Legislative Service Commission
social determinants of infant mortality

Advisory Group Meeting #2
August 17, 2017
Objectives

• Project update
• Feedback to inform literature reviews and environmental scans
  – Housing
  – Transportation
  – Education
  – Employment
## Advisory Group: Sectors

**As of 8/11/17**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocacy</td>
<td>22</td>
</tr>
<tr>
<td>Local health department</td>
<td>17</td>
</tr>
<tr>
<td>State agency</td>
<td>14</td>
</tr>
<tr>
<td>Housing</td>
<td>16</td>
</tr>
<tr>
<td>Provider/clinician</td>
<td>12</td>
</tr>
<tr>
<td>Hospital/health system</td>
<td>13</td>
</tr>
<tr>
<td>Researcher/academic</td>
<td>11</td>
</tr>
<tr>
<td>Social service provider</td>
<td>10</td>
</tr>
<tr>
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<td>12</td>
</tr>
<tr>
<td>Health plan/private insurer/managed care</td>
<td>6</td>
</tr>
<tr>
<td>Grassroots/consumer group</td>
<td>5</td>
</tr>
<tr>
<td>Transportation/regional planning</td>
<td>6</td>
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<tr>
<td>Education/job training</td>
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<td>Child care</td>
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<tr>
<td>Employment services/income</td>
<td>2</td>
</tr>
<tr>
<td>Business</td>
<td>2</td>
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</table>
Future meetings: Advisory Group

• Sept. 14, 2:00-3:30 pm: Conference call
• Oct. 17, 9:00 am-12:00 pm: In-person meeting in Columbus
Future meetings: Housing Subcommittee

- Aug. 23, 2:00-3:30 pm: In-person meeting in Columbus
- Sept. 21, 10:00-11:00 am: Conference call
Project update

• Why are we here?
• Progress on timeline and deliverables
• Key concepts
• Literature review and environmental scan overview
Project update

• Why are we here?
• Progress on timeline and deliverables
• Key concepts
• Literature review and environmental scan overview
Ohio Commission on Infant Mortality

Committee Report, Recommendations, and Data Inventory
March 2016

Senate Bill 332
SB 332 requirements

1. Review of policies and programs: housing, transportation, education, employment
2. Identify opportunities to improve policies and programs
3. Study impact of state-funded rental assistance program
4. Evaluate best practices from other states
States with highest overall infant mortality rate, 2012-2014 (pooled)

Source: Preliminary analysis of Linked Birth/Infant Death Records 2005-2014 via CDC WONDER

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States with highest Non-Hispanic black infant mortality rate, 2012-2014 (pooled)

Source: Preliminary analysis of Linked Birth/Infant Death Records 2005-2014 via CDC WONDER

Copyright © 2017 Health Policy Institute of Ohio. All rights reserved.
Trends in Ohio infant mortality rates, by race (1990-2015)

**Source:** Ohio Department Of Health, Bureau Of Vital Statistics.

“Model-Fitted” Definition – Joinpoint software models were used to test the statistical significance of changes in trends using a Monte Carlo permutation method. The same methods were used to assess All Races, Black and White infant Mortality trends. In all cases, the best fitting line for the observed data is presented.
Factors that impact health
With Ohio’s 2017 HPIO Health Value Dashboard rank

- Social and economic environment: 29
- Access to care: 17
- Healthcare system: 37
- Clinical care: 20%
- Health behaviors: 30%
- Physical environment: 10%
- Public health and prevention: 50
Social determinants of health → Infant mortality
# Advisory Group: Sectors

As of 8/11/17

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</tr>
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</table>
Types of evidence

Evidence-based decision making

Best available research evidence

Experiential evidence

Contextual evidence

Source: Puddy and Wilkens (2011)
Project update

• Why are we here?
• Progress on timeline and deliverables
• Key concepts
• Literature review and environmental scan overview
# Timeline and deliverables

<table>
<thead>
<tr>
<th>Deliverable/Activity</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<tr>
<td>Recruit and convene stakeholder groups</td>
<td></td>
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<td>6/28 AG meeting</td>
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<td>8/17 AG meeting</td>
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<td></td>
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<td>8/23 HS meeting</td>
<td>9/14 AG meeting</td>
<td>10/17 AG meeting</td>
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<tr>
<td>Most improved state research and Dashboard analysis</td>
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<td></td>
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<tr>
<td>Literature review and environmental scan: Housing, transportation, employment, education — including focus on rental assistance program</td>
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<td></td>
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<td></td>
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<tr>
<td>Inventory of evidence-informed SDOH strategies</td>
<td></td>
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<tr>
<td>Development and prioritization of recommendations</td>
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<tr>
<td>Final report</td>
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<td></td>
<td></td>
<td></td>
<td>Draft</td>
<td>Final report due Dec. 1</td>
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</table>

