



A new approach to reduce infant mortality and achieve equity

Policy recommendations to improve housing, transportation, education and employment

Executive summary

Purpose and methods

Signed into law in January 2017, Senate Bill 332 enacted most of the recommendations from the 2016 Ohio Commission on Infant Mortality report. The new law required the Legislative Service Commission (LSC) to contract with a nonprofit organization to issue a report regarding the social drivers of infant mortality, and LSC contracted with the Health Policy Institute of Ohio (HPIO) to do so.

Prepared by HPIO, with guidance from over 100 Ohio stakeholders, the purposes of this report are to:

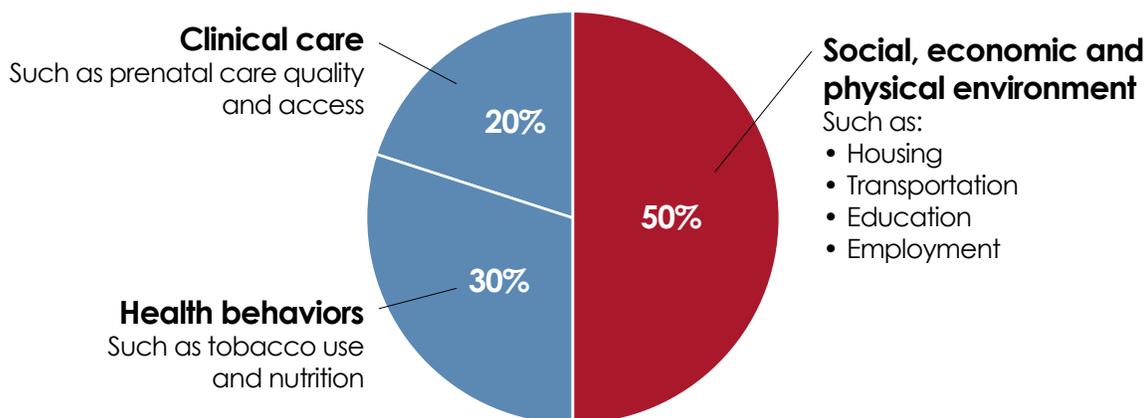
- Describe the many ways that factors beyond medical care affect the health of infants and their families, focusing on housing, transportation, education and employment
- Assess the extent to which current housing, transportation, education and employment policies and programs meet the needs of Ohioans most at risk for infant mortality

- Identify lessons learned from other states that have successfully reduced overall and black infant mortality rates, including innovative ideas to address the social determinants of health
- Offer specific, actionable and evidence-informed policy options that state and local policymakers can employ to address unmet needs and inequities

Social determinants of health

This report looks beyond medical care to explore factors in the social, economic and physical environment that affect infant mortality. These factors are commonly referred to as the “social determinants of health.” Researchers estimate that of the modifiable factors that impact overall health, 20 percent are attributed to clinical care (e.g., healthcare quality and access) and 30 percent to health-related behaviors. The remaining 50 percent are attributed to the types of community conditions highlighted in figure ES 1.1.

Figure ES 1.1. **Modifiable factors that influence health¹**



Underlying drivers of inequity: Poverty, racism, discrimination, trauma, violence and toxic stress

Data sources and methodology

This report relies upon the following data sources and research:

- Existing quantitative data from state agencies, Centers for Disease Control and Prevention (CDC), Census Bureau, Bureau of Labor Statistics, etc.
- Review of research literature, including journal articles and evidence registries
- New state-level data analysis of social, economic and physical environment metrics conducted by researchers at the Ohio University Voinovich School of Leadership and Public Affairs
- 23 key informant interviews with stakeholders from eight case study states

Key findings

Key finding 1. Ohio's infant mortality rate increased in 2015 and again in 2016, and remains higher than most other states.

- In the early 1990s, Ohio's overall infant mortality rate was slightly lower than the U.S. rate. Since then, however, improvements at the national level have outpaced improvements in Ohio.
- There were only seven states with higher overall infant mortality rates than Ohio, based on the most-recent U.S. comparison data (pooled years 2012-2014).
- After decades of gradual improvement, there were increases from 2014 to 2016 in the overall, black and white infant mortality rates in Ohio, despite renewed attention to the issue around the state in recent years.

Key finding 2. Ohio has troubling infant mortality disparities by race and geography.

- In 2016, Ohio's non-Hispanic black infant mortality rate (15.2 per 1,000 live births) was almost three times as high as the white rate (5.8).
- There were only three states with higher non-Hispanic black infant mortality rates than Ohio in 2012-2014.²
- Infant mortality rates are highest in nine Ohio Equity Institute metropolitan areas and in some rural counties, particularly in Appalachian parts of the state.

Priority populations

Infant mortality rates vary widely by race, ethnicity, education level, geography and other factors. In order to target resources to the areas of greatest need, this report focuses on babies born to the following groups of Ohioans most at risk for infant mortality and related risk factors:

- African-American/black Ohioans
- People with low levels of educational attainment
- People with low incomes
- Residents of infant mortality "hot spot" communities (mostly urban neighborhoods and rural counties with higher rates of infant death)

It is important to note that racism and inequities in the social, economic and physical environment drive the increased risk of infant mortality for African Americans.

Strategic allocation of resources toward these priority populations is a critical component of efforts to reduce infant mortality and achieve equity.

Key finding 3. Access to health care is necessary, but not sufficient. Improvements to factors beyond medical care are needed to achieve infant mortality reduction goals.

- Given the importance of non-clinical factors, it is unrealistic to expect that improvements in medical care alone will achieve Ohio's goal of reducing infant mortality to no more than 6.0 infant deaths per 1,000 births for all racial and ethnic groups by 2020.
- Research suggests that a woman's health before pregnancy can have a greater impact on outcomes and disparities than do the nine months of gestation. Therefore, interventions such as prenatal care, case management and care coordination that often do not reach women until their second or third trimester are largely "too little, too late."
- Over the past few decades, Ohio's efforts to reduce infant mortality have focused primarily on healthcare access and quality and interventions for pregnant women. These strategies focus on some — but not all — of the underlying causes of infant death.

Key finding 4. Community conditions for low-income, African-American and rural families in Ohio are particularly challenging.

As a key indicator of the overall health and wellbeing of a state, infant mortality rates reveal the cumulative impact of poverty, discrimination, racism and inequities in the social, economic and physical environment. For example:

- Median income for Ohioans has lagged behind the U.S. over the last 12 years, and many of Ohio's fastest-growing occupations pay wages below \$12 per hour.
- A national ranking of child wellbeing found that Ohio was the second worst state in the country for African-American children.
- Black Ohioans have higher unemployment and poverty rates and lower labor force participation rates than African Americans in the case study states. Hiring discrimination plays a role in this disparity.
- Rural communities and small cities in Ohio have experienced more population decline, industry loss and decline in economic indicators than urban centers.

Figure ES 1.2 describes how poverty, racism, discrimination, trauma and violence are related to the challenges in housing, transportation, education and employment that contribute to infant mortality.

