined by the priority wording, data, objectives, outcomes, strategies or other relevant information regarding the priority.
2. Includes physical and emotional violence, such as relationship or intimate partner violence, domestic violence, teen dating violence, street violence, bullying, self-harm, or other violence and crime general. Child maltreatment, trafficking and sexual violence were included in other priority categories.
3. For a map of the regions, see Ohio's Health Department Profile and Performance Database. Accessed 8/3/18: **https://odhgateway.odh.ohio.gov/LHDInformationSystem/Directory/GetLHDReport**
4. For a map of the categorization of counties by Ohio Medicaid Assessment Survey county types, see the 2016 State Health Assessment, Appendix A, page 124: **https://www.odh.ohio.gov/-/media/ODH/ASSETS/Files/chss/ship/SHA_FullReport_08042016.pdf?la=en**

6 Process and methodology

HPIO was commissioned by the Ohio Children's Hospital Association to develop an *Assessment of Child Health and Health Care in Ohio*. To inform development of the *Assessment*, a multi-sector Child Health and Health Care Advisory Committee was formed (see Appendix C for list of committee members). The advisory committee met four times from April through July of 2018. The committee included health care, public health, behavioral health, advocacy, early childhood, business, health plan and state agency representatives. Committee members provided feedback on the conceptual framework for the *Assessment*, as well as metrics, priority areas, goals and evidence-based strategies highlighted in the *Assessment*.

Metric selection and analysis

To identify the data sources and metrics to be included in the *Assessment,* the following scorecards and reports were reviewed:

- 2017 HPIO *Health Value Dashboard*
- 2016 Ohio State Health Assessment and 2017-2019 State Health Improvement Plan
- America's Health Rankings reports
- Ohio Kids COUNT data
- County Health Rankings
- Commonwealth Fund Scorecard

Using the scorecards and reports above, as well as other state-specific surveys and reports, more than 230 publicly-available metrics were compiled from the following 13 underlying sources of data:

- Ohio Medicaid Assessment Survey – Child Dashboard
- National Survey of Children's Health (which incorporated the National Survey of Children with Special Health Care Needs survey beginning in 2016)
- National Healthcare Quality and Disparities Report – State Snapshots
- National Survey on Drug Use and Health
- American Community Survey
- National Immunization Surveys – Child & Teen
- Centers for Disease Control and Prevention
  - WONDER – Natality, Mortality and Linked Infant Birth/Death Records databases
  - Maternity Practices in Infant Nutrition and Care
  - Bridged-Race Population Estimates
- Ohio Public Health Data Warehouse
- Ohio Behavioral Risk Factor Surveillance System Annual Report
- Medicaid and CHIP Payment and Access Commission
- Neonatal Abstinence Syndrome in Ohio, 2006-2015 Report

Based on advisory committee feedback throughout the process, the list of more than 230 metrics was narrowed to the 58 that are displayed in the data profiles of this report. Advisory committee members used the metric selection criteria that are included in Appendix B to identify metrics to be included. To address data gaps and limitations, data was requested from sources that are not publicly available: the Ohio Department of Medicaid and the Ohio Hospital Association.

Data profiles display data values for the three most recently available years for Ohio and for the most recent year for the U.S.

Ohio's state rank was determined by sorting data values for each state so that the state with the best performance was ranked as number one. When Ohio's data value was the same as other states, the states Ohio was tied with are displayed. Metrics with more than 10 missing states were not ranked.

Trend for each metric was determined by comparing the base year data value for Ohio to the most recent year data value for Ohio and calculating if the value is moving the right or wrong direction.

Performance relative to the U.S. was determined by comparing data values from Ohio and the U.S. for the most recent year.

Statistical significance for change over time and difference between Ohio and the U.S. was not determined.

To identify priority populations for priority outcomes, HPIO analyzed available disaggregated data to identify the subgroups experiencing the largest disparities. In most cases, the subgroup with the worst performance was identified as the priority population. When data values for subgroups were unreliable due to low sample sizes, the subgroup was excluded from the analysis.

General data gaps and limitations

- **Survey data.** The majority of metrics on population-level prevalence of health conditions and related risk factors in children is derived from health surveys, such as the National Survey of Children's Health (NSCH). Although these surveys often use validated measures, they rely on self-reporting of conditions and behaviors. Access to administrative (e.g. electronic health records) and claims-based data is very limited. Access to disaggregated data by social, economic or demographic factors is also very limited.
- **Trend analysis.** Multiple years of data are not available for some metrics. For example, metrics from the NSCH cannot be evaluated for trend due to a change to the data collection methodology. However, U.S. data is available for comparison. As of 2016, the Census Bureau is collecting data for the NSCH on an annual basis (previously every 4-5 years). This will provide a basis for trend analysis in the future.
- **U.S. data.** Data for some metrics is only available for Ohio and U.S. data is not available for comparison. For example, trend data is available from the Ohio Medicaid Assessment Survey, although comparable U.S. data is not available.
- **Data lag.** There is typically a lag of one to three years for data compiled from publicly available sources. As a result, data available may predate implementation of an important policy change or system/delivery reform.
- **Adolescent health survey data.** Sample sizes for the school-administered Youth Risk Behavioral Surveillance System and Ohio Healthy Youth Environments Survey were not sufficient to provide state-level data within the past four years.
- **Disaggregated data.** There is very limited state-level data disaggregated by race, income and other characteristics of children most at-risk for facing inequities and experiencing disparities.

Identifying priority areas, outcomes, policy goals and strategies

Priority areas and outcomes were selected based on a review of the data and information in the *Assessment*, prioritization criteria (see Appendix B), and advisory committee feedback. Factors considered in the identification of priority areas and outcomes included:

- Magnitude and severity of the issue
- Ohio's performance relative to the U.S. and over time
- Extent to which the issue had been prioritized by children's hospitals and local health departments in their community health planning documents
- Potential for impact given the current

Note on motor vehicle crash deaths

The advisory committee explored adding unintentional injury as a priority area and motor vehicle crash deaths as an additional priority outcome to align with the leading causes of death for children ages 1-17 and young adults ages 18-25. However, recent data on the primary cause of motor vehicle crash deaths involving children was not available at the time of the *Assessment*. Recent data would be necessary to guide identification of policy goals and strategies. As a result, unintentional injuries and motor vehicle crash deaths were not included as a priority area or outcome.

To help inform development of policy goals and to identify evidence-based strategies to improve the selected priority outcomes, HPIO conducted an extensive review of the evidence registries listed in figure 6.1. These sources draw upon the best-available research evidence to identify policies and programs proven effective in achieving the desired priority outcomes. In addition to likely impact on health outcomes, three of the sources take cost effectiveness into consideration:

- **Hi-5:** Community-wide, nonclinical strategies with improved health outcomes within five years or less, as well as reported cost effectiveness and/or cost savings over the lifetime of the population or earlier
- **6/18:** Interventions implemented by healthcare purchasers, payers and providers that improve outcomes and reduce cost
- **Washington State Institute for Public Policy (WSIPP):** Benefit-cost analyses of selected physical and behavioral health prevention programs and treatment services

Based on this review, a set of selection criteria (see Appendix B.) and advisory committee feedback, policy goals were formulated and evidence-based strategies to achieve the desired policy goals were selected to highlight in the policy framework (see figure 2.1).

Figure 6.1 **Systematic reviews and evidence registries used to identify strategies**

Systematic review or evidence registry	Recommendation level(s) included in this inventory
Hi-5 (Health Impact in 5 Years): U.S. Centers for Disease Control and Prevention (CDC) (*includes cost considerations*)	Recommended
6/18 (Accelerating Evidence into Action): CDC (*includes cost considerations*)	Recommended
The Guide to Community Preventive Services (Community Guide or CG): Systematic reviews from the CDC	Recommended
What Works for Health (WWFH): Evidence registry from County Health Rankings and Roadmaps, a project of the University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation	• Scientifically supported • Some evidence
U.S. Preventive Services Task Force Recommendations (USPSTF): Systematic reviews from the Agency for Healthcare Research and Quality	• Grade A (recommended; high certainty of benefit) • Grade B (recommended; moderate certainty of benefit)
Washington State Institute for Public Policy (WSIPP): Provides benefit-cost analysis on specific programs, services and policies	Benefits exceed costs (results of benefit-cost analysis for state of Washington)

Appendix

Appendix A. List of metrics and sources in data profiles
Appendix B. Prioritization criteria
Appendix C. Advisory committee member list
Appendix D. Additional data from the Ohio Department of Medicaid

Appendix A. List of metrics and sources in data profiles

Population health		
Metric	**Metric description**	**Source**
Physical activity	Percent of children ages 6-17 who exercise, play a sport or participate in physical activity for at least 60 minutes every day	National Survey of Children's Health
Substance use disorder	Percent of youth ages 12-17 with past-year illicit drug or alcohol dependence or abuse	National Survey of Drug Use and Health
Suicide, young adult	Crude rate of suicide deaths per 100,000 population ages 18- 25	Centers for Disease Control and Prevention, Vital Statistics
Oral health problems	Percent of children ages 1-17 who had one or more oral health problems in the past 12 months	National Survey of Children's Health
Anxiety	Percent of children ages 3-17 with current anxiety problems	National Survey of Children's Health
Food insecurity	Percent of children under age 18 living in households where, in the previous 12 months, there was an uncertainty of having, or an inability to acquire, enough food for all household members because of insufficient money or other resources	Kids Count Data Center
Health status	Percent of children ages 0-17 who have excellent or very good health	National Survey of Children's Health
Healthy weight	Percent of children ages 10-17 with body mass index between the 5th and 84th percentiles.	National Survey of Children's Health
Drug overdose death, young adult	Death rate per 100,000 young adults ages 18-25 due to drug overdose	Centers for Disease Control and Prevention, Vital Statistics
Infant mortality	Rate of infant deaths per 1,000 live births	Ohio Department of Health Bureau of Vital Statistics and Centers for Disease Control and Prevention Vital Statistics
Major depressive episode	Percent of youth ages 12-17 who experienced a major depressive episode within the past year	National Survey of Drug Use and Health
Attention Deficit/ Hyperactivity Disorder	Percent of children ages 3-17 who currently have Attention Deficit Disorder or Attention Deficit-Hyperactivity Disorder	National Survey of Children's Health
Asthma	Percent of children ages 0-17 currently with asthma	National Survey of Children's Health
Drug dependence at time of delivery	Total number of delivering mothers diagnosed with one or more drug abuse/dependence conditions at time of delivery	Ohio Department of Health, Neonatal Abstinence Syndrome in Ohio, 2006-2015 report
Suicide, youth	Crude rate of suicide deaths per 100,000 population ages 8- 17	Centers for Disease Control and Prevention, Vital Statistics

Appendix A. List of metrics and sources in data profiles (cont.)

