Early Childhood Dashboard

Data appendix: Background & methodology

What is Groundwork Ohio?

Groundwork Ohio is a nonprofit, nonpartisan research, policy, and advocacy organization. Groundwork's mission is to champion high-quality early learning and healthy development strategies from the prenatal period to age five, that lay a strong foundation for Ohio kids, families, and communities.
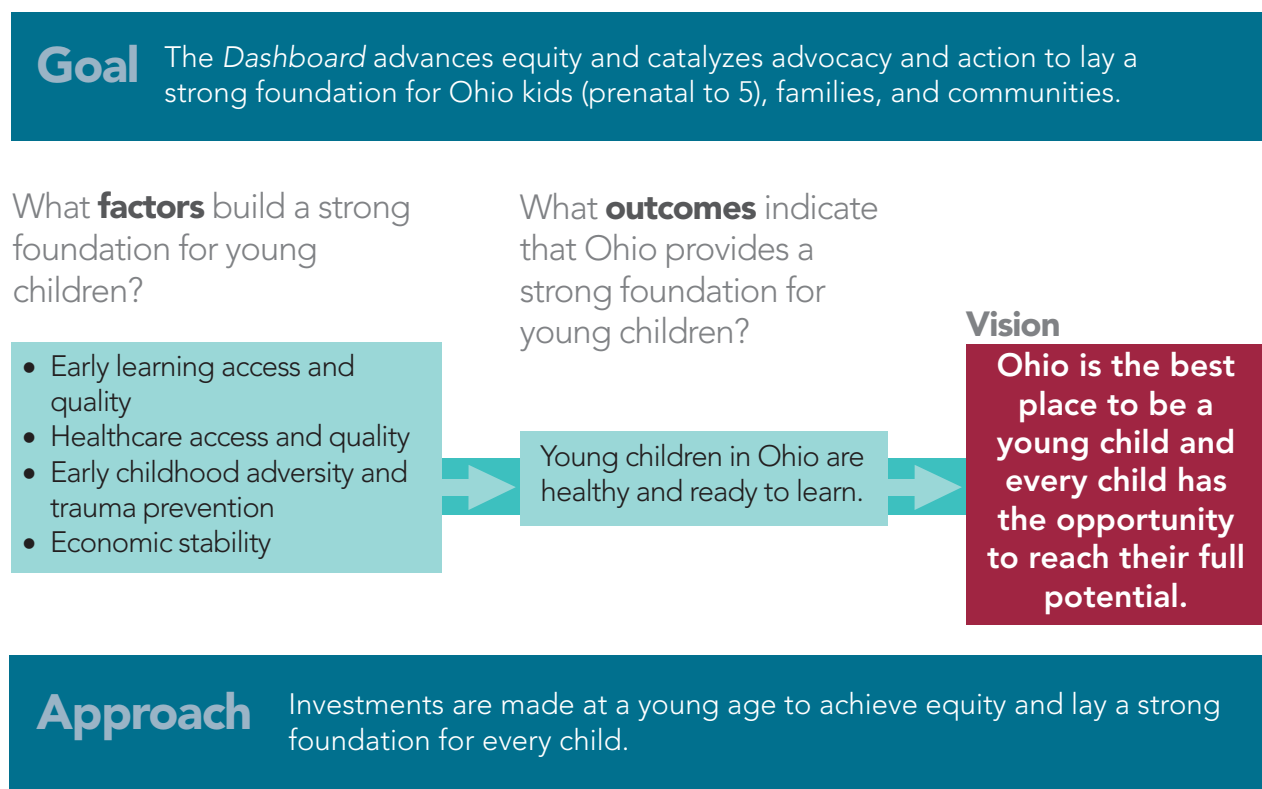
What is the Early Childhood Dashboard?

Groundwork Ohio developed the *Early Childhood Dashboard Preview* as a precursor to a first-of-its-kind, more comprehensive *Early Childhood Dashboard* to be released in 2023. The comprehensive *Dashboard* is being created as a a tool to advance equity and catalyze advocacy and action needed to lay a strong foundation for Ohio kids (prenatal to age 5), families, and communities. The *Dashboard Preview* provides a snapshot of Ohio's performance on 20 key early childhood metrics that examine the factors and outcomes required to ensure that young children in Ohio are healthy and ready to learn (see figure 1). The *Dashboard Preview* also puts data in context by analyzing trends across years, comparing Ohio to the U.S., and highlighting disparities and inequities.