AG = Advisory Group
HS = Housing Subcommittee
Sources of information

Most improved state research
✓ State-level trend data analysis to identify most-improved states, including most improved for black infant mortality
✓ Literature review, document review and key-informant interviews to identify how other states improved

Health Value Dashboard data
✓ Analysis to identify strongest drivers of infant mortality from social, economic and physical environment

Literature review and environmental scan
✓ Summarize research literature
✓ Focus on housing, transportation, employment, education
  ✓ Describe existing programs and policies in Ohio

Inventory of evidence-informed SDOH strategies
✓ Systematic reviews, evidence registries and expert consensus reports
✓ Examples from other states
Report outline

• Executive summary
• Background and purpose
• Infant mortality
  – Data on trends and disparities in Ohio
  – Literature review on leading causes of infant mortality and risk and protective factors
• Social determinants of health and health equity
  – Literature review
Report outline, cont.

• Lessons from other states
• Health Value Dashboard analysis
• Ohio policies and programs
  – Literature reviews and environmental scans on housing, transportation, education and employment
• Evidence-informed SDOH policies and programs
• Policy recommendations
Report outline, cont.

• Lessons from other states
• Health Value Dashboard analysis

• Ohio policies and programs
  – Literature reviews and environmental scans on housing, transportation, education and employment

• Evidence-informed SDOH policies and programs
• Policy recommendations
Most-improved states research

• 8 states
• Key-informant interviews
• Lessons learned and potential opportunities for Ohio
Selection criteria

Available data

Biggest improvements in IM, Black IM, disparity

Indication of SDOH policies or programs

8 states for in-depth study
Top 10 states for each criteria

States prioritized for in-depth study, preliminary as of 8/8/17
Project update

• Why are we here?
• Progress on timeline and deliverables
• **Key concepts**
• Literature review and environmental scan overview
Relevance to state policymakers
Social ecological model
Focus on state-level policy
Health inequities, disparities and equity

Health inequities
Disparities in rates due to differences in the distribution of social, economic, environmental or healthcare resources*

Health disparities
Differences in health status among segments of the population such as by race or ethnicity, education, income or disability status

Health equity

*Working definition from the CDC Health Equity Working Group, October 2007
Groups of Ohioans most at risk for infant mortality:
- African Americans
- People with low levels of educational attainment
- People with low income
- Residents of infant mortality “hot spot” communities
- Pregnant women and parents of infants
- People of childbearing age

Life course perspective

- Perinatal/early childhood
- Child/adolescent
- Older adult
- Adult
Project update

• Why are we here?
• Progress on timeline and deliverables
• Key concepts
• Literature review and environmental scan overview
Literature reviews and environmental scans

- IM risk and protective factors
- SDOH and equity
- Housing
- Transportation
- Education
- Employment
For each topic:

1. How does this affect infant mortality?
2. Scope of problem in Ohio
3. Policy landscape
Housing Challenges and inequities → Infant mortality
Housing Challenges and inequities

Infant mortality
Pathways diagrams

Categories

Challenges and inequities

Intermediate factors

Negative effects on health and equity

Leading causes of infant mortality

Infant mortality rate and disparities
Cross-cutting factors

Persistent stress

Structural, institutional, interpersonal and internalized racism

Poverty

Housing
Transportation
Education
Employment

Leading causes of Infant mortality
1 Housing
Housing infrastructure challenges and inequities

- **Affordability**
  - Lack of income for necessities

- **Discriminatory housing policy and practice**
  - Historically racist housing policy and segregation
  - Discriminatory rental, lending and eviction practices

- **Neighborhood conditions**
  - Low opportunity (education, jobs, etc.)
  - High crime and violence

- **Stability**
  - Forced moves
  - Informal rental agreements
  - Abusive/violent living situations

- **Quality**
  - Poor house maintenance or construction
  - Overcrowding
A closer look at housing stability

Housing challenges and inequities

- Forced moves
- Informal rental agreements
- Abusive/violent living situations

Negative effects on health and equity

- Poor maternal health
  - Physical health
  - Mental health

- Disrupted, uncoordinated or inadequate pre-conception, prenatal and postnatal care

- Poverty

- Unhealthy behaviors such as alcohol, tobacco and other drugs

Leading causes of infant mortality

- Birth outcomes:
  - Preterm birth
  - Low birth weight
  - Birth defects
  - Maternal complications of pregnancy