Healthcare spending		
Metric	**Metric description**	**Source**
Out-of-pocket healthcare expenses	Percent of children ages 0-17 who are currently insured whose out-of-pocket healthcare costs are only sometimes or never reasonable	National Survey of Children's Health
Problems paying medical bills	Percent of children ages 0-17 whose family had problems paying for their child's medical or health care bills	National Survey of Children's Health
Medicaid spending per enrollee, children	Average amount Medicaid spends per enrollee per year, all children	Medicaid and CHIP Payment and Access Commission

Access to care		
Metric	**Metric description**	**Source**
Unmet substance use disorder treatment need	Percent of youth ages 12-17 who needed but did not receive treatment at a specialty facility for substance use in the past year	National Survey of Drug Use and Health
Medical home	Percent of children ages 0-17 whose health care does not meet medical home criteria	National Survey of Children's Health
Uninsured children	Percent of children ages 0-17 that are uninsured	American Community Survey
Mental health care	Percent of children ages 3-17 who needed and received treatment or counseling from a mental health professional during the past year	National Survey of Children's Health
Hospital emergency room visit	Percent of children ages 0-17 who had 2 or more hospital emergency room visits in the past year	National Survey of Children's Health
Trouble accessing routine care, Medicaid	Percent of ambulatory care patients ages 0-17 enrolled in Medicaid who had an appointment in the last six months who sometimes or never got an appointment for routine care as soon as they wanted	National Healthcare Quality and Disparities Reports
Trouble accessing specialist, Medicaid	Percent of ambulatory care patients ages 0-17 enrolled in Medicaid who needed to see a specialist in the last 6 months and sometimes or never found it easy to see a specialist	National Healthcare Quality and Disparities Reports
Unmet dental care	Percent of children ages 3-17 with an unmet need for dental care	Ohio Medicaid Assessment Survey
Unmet healthcare need	Percent of children ages 0-17 who did not receive needed health care	National Survey of Children's Health
Unmet prescription medication	Percent of children with an unmet need for prescription medication due to cost	Ohio Medicaid Assessment Survey
Unmet treatment for major depressive episode	Percent of children ages 12-17 with a major depressive episode in the past year who did not receive treatment	National Survey of Drug Use and Health as compiled in the Behavioral Health Barometer, Ohio
Unmet vision care	Percent of children ages 5-17 with an unmet need for vision care	Ohio Medicaid Assessment Survey

Appendix A. List of metrics and sources in data profiles (cont.)

Healthcare system		
Metric	**Metric description**	**Source**
Care coordination	Percent of children ages 2-17 who did not receive effective care coordination	National Survey of Children's Health
Breastfeeding support in hospitals	Average Maternity Practice in Infant Nutrition and Care (mPINC) score among hospitals and birthing facilities to support breastfeeding	Centers for Disease Control and Prevention, Maternity Practices in Infant Nutrition and Care
Vision testing	Percent of children ages 0-17 who did not receive age-appropriate vision screening	National Survey of Children's Health
Prenatal care	Percent of births where mothers received prenatal care in the first trimester	Centers for Disease Control and Prevention, Vital Statistics
Shared decision making	Percent of children ages 0-17 whose families usually or always feel that they are partners in decision making around issues important to their child's health	National Survey of Children's Health
Transition in care	Percent of youth ages 12-17 who did not receive the services necessary for transition to adult health care	National Survey of Children's Health
Asthma hospital admissions	Rate of hospital admissions for asthma for children ages 2-17 per 100,000 population	National Healthcare Quality and Disparities Reports
Birth trauma	Rate of injury trauma to neonate per 1,000 live births	National Healthcare Quality and Disparities Reports
Diabetes hospital admissions	Rate of hospital admissions for diabetes with short-term complications for children ages 6-17 per 100,000 population	National Healthcare Quality and Disparities Reports
Asthma emergency department visits	Emergency department visit rate, per 10,000 children ages 0-17, for patients with a primary diagnosis of asthma	Ohio Hospital Association Clinical-Financial Data set provided by Ohio Department of Health

Appendix A. List of metrics and sources in data profiles (cont.)

Public health and prevention		
Metric	**Metric description**	**Source**
Alcohol use, youth	Percent of youth ages 12-17 that report using alcohol in the past month	National Survey of Drug Use and Health
Heavy alcohol use, young adult	Percent of men ages 18-24 who have more than 14 drinks per week and women ages 18-24 who have more than seven drinks per week	Behavioral Risk Factor Surveillance Survey
Marijuana use, youth	Percent of youth ages 12-17 that report using marijuana in the past month	National Survey of Drug Use and Health
Teen birth rate	Total birth rate for females ages 15-19 per 1,000 births	Centers for Disease Control and Prevention, National Center for Health Statistics, Stats of the States
Human papillomavirus vaccine	Percent of adolescents ages 13-17 years with human papillomavirus vaccine up to date coverage	National Immunization Survey - teen as reported by Morbidity and Mortality Weekly Report (MMWR)
Marijuana use, young adult	Percent of young adults ages 18-25 that report using marijuana in the past month	National Survey of Drug Use and Health
Tobacco use, youth	Percent of youth ages 12-17 that report using tobacco products in the past month [Note: Does not include e-cigarettes]	National Survey of Drug Use and Health
Preterm birth	Percent of babies born prior to 37 weeks of pregnancy (gestation)	Centers for Disease Control and Prevention, National Center for Health Statistics, Stats of the States
Child vaccination series	Percent of children ages 19 to 35 months with combined 7-series vaccine coverage	National Immunization Survey - child as reported by MMWR
Percent ever breastfed	Percent of children who were ever breastfed by birth year	National Immunization Survey Breastfeeding dataset
Smoker in household	Percent of children ages 0-17 who live in households where someone uses cigarettes, cigars, or pipe tobacco	National Survey of Children's Health
Tobacco use, young adult	Percent of young adults ages 18-25 that report using tobacco products in the past month [Note: Does not include e-cigarettes]	National Survey of Drug Use and Health
Exclusively breastfed first six months	Percent of children who were exclusively breastfed or fed breast milk for the first six months of life by birth year	National Immunization Survey Breastfeeding dataset
Breastfed at hospital discharge	Percent of infants who were exclusively breastfed at hospital discharge	Ohio Department of Health, Vital Statistics as reported in Maternal and Child Health Performance Measures report
E-cigarette use	Percent of Ohio students grades 6-12 that report current e- cigarette use	Ohio Department of Health, Ohio Youth Tobacco Survey data request
Motor vehicle accident deaths, youth	Crude rate of motor vehicle accident deaths per 100,000 population ages 0-17	Centers for Disease Control and Prevention, Vital Statistics

Appendix A. List of metrics and sources in data profiles (cont.)

Public health and prevention (cont.)		
Metric	**Metric description**	**Source**
Neonatal Abstinence Syndrome hospitalizations	Total number of inpatient hospital discharges for infants with a primary or secondary diagnosis of Neonatal Abstinence Syndrome	Ohio Department of Health, Neonatal Abstinence Syndrome in Ohio, 2006-2015 report
Unintended pregnancy	Percent of women who reported becoming pregnant when they never wanted to be pregnant or before they wanted to be pregnant	Pregnancy Risk Assessment Monitoring Survey

Appendix B. Prioritization criteria

Prioritization criteria for metric selection

Criteria	Description
Rigor	
1. *Source integrity	The metric is nationally recognized as a valid and reliable indicator and the data are provided by a reputable national organization or state or federal agency.
2. *Data quality	The data are complete and accurate. The data collection method is the best available for the construct being measured (e.g., biometric, self-report, administrative) and the metric is valid and reliable.
Reality	
3. *State-level data	Statewide data is available for Ohio.
4. Timeliness	Preference given to metrics with a short time lag (recently available data within past 3 years).
5. *Benchmark	There is a point of comparison for the data that can provide a benchmark for state performance (such as trend over time, U.S. average or some other performance benchmark).
6. Availability and consistency	There is a high probability that data for this metric will continue to be gathered in the future and will be provided in a relatively consistent format across time periods.
Relevance	
7. *Relevance	The metric addresses an important health-related issue and/or one that affects a significant number of children in Ohio.
8. Face value	The metric is easily understood by the public and policymakers.
9. Alignment	Aligns with an existing requirement, performance measure, program evaluation indicator or other measures currently being compiled by a state or federal agency (e.g., ODH, OHT, ODE, CMS, HHS, AHRQ), national organization (e.g. Catalyst for Payment Reform) or regional project (e.g., Health Collaborative, Healthcare Collaborative of Greater Columbus, Better Health Greater Cleveland). Does not add data collection burden to stakeholders. Preference given to metrics listed in the report, **Improving population health planning in Ohio** (pages 39-46).
10. Sub-state geography	Preference given to metrics for which data are available at the regional, county, city or other geographic level within Ohio, particularly metrics that are included in County Health Rankings, Network of Care and other sources easily accessible for local community health improvement planning.
11. Ability to track disparities	Preference given to metrics for which data are available for sub-categories such as race/ethnicity, income level, age or gender.

*Metrics selected for the *Assessment* must at minimum meet these criteria.

Guiding principles for developing a balanced set of metrics:
The goal is to develop a concise set of metrics (no more than 50 metrics total) that address an appropriate variety of constructs, as well as balance the following characteristics:

1. Process and outcome indicators
2. Metrics that can likely be improved in the short-term (1-3 years) and those that will take much longer to impact (4+ years)
3. Overall child population and specific stages of child development

Additional criteria to be assessed by HPIO
Accessibility, efficiency and feasibility: Data must be publicly available or can be provided by partners at no cost. Data require minimal analysis to be presented in a user-friendly and accessible format.

Appendix B. Prioritization criteria (cont.)