The *Dashboard Preview* examines Ohio's performance across the following five domains:
• Healthy and ready to learn
• Early learning access and quality
• Healthcare access and quality
• Early childhood adversity and trauma prevention
• Economic stability

Figure 1. *Early Childhood Dashboard* conceptual framework

Goal The *Dashboard* advances equity and catalyzes advocacy and action to lay a strong foundation for Ohio kids (prenatal to 5), families, and communities.

What **factors** build a strong foundation for young children?

What **outcomes** indicate that Ohio provides a strong foundation for young children?

Vision

- Early learning access and quality
- Healthcare access and quality
- Early childhood adversity and trauma prevention
- Economic stability

Young children in Ohio are healthy and ready to learn.

Ohio is the best place to be a young child and every child has the opportunity to reach their full potential.

Approach Investments are made at a young age to achieve equity and lay a strong foundation for every child.

Process

Groundwork Ohio contracted with the Health Policy Institute of Ohio (HPIO) to develop the *Early Childhood Dashboard Preview*. HPIO is also partnering with Groundwork Ohio to develop a more comprehensive *Early Childhood Dashboard* for release in 2023. Over the next year, Groundwork Ohio will be gathering feedback on the *Dashboard Preview* to inform development of the 2023 *Dashboard*. As part of this process, Groundwork will consult with and solicit feedback from early childhood experts, families, community organizations, providers, and other early childhood stakeholders at the local, state and national levels.

How were metrics selected?

To identify potential metrics for the *Early Childhood Dashboard*, HPIO reviewed a wide range of public and private data sources, including national and state-based population health surveys; child-focused dashboards, scorecards and reports; vital statistics; and administrative data from state and federal agencies. Using these sources, HPIO compiled a list of 347 early childhood metrics for consideration to include in the *Dashboard*. From this inventory of metrics, Groundwork Ohio and HPIO selected a total of 20 metrics, grouped into the five conceptual framework domains, to include in the *Early Childhood Dashboard Preview* (see figure 2).

Groundwork Ohio and HPIO prioritized the inclusion of metrics in the *Early Childhood Dashboard Preview* that aligned with the conceptual framework (see figure 1) and the following criteria:

- **Relevance** – Metrics address important issues that affect the health and well-being of young children and their families
- **Source integrity** – Metrics are nationally recognized as valid and reliable, and data is gathered from reputable sources
- **Face value** – Metrics are easily understood by the public
- **Alignment** – Metrics align with state plans and other state-level dashboards
- **Data quality and recency** – Data for the metric is complete, accurate, and most-recent data is from the past three years
- **Data availability** – Data available at the state-level can be assessed for long-term trend (change over time), compared to performance of the U.S. overall and can be disaggregated to look at disparities and inequities (e.g., by race, ethnicity, household income, and program eligibility criteria)

This *Dashboard Preview* also includes demographic data for young children in Ohio from the U.S. Census Bureau and Ohio Medicaid Assessment Survey.

Figure 2. *Early Childhood Dashboard Preview* **metric information**

Domain	Total metrics	Metrics with trend analysis	Metrics with U.S. comparison	Metrics with quality benchmark	Metrics ranked across the 50 states and D.C.	Metrics disaggregated (i.e., broken out by race/ethnicity, income, disability status, etc.)
Early learning access and quality	3	1	1	0	0	1
Early childhood adversity and trauma prevention	4	2	1	1	1	2
Healthcare access and quality	4	3	3	1	0	2
Economic stability	3	1	3	0	1	1
Healthy and ready to learn	6	6	2	1	0	1
Demographic data	5	4	N/A	N/A	N/A	4

What are the data sources and years for the Early Childhood Dashboard Preview metrics?

This *Dashboard Preview* contains data from 19 different sources. Data included are primarily from publicly-available sources. Data for two metrics were obtained through data requests to the Ohio Department of Education and the Ohio Department of Job and Family Services.

