Community Needs Assessment and Recommendations to Address Social Determinants of Health in Selected Zip Codes in Dayton and Montgomery County

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Atlanta, GA

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EXECUTIVE SUMMARY

Residents of Montgomery County experience notably high rates of infant mortality and chronic disease, a concern burdened most heavily by the county’s black population. In response to this challenge, Public Health – Dayton & Montgomery County (PHDMC) contracted JSI Research & Training Institute, Inc. (JSI) to conduct a needs assessment, which ultimately served as the foundation for a community-directed plan structured around the outcomes of the assessment and the social determinants of health model. This community plan aims to improve the documented health disparities in birth outcomes and chronic disease prevention within the following zip codes in Montgomery County, Ohio: 45402, 45405, 45406, 45414, 45415, 45416, 45417, and 45426.

JSI conducted an environmental scan of the existing literature, documents, and plans related to birth outcomes and chronic disease. JSI also collected over 1,000 data points on sociodemographic and health indicators from a focus group, key informant interviews with community leaders and county government officials, a community forum comprising three participatory activities, a root cause analysis, and a study assessing the relationship between public transportation and access to a health care facility.

The selected results of the secondary data analyses show marked disparities in birth outcomes and chronic disease among residents in nearly every zip code. These results also illustrate zip code variability, with black residents faring better in some zip codes than in others for certain indicators. However, it was found that black residents experience poorer birth outcomes across all zip codes, pointing to the strong influence of a less tangible force. The main findings are illustrated in the graphics below.

The qualitative data analyses show that Montgomery County residents and community leaders are concerned with:

- Housing affordability and poor structural conditions
- The need to improve RTA bus frequency and connect routes to specific areas of service such as health care
- Crime in their neighborhoods
- Food hardship
- Quality of interactions and communication with their providers
- Workplace accommodations for breastfeeding mothers
- Experienced and ongoing racism
- Mental health problems in the community and limited access to mental health service

The report also considers two major events that occurred after the completion of the data collection—the closing of a major grocery store in West Dayton and most significantly, the closure of Good Samaritan Hospital.

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1 More recent data on birth outcomes (2014–2016) became available to the authors after the report was finalized. Although birth outcome changes occurred, the overall disparities ratio between black and white residents remains the same. Thus, the conclusions and recommendations remain the same.
A resource scan showed numerous opportunities available at the federal, state, and county levels to address both maternal and infant health and chronic disease disparities. Some of the notable resources include progesterone therapy, CenteringPregnancy®, state-of-the-art health care facilities, and hundreds of nonprofit organizations whose missions align with PHDMC’s aim to reduce health disparities.

**MONTGOMERY COUNTY BIRTH OUTCOMES**

All Montgomery County residents do not have equal opportunity for positive birth outcomes

These negative birth outcomes often disproportionately impact Black / AA minority groups

There are several possible contributing factors to these disparities in negative birth outcomes

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**Chronic Disease (Montgomery County)**

<table>
<thead>
<tr>
<th>Chronic Disease</th>
<th>Overall</th>
<th>White</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease death rate per 100,000</td>
<td>188.1</td>
<td>178.7</td>
<td>235.8</td>
</tr>
<tr>
<td>Stroke deaths rate per 100,000</td>
<td>43.8</td>
<td>41.1</td>
<td>55.5</td>
</tr>
<tr>
<td>Diabetes deaths rate per 100,000</td>
<td>26.2</td>
<td>21.2</td>
<td>45.1</td>
</tr>
<tr>
<td>Cancer deaths rate per 100,000</td>
<td>176.4</td>
<td>174.2</td>
<td>192.4</td>
</tr>
<tr>
<td>Overweight or obese (%) adults</td>
<td>67.1</td>
<td>67.8</td>
<td>71.7</td>
</tr>
<tr>
<td>High Blood Pressure (%) adults</td>
<td>39.2</td>
<td>38.9</td>
<td>45.9</td>
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</table>