Prioritization criteria for priority topics and outcomes

Criteria	Description
Nature of the problem	
1. Magnitude of the problem	Number or percent of children in Ohio affected
2. Severity of the health problem	Risk of morbidity and mortality associated with the problem
3. Magnitude of disparities and impact on vulnerable populations	Size of gap between racial/ethnic and income/poverty groups; Impact on children living in poverty, with disabilities, etc.
4. Ohio's performance relative to benchmarks	Extent to which children in Ohio are doing much worse than national benchmarks and/or children in the U.S. overall
5. Change over time	Extent to which the problem has been getting worse in recent years
Alignment	
6. Alignment with the State Health Improvement Plan and local priorities	Extent to which the issue has been prioritized at the state and local level
Potential for impact	
7. Availability of evidence-informed state or local-level policy strategies	Extent to which the issue can be impacted by state or local- level policy change
8. Feasibility and cost of available evidence- based strategies	Existence of strategies that are no or low cost; existence of strategies that are feasible to implement in Ohio at local and/or state level given current climate/conditions
9. Potential strategies are cross-cutting or have co-benefits	Existing evidence-based strategies to address this health problem would also address other health problems (e.g., healthy eating and active living strategies impact weight, diabetes, mental health, etc.)
10. Ability to track progress at the state and county level	Progress on the issue can be tracked using existing (or new) population-level indicators with data available for children at the state and county level

Additional considerations for prioritization, based upon stakeholder expertise:

- **Opportunity to add value.** There is a need for increased activity and/or alignment on the issue at the state level.
- **Preventability of disease or condition.** Disease or condition is largely caused by behaviors, community environments and/or other modifiable factors (rather than genetics or biological characteristics) that can be addressed by prevention programs or policies.
- **Potential impact on healthcare spending.** Extent to which addressing the problem may reduce healthcare spending and have a positive return on investment (ROI).

Appendix B. Prioritization criteria (cont.)

Prioritization criteria for policy goals

Criteria	Description
1. Clarity	Policy goal intended outcome is clear and wording is concise, unambiguous and compelling
2. Realistic within the policy landscape	Likelihood that the incoming state legislature, state agency leadership and other relevant decision makers would consider acting on the policy goal
3. Actionable opportunities given current landscape and awareness of the problem in Ohio	Extent to which: • There are stakeholders in Ohio already working toward this goal • The goal addresses a widely-acknowledged unmet need in Ohio

Prioritization criteria for evidence-based strategies

Criteria	Description
1. Strength of evidence of effectiveness	• Extent to which research has proven the recommended strategy to be effective in meeting the intended outcomes • How rigorously the strategy has been evaluated *Based on HPIO review of the current research evidence registries and literature*
2. Relevance to a child-focused population	• Extent to which research has demonstrated effectiveness of strategy on a child-focused population • Relevance to the strengths and needs of children in Ohio
3. Potential size of impact on priority topic areas and risk factors	Estimated magnitude of impact on factors that contribute to the identified priority topics and outcomes
4. Potential size of impact on inequities and disparities	• Extent to which research has indicated that strategy is likely to decrease disparities • Opportunity to tailor or adapt strategy to target children most at risk for the poor health outcome
5. Scalability and alignment	• Opportunity to build upon and expand the reach of work currently underway in Ohio • Opportunity to scale up existing pilot projects that have shown evidence of effectiveness
6. Short-term political feasibility (2 years)	Likelihood that the incoming state legislature, state agency leadership, and other relevant decision makers would consider implementing the strategy
7. SHIP alignment	Strategy is included in the State Health Improvement Plan (or other statewide plans)

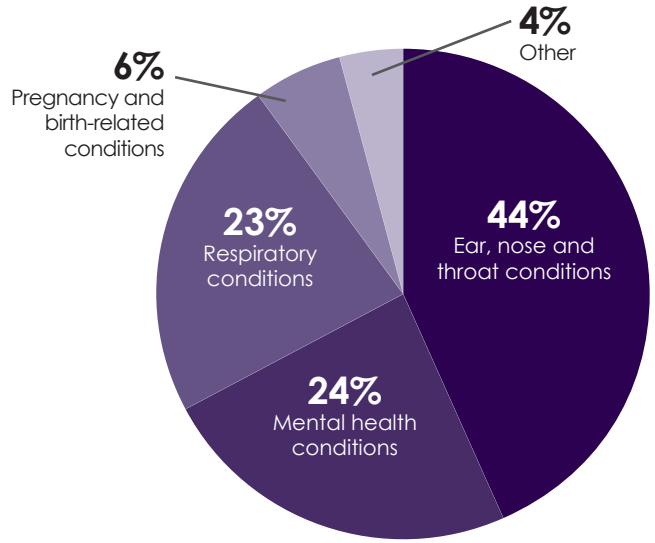
Appendix C. Advisory committee member list

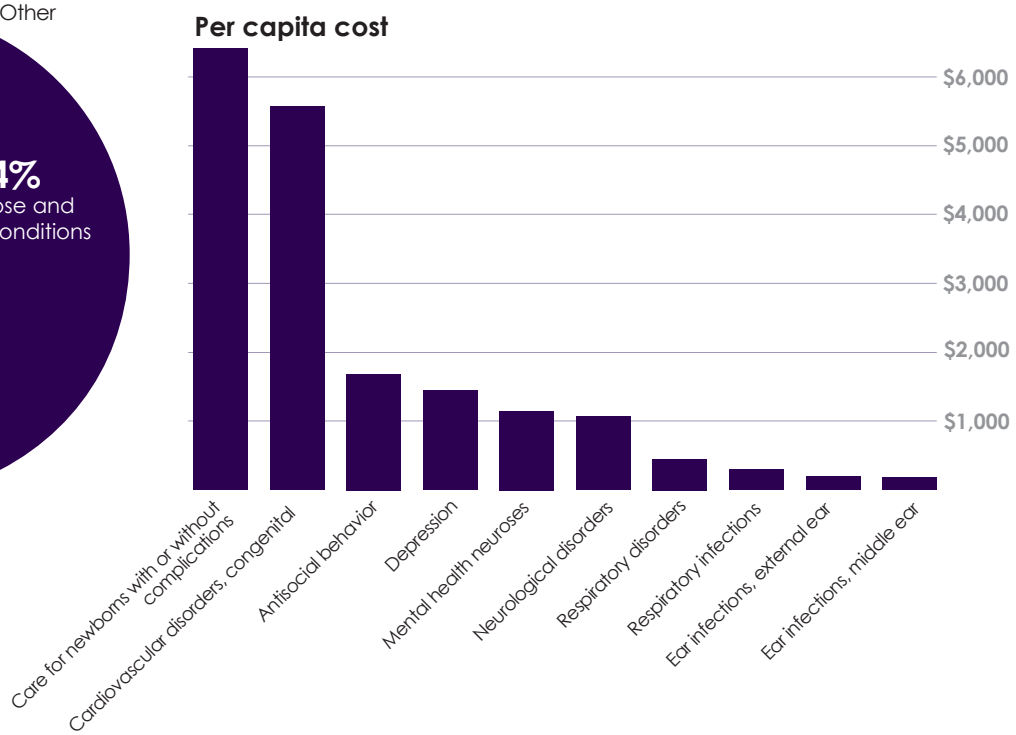
Name	Organization
Breann Almos	Office of Ohio Attorney General Mike DeWine
Mary Applegate, MD	Ohio Department of Medicaid
Aparna Bole, MD	University Hospitals, Rainbow Babies & Children's Hospital
Jessie Cannon	Cardinal Health
Nita Carter	Ohio Public Health Association
Aly DeAngelo	Ohio Hospital Association
Julie DiRossi-King	Ohio Association of Community Health Centers
Willa Ebersole	Thomas P. Pappas & Associates
Kathleen Gmeiner	Voices for Ohio's Children
Lynanne Gutierrez	Groundwork Ohio
Andrew Hertz, MD	University Hospitals, Rainbow Babies & Children's Hospital
Kimberly Hiltz	UnitedHealthcare Community Plan of Ohio Inc.
Sarah Kincaid	Ohio Children's Hospital Association
Kraig Knudsen	Ohio Mental Health and Addiction Services
Teresa Lampl	The Ohio Council of Behavioral Health and Family Services Providers
Nick Lashutka	Ohio Children's Hospital Association
Ashon McKenzie	Children's Defense Fund-Ohio
Sandra Oxley	Ohio Department of Health
Dianne Radigan	Former Vice President at Cardinal Health
Anita Shah, DO	Cincinnati Children's Hospital Medical Center
Danielle Sosko	ProMedica Toledo Children's Hospital
Steven Spalding, MD	Akron Children's Hospital
Ann Spicer	Ohio Academy of Family Physicians
Jonathan Thackeray, MD	Dayton Children's Hospital
Steven Wagner	Universal Health Care Action Network of Ohio
Angela Weaver	Ohio Association of Health Plans
Marisa Weisel	Public Children Services Association of Ohio
Melissa Wervey Arnold	Ohio Chapter, American Academy of Pediatrics
Donald Wharton, MD	Ohio Department of Medicaid

Appendix D. Additional data from the Ohio Department of Medicaid

Figure D.1 **Highest cost conditions for children ages 0-17 in Medicaid, non-aged, blind and disabled (non-ABD)**

Total 2017 encounters: **1,278,187**

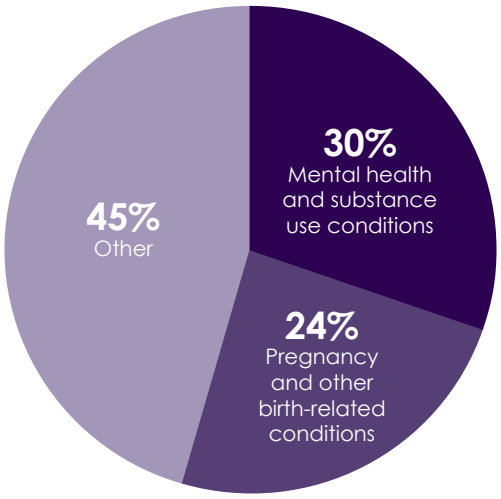


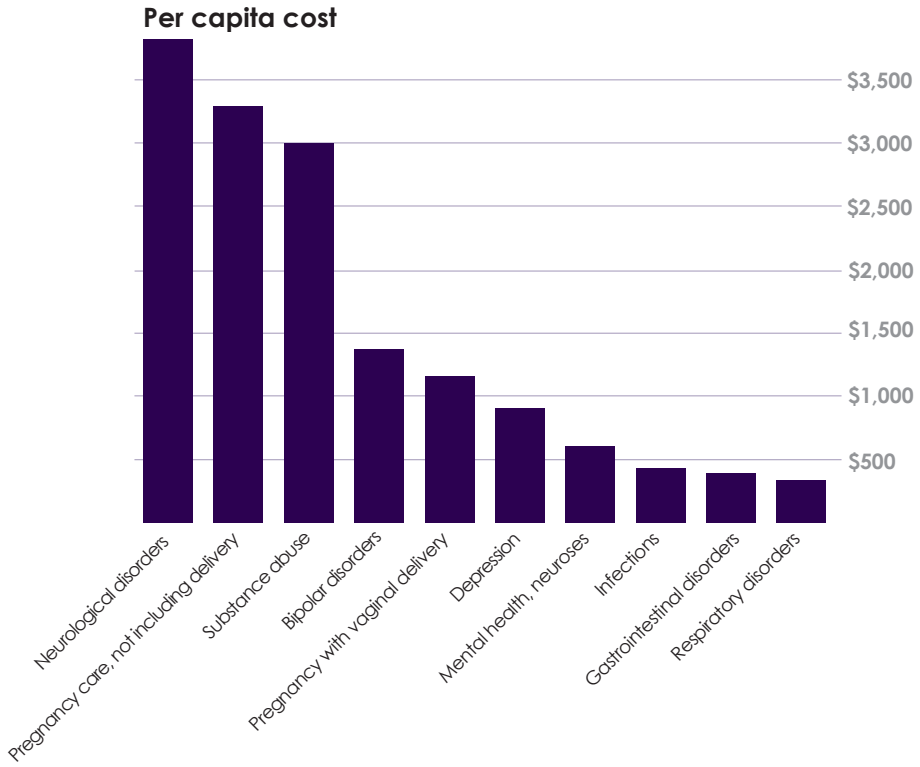


Note: Other includes congenital cardiovascular and neurological disorders
Source: Ohio Department of Medicaid