Early Childhood Dashboard Preview data years vary by metric based on the data source. HPIO compiled the most-recent year of data available from the data source and a baseline year. With the exception of a few metrics (see metric limitations on page 7), the baseline year was at least 5 years, but no more than 10 years, prior to the most-recent data year for each metric. Most-recent data years included in the *Dashboard Preview* ranged from 2018 to state fiscal year (SFY) 2021 (July 1, 2020 – June 30, 2021). Baseline data years ranged from 2010 to 2015. Metric information and data sources are included on page 9 of this document.

Methodology

What types of analyses are included in the Early Childhood Dashboard Preview?

The *Dashboard Preview* presents five types of analyses to put data into context:

- **Trend** — Percent change in Ohio's performance from a baseline year to most-recent year
- **Ohio to U.S. comparison** — Percent difference in performance between Ohio and the U.S. overall
- **Quality benchmark** — Percent difference in Ohio's performance compared to a previously published national or state standard or benchmark for the metric
- **Ranking** — Ohio's performance rank compared to other states and the District of Columbia
- **Disparity ratios** — Identifies the magnitude of disparities and inequities across demographic groups, such as by race and ethnicity

Not every type of analysis was performed on each metric due to data availability or changes in metric methodology between years. See methodology limitations on page 7 for more detail.

Ascending vs. descending metrics

For the purpose of evaluating trend, Ohio to U.S. comparison and quality benchmark comparison analyses, a metric is considered ascending if a lower value is identified as better. For example, the percent of Ohio children who live below 100% of the federal poverty line is an ascending metric. A metric is considered descending if a higher value is considered to be better. For example, the percent of Ohio children with six or more well-child visits in the first 15 months of life is a descending metric.

Methodology for assessing trend

HPIO assessed a metric's trend by examining the percent change between a baseline year and the most recent year. Researchers selected baseline years that were at least five years but no more than ten years prior to the most recent year of available data. Trends were only evaluated after verifying with metric documentation that years could be reasonably compared and that no major methodological changes occurred in how the metric was calculated between years.

To calculate trend for each metric with a baseline year value available, the following steps were taken:

- Calculate percent change by subtracting the metric value for the most recent year from the metric value for the baseline year, dividing this difference by the baseline year and multiplying by 100.

$$\text{Percent change} = ((\text{recent year} - \text{baseline year})/\text{baseline year}) \times 100$$

- To assess whether trend was improving or worsening, researchers used the following 3-point classification schemes:
  - For ascending metrics:
    - No change: The change is between –9.9% and 9.9%
    - Improved: The change is less than –10%
    - Worsened: The change is greater than 10%
  - For descending metrics:
    - No change: The change is between –9.9% and 9.9%
    - Improved: The change is greater than 10%
    - Worsened: The change is less than –10%

Methodology for Ohio to U.S. comparison

Researchers compared Ohio to the U.S. by assessing the percent difference between the Ohio value for the most recent year and the U.S. value for the same year.

To calculate the Ohio to U.S comparison for each metric where U.S. data was available, the following steps were taken:

- Calculate percent difference by subtracting the U.S. value from the metric value for the most recent year, dividing this difference by the U.S. value and multiplying by 100.

$$\text{Percent Difference} = ((\text{recent year metric value} - \text{U.S. value})/\text{U.S. value}) \times 100$$

- To assess whether Ohio's performance was better or worse than the U.S., researchers used the following 3-point classification schemes:
  - For ascending metrics:
    - Same: The difference is between –9.9% and 9.9%
    - Better: The difference is less than –10%
    - Worse: The difference is greater than 10%

o For descending metrics:
  ▪ Same: The difference is between –9.9% and 9.9%
  ▪ Better: The difference is greater than 10%
  ▪ Worse: The difference is less than –10%

Methodology for assessing quality benchmark comparison

HPIO compared Ohio's data value for a metric to a quality benchmark by examining the percent difference between Ohio's data value for the most recent year and the value for an existing quality benchmark. Researchers obtained quality benchmarks from Healthy People 2030. For the *Early Childhood Dashboard Preview*, three of the selected metrics had quality benchmarks.