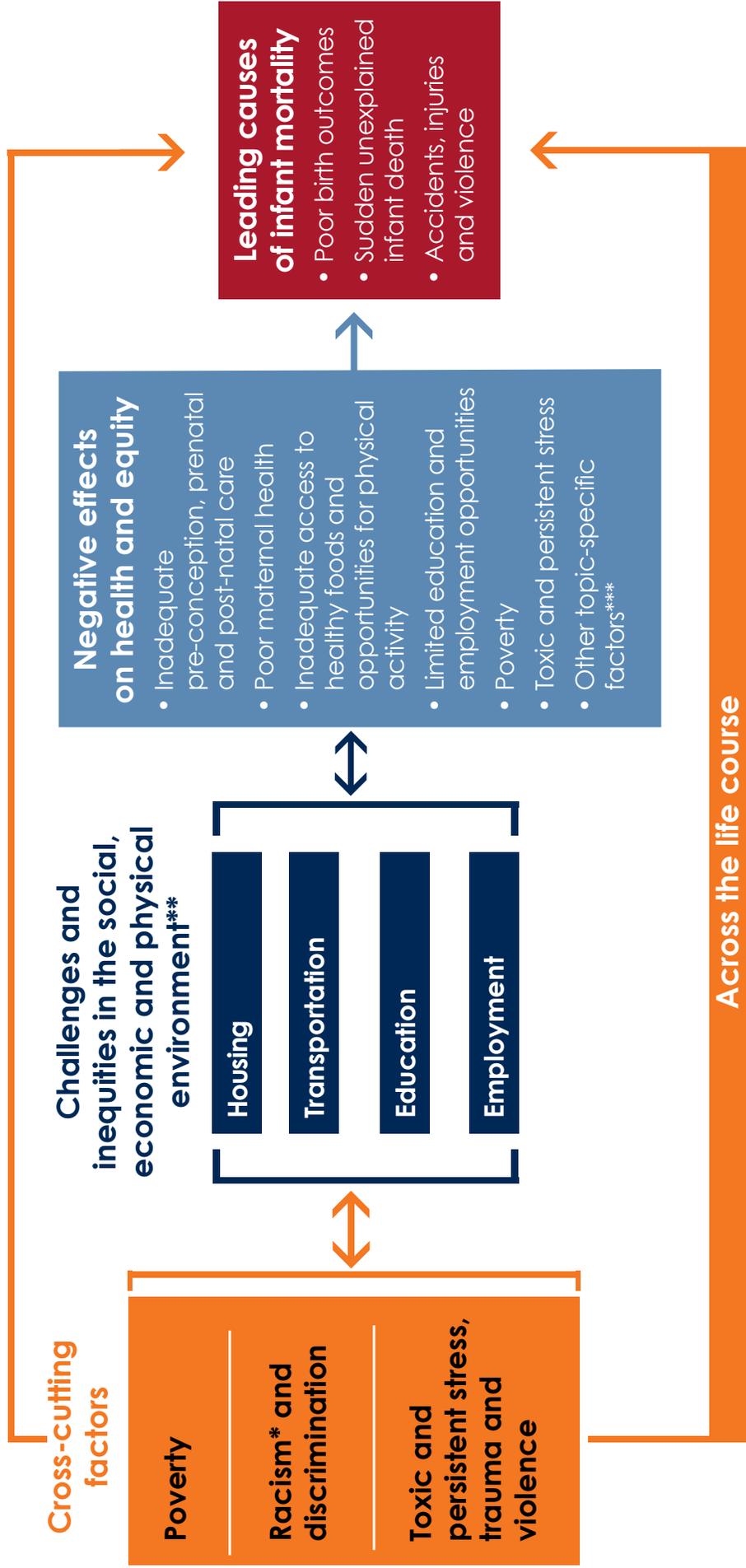
Key finding 5. State and local policymakers have many options to address the community conditions and inequities that contribute to infant mortality.

- High infant mortality rates and disparities are not inevitable. Improvement is possible. Other states have made faster progress than Ohio in reducing infant deaths, including black infant deaths. This report highlights lessons learned from other states, including examples of different approaches to improving social and economic conditions.
- This report offers a total of 127 specific policy recommendations based upon stakeholder input and a review of the research evidence for what works to improve housing, transportation, education, employment and cross-cutting factors.

Going forward, Ohio's new approach to reducing infant mortality by improving community conditions should:

- **Prioritize housing and employment.** Ensure families have decent, stable housing and income. Housing and income are foundational, basic human needs.
- **Connect the disconnected.** Better connect low-income families to jobs, transportation, post-secondary education and social capital.
- **Ensure all children have the opportunity to thrive.** Extend the reach of early childhood programs, decrease education disparities, prevent violence and support marriage.
- **Acknowledge and address the roles of racism, discrimination, violence and toxic stress.** Provide all Ohioans with the opportunity to be healthy by eliminating discriminatory policies and practices and helping families be resilient in the face of trauma and toxic stress.
- **Innovate, leverage public-private partnerships and join forces across sectors.** Innovative financing and collaboration between new partners are critical for long-term impact.
- **Coordinate, collaborate, monitor and evaluate.** Policymakers, state agencies and community leaders have an important role to work together to develop, document, assess and continually improve infant mortality efforts.
- **Balance short-term fixes with longer-term change.** Address immediate needs, such as homelessness, but also pursue fundamental changes to the housing, transportation, education and employment sectors that ensure that all Ohio families can participate in the economy, build positive social relationships and attain optimal health.

Figure ES 1.2. Summary of relationships between social determinants of health and infant mortality



* Structural, institutional, interpersonal and internalized racism

** Topics specified for study by SB 332

*** See figures 4.1, 5.1, 6.1 and 7.1 in the full report for details

Housing summary

How does housing affect infant mortality?

Safe, secure and affordable housing is a fundamental human need, but is out of reach for many Ohioans with lower incomes. When housing is too expensive, it is harder to pay for other essentials like healthy food, transportation and prescriptions, which are important for a healthy pregnancy. In addition, the quality and location of housing can impact the wellbeing of pregnant women and families in various ways. For example:

- A woman who cannot afford quality housing in a good neighborhood may have to rent in a high-crime area, double up with friends or relatives or move in with an abusive partner to avoid homelessness. All of these options come with health risks for pregnant women and children.
- Housing that is old, poorly maintained and/or overcrowded can make it harder to use safe sleep practices, cause stress that is difficult to manage and expose pregnant women and infants to hazards, including lead and pests.
- Affordable housing stock in Ohio is often located in communities with poor schools, low-wage jobs and weak or unsupportive social connections between residents.

What are the biggest housing challenges related to infant mortality?