Figure D.2 **Highest cost conditions for young adults ages 18-25 in Medicaid, non-aged, blind and disabled (non-ABD)**

Total 2017 encounters: **320,224**



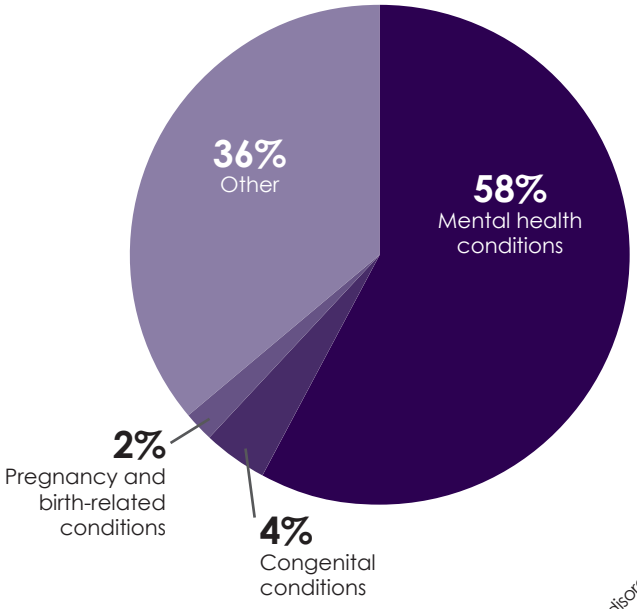


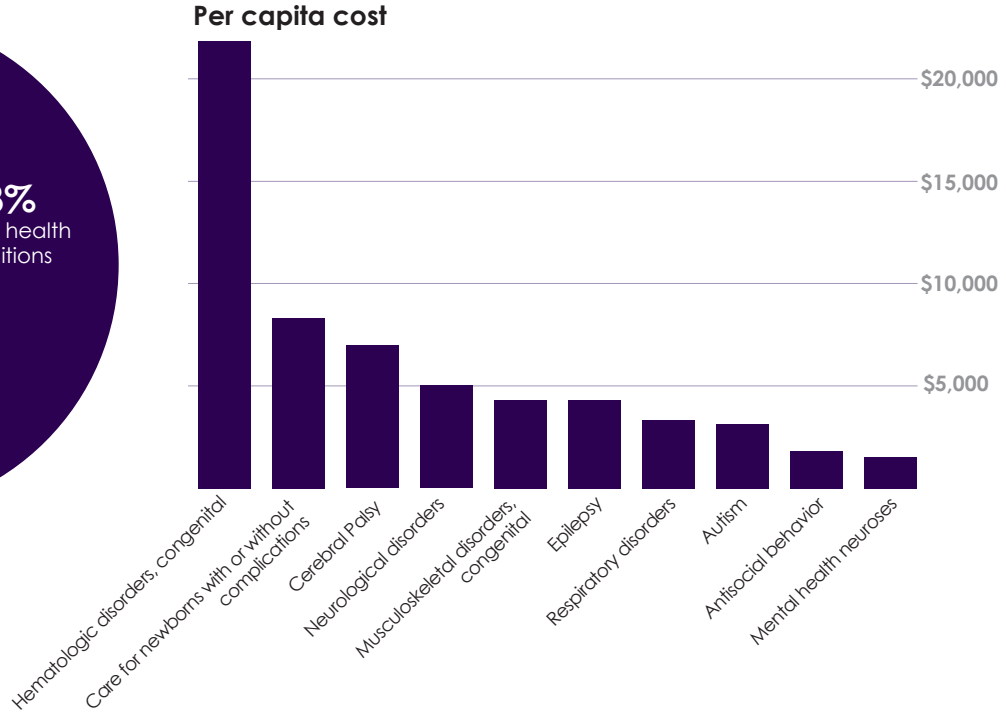
Note: Other includes infections and neurological, gastrointestinal and respiratory disorders
Source: Ohio Department of Medicaid

Appendix D. Additional data from the Ohio Department of Medicaid (cont.)

Figure D.3 **Highest cost conditions for children ages 0-17 in Medicaid, aged, blind and disabled (ABD)**

Total 2017 encounters: **64,821**

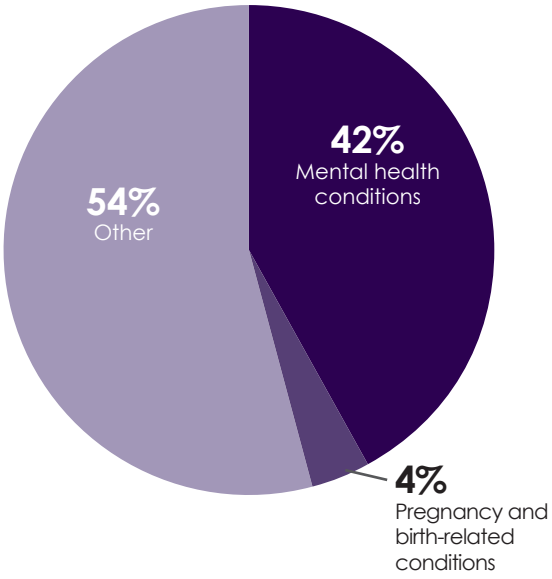


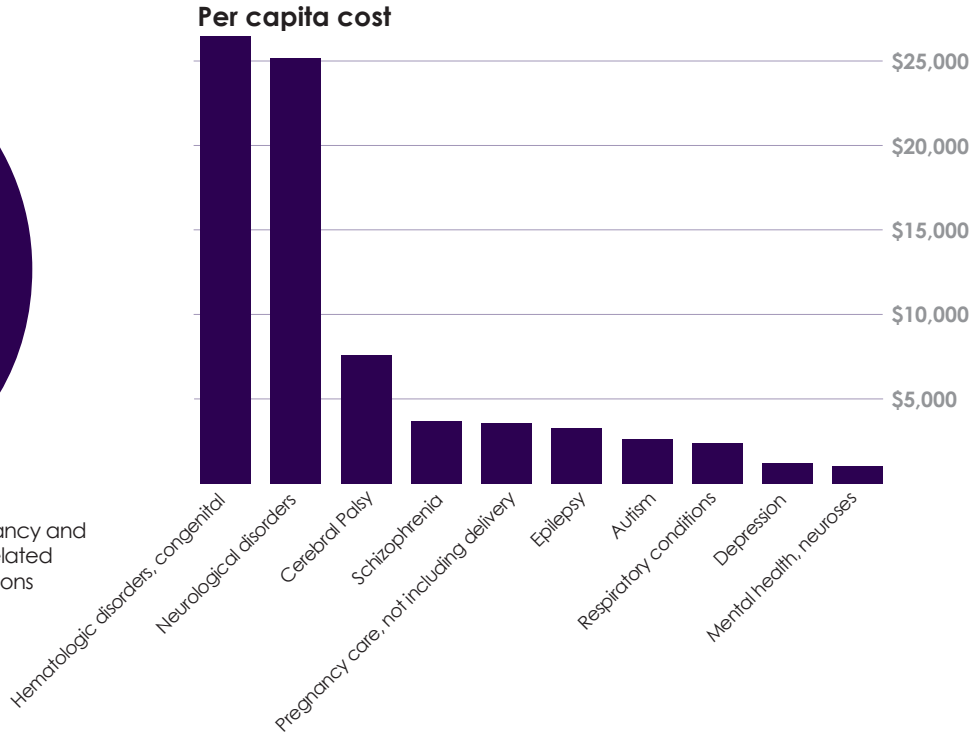


Note: Other includes Cerebral Palsy; epilepsy; neurological and respiratory disorders
Source: Ohio Department of Medicaid

Figure D.4 **Highest cost conditions for young adults ages 18-25 in Medicaid, aged, blind and disabled (ABD)**

