TRANSPORTATION

Pre-read materials for Oct. 17 Social Determinants of Infant Mortality Advisory Group meeting
HPIO 10/12/17

Contents:
- Summary “pathway” diagram
- Transportation “pathway” diagram
- Transportation evidence inventory
- Transportation policy goals and potential policy recommendations

For background on how these materials were developed, see the Agenda and overview of pre-read materials for October 17 Advisory Group meeting document posted on the project webpage.
Summary of relationships between housing, transportation, education, employment and infant mortality

Cross-cutting factors

- Poverty
- Racism* and discrimination
- Toxic and persistent stress, trauma and violence

Challenges and inequities in the social, economic and physical environment**

- Housing
- Transportation
- Education
- Employment

Negative effects on health and equity

- Inadequate pre-conception, prenatal and post-natal care
- Poor maternal health
- Inadequate access to healthy foods and opportunities for physical activity
- Limited education and employment opportunities
- Poverty
- Toxic and persistent stress
- Other topic-specific factors***

Leading causes of infant mortality

- Poor birth outcomes
- Sudden unexplained infant death
- Accidents, injuries and violence

* Structural, institutional, interpersonal and internalized racism
** Topics specified for study by SB 332
*** See figures 2-5 for details
## Relationship between transportation and infant mortality

### Transportation challenges and inequities

#### Access and connectivity
- Limited transit services
- Low rates of car ownership due to poverty and discriminatory practices
- Historically racist transportation and land-use policies (slum clearance, urban renewal, etc.)
- Transportation funding that prioritizes highways/roads over public transit and active transportation

#### Active transportation and traffic safety
- Low walkability and unsafe pedestrian access to bus stops
- Sprawl (low density development, car dependence)
- Zoning patterns and unsafe roadway design
- High rate of crashes*

#### Air quality
- Traffic congestion, inefficient vehicles and high number of vehicle miles traveled are major causes of air pollution
- Proximity to major roadways

### Negative effects on health and equity

#### Difficulties accessing healthcare providers
- Difficulty getting to healthcare providers
- Inadequate pre-conception, prenatal and postnatal care
- Poverty

#### Difficulty accessing jobs, post-secondary education and child care
- Difficulty getting to jobs, post-secondary education and child care
- Poor maternal health
  - Physical health
  - Mental health

#### Difficulty accessing healthy food and physical activity
- Difficulty getting to grocery stores, parks and other places to access healthy food and physical activity
- Toxic and persistent stress
- Lack of physical activity

#### Unsafe conditions for drivers and pedestrians
- Unsafe conditions for drivers and pedestrians

#### Exposure to poor outdoor air quality
- Exposure to poor outdoor air quality (high level of particulate matter)

### Leading causes of infant mortality

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

- Sudden unexplained infant death

*Note: Motor vehicle crashes cause a relatively small number of infant deaths.*
**TRANSPORTATION evidence inventory**  
Effective policies and programs to address transportation challenges and inequities relevant to infant mortality  
10/12/17

**Key**  
*Green* = 2017-2019 State Health Improvement Plan strategy  
*Red* = Leading causes of infant mortality  
*Italics* = Outcomes also relevant to housing, education, employment, poverty, racism, stress or violence

### Access and connectivity

Relevant policy goals:
- Strengthen access to public transportation by improving and expanding local bus systems
- Improve Medicaid Non-Emergency Transportation (state-based brokerage model and managed care plans)

<table>
<thead>
<tr>
<th>Policy or program</th>
<th>Evidence rating and direct outcomes documented in evidence review</th>
<th>Indirect/other potential outcomes in evidence review</th>
<th>Effectiveness to reduce inequities</th>
</tr>
</thead>
</table>
| 1. **Public transportation systems (Introduction or expansion)** | WWFH: Scientifically supported:  
  - Increased access to public transit  
  - Increased use of public transit  
Hi-5: Recommended | WWFH: Other potential beneficial outcomes:  
  - Increased physical activity  
  - Reduce vehicle miles traveled  
  - Reduced emissions | WWFH- likely to decrease disparities |
| 2. **Individual incentives for public transportation** | WWFH: Some evidence:  
  - Increased use of public transit  
  - Increased physical activity | WWFH: Other potential beneficial outcomes:  
  - Increased active transportation  
  - Reduced obesity rates  
  - Increased mobility  
  - Reduced vehicle miles traveled  
  - Reduced emissions | |
| 3. **Non-emergency Medical Transportation** | NASEM:  
  - Increased use of prenatal care  
  - Decreased healthcare spending (non-emergency medical) | NASEM:  
  - Reduced premature birth | |
Active transportation and traffic safety

Relevant policy goals:
- Improve pedestrian safety and active transportation through changes to the built environment
- Improve air quality through reduced vehicle emissions