Largely driven by discriminatory practices, divestment from low-income communities and under-funding of housing programs, Ohio faces housing challenges. For example:

- There are only 43 available units that are affordable for every 100 renters with Extremely Low Incomes, and there is only enough federal rental assistance to help about one-quarter of all households that are eligible.
- Ohio's cities are highly segregated, and residential segregation is associated with increased risk of poor birth outcomes as well as neighborhood conditions that contribute to infant mortality, including crime and poor-quality housing.
- Historical policies and inequitable housing practices have concentrated populations at the greatest risk of infant mortality in under-resourced areas that offer residents fewer opportunities.
- Advisory Group members described how housing instability and homelessness make it difficult to have and raise a healthy baby, including stress from being behind on rent, living in overcrowded situations and trouble holding onto baby items like strollers and pack-and-plays through multiple moves.

What can be done to improve housing?

This report includes specific recommendations to achieve the policy goals listed in figure ES 1.3.

Figure ES 1.3. **Housing policy goals**



Note: For a more detailed description of the relationships between the outcomes in this diagram and a review of relevant research literature, see part four of the full report.

Transportation summary

How does transportation affect infant mortality?

Not being able to get to prenatal care appointments is one example of how lack of transportation contributes to poor birth outcomes. Taking a broader look at factors beyond medical care that affect health, however, there are many other ways that the quality and availability of transportation options impact the wellbeing of children and families. For example:

- Long commutes on city busses to get from inner-city neighborhoods to jobs in suburban areas make it difficult for parents to get and maintain employment and earn a decent wage. Poverty is a risk factor for infant mortality.
- A rural family without a car may have a difficult time getting to the grocery store to access healthy food. Poor nutrition is a risk factor for low birth weight and preterm birth.
- Women living in areas without sidewalks and crosswalks are less likely to be physically active, which is a risk factor for hypertension, obesity and Type 2 diabetes—all causes of maternal complications in pregnancy.
- Air pollution from vehicle emissions and other sources is linked to preterm birth, low birth weight and Sudden Infant Death Syndrome.

What are the biggest transportation challenges related to infant mortality?

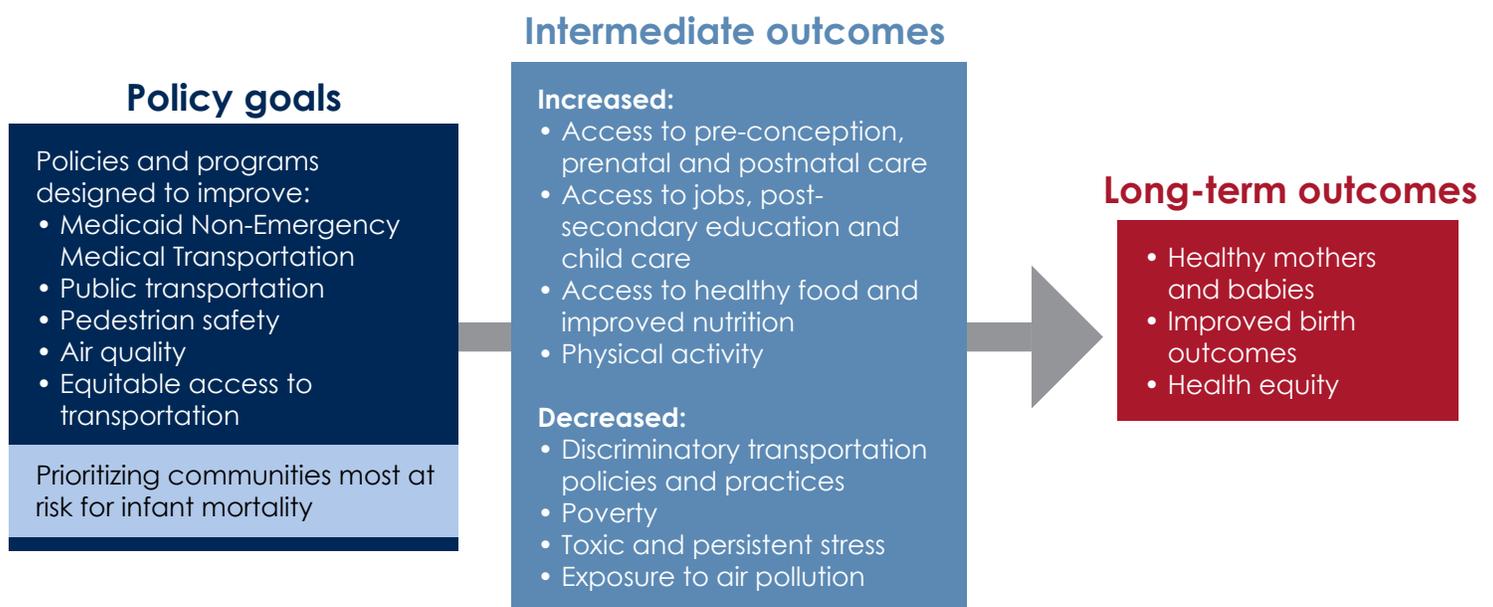
Because of inequities in transportation access and the transportation infrastructure, many Ohioans are disconnected from health care, employment and other resources and opportunities. For example:

- Twenty-two percent of black households in Ohio did not have a vehicle in 2014, compared to 8 percent overall.
- Advisory Group members reported widespread problems with transportation services funded through Medicaid, known as Medicaid Non-Emergency Medical Transportation (NEMT), such as mothers waiting several hours to be picked up from appointments.
- Compared to cities in other states, Ohio's metropolitan areas generally have less robust bus service and less walkable neighborhoods. In Toledo, for example, only an estimated 41 percent of jobs are accessible within 90 minutes via public transportation.
- In 2012, Ohio's \$0.63 per capita transit spending ranked among the lowest in the U.S. (38 out of 51).

What can be done to improve transportation?

This report includes specific recommendations to achieve the policy goals listed in figure ES 1.4.

Figure ES 1.4. **Transportation policy goals**



Note: For a more detailed description of the relationships between the outcomes in this diagram and a review of relevant research literature, see part five of the full report.

Education summary

How does education affect infant mortality?

Lower educational attainment is associated with higher rates of poor birth outcomes and infant mortality.

Educational attainment affects the health and wellbeing of pregnant women, children and families in various ways. For example:

- Lower educational attainment often leads to lower-paying jobs offering fewer benefits, such as paid leave. A lower income makes it more challenging to live in safe and healthy neighborhoods and access healthy foods, which may negatively impact a woman's health before and during pregnancy.
- The knowledge and skills gained through education lead to higher levels of literacy and health literacy, which can result in a better ability to navigate the healthcare system and access credible and reliable health information. All of these factors can improve birth outcomes and reduce infant mortality.
- People with higher educational attainment tend to belong to stronger, healthier social networks and receive more support from their relationships. Social support protects health.

What are the biggest education challenges related to infant mortality?