Total 2017 encounters: **37,282**

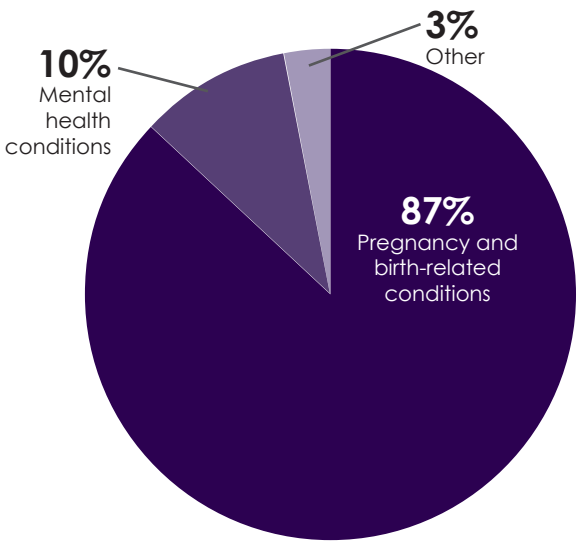


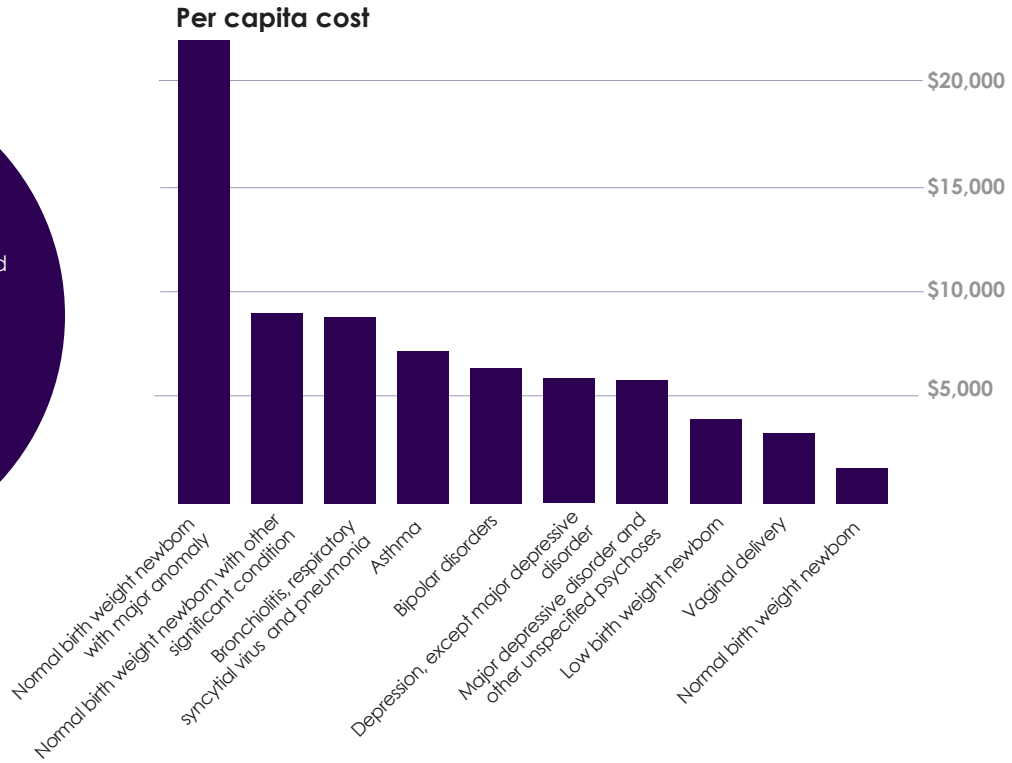


Note: Other includes Cerebral Palsy; epilepsy; neurological, respiratory and congenital hematologic disorders
Source: Ohio Department of Medicaid

Figure D.5 **Most common inpatient diagnoses for children ages 0-17 in Medicaid, non-aged, blind and disabled (non-ABD)**

Total 2017 encounters: **66,618**

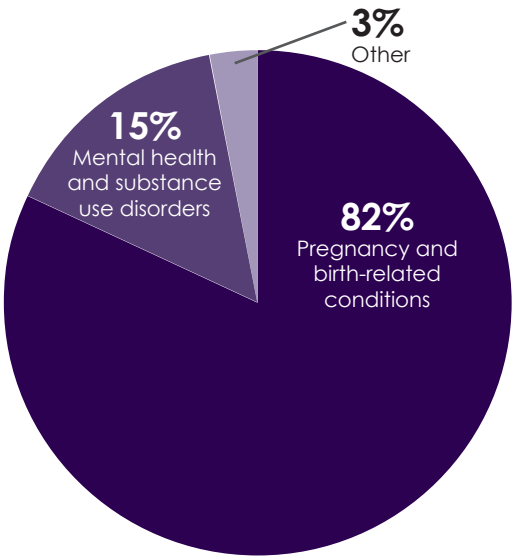


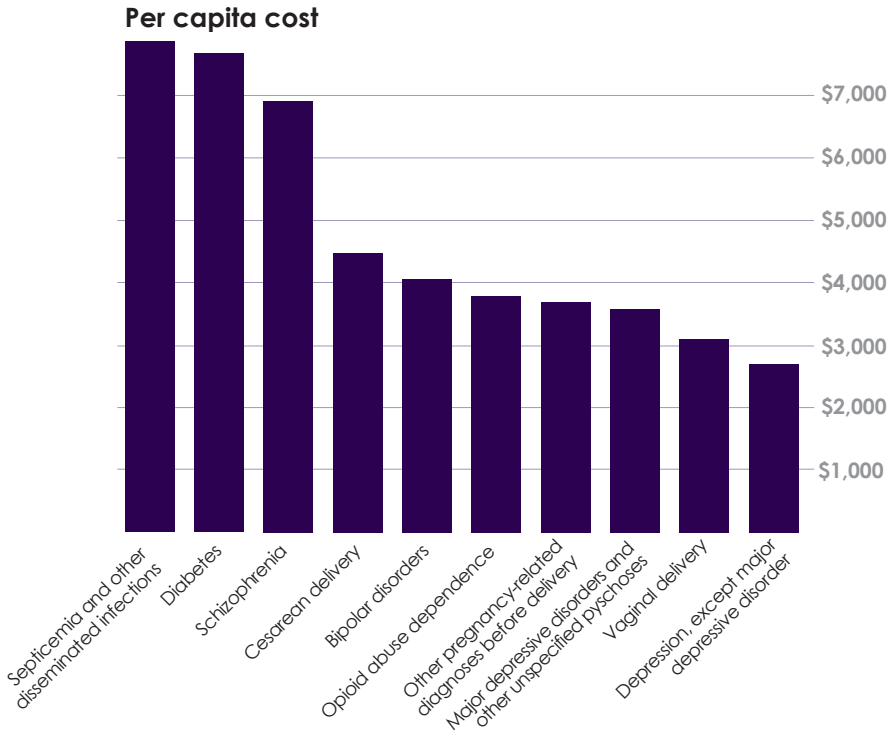


Note: Other includes bronchiolitis, respiratory syncytial virus and pneumonia
Source: Ohio Department of Medicaid

Figure D.6 **Most common inpatient diagnoses for young adults ages 18-25 in Medicaid, non-aged, blind and disabled (non-ABD)**

Total 2017 encounters: **37,223**

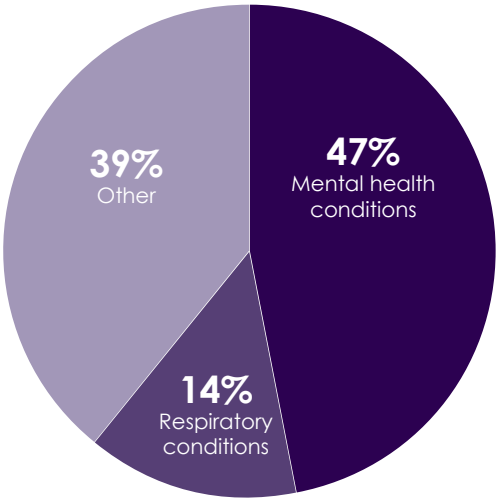


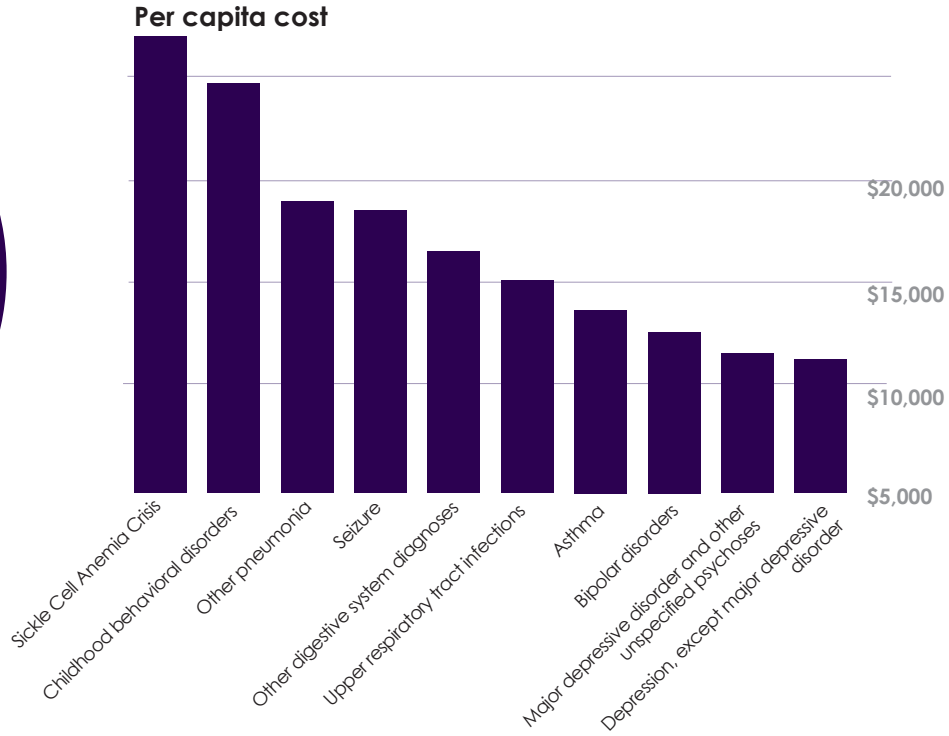


Note: Other includes diabetes, septicemia and other disseminated infections
Source: Ohio Department of Medicaid

Figure D.7 **Most common inpatient diagnoses for children ages 0-17 in Medicaid, aged, blind and disabled (ABD)**