Stability

- Persistent stress
- Homelessness
- Intimate partner violence

Accidents, injuries and violence
Affordable and available units per 100 renter households in Ohio by income level, 2015

AMI: Area median income

Source: Connecting those at risk to care: The quick start guide to developing community care coordination pathways
Policy landscape (preliminary)

Affordable housing development and rental assistance for Extremely and Very Low Income renters

- Ohio Development Services Agency
- Ohio Housing Finance Agency
- Public Housing Administrations
- Ohio Housing Trust Fund
- Continuums of Care
2 Transportation
Transportation infrastructure challenges and inequities

<table>
<thead>
<tr>
<th>Access and connectivity</th>
</tr>
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<tbody>
<tr>
<td>• Limited transit services</td>
</tr>
<tr>
<td>• Low rates of car ownership due to poverty and discriminatory practices</td>
</tr>
<tr>
<td>• Inadequate regional planning</td>
</tr>
<tr>
<td>• Historically racist transportation and land-use policies (slum clearance, urban renewal, etc.)</td>
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</table>

<table>
<thead>
<tr>
<th>Active transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Low walkability and unsafe pedestrian access to bus stops</td>
</tr>
<tr>
<td>• Sprawl (low density development, car dependence)</td>
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</table>

<table>
<thead>
<tr>
<th>Air quality</th>
</tr>
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<tbody>
<tr>
<td>• Proximity to major roadways</td>
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<tr>
<td>• High number of vehicle miles traveled and traffic congestion</td>
</tr>
<tr>
<td>• Inefficient vehicles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traffic safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Low seat belt/car seat use</td>
</tr>
<tr>
<td>• High rate of crashes</td>
</tr>
<tr>
<td>• Distracted driving</td>
</tr>
<tr>
<td>• Unsafe roadway design</td>
</tr>
</tbody>
</table>
Transportation infrastructure challenges and inequities

**Access and connectivity**
- Limited transit services
- Low rates of car ownership due to poverty and discriminatory practices
- Inadequate regional planning
- Historically racist transportation and land-use policies (slum clearance, urban renewal, etc.)

**Active transportation**
- Low walkability and unsafe pedestrian access to bus stops
- Sprawl (low density development, car dependence)

**Air quality**
- Proximity to major roadways
- High number of vehicle miles traveled and traffic congestion
- Inefficient vehicles

**Traffic safety**
- Low seat belt/car seat use
- High rate of crashes
- Distracted driving
- Unsafe roadway design
A closer look at access and connectivity

Transportation challenges and inequities

Access and connectivity
- Limited transit services
- Low rates of car ownership due to poverty and discriminatory practices
- Inadequate regional planning
- Historically racist transportation and land-use policies (slum clearance, urban renewal, etc.)

Negative effects on health and equity

- Difficulty getting to healthcare providers
- Difficulty getting to jobs, post-secondary education and child care
- Difficulty getting to grocery stores, parks and other places to access healthy food and physical activity
- Stress of dealing with transportation challenges
- Inadequate pre-conception, prenatal and postnatal care
- Poverty
- Poor maternal health
  - Physical health
  - Mental health

Leading causes of infant mortality

Birth outcomes:
- Preterm birth
- Low birth weight
- Birth defects
- Maternal complications of pregnancy
## Transit coverage and job access in Ohio metropolitan areas, 2010

<table>
<thead>
<tr>
<th>Metropolitan area</th>
<th>Job access rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
</tr>
<tr>
<td>Dayton</td>
<td>42%</td>
</tr>
<tr>
<td>Toledo</td>
<td>41%</td>
</tr>
<tr>
<td>Columbus</td>
<td>41%</td>
</tr>
<tr>
<td>Cleveland-Elyria-Mentor</td>
<td>38%</td>
</tr>
<tr>
<td>Cincinnati-Middletown (OH, KY, IN)</td>
<td>34%</td>
</tr>
<tr>
<td>Akron</td>
<td>31%</td>
</tr>
<tr>
<td>Youngstown-Warren-Boardman (OH, PA)</td>
<td>16%</td>
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</tbody>
</table>

*1= best rank, 100=worst

Policy landscape (preliminary)

Transit services: Bus systems and Medicaid Non-Emergency Medical Transportation

- Ohio Department of Transportation
- Metropolitan Planning Organizations
- Regional Transit Systems
- Ohio Department of Job and Family Services
- Medicaid managed care plans
3 Education
Education challenges and inequities

Educational attainment
- Grade-level reading
- High school graduation
- Post-secondary education

Education system quality
- Early childhood
- K-12
- Post-secondary
- School segregation