To calculate the quality benchmark comparison for each metric where a benchmark was available, the following steps were taken:
- Calculate percent difference by subtracting the quality benchmark value from the metric value for the most recent year, dividing this difference by the quality benchmark and multiplying by 100.

Percent difference = ((recent year metric value – quality benchmark)/quality benchmark) x100

- To assess whether Ohio's performance was better or worse than the quality benchmark, researchers used the following 3-point classification schemes:
  o For ascending metrics:
    ▪ On target: The difference is between –9.9% and 9.9%
    ▪ Better: The difference is less than –10%
    ▪ Worse: The difference is greater than 10%
  o For descending metrics:
    ▪ On target: The difference is between –9.9% and 9.9%
    ▪ Better: The difference is greater than 10%
    ▪ Worse: The difference is less than –10%

Methodology for ranking metrics

HPIO determined Ohio's ranking compared to all 50 states and D.C. for two of the *Dashboard* metrics. Metric values for each individual state were collected and then ordered. For ascending metrics, the state with the lowest value was ranked first. For descending metrics, the state with the highest value was ranked first.

Methodology for calculating disparity ratios

The magnitude of disparities across population characteristics such as race and ethnicity, economic disadvantage, and Medicaid status were assessed for seven metrics using disparity ratios. Disparity ratios were calculated by dividing the outcome (e.g., rate or percent) of comparison groups (i.e., groups that consistently experience worse outcomes and are systematically disadvantaged) by the outcome of the reference group (i.e., the group that most consistently experiences the best outcomes and is systematically advantaged).

For example, the percent of white Ohio children (the reference group) living below the federal poverty line is 15.3%. The percent of Black Ohio children (the comparison group) living below the federal poverty line is 46.0%.

The Black/white disparity ratio in this instance is 46.0/15.3 = 3.0.

This is interpreted to mean that Black children in Ohio are 3 times more likely than white children to live below the federal poverty line.

Researchers used the following steps to calculate disparity ratios:
- Divide the metric value for each comparison group by the selected reference group, as described in the example above
- To assess the degree of disparity, researchers used the following 3-point classification schemes:
  o Little or no disparity: Disparity ratio less than 1.1
  o Moderate disparity: Disparity ratio between 1.1 and 1.9
  o Large disparity: Disparity ratio greater than 2

When possible, researchers disaggregated race and ethnicity separately into the following groups: White (non-Hispanic), Black (non-Hispanic), Asian and/or Pacific Islander (non-Hispanic), Native American (non-Hispanic), Multi-racial (non-Hispanic), Other (non-Hispanic), and Hispanic. When data was not available to classify based on these groups, different racial and ethnic classifications were used based on the data source and data availability.

Methodology limitations

The *Early Childhood Dashboard Preview* includes data from a variety of publicly available sources, as well as data collected from requests to state agencies. It includes survey results, birth records, and administrative data. While care was taken to compile data from credible sources, each source has its own set of limitations, such as self-reported conditions, and potential changes in methodology from year to year.

The main limitation to the selected measures was that all five types of analysis (trend, U.S. comparison, benchmark, disparity ratio, ranking) could not be performed for every metric. The issues that contributed to this limitation are discussed below:
- **Trend:** Some metrics did not have data that went back more than five years. This means that trend could not be calculated for every metric.
- **U.S. comparison:** Not all metrics included in the *Dashboard Preview* were from national sources or had comparable national data that provided a U.S. data value.
- **Benchmarks:** There are very few sources of national or state objectives or quality benchmarks focused on children ages 0-5. One primary source of benchmark data is Healthy People (HP) 2030. However, benchmarks provided by HP 2030 are often specific to older children or adults or are for metrics that are different from those included in the *Dashboard Preview*.

- **Disparity ratios:** Very few data sources allowed for disaggregation of data by ages 0-5 years and other demographic categories, such as income or race and ethnicity. In addition, not all sources use mutually exclusive racial and ethnic categories (e.g., Black non-Hispanic and Hispanic, all races) for the disaggregation of data by race and ethnicity. When metrics could be disaggregated by age and another demographic characteristic, the sample sizes of the population groups often became too small, creating data reliability and suppression issues. In these scenarios, data values could not be reported.