<table>
<thead>
<tr>
<th>Policy or program</th>
<th>Evidence rating and direct outcomes documented in evidence review</th>
<th>Indirect / other potential outcomes in evidence review</th>
<th>Effectiveness to reduce inequities</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Zoning regulations for land use policy</td>
<td>WWFH: Scientifically supported:</td>
<td>WWFH: Other potential beneficial outcomes:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased physical activity</td>
<td>• Reduced vehicle miles traveled</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased active transportation</td>
<td>• Reduce crime</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reduced stress</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Improved sense of community</td>
<td></td>
</tr>
<tr>
<td>5. Mixed use development</td>
<td>WWFH: Scientifically supported:</td>
<td>WWFH: Other potential beneficial outcomes:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased physical activity</td>
<td>• Increased active transportation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Improved health outcomes</td>
<td></td>
</tr>
<tr>
<td>6. Built environment approaches combining transportation system interventions with land use and environmental design</td>
<td>CG: Recommended:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased physical activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased active transportation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 7. **Complete streets and streetscape design initiatives** SHIP | WWFH: Scientifically supported:  
- Increased physical activity  
- Increased pedestrian and cyclist safety | WWFH: Other potential beneficial outcomes:  
- Increased active transportation  
- **Reduced obesity rates**  
- Improved sense of community  
- Improved neighborhood safety  
- Reduced stress  
- Reduced vehicle miles traveled |
|---|---|---|
| 8. **Bike and pedestrian master plans** SHIP | WWFH: Some evidence:  
- Increased physical activity | WWFH: Other potential beneficial outcomes:  
- Increased active transportation  
- Reduced injuries  
- Reduced vehicle miles traveled  
- **Reduce emissions** |
| 9. **Safe Routes to School** SHIP | WWFH: Scientifically supported:  
- Increased active transportation  

**Hi-5:** Recommended | WWFH: Other potential beneficial outcomes:  
- Increased physical activity  
- Improved health outcomes  
- Increased pedestrian and cyclist safety  
- Reduced emissions  
- Reduced vehicle miles traveled |
| 10. **Walking school buses** | WWFH: Scientifically supported:  
- Increased active transportation | WWFH: Other potential beneficial outcomes:  
- Increased physical activity  
- Improved health outcomes  
- Improved sense of community  
- **Increased academic achievement**  
- Reduce vehicle miles traveled  
- Reduced emissions |
### Air quality

#### Relevant policy goal:
- Improve air quality through reduced vehicle emissions

<table>
<thead>
<tr>
<th>Policy or program</th>
<th>Evidence rating and direct outcomes documented in evidence review</th>
<th>Indirect/other potential outcomes in evidence review</th>
<th>Effectiveness to reduce inequities</th>
</tr>
</thead>
</table>
| **11. Clean diesel technology fleet transition programs** | WWFH: Scientifically supported:  
- Reduced emissions  
- Improved air quality  
**Hi-5:** recommended                                                                                                      | WWFH: Other potential beneficial outcomes:  
- Improved health outcomes                                                                                                    |                                                  |
| **12. Vehicle anti-idling initiatives**                | WWFH: Some evidence:  
- Reduced vehicle idling                                                                                                      | WWFH: Other potential beneficial outcomes:  
- Reduced emissions  
- Improved air quality  
**Improved health outcomes**                                                                                                  |                                                  |
| **13. Vehicle inspection and maintenance (I/M) programs** | WWFH: Some evidence:  
- Reduced emissions                                                                                                           | WWFH: Other potential beneficial outcomes:  
- Improved air quality                                                                                                          |                                                  |

*Included in Ohio’s 2017-2019 State Health Improvement Plan*
**Sources and acronyms**

HPIO searched the following systematic reviews and evidence registries to develop this inventory. Search terms aligned with the pathway diagrams (dark blue boxes) and findings of the literature review.

<table>
<thead>
<tr>
<th>Systematic review or evidence registry*</th>
<th>Recommendation level(s)/Evidence rating included in this inventory</th>
</tr>
</thead>
</table>
| **What Works for Health (WWFH):** Evidence registry from County Health Rankings and Roadmaps, a project of the University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation | • Scientifically supported  
• Some evidence |
| **Hi-5 (Health Impact in 5 Years):** Recommendations from CDC | Recommended |
| **The Guide to Community Preventive Services (Community Guide, CG):** Systematic reviews from the U.S. Centers for Disease Control and Prevention (CDC) | Recommended |
| **National Academies of Sciences, Engineering and Medicine (NASEM) Consensus Study Reports** | NA |

*Also consulted Washington State Institute for Public Policy Benefit-Cost Results, Campbell Library of Systematic Reviews, and Top Tier Evidence, although no relevant reviews were found for transportation.

