Methodology and process

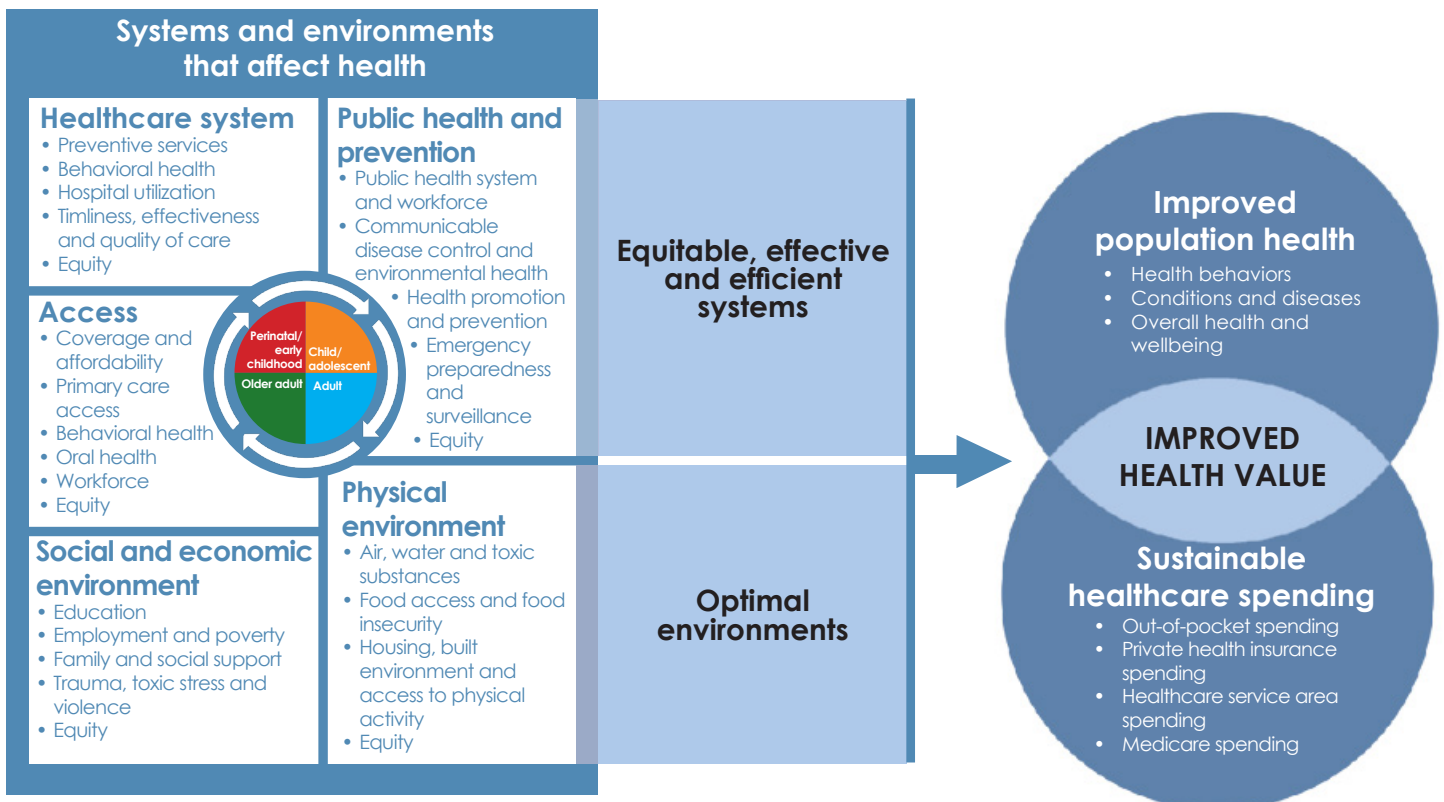### What is the Health Policy Institute of Ohio?

Founded in 2003 by a group of health foundations, the Health Policy Institute of Ohio partners with state policymakers and other stakeholders engaged in the policymaking process to provide the independent and nonpartisan analysis needed to create evidence-informed state health policy that improves health value. The intended outcome of HPIO's work is that state-level public policy decisions lead to improved health value, meaning better health outcomes and sustainable healthcare spending. HPIO produces written and online products, hosts educational forums, facilitates multi-stakeholder discussions and offers technical assistance and consulting services. Foundations contribute more than 65% of HPIO's annual operating budget of $1.5 million.