Metric limitations

There are several notable limitations encountered across metrics in the *Dashboard Preview*:

- Data from the U.S. Census Bureau, 1-Year American Community Survey Public Use Microdata for the demographic domain was only analyzed for 2017 through 2019 due to data analysis constraints.
- For several metrics, data was not available for the desired population of focus for the *Dashboard Preview* (ages 0-5). For these metrics, data was compiled for the age range that was most similar to ages 0-5 and for which data was available:
  - **Chronic absenteeism** (Grades K-3)
  - **Early learning access, Head Start access** (ages 3-4)
  - **Protective custody, young child** (ages 0-6)
  - **Housing insecurity** (ages 0-2)
  - **Population of young children, by disability status** (ages 0-4)
- **Early Learning access** is a composite measure comprised of early learning program utilization data from four different sources with varying years and program eligibility requirements. The intent of this metric is to provide a proxy for the level of unmet need for early childhood services for families below 200% of the federal poverty level:
  - Number of families below 200% of the federal poverty level (2019)
  - Number of children in public preschool (October 2020)
  - Number of children served under IDEA Part B (2019-2020)
  - Number of children in Head Start (2019-2020)
  - Number of children in publicly funded childcare (July 2021)
- The following metrics have additional limitations that inform their interpretation:
  - **Preschool suspensions.** Trend analysis was not possible for this metric due to changes in data source methodology across years.
  - **Housing insecurity.** Three years were pooled together to ensure an adequate sample size.
  - **Chronic absenteeism.** An important change in how the Ohio Department of Education (ODE) calculated chronic absenteeism occurred in 2018. Data from 2017 and earlier is no longer comparable. Trend was calculated for this metric as an exception to the five-year look back threshold described in the methodology. The pandemic has likely also significantly impacted data collection on metrics like chronic absenteeism; however, that impact is not yet fully understood.

Metric information and data sources

Metric	Metric Description	Data Source	Quality Benchmark Source
Healthy and ready to learn domain			
Overall physical health			
Health status, young child. Percent of children, ages 0-5, with poor or fair overall health	Estimated percent of children, ages 0-5, with poor or fair overall health	Ohio Medicaid Assessment Survey, Child Dashboard	N/A
Low birthweight. Percent of live births where the infant weighed less than 2,500 grams (5.5 pounds)	Percent of live births where the infant weighed less than 2,500 grams (5.5 pounds)	Centers for Disease Control and Prevention (CDC), Wide-ranging Online Data for Epidemiologic Research (WONDER)	N/A
Elevated blood lead levels, young child. Percent of children, ages 0-5, who received a blood lead test and had elevated blood lead levels	Percent of children, ages 0-5, who received a blood lead test and had elevated blood lead levels (BLL ≥5 ug/dL)	Ohio Department of Health, Ohio Public Health Information Warehouse, lead data	N/A
Child's readiness for school			
Kindergarten readiness. Percent of students demonstrating kindergarten readiness based on the Ohio Kindergarten Readiness Assessment Revised (KRA-R)	Percent of students demonstrating readiness (a score of 270 or higher) on the Ohio Kindergarten Readiness Assessment Revised (KRA-R), meaning they entered kindergarten with sufficient skills, knowledge, and abilities to engage with kindergarten-level instruction	Ohio Department of Education, School Report Card data	N/A