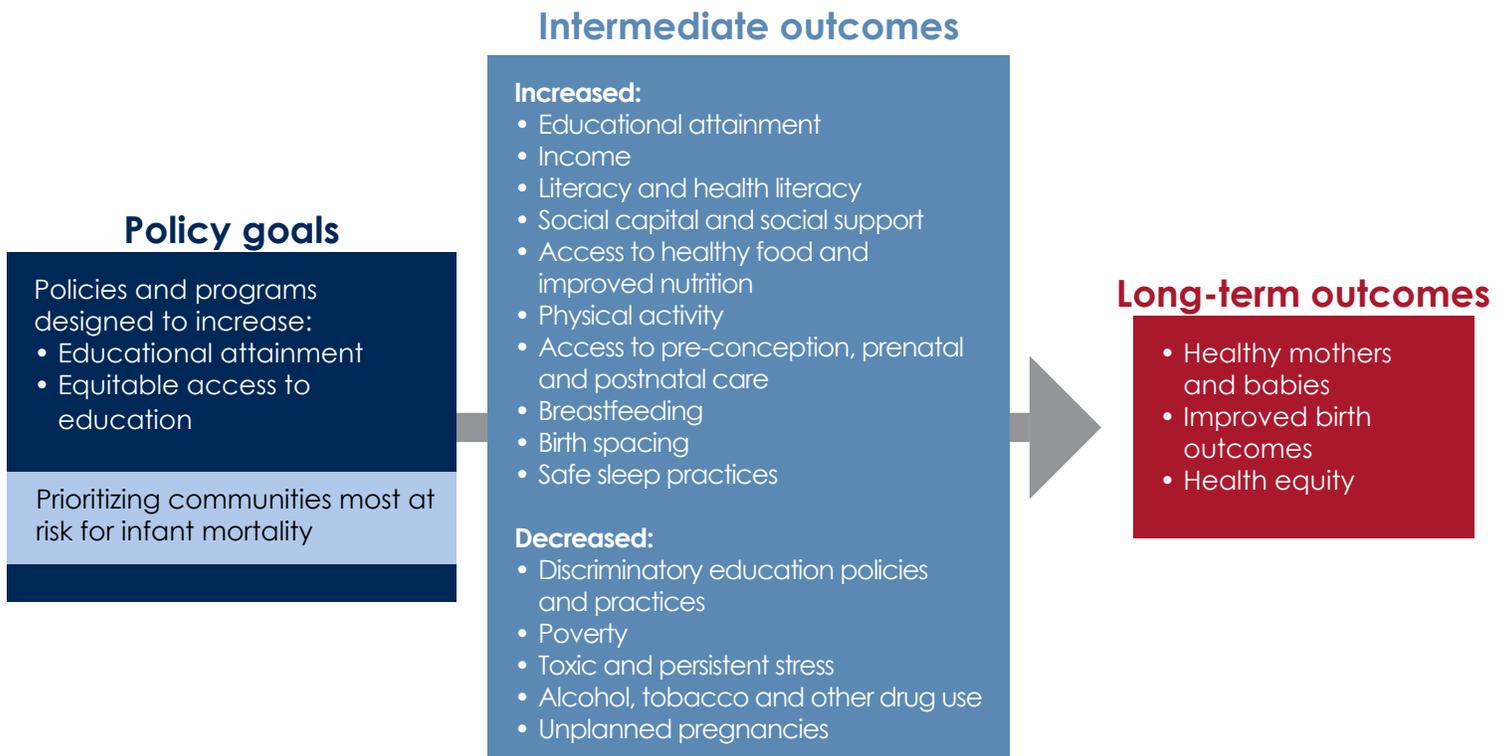
In 2016, the highest level of educational attainment for 43.3 percent of Ohio adults was a high school diploma (including equivalency) or less, and educational attainment varies widely by race. Achievement gaps appear before children enter kindergarten and widen throughout schooling. For example:

- Only 24 percent of black and 26 percent of economically-disadvantaged students entered kindergarten demonstrating readiness, meaning they had sufficient skills, knowledge and abilities to engage with kindergarten-level instruction.
- Considerable variations exist in third-grade reading proficiency based on the wealth of a school district. In Ohio's eight largest urban districts, only 30 to 60 percent of third-graders were reading proficiently in the 2016-2017 school year, compared to 87 percent or more in wealthier districts.
- Eighty-three percent of all Ohio high school seniors graduated in 2015. Rates among black and economically disadvantaged students were 59.7 and 68.7 percent respectively.

What can be done to improve education?

This report includes specific recommendations to achieve the policy goals listed in figure ES 1.5.

Figure ES 1.5. **Education policy goals**



Note: For a more detailed description of the relationships between the outcomes in this diagram and a review of relevant research literature, see part six of the full report.

Employment summary

How does employment affect infant mortality?

Poverty exposes pregnant women to health risks that can affect both moms and babies. Parents need good jobs, with decent wages and benefits, in order to give their children a healthy start in life. Employment, income and benefits affect children and families in a variety of ways. For example:

- Women with low incomes are more likely to give birth to low birth weight babies.
- Low-income households have difficulty affording basic necessities, like healthy food. Poor nutrition is a risk factor for low birth weight and preterm birth.
- Women who work in low-wage jobs often have difficulty getting time off work to go to prenatal care appointments.
- Coping with many stressors, such as getting to appointments and affording food and medical care, can increase risk of poor birth outcomes.
- Low-wage and part-time jobs do not typically offer paid family or sick leave. Paid leave has a positive impact on birth weight and rates of breastfeeding.

What are the biggest employment challenges related to infant mortality?

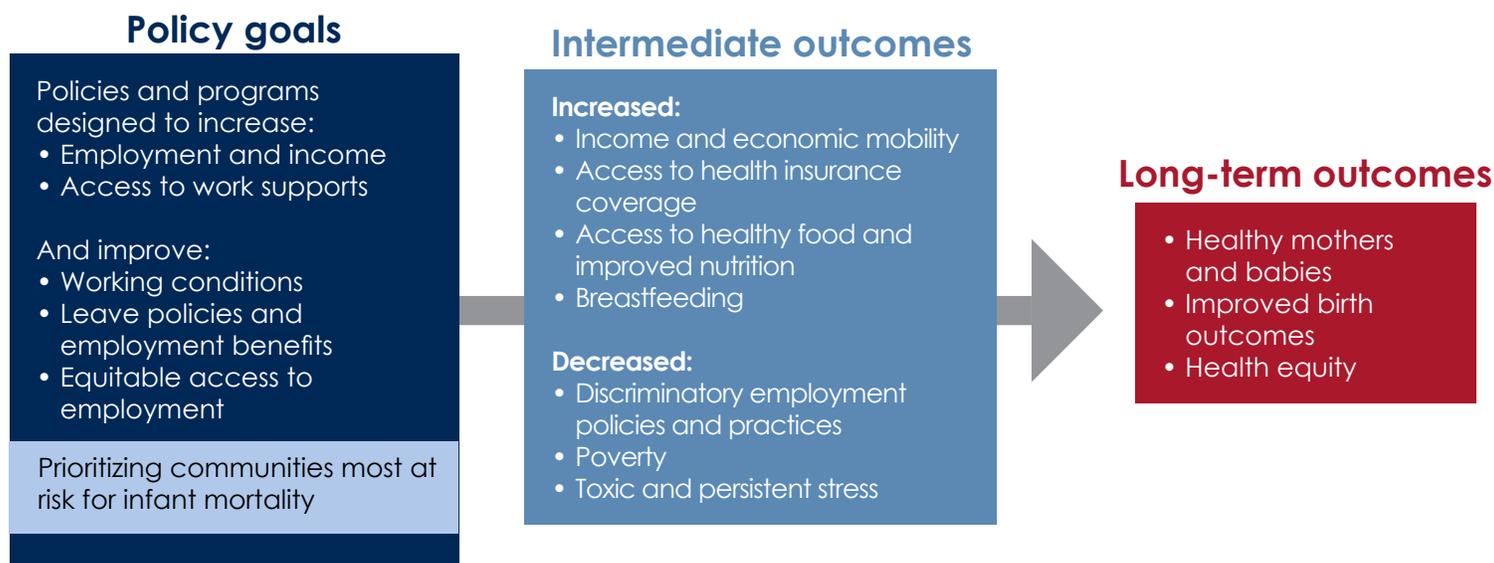
Many Ohioans do not have access to medium- or high-wage jobs and employment benefits that promote health for babies and moms. For example:

- Wages are low in the fastest growing jobs in Ohio. Five of the ten occupations that are projected to have the most job openings in the next several years pay median wages below \$10 per hour.
- Black Ohioans are more than twice as likely to be unemployed than white Ohioans. Hiring discrimination plays a role in this disparity.
- In 2016, nearly half of black Ohioans had annual incomes below 200 percent of the Federal Poverty Level — \$23,540 for an individual and \$48,500 for a family of four.

What can be done to improve employment?

This report includes specific recommendations to achieve the policy goals listed in figure ES 1.6.

Figure ES 1.6. **Employment policy goals**



Note: For a more detailed description of the relationships between the outcomes in this diagram and a review of relevant research literature, see part seven of the full report.

Case study summary

HPIO developed brief case studies of seven states and Washington D.C. that had impressive reductions in overall infant mortality, black infant mortality and/or a narrowing of the black-white disparity gap from 2005-2007 to 2012-2014 (see figure ES 1.7). The purposes of the case studies were to identify:

- Factors that may have contributed to success in these states
- Examples of ways that other states are addressing the social determinants of health
- Lessons learned that may help Ohio to improve or expand existing strategies

Major drivers of improvement

HPIO interviewers asked key informants from these states what they believed were the major drivers of improvement. The most frequently mentioned factors were policies and programs that Ohio is currently implementing, such as:

- Home visiting (Nurse-Family Partnership or other models)
- Safe sleep campaigns and programs
- Centering Pregnancy (or other group prenatal care model)
- Medicaid policy changes (including coverage expansions in 2014 or earlier and reimbursement changes)
- Policies and education to reduce early elective deliveries and C-sections
- Tobacco prevention policies and/or smoking cessation programs

Social determinants of health

When specifically asked about social determinants, some key informants were able to identify policies and programs enacted in their state that may have

improved conditions for families most at risk for infant mortality, although causal links to infant mortality reduction cannot be proven. Examples include:

- **Tennessee** Gov. Bill Haslam launched the Tennessee Promise scholarship program and other education reforms that have helped to improve education outcomes.
- **New York** implemented tax credits (state Earned Income Tax Credit, Child Tax Credit, and Child and Dependent Care Tax Credit) that support family incomes.
- **South Carolina** leveraged an innovative Pay for Success financing model to extend the reach of the Nurse-Family Partnership, an evidence-based home visiting program.
- **Nevada** Gov. Brian Sandoval has championed early childhood education and full-day kindergarten, and the state has experienced strong employment growth and an increase in well-paying jobs for workers with less than a bachelor's degree.
- **Michigan** implemented an equity initiative to build the capacity of state health department staff to address health disparities and raise awareness of racism and discrimination.

A review of Ohio performance relative to the case study states on social, economic and physical environment metrics highlights several challenges for Ohio. For example, most case study states have:

- Higher rates of preschool enrollment and adult educational attainment (at least some college)
- Lower child poverty rates
- Better economic outcomes for African Americans (e.g., higher black labor force participation rates and lower black poverty rates)
- Better outdoor air quality (less exposure to particulate matter)

Figure ES 1.7. Case study states



Policy goals and recommendations

HPIO drew upon the following sources of information to identify the policy goals and recommendations in this report:

- Literature reviews, scope of problems and policy landscapes (parts four through seven of the report)
- Evidence inventories (see Appendix B)
- Suggestions and feedback from the Advisory Group, including prioritization of goals and recommendations
- Input from additional subject matter experts on technical and political feasibility

The policy goals listed below address the most critical challenges and inequities related to housing, transportation, education and employment identified in the report. Research indicates that achievement of these goals would likely contribute to improved birth outcomes, healthier infants and health equity.

Within each long-term policy goal, this report identifies specific and actionable recommendations for state and local policymakers. The top-priority recommendations are listed below and additional policy options are listed in Appendix A.



Housing policy goals and recommendations

Goal 1	Increase the availability of rental assistance programs for renters with Extremely Low Incomes
1.1	State policymakers can provide funding from the General Revenue Fund for the Ohio Housing Finance Agency (OHFA) to establish a new state-funded rental assistance program targeted to reducing infant mortality among populations most at-risk for infant mortality, including people with low incomes and low levels of education attainment, African Americans and residents of infant mortality hot spot zip code areas or neighborhoods.
1.2	State policymakers can direct state agencies to increase funding from new and existing sources for rapid re-housing programs and rental assistance programs for pregnant women and families with very young children. Potential sources of new and existing funding include: a. Increased revenue to the Ohio Housing Trust Fund through increased county recordation fees b. Increased funding for these programs from the Ohio Development Services Agency c. Amending the state TANF spending plan to allow funds to be dedicated to these programs
1.3	State policymakers can use recommendations from the OHFA evaluation of the Housing Assistance to Reduce Infant Mortality pilot project to plan future state-funded rental assistance programs targeted to reduce infant mortality.
Goal 2	Reduce structural barriers to accessing affordable housing for the highest-risk renters (structural barriers include level of income, source of income, criminal record, etc.)
2.1	State legislators can pass legislation to reduce or eliminate barriers to obtaining affordable housing. Barriers that could be reduced or eliminated include: a. Landlord discrimination based on the source of income potential tenants will use to pay rent (such as Housing Choice Vouchers, Supplemental Security Income and Temporary Assistance for Needy Families) b. "Banning the box" or delaying the use of criminal background checks in the tenant screening process until after a conditional housing offer is made c. Restrictions on not renting to people with criminal records
Goal 3	Increase the supply of affordable rental housing for Extremely Low Income and Very Low Income households in high opportunity and low poverty areas
3.1	State policymakers can provide incentives, such as increased funding for services or preference for state grant programs, to municipalities that encourage and support the development of affordable housing in high opportunity areas within their communities.
3.2	Local policymakers can require or incentivize that new housing developments implement inclusionary policies such as reserving a certain percentage of new units to be affordable as a condition of obtaining a zoning variance. Local policymakers can also require that housing developers work with local public housing authorities to ensure that new housing development will be eligible to accept rental assistance.
Goal 4	Improve coordination of services for low-income families by convening cross-sector partnerships
4.1	Convene the Ohio Department of Medicaid, Ohio Housing Finance Agency, Ohio Development Services Agency, Ohio Capital Corporation for Housing, Ohio Mental Health and Addiction Services, Ohio Department of Health and Ohio's Medicaid managed care plans with Ohio Equity Institute partners and Continuums of Care to discuss ways that Medicaid managed care plans can support housing stability among Medicaid enrollees most at-risk for infant mortality, including people with low incomes and low levels of education attainment, African Americans and residents of infant mortality hot spot zip code areas or neighborhoods.