What is the HPIO *Health Value Dashboard?*

The biennial HPIO *Health Value Dashboard* is a tool to track Ohio's progress towards health value — a composite measure of Ohio's performance on population health outcomes and healthcare spending. The *Dashboard* examines Ohio's performance relative to other states, tracks change over time, identifies and explores health disparities and inequities in Ohio and highlights evidence-informed strategies that can be implemented to improve Ohio's performance.

The *Dashboard* is based on the Pathway to Improved Health Value conceptual framework. The framework defines health value as the combination of improved population health outcomes and sustainable healthcare spending and outlines the systems and environments that affect health. The framework highlights the need for equitable, effective and efficient systems and optimal environments to achieve improved health value. The *Dashboard* tracks Ohio's performance across all seven domains of the conceptual framework.

Pathway to improved health value: A conceptual framework

Systems and environments that affect health

Healthcare system
- Preventive services
- Behavioral health
- Hospital utilization
- Timliness, effectiveness and quality of care
- Equity

Access
- Coverage and affordability
- Primary care access
- Behavioral health
- Oral health
- Workforce
- Equity

Social and economic environment
- Education
- Employment and poverty
- Family and social support
- Trauma, toxic stress and violence
- Equity

Public health and prevention
- Public health system and workforce
- Communicable disease control and environmental health
- Health promotion and prevention
- Emergency preparedness and surveillance
- Equity

Physical environment
- Air, water and toxic substances
- Food access and food insecurity
- Housing, built environment and access to physical activity
- Equity

Perinatal/early childhood · Child/adolescent · Older adult · Adult

Equitable, effective and efficient systems

Optimal environments

Improved population health
- Health behaviors
- Conditions and diseases
- Overall health and wellbeing

IMPROVED HEALTH VALUE

Sustainable healthcare spending
- Out-of-pocket spending
- Private health insurance spending
- Healthcare service area spending
- Medicare spending

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.

What makes the HPIO *Health Value Dashboard* different?

The *Health Value Dashboard* builds upon existing national scorecards and rankings by:
- Focusing on healthcare spending
- Including a comprehensive set of health determinants
- Providing information at-a-glance along with detailed analysis

What is different in the 2021 *Health Value Dashboard*?

HPIO released the first edition of the *Dashboard* in December 2014 and has made improvements to each new edition of the *Dashboard*, including the addition of equity profiles in the 2017 *Dashboard*. HPIO worked to minimize the number of changes in the 2021 *Dashboard*. In some cases, metrics were modified, removed or replaced due to changes in the data description or source or to ensure we are using the most relevant, timely and publicly available source.

HPIO substantially increased the number of metrics analyzed for the 2021 equity profiles to improve access to disaggregated data in Ohio. In addition, HPIO added metrics to the Public Health and Prevention domain that are relevant to the COVID-19 pandemic.

Health Value Dashboard process

Stakeholder engagement

For each edition of the *Dashboard*, HPIO has convened a wide array of Ohio stakeholders as part of HPIO's multi-sector Health Measurement Advisory Group (HMAG) to advise development. Visit the **HMAG web page** for a full list of HMAG members. In 2014, HMAG developed the Pathway to Health Value conceptual framework on which the *Dashboard* is based. In 2017, a workgroup was formed to advise the development of equity profiles. This group evolved into the permanent HPIO Equity Advisory Group (EAG). Visit the **EAG web page** for a full list of EAG members.

In 2021, HMAG and EAG members were convened to provide input on messaging of *Dashboard* key findings and to assist with dissemination of the *Dashboard* to state policymakers and other stakeholders.

HPIO contracted with researchers at the Voinovich School of Leadership and Public Affairs at Ohio University to assist in data analysis and ranking.

Metric selection

In preparation for the 2021 *Dashboard*, HPIO reviewed the list of metrics from the 2019 edition to determine if any changes were needed. The goal was to maintain as much consistency as possible across editions of the *Dashboard*, but to consider changes if better data had emerged or a source was no longer available.

A total of 104 metrics, grouped into 7 domains and 27 subdomains, are included on the 2021 *Dashboard* ranked profiles. Thirty metrics were analyzed as part of the equity component of the *Dashboard*.

Metrics displayed in 2021 *Dashboard* ranked profiles

Domain	Total metrics	Ranked metrics	Metrics with trend analysis
Population health	14	14	14
Healthcare spending	14	14	13
Access to care	14	14	10
Healthcare system	15	14	13
Public health and prevention	20	18	17
Physical environment	12	11	10
Social and economic environment	15	15	15
TOTALS	**104**	**100**	**92**

Note: This table includes all metrics listed on pages 8-14 of the 2021 *Dashboard*. It does not include metrics in the equity profiles.