**Other Social Determinants of Health (Montgomery County)**

<table>
<thead>
<tr>
<th>Social Determinant</th>
<th>Overall</th>
<th>White</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age at death (years)</td>
<td>72.6</td>
<td>74.0</td>
<td>67.2</td>
</tr>
<tr>
<td>Reported fair or poor health (%) adults</td>
<td>19.3</td>
<td>19.4</td>
<td>22.6</td>
</tr>
<tr>
<td>No health care coverage (%) adults</td>
<td>10.7</td>
<td>10.1</td>
<td>11.3</td>
</tr>
<tr>
<td>Living below poverty line (%) adults</td>
<td>18.6</td>
<td>13.6</td>
<td>34.6</td>
</tr>
<tr>
<td>High school graduate or higher (% 25+ years)</td>
<td>89.2</td>
<td>90.3</td>
<td>85.3</td>
</tr>
<tr>
<td>Homicide deaths rate per 100,000</td>
<td>8.7</td>
<td>3.2</td>
<td>27.0</td>
</tr>
<tr>
<td>Current smokers (%) adults</td>
<td>20.6</td>
<td>21.1</td>
<td>23.0</td>
</tr>
<tr>
<td>Physically active (%) adults</td>
<td>73.4</td>
<td>75.0</td>
<td>62.1</td>
</tr>
</tbody>
</table>

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2. Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS), 2013-2015
3. American Community Survey, 2015
This report concludes that:

1. Black people experience more psychosocial and structural inequalities and inequities than their white counterparts.
2. There is distinctive zip code variability.
3. Inequalities exist in the midst of resources and opportunities.
4. Fundamental changes in the way Montgomery County resources are mobilized to promote health and wellbeing are required, including the suggestion that within the frame of collective impact, county leaders should 1) incorporate health equity in all current and future policies and 2) amplify the voice of those most affected by these health inequalities—community residents.

The report provides recommendations organized around one core goal and three main objectives.

**Goal:** To reduce infant mortality rate and improve chronic disease outcomes among Montgomery County residents by incorporating health equity in all policies, programs, and practices that affect where people live, nurture, work, play, and age.

- **Objective 1:** To establish a shared understanding of the health implications of policy and programmatic decisions affecting the built environment in Montgomery County.
- **Objective 2:** To develop an inclusionary community governance body that can identify and prioritize socioeconomic, health, and structural needs, and identify, develop, or modify the necessary resources to address them.
- **Objective 3:** To implement a place-based initiative (see Appendix 4 for a description along with three selected examples)
- **Objective 4:** To develop a sustainability plan to ensure the long-term survival of the above referenced health equity initiatives.
INTRODUCTION

Although it is seen as one of the wealthiest and most progressive countries in the world, the United States (U.S.) performs surprisingly poorly in terms of maternal mortality, infant mortality, and chronic disease. The U.S. is currently the most dangerous developed country for infants and pregnant women to live in, maintaining a devastatingly high infant mortality rate and the highest maternal mortality rate (26.4) among all developed countries. Over the past 14 years, the maternal mortality rate in the U.S. increased while other countries witnessed decreases. Similarly, the U.S.’ infant mortality rate falls below that of most developed nations—a particularly surprising reality given the cost of health care and apparent availability of medical resources in this country. Lastly, the U.S. continues to fall behind numerous other developed countries in terms of chronic disease prevention and management, which stands in stark contrast to the fact that the U.S. is the top spender on health care costs in the world.

While maternal mortality in the U.S. spans race, ethnicity, educational attainment, and income levels, certain populations, including black women, have higher rates of maternal mortality. Black mothers, for example, die at three to four times the rate of white mothers. Put another way, a black mother is 243% more likely to die from childbirth, or pregnancy-related complications, than a white mother. The disparity in maternal mortality between white and black women is a central cause of the country’s staggeringly high maternal mortality rate. Furthermore, factors that are thought to protect against maternal mortality—such as advanced educational attainment and higher incomes—do not seem to do so for black women, underscoring an immediate need to identify, develop, and implement alternative and effective practices to stem this preventable trend.

Current research points to a number of systemic concerns related to social determinants of health that perpetuate these disparities, including limited access to safe neighborhoods and nourishing foods, poor housing, unreliable transportation, crime, and working conditions. As detailed in the report, various structural and environmental conditions overlap with and foster poor behavioral health. This leads to a tangled, multi-level, and bidirectional relationship between personal and community health, exemplified through the burden of disease most frequently shouldered by black people.