1 Aligns with dark blue box on transportation pathway diagram

2 Aligns with policy landscape and policy recommendations; relevant to infant mortality priority populations
Policy goals
1. Strengthen access to public transportation by improving and expanding local bus systems
2. Decrease barriers to maintaining a drivers’ license
3. Improve Medicaid Non-Emergency Medical Transportation, particularly for pregnant women and parents of young children: State-based brokerage model (to replace existing county-level system in July 2018)
4. Improve Medicaid Non-Emergency Medical Transportation, particularly for pregnant women and parents of young children: Managed care plans
5. Improve pedestrian safety and active transportation through changes to the built environment
6. Improve air quality through reduced vehicle emissions

Policy recommendations

Policy Goal #1. Strengthen access to public transportation by improving and expanding local bus systems

1. State legislators can increase funding available to local transit 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.)
2. State policymakers can support transit 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. Transit authorities, regional 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.
4. Transit authorities can improve local bus systems and prioritize the needs of pregnant women, families and people of childbearing age in transit system improvements:
   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
   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
5. State policymakers can incentivize the development of affordable residential and mixed-use development within a half-mile of quality public transit that can connect workers to jobs by incentivizing local governments to:
   a. Adopt land use controls that permit and encourage affordable, transit-friendly development
   b. Establish property acquisition funds or provide publicly-acquired land to facilitate the acquisition of land near transit corridors
   c. Secure public and private sector financing for development of affordable housing near transit corridors
   d. Integrate affordable housing planning with transit improvement projects (example: CMAX Bus Rapid Transit Line and the Smart Columbus initiative)

6. Local public-private partnerships can provide incentives for employees to use public transportation, such as by replicating Columbus’ Capital Crossroads Special Improvement District COTA bus pass incentive program for downtown employees. (Increased ridership can strengthen the overall transit system and reduce air pollution.)

7. State policymakers can raise revenue for transit systems, and incentivize businesses to reduce vehicle emissions, through a state-level “cap-and-trade” system (limits on emissions and a market for companies to buy and sell emission permits). Emission permit fees would go into a fund that would be allocated to local transit authorities. (similar to the California Clean Air Initiative)

Policy Goal #2. Decrease barriers to maintaining a drivers’ license

8. State legislators can pass legislation authorizing a court 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.)

9. The Bureau of Motor Vehicles can identify alternatives to the Random Selection Program (insurance verification letters sent 5,400 randomly-selected drivers per week) to ensure that low-income drivers who move frequently are not disproportionately targeted for license suspensions.

Policy Goal #3. Improve Medicaid Non-Emergency Medical Transportation (NEMT), particularly for pregnant women and parents of young children: State-based brokerage model (to replace existing county-level system in July 2018)

10. The Department of Medicaid can actively engage Medicaid enrollees through a Stakeholder Advisory Group or other mechanism to inform design of the new NEMT brokerage system, and monitor ongoing quality improvement. Feedback from residents of infant mortality hot-spot areas and low-income rural areas, in particular, should be included to ensure access to care for those at highest risk for infant mortality and transportation challenges.

11. 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:
   a. Passenger information (type of visit, number of passengers, etc., while protecting patient privacy)
Policy Goal #4. Improve Medicaid Non-Emergency Medical Transportation (NEMT), particularly for pregnant women and parents of young children: Managed care plans

12. 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.

13. The Ohio Department of Medicaid can carefully monitor and enforce managed care plan compliance with NEMT requirements in their contracts.

Policy Goal #5. Improve pedestrian safety and active transportation through changes to the built environment

14. The Ohio Department of Transportation can encourage local municipalities to adopt complete streets policies by providing technical assistance and model policies.

15. Local municipalities (city and village councils and county commissioners) and metropolitan planning organizations can adopt, implement and monitor complete streets policies.

16. The Ohio Department of Transportation can allocate a larger proportion of existing federal funding toward bike and pedestrian projects.

17. 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.

18. 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).

19. Local municipalities can adopt, implement and monitor zoning regulations that support street connectivity, mixed-use development, transit access, sidewalk and trail infrastructure and proximity of residential areas to health care, stores, jobs, schools and recreation in existing and new developments.

20. The Ohio Department of Transportation, Ohio Department of Public Safety, metropolitan planning organizations and local municipalities can review crash data to identify areas that are unsafe for pedestrians and identify strategies to improve safety in those areas.

Policy Goal #6. Improve air quality through reduced vehicle emissions

21. State agencies, local transit authorities, school districts, and local municipalities can transition vehicle fleets to clean diesel technology.
22. The Ohio Department of Transportation and Ohio Department of Administrative Services can allow state agencies, local governments or other entities to procure electric vehicles (EV) or compressed natural gas (CNG) vehicles through state purchasing contracts. (This is an option is not currently available.)

23. School districts can modify transportation policies to reduce the number of children bussed and driven to school and/or the number of bus miles traveled, and can implement or expand Safe Routes to Schools and Walking School Bus programs.

24. Local municipalities can create or support clean fueling infrastructure such as electric vehicle charging stations and natural gas/hydrogen fueling stations.

25. Regional planning organizations and local municipalities can install air quality monitors to assess and report air pollution levels in infant mortality hot spot neighborhoods compared to other areas.

\[1\] For additional detail and examples of metrics being tracked in other states, see Legal Aid Society of Columbus 7/28/17 memo to the Ohio Department of Medicaid.