Housing policy goals and recommendations (cont.)

4.2	State policymakers can require service systems, such as Medicaid, Temporary Assistance for Needy Families (TANF) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), to collect information about the housing status of households during the application and re-certification process. This data could be collected consistently across systems and used to: <ul style="list-style-type: none"> a. Provide a standardized means for identifying and connecting people experiencing a housing crisis to appropriate and timely interventions b. Inform the allocation of resources to affordable housing programs c. Direct resources to areas with the greatest need d. Inform the development of cross-sector partnerships with the potential to improve housing outcomes for Ohioans
4.3	The Ohio Department of Health and the Ohio Housing Financial Agency can collaborate to create additional guidance for directing hospital community benefit spending to affordable housing strategies related to the State Health Improvement Plan.
Goal 5	Increase the supply of affordable housing renters with Extremely Low Incomes
5.1	State agencies can promote strategies that can be implemented at the local level to reduce financial and regulatory barriers to increasing the supply of affordable housing. Examples of strategies that could be promoted include: <ul style="list-style-type: none"> a. Adopting clearer and shorter permitting requirements for affordable housing development b. Revising zoning ordinances to reduce the need for variances and/or expedite the process for obtaining a variance for affordable housing development c. Allowing developers to purchase or use housing plans that are examples of good design that have been pre-approved by the city for conformance with building codes and/or other standards d. Allowing or encouraging the use of innovative housing design and construction techniques to reduce the cost of developing and operating affordable housing by investing in micro-housing, green affordable housing development and/or non-conventional building technology, such as modular, prefabricated or shipping container units
Goal 6	Reduce the number of evictions and forced moves experienced by low-income families most at risk of infant mortality, including African Americans and pregnant women
6.1	State and local policymakers can increase rapid access to legal representation, landlord-tenant mediation and other supportive services, including emergency financial assistance, to prevent formal evictions experienced by low-income families most at risk of infant mortality, including African Americans and pregnant women.
6.2	State policymakers and the Ohio Supreme Court can commission research to determine how inequitable rental practices and discrimination based on race, gender, and pregnancy status impact housing stability for low-income families most at risk of infant mortality, including African Americans and pregnant women, and provide recommendations for local executives and courts to address these issues.
Goal 7	Improve the quality of affordable housing stock
7.1	State policymakers can increase funding to the Ohio Department of Health, local health departments and other local entities that screen for and remediate housing quality issues with potential impacts on health such as lead, mold and pests. Additional incentives could be developed for entities that give preference to women who are pregnant and families with infants.



Transportation policy goals and recommendations

Goal 1	Increase access to health care, particularly for pregnant women and parents of young children, by evaluating and continuously improving Medicaid Non-Emergency Medical Transportation provided through managed care plans
1.1	Medicaid managed care plans can monitor NEMT grievances from members and promptly make changes to improve the timeliness and quality of NEMT, prioritizing infant mortality hot spot areas.
1.2	Medicaid managed care plans can improve the timeliness, responsiveness, and customer service of NEMT provided by vendors (including reduced wait times and improved scheduling process), and increase the overall accountability and transparency of the Medicaid NEMT system.
1.3	Medicaid managed care plans can explore the use of Lyft, Uber or other ride-sharing services and innovative technologies (such as apps) for NEMT.
1.4	The Ohio Department of Medicaid can carefully monitor and enforce managed care plan compliance with NEMT requirements in their contracts.



Transportation policy goals and recommendations (cont.)

Goal 2	Increase access to health care, particularly for pregnant women and parents of young children, by evaluating and continuously improving Medicaid Non-Emergency Medical Transportation to be provided through the new state-based brokerage model starting in 2018
2.1	<p>The Department of Medicaid can develop performance metrics and a data tracking system to monitor the effectiveness of the new brokerage model. Metrics to monitor include:</p> <ul style="list-style-type: none"> a. Passenger information (type of visit, number of passengers, etc., while protecting patient privacy) b. Ride information (on-time rates, no-show rates for drivers and passengers, wait times, etc.) c. Quality of service information (complaints, driver reviews, call volume and responsiveness, etc.) <p>The Department can use this information to monitor performance of vendors, identify trends, increase transparency and accountability, and improve service, particularly in infant mortality hot spot areas.</p>
2.2	The Department of Medicaid can use the results of the performance measurement described above to improve the timeliness, responsiveness, and customer service of NEMT provided by vendors (including reduced wait times and improved scheduling process) and increase the overall accountability and transparency of the Medicaid NEMT system.
2.3	The Department of Medicaid can explore the use of Lyft, Uber or other ride sharing services and innovative technologies (apps) for NEMT.
Goal 3	Strengthen access to public transportation by improving and expanding local bus systems
3.1	State policymakers can support bus systems by replacing lost revenue from the cut to transit authorities that resulted from the repeal of the Medicaid managed care organizations sales tax required by the federal government.
3.2	State legislators can increase funding available to local bus systems from existing revenue by allowing gas tax and vehicle-related fee revenue to be used for transit systems through revision of ORC 5501.05. (ORC 5501.05 currently prohibits use of fuel or vehicle-related fees or taxes for non-highway purposes.)
3.3	Local transit agencies, metropolitan planning organizations and other transportation partners can actively engage groups at high risk for infant mortality—particularly African American and low-income families with young children—in decisions about transit services and improvements to the built environment.
3.4	<p>Local transit agencies can improve local bus systems and prioritize the needs of pregnant women, families and people of childbearing age in transit system improvements:</p> <ul style="list-style-type: none"> a. Add or expand routes that better connect low-income communities to jobs, health care providers, grocery stores and other critical resources b. Provide more frequent and consistent service seven days a week c. Implement family-friendly policies that allow parents to bring strollers and other baby equipment onto buses (including priority seating for pregnant women and families with young children and eliminating bag limits) d. Increase the number of bus shelters and benches e. Provide discounted bus passes for low-income parents and pregnant women f. Coordinate with municipalities and developers to install sidewalks, crosswalks, lighting and other pedestrian safety features near bus stops
3.5	Local municipalities can require real estate developers to include safe pedestrian access to bus stops in all new developments, where applicable.
Goal 4	Improve pedestrian safety and active transportation through infrastructure design and investment
4.1	The Ohio Department of Transportation can encourage local municipalities to adopt complete streets policies by providing model policies and increased technical assistance and support.
4.2	The Ohio Department of Transportation and local municipalities can prioritize funding for active transportation improvements, such as sidewalks and crosswalks, in infant mortality hot spot neighborhoods.
4.3	The Ohio Department of Transportation and local municipalities can integrate health equity considerations into zoning and development decision making by assigning additional points to projects that address inequities (for example, awarding extra points to projects that improve pedestrian safety near bus stops in infant mortality hot spot zip code areas).
4.4	Local municipalities can require real estate developers to include safe pedestrian access to bus stops in all new developments, where applicable.
Goal 5	Decrease barriers to maintaining a driver's license
5.1	State legislators can pass legislation authorizing courts to allow completion of a community service program in lieu of payment of a driver's license reinstatement fee when the court determines the offender cannot reasonably pay for those fees. (See SB 160 introduced in 132nd General Assembly.)
5.2	State legislators can pass legislation authorizing courts to allow people with suspended licenses to continue driving to work and to healthcare appointments (for those suspended for non-driving-related offenses, e.g. inability to pay fees or fines).