Total 2017 encounters: **1,710**

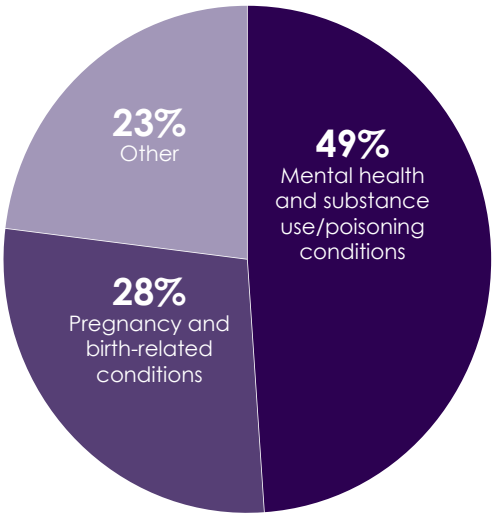


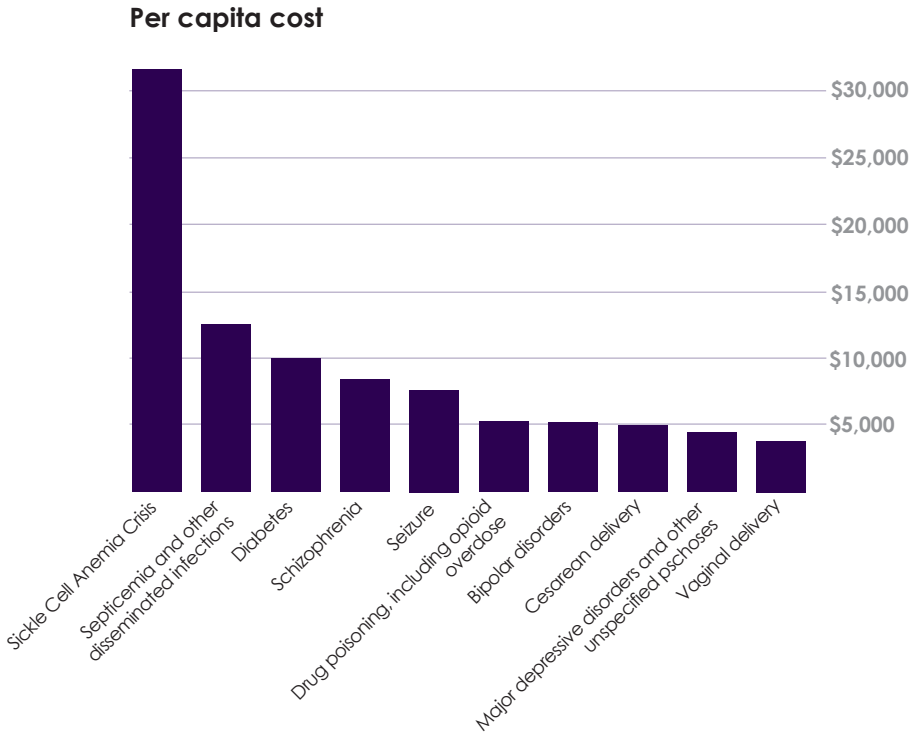


Note: Other includes seizure; other pneumonia; sickle cell anemia crisis; other digestive system diagnoses
Source: Ohio Department of Medicaid

Figure D.8 **Most common inpatient diagnoses for young adults ages 18-25 in Medicaid, aged, blind and disabled (ABD)**

Total 2017 encounters: **2,087**

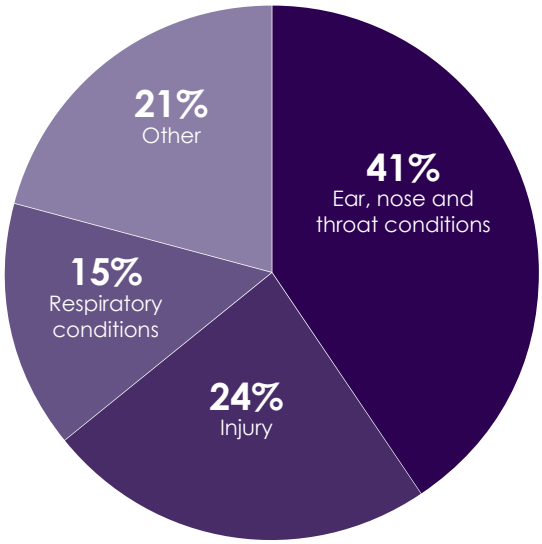


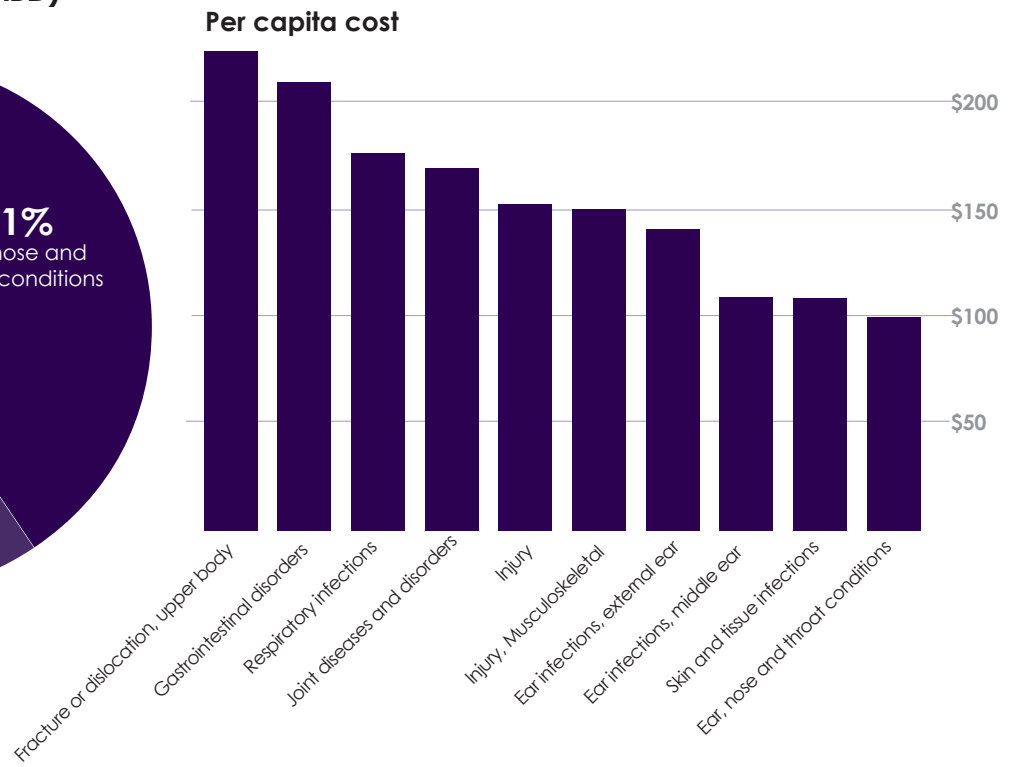


Note: Other includes septicemia and other disseminated infections; seizure; sickle cell anemia crisis; diabetes
Source: Ohio Department of Medicaid

Figure D.9 **Most common emergency department visits for children ages 0-17 in Medicaid, non-aged, blind and disabled (non-ABD)**

Total 2017 encounters: **486,129**

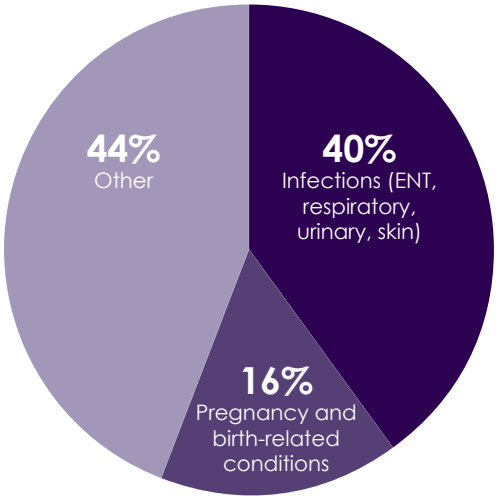


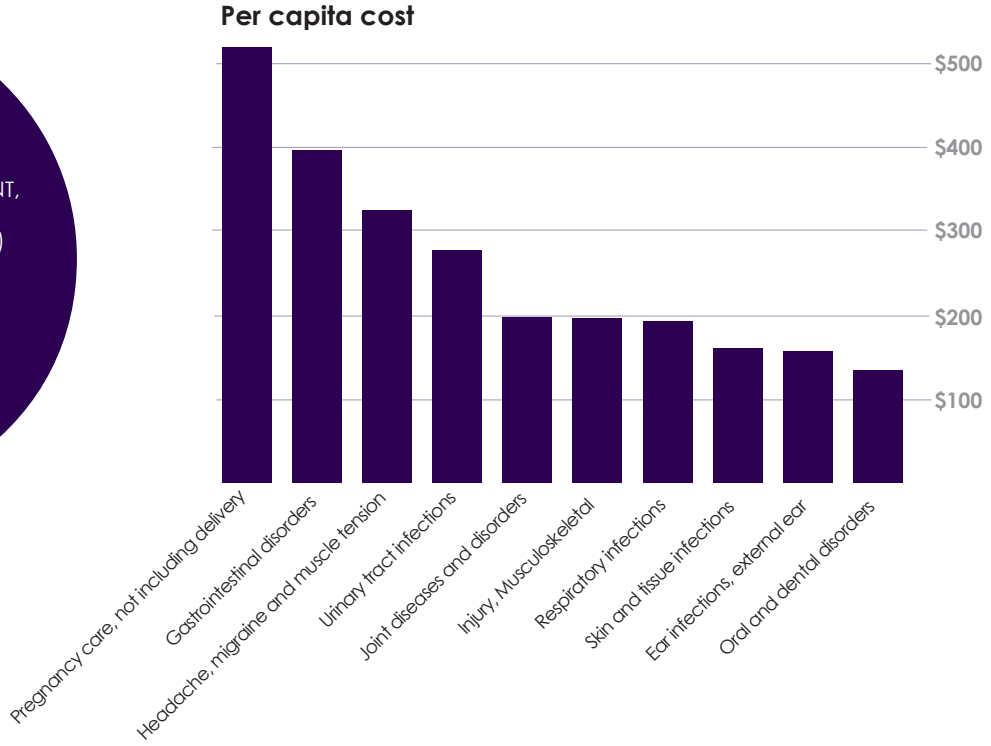


Note: Other includes gastrointestinal and joint diseases and disorders; skin and tissue infections
Source: Ohio Department of Medicaid

Figure D.10 **Most common emergency department visits for young adults ages 18-25 in Medicaid, non-aged, blind and disabled (non-ABD)**