To select metrics for the inaugural, 2014 edition of the *Dashboard,* HPIO reviewed existing scorecards and data initiatives, such as America's Health Rankings, County Health Rankings and the Commonwealth Fund State Scorecard. HMAG metric workgroup members then selected approximately 15 metrics per domain based upon a set of specific criteria, such as availability of state-

Metrics assessed for health disparities and inequities

Race and ethnicity	Education and/or income	Disability status
32	18	13

level data, alignment with state and national initiatives, data quality and relevance. (See the **2014 *Dashboard*** for a complete list of criteria.) These criteria continued to guide decisions on metric changes that were made to later editions of the *Dashboard*.

Data sources and years

Most *Dashboard* data is compiled from publicly available sources, including national population health surveys, vital statistics and administrative data from state and federal agencies.

The 2019 *Dashboard* includes data from 55 different sources across the ranked and equity profiles. For this reason, the data years vary by metric. When available, researchers analyzed the three most recently available years of data. To assess change over time for a metric, at least two years of data must be available for Ohio and other states. In the 2021 *Dashboard*, trend was assessed for 92 metrics. For complete metric information, see the **data appendices**.

Data gaps and limitations

The *Dashboard* includes data from a variety of publicly available sources, including survey, vital statistics, administrative and claims data. While care was taken to select metrics from credible sources, it is important to keep in mind that each of these sources has its own limitations, such as reliance upon self-reported conditions or behaviors and changes in methodology from year to year. Other data gaps and limitations are outlined below.

Data lag: Data in the *Dashboard* are from publicly-available sources, such as government surveys or birth and death records. There is typically a lag of one to three years between the time this information is collected and when it is released. From a policy perspective, this is important to acknowledge. At times, data may predate effectuation of an important policy change that could impact performance on a metric. Examples of policy changes include new Medicaid eligibility levels, action taken to address a health crisis (such as increased opioid overdose deaths) or an infectious disease outbreak such as COVID-19 or delivery and payment system changes.

Data on disparities and inequities: Disaggregated data by race and ethnicity, education level, income level and disability status is not consistently collected or reported across sources and metrics. For example, some metrics are available with disaggregated data by race and ethnicity, but not by income, education or disability status. As a result, there are more metrics disaggregated by race and ethnicity in the *Dashboard* equity profiles than by income, education or disability status.

Other limitations for assessing health disparities and inequities include:
- **Lack of data to identify other groups that experience disparities and inequities.** For example, questions regarding sexual orientation and gender identity are not consistently asked on many national and state surveys, making it difficult to assess the health needs of Ohio's LGBTQ+ community.
- **Data suppression.** Due to small sample sizes, data values for groups with small sample sizes in survey and administrative data are often suppressed and are not used in analyses.
- **Aggregation of data for groups with smaller populations.** Aggregated data can mask health disparities, particularly for subpopulations. Asian Americans, for example, tend to perform well as a whole on many health indicators. However, data on southeast Asians and immigrant or refugee populations from Asia, such as Bhutanese-Nepali refugees, suggest these subpopulations experience poorer health outcomes.

When displaying data on racial and ethnic disparities or other population characteristics, categorizations from the primary source are displayed in the equity **data appendix**. For example, one source may use the category African-American/Black, while another source may use the category Black (non-Hispanic). Similarly, there is variation across metrics in how education level, income level and disability status are described. To the extent possible, comparable groupings across metrics were made.

Change over time: Trends are measured by looking at state performance over the three most-recent years of available data, not by comparing ranks from one edition of the *Dashboard* to the next. Statistical significance of change over time was not analyzed. Meaningful changes from baseline to most recent year were identified by comparing a state's absolute change for a metric to the standard deviation of all states over the years of data being analyzed. (See trend methodology below.)

Health Value Dashboard methodology

Ranking methodology
The ranking methodology used in the 2021 *Dashboard* relies on the following descriptive statistics and analyses:
- **Mean** – the sum of all data values in a distribution divided by the number of data values in the distribution. The mean is also referred to as the average.
- **Standard deviation** – a measure that reflects how much variation there is between a distribution's mean and all data values in the distribution. A small standard deviation indicates that values are tightly grouped, and a large standard deviation indicates that values are widely dispersed.
- **z-score** – a measure that reflects the degree of difference between a data value and the distribution's mean. The z-score is the difference between the data value and the distribution's mean divided by the distribution's standard deviation. In other words, the z-score is the number of standard deviations a data value is from the distribution's mean.
- **Percentile ranks** – the proportion of scores in a distribution that a specific score exceeds or to which it is equal.