Transportation policy goals and recommendations (cont.)

Goal 6	Improve air quality through reduced vehicle emissions
6.1	State policymakers can incentivize state agencies, local transit agencies, school districts and local municipalities to transition vehicle fleets to clean diesel technology.
6.2	Local transit agencies and school districts can implement vehicle anti-idling policies (education and signage to minimize time that drivers idle engines).
6.3	Municipalities can prohibit idling for their own for vehicle fleets.



Education policy goals and recommendations

Goal 1	Strengthen early childhood education and family support programs
1.1	State and local policymakers can increase the provision of evidence-based parenting education and support interventions, such as home visiting.
1.2	State and local policymakers can increase the number of Ohio children served by high-quality child care, preschool and pre-K by increasing public funding for early learning programs to provide access for more 3 and 4 year-old children and/or exploring the possibility of more innovative funding mechanisms such as pay-for-success financing.
1.3	State policymakers can create incentives to encourage early childhood care and education programs to participate in Step Up To Quality and achieve high-quality ratings.
Goal 2	Increase high school graduation rates through high-quality programs geared toward the highest risk students
2.1	The Ohio Department of Education, State Board of Education, Ohio Department of Higher Education, Governor's Office of Workforce Transformation, local school districts and/or local philanthropic organizations can strengthen and expand use of the following evidence-based strategies: <ul style="list-style-type: none"> a. Career academies b. Talent search programs (programs to help low-income and first-generation college students complete high school and gain access to college) c. Community schools (Note: Charter schools in Ohio are referred to as "community schools" under Ohio law, ORC 3314.01, but this is different from the community schools model referenced here.) d. School-based health centers e. Mentoring and/or case management programs, specifically for pregnant and parenting teens
2.2	School districts can support students' high school graduation by: <ul style="list-style-type: none"> a. Establishing community partnerships to facilitate provision of more support services (e.g., mental health services and supports, mentoring, child care, health care, including prenatal care) for struggling students, especially pregnant and parenting teens b. Providing early educational intervention services to at-risk students to keep them on a path toward academic success, high school graduation and career readiness c. Implementing career academies and identifying other ways to increase school engagement d. Recognizing early warning signs of dropout (e.g., chronic absenteeism, students falling far behind academically, suspensions/expulsions, etc.) and taking appropriate preventive action early (Districts can utilize the Student Success Dashboard offered by DOE) e. Implementing trauma-informed policies and practices in schools
2.3	State and local policymakers can encourage and support partnerships between schools and community health and social service providers to increase services offered to students and strengthen coordination of services.
2.4	The Ohio General Assembly can require the Ohio Department of Education to establish health education standards.



Education policy goals and recommendations (cont.)

Goal 3	Strengthen career-technical education programs
3.1	State policymakers can explore ways to increase capacity for secondary and postsecondary career-technical education (vocational training) programs by: <ul style="list-style-type: none"> a. Incentivizing businesses to partner with and provide support to career-technical education programs b. Working with schools and career-technical planning districts to re-evaluate and streamline teacher credentialing requirements c. Providing additional incentive-based resources for under-subscribed career-technical education programs, especially those in high-need career areas, in hopes of increasing enrollment in those programs
3.2	State policymakers can identify ways to increase participation of high-school students in career-technical education (vocational training) programs such as: <ul style="list-style-type: none"> a. Increasing opportunities for work-based learning b. Further leveraging credit flexibility c. Allowing students to attend Ohio Technical Centers through College Credit Plus d. Encouraging schools to implement career academies
Goal 4	Reduce financial barriers to postsecondary education
4.1	The Ohio Department of Higher Education can further tailor financial aid and scholarship eligibility criteria to students who would likely not be able to attend without this financial support.
4.2	State policymakers can increase opportunities for Ohioans to obtain quality postsecondary credentials by raising appropriations for the Ohio College Opportunity Grant (OCOG) and requiring the Ohio Department of Higher Education to either reverse the Pell-first policy or otherwise reform OCOG so community college and OTC students can use financial aid to cover the total cost of attendance (not only tuition and fees, but other expenses such as textbooks and room and board as well). However, this will require policymakers to be mindful of not reducing allocations for currently-eligible recipients.
Goal 5	Increase the number of Ohio adults who take and pass high school equivalency exams or pursue other paths to earn a high school diploma
5.1	State policymakers can explore ways to improve the quality and effectiveness of the Adult Diploma Program, the 22+ Adult High School Diploma Program and preparation services for high school equivalency tests provided by Aspire (formerly ABLE) programs, especially in infant mortality hot spot areas.
Goal 6	Improve college preparation and college entry programs and services for low-income Ohioans
6.1	Local school districts can: <ul style="list-style-type: none"> a. Provide more assistance to students and families applying for financial aid and completing college applications b. Offer ACT/SAT preparation services, especially for low-income students c. Deliver more college and career advising services, beginning at younger ages, which include information about career-technical education programs, community colleges and other educational options outside of four-year college degrees
6.2	State policymakers can identify ways to expand the reach of College Credit Plus, especially in low-income and rural areas, such as through: <ul style="list-style-type: none"> a. Expanding financial support or incentives for teachers to obtain the necessary credentials to become College Credit Plus instructors in their own schools b. Identifying new or innovative pathways to expand opportunities for students to pursue technical certificates or credentials through College Credit Plus
Goal 7	Reduce other barriers to high school completion programs and postsecondary education for students
7.1	Institutions of higher education can implement retention programs and interventions, such as first year experience programs, co-requisite remediation models and guided pathways, especially for first-generation college students.