Income
- Limited employment opportunities
- Low earnings potential

Health literacy
- Poor knowledge of healthy behaviors and practices
- Limited ability to successfully interact with healthcare providers and follow medical advice

Social capital
- Low rank in society
- Social network norms

Personal control and self-efficacy
- Low self-confidence
- Belief that external forces, rather than personal decisions and actions, impact life
A closer look at health literacy

**Education challenges and inequities**

**Negative effects on health and equity**

**Leading causes of infant mortality**

- Birth outcomes:
  - Preterm birth
  - Low birth weight
  - Birth defects
  - Maternal complications of pregnancy

**Health literacy**
- Poor knowledge of healthy behaviors and practices
- Limited ability to successfully interact with healthcare providers and follow medical advice

**Disrupted, uncoordinated and inadequate pre-conception, prenatal and post-natal care, including access to contraception**

**Unhealthy behaviors such as alcohol, tobacco and other drug use**

**Lack of breastfeeding**

**Poor maternal health**
- Physical health
- Mental health

**Unplanned pregnancies, including teen pregnancies and inadequate birth spacing**

**Unsafe sleeping practices**

**Sudden unexplained infant death**
Educational attainment in Ohio, 2015

Source: U.S. Census Bureau American Community Survey (ACS) 2015
Policy landscape (preliminary)

Education

- U.S. Department of Education
- Ohio Department of Education
- State Board of Education
- Ohio Department of Job and Family Services
- Ohio Department of Higher Education
- Local school boards

School superintendents
Employment
Policy landscape (preliminary)

**Income**
- Low wages
- Under employment
- Unemployment

**Working conditions**
- Occupational hazards
- Physically demanding work
- High demand, low control
- Discriminatory practices
- Breastfeeding and leave policies (maternal, sick leave, etc.)
- Health insurance coverage
Employment challenges and inequities

Income
- Low wages
- Under employment
- Unemployment

Working conditions
- Occupational hazards
- Physically demanding work
- High demand, low control
- Discriminatory practices

- Breastfeeding and leave policies (maternal, sick leave, etc.)
- Health insurance coverage
A closer look at income

**Employment challenges and inequities**
- Income
  - Low wages
  - Under employment
  - Unemployment

**Negative effects on health and equity**
- Poverty
  - Inadequate access to healthy foods and opportunities for physical activity
- Persistent stress
- Disrupted, uncoordinated and inadequate pre-conception, prenatal and post-natal care, including access to contraception

**Leading causes of infant mortality**
- Birth outcomes:
  - Preterm birth
  - Low birth weight
  - Birth defects
  - Maternal complications of pregnancy

**Poor maternal health**
- Physical health
- Mental health

**Unhealthy behaviors such as alcohol, tobacco and other drugs**
Top 10 occupations with the largest number of projected job openings in Ohio 2014-2024

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Annual Openings</th>
<th>Median wage</th>
<th>Typical education needed for entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined food preparation and serving workers, including fast food</td>
<td>6,920</td>
<td>$8.94</td>
<td>No formal educational credential</td>
</tr>
<tr>
<td>Retail salespersons</td>
<td>6,002</td>
<td>$9.92</td>
<td>No formal educational credential</td>
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<tr>
<td>Cashiers</td>
<td>4,960</td>
<td>$9.13</td>
<td>No formal educational credential</td>
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<tr>
<td>Registered nurses</td>
<td>4,833</td>
<td>$29.46</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>Home health aides</td>
<td>4,476</td>
<td>$9.83</td>
<td>No formal educational credential</td>
</tr>
<tr>
<td>Waiters and waitresses</td>
<td>4,267</td>
<td>$8.97</td>
<td>No formal educational credential</td>
</tr>
<tr>
<td>Laborers/freight/stock/material movers, hand</td>
<td>3,613</td>
<td>$11.72</td>
<td>No formal educational credential</td>
</tr>
<tr>
<td>Nursing assistants</td>
<td>2,711</td>
<td>$11.61</td>
<td>Postsecondary non-degree award</td>
</tr>
<tr>
<td>Stock clerks and order fillers</td>
<td>2,616</td>
<td>$11.25</td>
<td>No formal educational credential</td>
</tr>
<tr>
<td>Office Clerks, General</td>
<td>2,495</td>
<td>$13.75</td>
<td>High school diploma or equivalent</td>
</tr>
</tbody>
</table>

*Occupations with 100 or more workers.

Policy landscape (preliminary)

Job training and income support

- Workforce Development Boards
- Ohio Department of Job and Family Services
- Ohio Department of Taxation
- Jobs Ohio
- Ohio Department of Education
- Higher education including quality certificate and credentialing