Metric ranking
To rank states for each metric, researchers followed these steps:
1. Calculate the mean and standard deviation of all state values for the most recent year
2. Convert each state's data value for the most recent year into a z-score
3. Construct a percentile rank for each state (and D.C.)
4. Order percentile ranks in the desired direction for a metric and assign each state a metric rank

Subdomain ranking
To calculate subdomain ranks, researchers followed these steps:
1. Convert values for all metrics in the subdomain into z-scores using the procedure outlined above
2. Sum z-scores for all metrics for each state
3. Use the summed z-scores to construct a percentile rank for each state
4. Order percentile ranks and assign each state a rank for the subdomain

Domain ranking
To calculate domain ranks, researchers followed these steps:
1. Convert values for all metrics in the domain into z-scores using the procedure outlined above
2. Sum z-scores for all metrics for each state
3. Use the summed z-scores to construct a percentile rank for each state
4. Order percentile ranks and assign each state a rank for the domain

Health value ranking
To calculate health value rank, researchers followed these steps:
1. Sum z-scores for all metrics from the population health and healthcare spending domains
2. Use summed z-scores to construct a percentile rank for each state
3. Order percentile ranks and assign each state a rank for the domain

Trend methodology
The method to identify meaningful change from baseline to most recent year is consistent with the approach used in the Commonwealth Fund's Scorecard on State Health System Performance.
To calculate trend for each metric, researchers followed these steps:
1. Calculate the standard deviation of the metric's distribution among all states over the years of data being analyzed. For most metrics, the three most recent years of data were analyzed, but trend was calculated when at least two years of data were available. When data used pooled years, HPIO did not use overlapping pooled years to assess trend.

2. Calculate the absolute change between Ohio's value for the most recent year and the baseline year by subtracting the baseline year value from the current year value.
3. To analyze trend, compare Ohio's absolute change to the standard deviation using the following 5-point classification scheme:
   - No change: the change is within 0.5 standard deviations
   - Moderately improved: the change is between +0.5 and +1.0 standard deviations
   - Greatly improved: the change is more than +1.0 standard deviations
   - Moderately worsened: the change is between -0.5 and -1.0 standard deviations
   - Greatly worsened: the change is more than -1.0 standard deviations

Methodology for assessing health disparities and inequities

Disparities and inequities were assessed for a set of 32 metrics by race and ethnicity, education level, income level and/or disability status through 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 unemployment rate for Black Ohioans (comparison group) is 11.5%. The unemployment rate for white Ohioans (reference group) is 4.3%.

The Black/white disparity ratio for unemployment is 11.5%/4.3% = 2.7

This means that the unemployment rate for Black Ohioans is 2.7 times higher than the unemployment rate for white Ohioans.

Disparity ratio thresholds were assigned based on Healthy People 2020 criteria. Disparity ratios of less than 1.10 were considered to be little to no disparity. Disparity ratios greater than or equal to 1.10 and less than 2 were considered to be moderate. Disparity ratios greater than or equal to 2 were considered to be large. Metrics with disparity ratios greater than or equal to 1.10 are displayed on the equity profiles in the *Dashboard*. For data and disparity ratios for all measures assessed see the equity **data appendix**.

Data was not always available across population groups (e.g. there were more metrics with data disaggregated by race and ethnicity than any other population group).

Classification of people into groups based on race and/or ethnicity, educational attainment, income and disability status is not consistent across sources. For example, some sources report data based on race and ethnicity (e.g. white, non-Hispanic, black, non-Hispanic) and others report race only. Consequently, all groups were simplified to common levels outlined below (for more information see the equity **data appendix**):
- Race = non-Hispanic white/white, non-Hispanic black/black, Hispanic and Asian/Pacific Islander
- Income = Highest income group, lowest income group (thresholds established by data available for the metric)
- Educational attainment = Less than high school, Bachelor's degree or higher
- Disability status = With a disability, without a disability

Measuring estimated impact if disparity eliminated

The *Dashboard* also includes a calculation to answer the question: How many individuals of a comparison group (i.e. systematically disadvantaged group) would have had a better outcome if the prevalence/exposure rate for that group were the same as the reference group (i.e. systematically advantaged group)?

The population size for the comparison and references groups were compiled from the American Community Survey, 5-year estimates, the National Center for Health Statistics via CDC WONDER, or from the source of the measure. The number of individuals in the comparison group that are currently affected was calculated as follows:

number currently affected = rate of the outcome in the comparison group * total population of the comparison group

The number of individuals in the comparison group who would be affected if the prevalence in that group were the same as the reference group was calculated as follows:

number potentially affected = rate of the outcome in the reference group * total population of the comparison group

The number of Ohioans impacted if the disparity were eliminated is then calculated:

number currently affected – number potentially affected