Total 2017 encounters: **169,599**

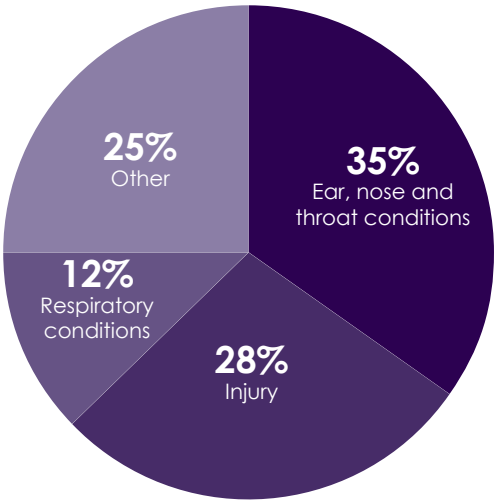


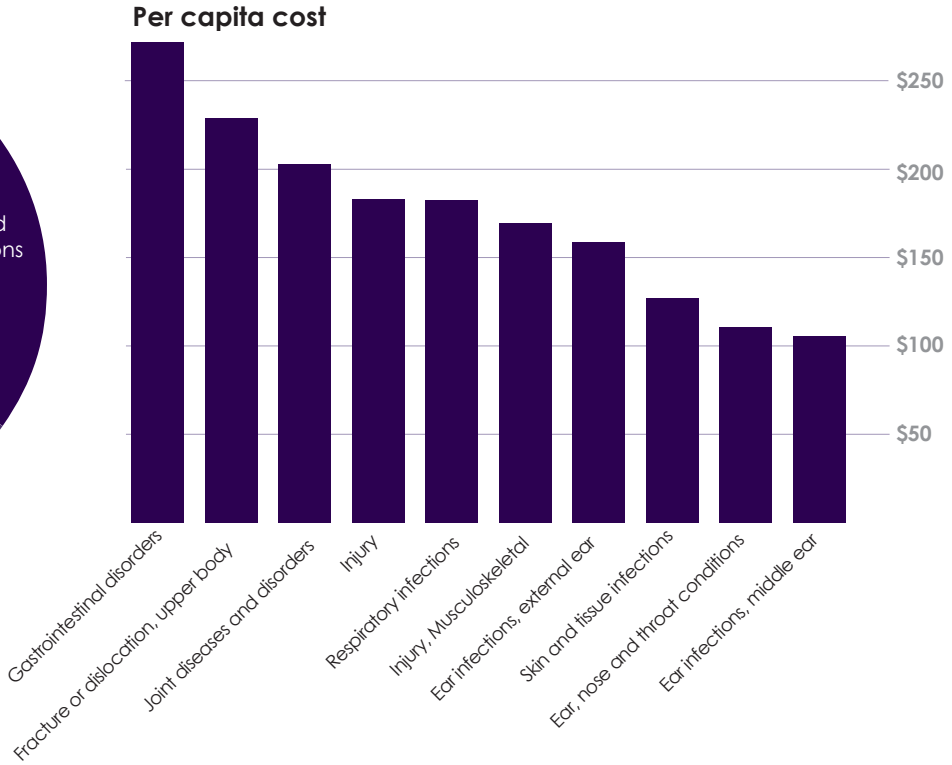


Note: Other includes gastrointestinal disorders; injury, musculoskeletal; joint diseases and disorders; headache, migraine and muscle tension; oral and dental disorders
Source: Ohio Department of Medicaid

Figure D.11 **Most common emergency department visits for children ages 0-17 in Medicaid, aged, blind and disabled (ABD)**

Total 2017 encounters: **14,341**

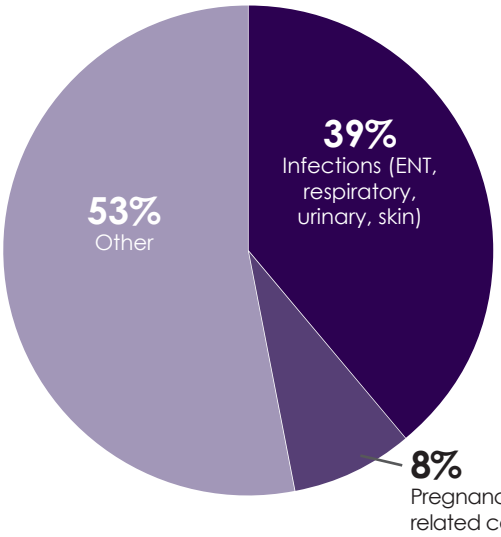


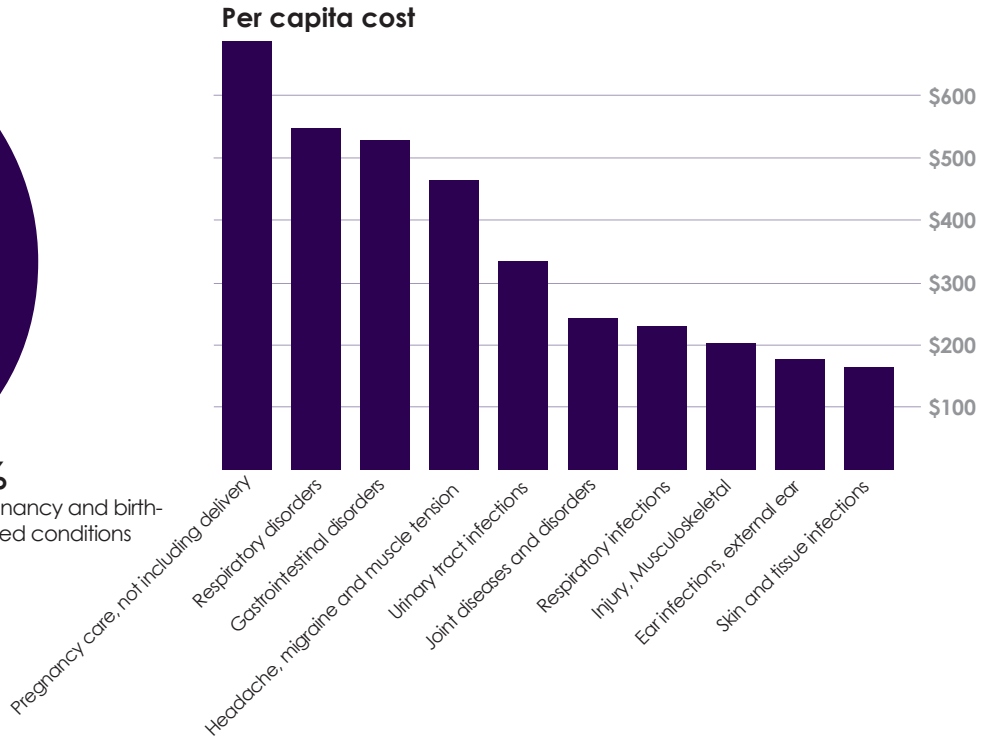


Note: Other includes gastrointestinal disorders; joint diseases and disorders; skin and tissue infections
Source: Ohio Department of Medicaid

Figure D.12 **Most common emergency department visits for young adults ages 18-25 in Medicaid, aged, blind and disabled (ABD)**

Total 2017 encounters: **10,363**

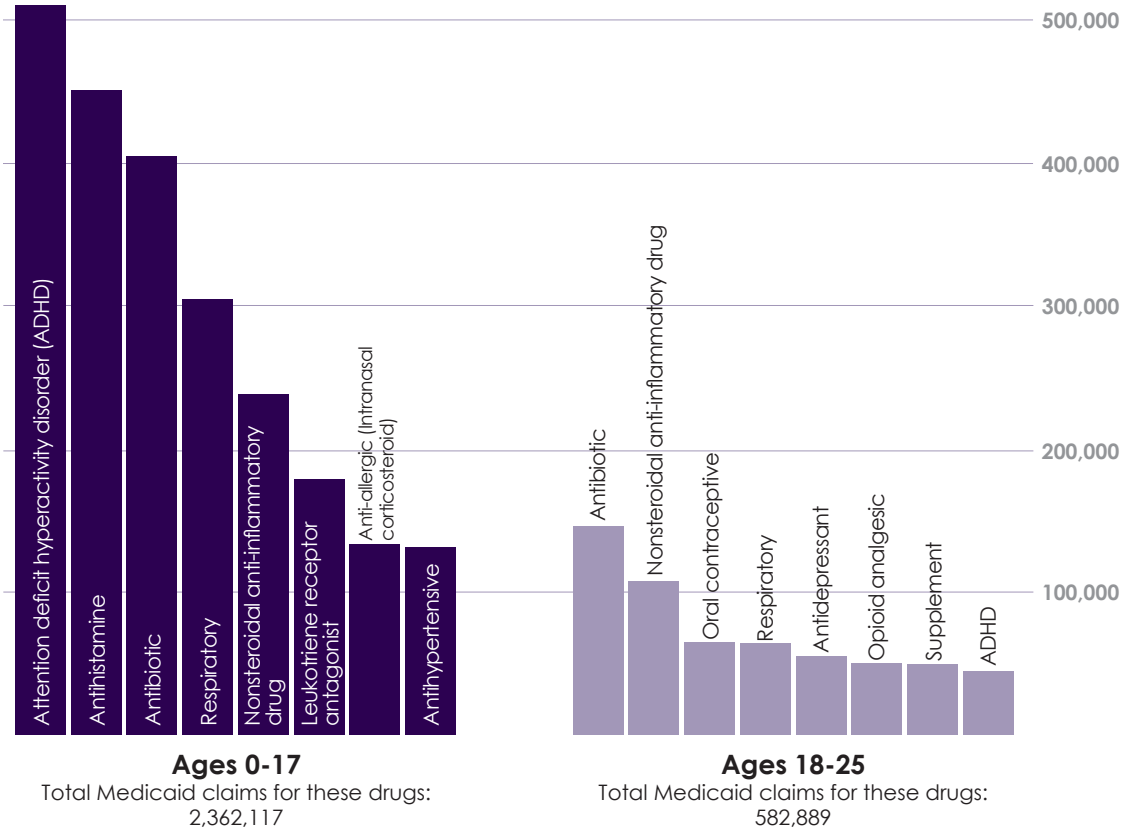




Note: Other includes gastrointestinal disorders; injury, musculoskeletal; joint diseases and disorders; headache, migraine and muscle tension; respiratory disorders
Source: Ohio Department of Medicaid

Appendix D. Additional data from the Ohio Department of Medicaid (cont.)