Metric	Metric Description	Data Source	Quality Benchmark Source
Healthy and ready to learn domain (cont.)			
Academic achievement			
Fourth grade reading proficiency. Percent of fourth grade students proficient in reading based on the National Assessment of Educational Progress	Percent of fourth grade public school students scoring at or above the proficient level on the National Assessment of Educational Progress reading test	U.S. Department of Education, National Assessment of Educational Progress (NAEP) Data Explorer	Healthy People 2030
Chronic absenteeism. Percent of students in grades K-3 missing at least 10% of school attendance time in a year	Percent of students in grades K-3 missing at least 10% of total school attendance time in a year for any reason (includes excused and unexcused absences). This is based on an individual student's tenure of enrollment rather than the entire school year. The Ohio Department of Education calculates chronic absenteeism rates based on student full-time equivalents (FTEs) rather than headcounts	Ohio Department of Education	N/A
Early learning access and quality domain			
Access			
Early learning access. Percent of children, ages 0-5, in families with incomes up to 200% of the Federal Poverty Level enrolled in early childhood education	Percent of children, ages 0-5, in families with incomes up to 200% of the Federal Poverty Level enrolled in early childhood education (including Head Start [ages 0-3], IDEA Part B [ages 3-5], public preschool [ages 0-5], and publicly funded childcare [ages 0-5])	U.S. Office of Head Start Program Information Report data as reported by the Annie E. Casey Kids Count Data Center; U.S. Department of Education, IDEA Section 618 Static tables; Ohio Department of Education; Ohio Department of Job and Family Services; U.S. Census Bureau, American Community Survey	N/A

Metric	Metric Description	Data Source	Quality Benchmark Source
Early learning access and quality domain (cont.)			
Access (cont.)			
Early Intervention service access. Percent of children, ages 0-2, receiving IDEA Part C Early Intervention services	Percent of children, ages 0-2, receiving IDEA Part C Early Intervention services	U.S. Department of Education, IDEA Section 618 Static tables	N/A
Quality			
Preschool suspension. Number of public preschool students receiving one or more out-of-school suspensions, per 1,000 children enrolled	Number of public preschool students receiving one or more out-of-school suspensions, per 1,000 children enrolled	U.S. Department of Education, Civil Rights Data Collection	N/A
Healthcare access and quality domain			
Access to pediatric care			
Well-child visits. Percent of children enrolled in a Medicaid managed care plan with six or more well-child visits in the first 15 months of life	Percent of children enrolled in a Medicaid managed care plan with six or more well-child visits in the first 15 months of life	Ohio Department of Medicaid, HEDIS 2019 Aggregate Report for the Ohio Medicaid Managed Care Program	N/A
Prenatal/Post-partum care			
Delayed prenatal care. Percent of women who did not begin prenatal care in the first trimester of pregnancy	Percent of women who did not begin prenatal care in the first trimester of pregnancy	Centers for Disease Control and Prevention (CDC), Wide-ranging Online Data for Epidemiologic Research (WONDER)	Healthy People 2030

Metric	Metric Description	Data Source	Quality Benchmark Source
Healthcare access and quality domain (cont.)			
Prenatal/Post-partum care (cont.)			
Postpartum depression screening. Percent of women with a live birth, who had a postpartum visit, who did not have a provider ask if they were feeling down or depressed	Percent of women with a live birth, who had a postpartum visit, who did not have a provider ask if they were feeling down or depressed	Ohio Pregnancy Assessment Survey	N/A
Quality of pediatric care			
Immunizations, toddlers. Percent of children, ages 19-35 months, who received all recommended doses of seven key vaccines	Percent of children, ages 19-35 months, who received the combined seven vaccine series. The combined seven vaccine series includes 4 or more doses of DTaP, 3 or more doses of Polio, 1 or more doses of MMR, Hib full series (3 or 4 doses, depending on product type received), 3 or more doses of HepB, 1 or more doses of Varicella, and 4 or more doses of PCV	National Immunization Survey data, as compiled by the Commonwealth Fund Health System Data Center	N/A
Early childhood adversity and trauma prevention domain			
Parental supports, adoption and child protective services			
Protective custody, young child. Percent of children in Public Children Services Agency custody who are ages 0-6	Percent of children in Public Children Service Agency custody (children who are in placements such as family foster care, kinship care, independent living, congregate care (including residential centers, shelter care facilities, group homes, hospitals, nursing homes, and detention facilities) and other settings) who are ages 0-6	Ohio Department of Job and Family Services, Children Services Dashboard	N/A
Trauma, toxic stress and violence			
Racism, young child. Percent of children, ages 0-5, whose parent reported that they were treated or judged unfairly because of race or ethnicity	Percent of children, ages 0-5, whose parent reported that they were treated or judged unfairly because of race or ethnicity	Ohio Medicaid Assessment Survey	N/A

Metric	Metric Description	Data Source	Quality Benchmark Source

Early childhood adversity and trauma prevention domain (cont.)