Employment policy goals and recommendations

Goal 1	Increase incomes for pregnant women and parents of young children
1.1	State policymakers can expand the state Earned Income Tax Credit (EITC), lift the existing cap on the credit, make it refundable and/or expand the credit to non-custodial parents. (HPIO Income and Health brief)
1.2	State policymakers can prioritize funds for career-technical education (vocational training) to: <ul style="list-style-type: none"> a. Jobs and/or employers that pay a living wage b. Jobs and/or employers that are offering a lower wage, but in a job with an articulated and stepped career pathway to higher wages and benefits c. Employers that do not have a history of wage and hour violations d. Employers that have relatively low turnover e. Jobs that are in-demand or on the 21st Century Jobs list These programs could also include job search assistance and comprehensive support services (including child care) during training.
1.3	Local policymakers, infant mortality collaboratives and other partners can encourage employers to voluntarily adopt living wage policies.
Goal 2	Reduce unemployment and under employment
2.1	State policymakers can reform occupational licensing to reduce barriers to employment, such as through reductions in license requirements for some occupations, including cosmetology. (See SB 129 for an example of proposed legislation to reduce the required number of training hours for a cosmetology license in Ohio.)
2.2	State policymakers can reduce barriers to employment related to criminal convictions by increasing monitoring and enforcement of the Ohio Fair Hiring Act, which prohibits public employers from asking any questions about conviction history on a job application or previous salary (“ban the box”), as well as extending this same prohibition to any employer with a state contract over \$50,000.
2.3	State policymakers can reduce barriers to employment related to criminal convictions by offering tax benefits to employers who hire people with criminal records. Tax benefits can be paired with legislation reducing civil liability for employers who hire people with criminal records.
Goal 3	Increase access to work supports
3.1	State policymakers can increase funding for child care subsidies so that eligibility limits can be restored to 200 percent FPL and more families can access child care. Access can also be expanded by increasing the reimbursement rate paid to child care centers to the 75th percentile, making 75 percent of the state’s child care centers affordable to voucher families.
3.2	State policymakers can incentivize employers to provide child care subsidies to their employees in order to remove barriers to employment for parents, particularly those with part-time and/or low-wage jobs.
3.3	The Ohio Department of Job and Family Services can analyze and evaluate the effectiveness of the Comprehensive Case Management and Employment Program (CCMEP). If the evaluation is favorable, policymakers can increase funding for CCMEP to connect more youth and young adults with low incomes to skilled employment in Ohio.
3.4	State policymakers can review eligibility levels for government programs that serve individuals with low incomes in order to remove disincentives for job attainment or wage increases (“benefit cliffs”). Eligibility levels for programs such as medical, food and child assistance should be aligned with the self-sufficiency of the program recipients.
Goal 4	Adopt more robust leave policies and employment benefits
4.1	State policymakers can offer low-cost incentives to employers, primarily those with part-time and/or low-wage workers, who choose to offer employment benefits, such as paid family leave, sick leave and work schedule predictability. An example of a low-cost incentive may be awarding employers additional points in a state contracting process.
4.2	State policymakers can prohibit employers, primarily those offering part-time, classified and/or low-wage work, from discriminating against employees who breastfeed.
4.3	The Ohio Department of Job and Family Services can provide, on its website, information and links to other websites where employers can access information regarding methods to accommodate nursing mothers in the workplace.
4.4	Local municipalities and local infant mortality partners can monitor the legal challenges to Senate Bill 331 to determine the extent to which local governments can establish employment policies, such as minimum wage, leave policies and schedule predictability.
Goal 5	Reduce exposure to toxic and persistent stress in employment settings
5.1	State policymakers can increase enforcement efforts related to discriminatory workplace practices through the Ohio Civil Rights Commission (OCRC) by increasing the staff at OCRC to implement enforcement.
5.2	State policymakers can consider an employer’s record with the OCRC when determining tax incentives, and assess a fee on employers with regular complaints to the OCRC. Revenue gained from these fees can be dedicated to fund education programs on eliminating discrimination in the workplace.

Cross-cutting policy recommendations

1	Monitor and evaluate implementation of the recommendations in this report. State legislators can request that the Commission on Infant Mortality monitor the extent to which the recommendations in this report are implemented and report findings to House and Senate leadership and all relevant committees on an annual basis.
2	Increase the effectiveness of policies and programs serving Ohioans most at-risk for infant mortality. State agencies and local organizations can increase the effectiveness of policies and programs serving Ohioans most at risk for infant mortality by: <ul style="list-style-type: none"> a. Hosting cultural competence and implicit bias training for staff b. Implementing programs like Michigan's Practices to Reduce Infant Mortality through Equity (PRIME) initiative to address health disparities through the social determinants of health and the identification and elimination of policies and practices that support institutional racism and discrimination c. Increasing workforce diversity through recruitment of minority and rural/Appalachian students for health and human services higher-education programs d. Implementing evidence-based strategies to prevent violence and integrating trauma-informed care approaches into existing services and programs
3	Increase local-level leadership and advocacy to address the social determinants of health. Local infant mortality reduction collaboratives and other local partners can: <ul style="list-style-type: none"> a. Identify which policy goals to focus on from this report that best address challenges, inequities and social drivers within their communities, guided by input from community residents and local/neighborhood-level data b. Implement specific local-level recommendations in this report that align with the selected policy goals c. Advocate for state-level recommendations that align with the selected policy goals and recommendations d. Gather and disseminate qualitative information and real-life stories from Ohio families that illustrate the housing, transportation, education and employment challenges and inequities described in this report
4	Measure, report and act upon disparities and inequities data. State agencies can collect and report data on infant mortality, birth outcomes and related inequities in the social, economic and physical environment disaggregated by race, ethnicity, income level, sex and geography. In addition, local partners can collect and use local-level data (e.g., by zip code or census tract) and advocate for improved data collection that allows for actionable analysis, transparency and accountability for differences in health and community conditions by race, ethnicity, income level, sex and geography.
5	Coordinate, collaborate and evaluate. State agencies and other state or local-level organizations can work together to coordinate, evaluate and continuously improve infant mortality reduction policies and programs.
6	Expand upon case study findings. State policymakers can commission a study to assess the extent to which Ohio is implementing the evidence-based strategies used in other states that have led to larger improvements in infant mortality. (Determine, for example, the number of families reached by Centering Pregnancy and Nurse-Family Partnership in Ohio compared to the case study states.)

Conclusions

Legislators, community leaders, clinicians and other stakeholders are concerned about Ohio's infant mortality rate and are particularly troubled that some babies face worse odds than others at the beginning of life. While healthcare providers play a key role in improving infant outcomes, access to quality health care

is necessary, but not sufficient. Improvements to factors beyond medical care are needed to achieve infant mortality reduction goals, to overcome the inequities and community conditions driving Ohio's worsening infant mortality rates and large disparities. Addressing the social drivers of poor health, such as housing, education, employment and transportation, holds promise for preventing infant mortality.

Notes

1. 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.
 2. Among the 34 states and Washington D.C. for which non-Hispanic black infant mortality rate data is available from CDC WONDER
- All other sources are cited in the full report.

To read the full report and see other material related to the Social Determinants of Infant Mortality project, visit

<http://bit.ly/SDOIM>