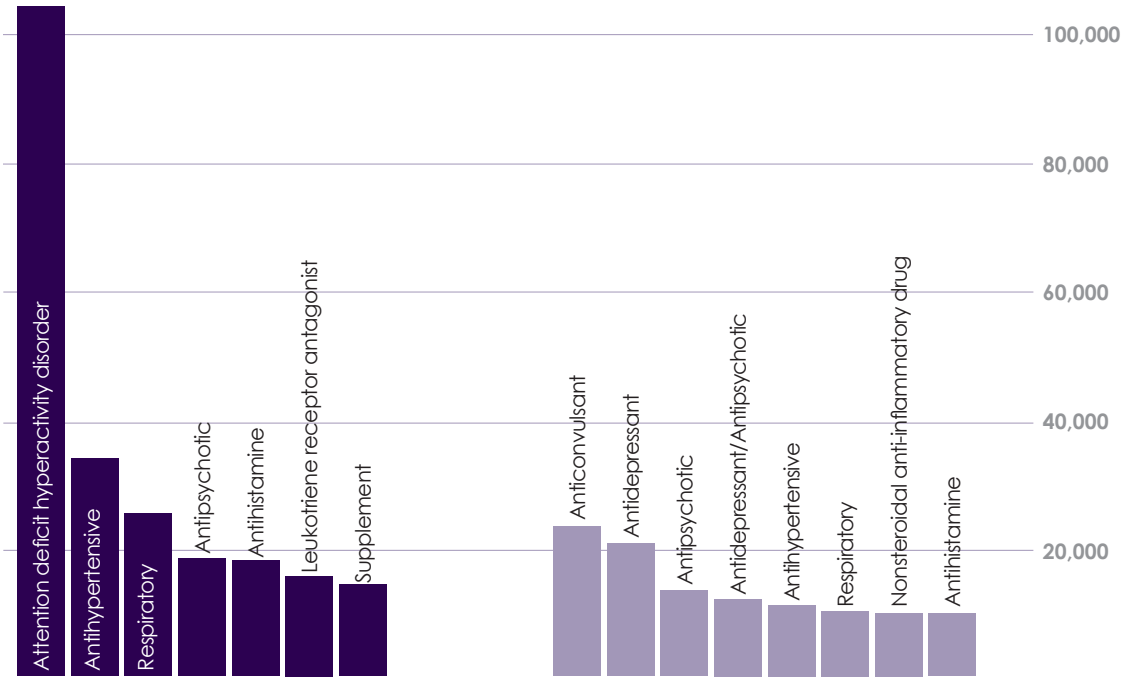
Figure D.13 **Most common drugs for non-aged, blind and disabled Medicaid enrollees by therapeutic class, 2017**



Source: Ohio Department of Medicaid

Appendix D. Additional data from the Ohio Department of Medicaid (cont.)

Figure D.14 **Most common drugs for aged, blind and disabled Medicaid enrollees by therapeutic class, 2017**



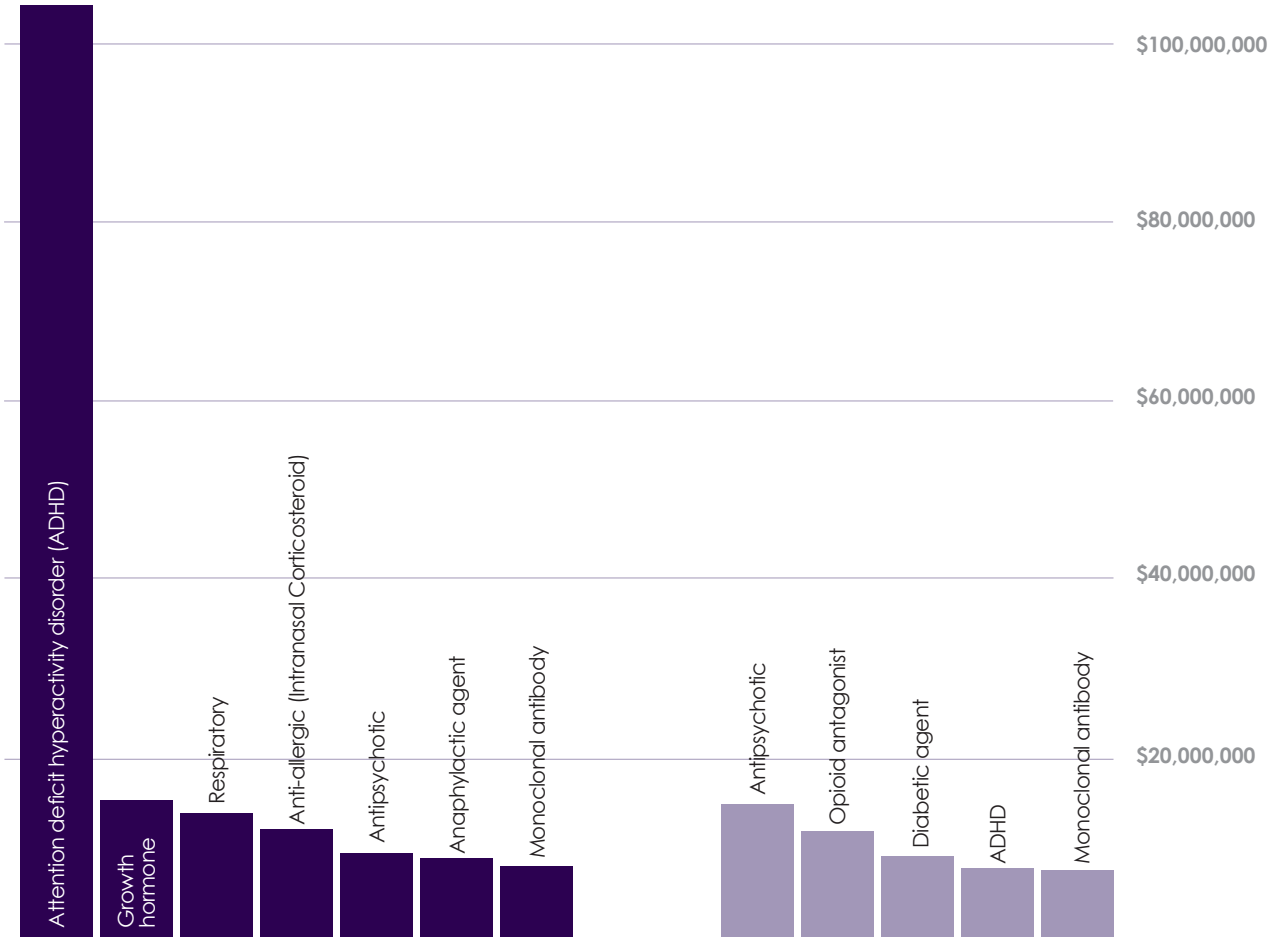
Ages 0-17
Total Medicaid claims for these drugs: 230,671

Ages 18-25
Total Medicaid claim for these drugs: 110,903

Source: Ohio Department of Medicaid

Appendix D. Additional data from the Ohio Department of Medicaid (cont.)

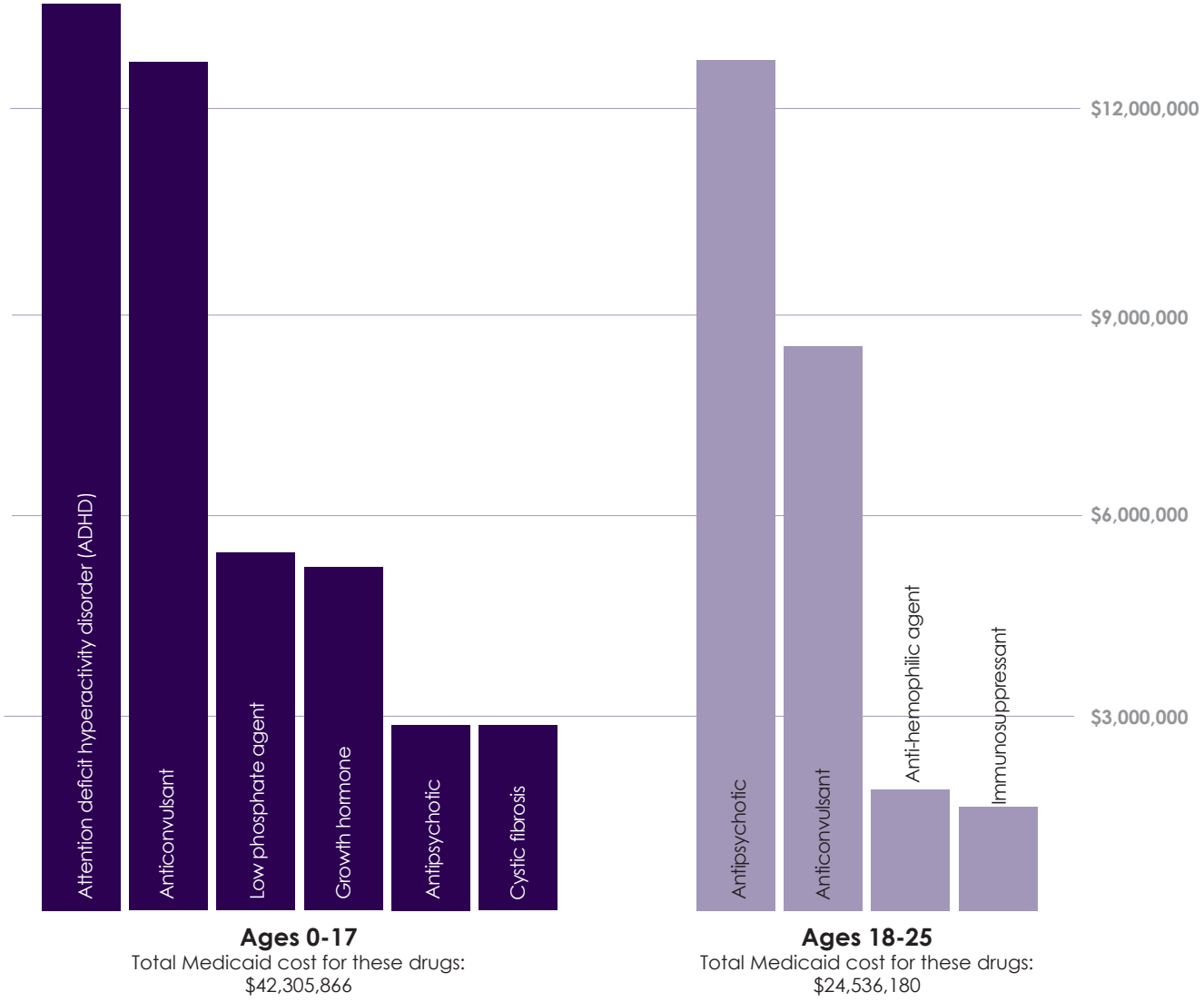
Figure D.15 **Highest cost drugs for non-aged, blind and disabled Medicaid enrollees by therapeutic class, 2017**



Source: Ohio Department of Medicaid

Appendix D. Additional data from the Ohio Department of Medicaid (cont.)

Figure D.16 **Highest cost drugs for aged, blind and disabled Medicaid enrollees by therapeutic class, 2017**



Source: Ohio Department of Medicaid

Download the complete report, plus an eight-page executive summary and two-page snapshot at

http://bit.ly/2PBJrJ4

Ohio Children's Hospital Association

Saving, protecting and enhancing children's lives