Trauma, toxic stress and violence (cont.)

Metric	Metric Description	Data Source	Quality Benchmark Source
Maltreatment, infants. Number of children who experienced maltreatment (child abuse and/or neglect), per 1,000 infants under age 1	Number of children for whom the state determined at least one maltreatment report was substantiated or indicated, and a disposition of substantiated or indicated was assigned for a child in a report, per 1000 infants, under age 1. This includes a child who died and the death was confirmed to be the result of child abuse and/or neglect	U.S. Department of Health and Human Services Administration for Children and Families, 2019 Child Maltreatment report	Healthy People 2030
Adverse childhood experiences (ACEs), young child. Percent of children, ages 0-5, who were exposed to ACEs	Percent of children, ages 0-5, who experienced 0, 1 or 2 or more adverse experiences (ACEs), among nine ACEs defined by the National Survey of Children's Health: Hard to get by on family income; parent or guardian divorced or separated; parent or guardian died; parent or guardian served time in jail; child saw or heard parents or adults slap, hit, kick punch one another in the home; child was a victim of violence or witnessed violence in neighborhood; child lived with anyone who was mentally ill, suicidal, or severely depressed; child lived with anyone who had a problem with alcohol or drugs and child treated or judged unfairly due to race/ethnicity	Ohio Medicaid Assessment Survey	N/A

Economic stability domain

Employment and poverty

Metric	Metric Description	Data Source	Quality Benchmark Source
Poverty, young child. Percent of children, ages 0-5, who live in poverty and extreme poverty (below the federal poverty level [FPL])	Percent of children, ages 0-5, who live in poverty (below 100% of the FPL) and extreme poverty (below 50% of the FPL)	U.S. Census Bureau, American Community Survey	N/A

Metric	Metric Description	Data Source	Quality Benchmark Source
Economic stability domain (cont.)			
Housing			
Housing insecurity, infants and toddlers. Percent of infants and toddlers, ages 0-2, who have moved three or more times since birth	Percent of infants and toddlers, ages 0-2, who have moved three or more times since birth	National Survey of Children's Health data, as analyzed by the Zero to Three State of Babies Yearbook 2021	N/A
Food access and insecurity			
Eligible for and receiving WIC, young child. Percent of children, ages 1-4, who were eligible for WIC and received WIC benefits	Percent of children, ages 1-4, eligible for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) who received WIC benefits	U.S. Census Bureau and WIC administrative data, as compiled by the U.S. Department of Agriculture Food and Nutrition Service, WIC Eligibility and Coverage Rates	N/A
Demographic data			
Population of young children. Percent and number of the Ohio population, ages 0-5	Percent and number of the Ohio population, ages 0-5	U.S. Census Bureau, 1-Year American Community Survey Public Use Microdata	N/A
Population of young children, by race and ethnicity. Percent and number of the Ohio population, ages 0-5, by race and ethnicity	Percent and number of the Ohio population, ages 0-5, by race and ethnicity	U.S. Census Bureau, 1-Year American Community Survey Public Use Microdata	N/A
Population of young children, by sex. Percent and number of the Ohio population, ages 0-5, by sex	Percent and number of the Ohio population, ages 0-5, by sex	U.S. Census Bureau, 1-Year American Community Survey Public Use Microdata	N/A

Metric	Metric Description	Data Source	Quality Benchmark Source
Demographic data (cont.)			
Population of young children, by disability status. Percent and number of the Ohio population, ages 0-4, by hearing or vision disability status	Percent and number of the Ohio population ages 0-4, by hearing or vision disability status	U.S Census Bureau, 1-Year American Community Survey Public Use Microdata	N/A
Population of young children, by county type. Percent and number of the Ohio population, ages 0-5, by county type	Percent and number of the Ohio population, ages 0-5, by county type (suburban, Appalachian, rural non-Appalachian, metropolitan)	Ohio Medicaid Assessment Survey	N/A

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