Almost all of these realities reflect the deeper undercurrent of racism that infects almost every social system in the U.S., manifesting in infrastructural and social determinants of health disparities, all of which strongly influence the livelihood and longevity of black people. On a very personal level, for example, these disparities play out during basic interactions between patient and provider. Several surveys targeting white physicians have demonstrated racial biases that exist even in the medical field, with white physicians admitting to harboring biases against black patients. These attitudes and practices prevent the provision of necessary care. Awareness and experience of these biases, and a slew of others,

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feeds into the chronic stress felt by most black women, harming their personal health and if they become pregnant, potentially harming their baby.  

Research has recently begun to catch up to black women’s realities by recognizing that black women experience daily racism and sexism, referred to as “double jeopardy,” that contributes to an ever-growing pool of stress. Simultaneously, ongoing research continues to reveal the long-term effects that this type of unrelenting chronic stress has on personal health. It leads to the disruption of a person’s cardiovascular, immune, metabolic, and hormonal systems. After years of accumulated stress, a person’s cells begin to age more rapidly than they would without the stress, increasing risk of disease onset and early death. Externally experienced stress becomes internalized, affecting a person’s biology at a cellular level and increasing the possibility of a high-risk pregnancy and delivery. When a pregnant woman experiences this type of chronic stress, her cortisol levels increase and can preemptively induce labor or cause systemic inflammation that reduces blood flow to the placenta and stunts fetal development. 

Additionally, black women tend to have higher rates of certain chronic diseases, including diabetes, hypertension, asthma, and obesity, all of which increase the possibility of experiencing a high-risk pregnancy. Higher rates of chronic disease endanger the lives of black women, regardless of their pregnancy status, and represent preventable and treatable conditions that frequently exist as visible and measurable consequences of race-based disparities tied to certain social determinants of health.

Because of the interconnectedness of so many of these dysfunctional systems, such disparities affecting black mothers mean that these adverse outcomes are absorbed by their infants. This is illustrated by the marked differences in infant mortality rates between white and black babies in communities around the country, including the state of Ohio.

According to a report released by Ohio’s Department of Medicaid in 2016, the infant mortality rate among the state’s black residents has been on the rise since 2012, increasing from 13.9 (per 1,000 live births) to 15.2 over the last four years. While the infant mortality rate for white residents also demonstrated a slight increase from 2014–2016, from 5.3 to 5.8, the disparity remains undeniable. This is further demonstrated by the fact that black parents are three times more likely to lose an infant within his or her first year of life compared to white parents. Due to the committed and focused work of numerous agencies and organizations within Montgomery County, the overall infant mortality rates for black and white residents in 2016 was lower than Ohio’s. However, the racial disparities continue to exist at

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similarly staggering numbers, with an infant mortality rate hovering around 12 for blacks and around 5 for whites.\textsuperscript{11}

In a 2005 article for the Lancet, Michael Marmot, Chair of the World Health Organization’s Commission on Social Determinants of Health, wrote, “If the major determinants of health are social, so must be the remedies.” In this report, we apply Marmot’s approach to the most vulnerable population in Montgomery County: black residents, particularly black mothers and infants. All the data included in this report focus on current and identified birth outcome and chronic disease prevention disparities, specific to black communities within Montgomery County, in order to promote further effective action. Guided by the social determinants of health theoretical framework, this report documents sociodemographic characteristics and indicators of where black residents of Montgomery County live, work, and play, and how selected social determinants of health affect their life context and circumstances.

As one of the final deliverables in the Montgomery County Social Determinants of Health project, JSI presents this report to Public Health - Dayton & Montgomery County (PHDMC), describing the purpose, completed work, and recommended next steps specific to addressing the social determinants of health related to birth outcomes and chronic disease prevention across the following zip codes in Montgomery County, Ohio: 45402, 45405, 45406, 45414, 45415, 45416, 45417, and 45426. The data and recommendations included in this report aim to provide insight into community-level points of entry to optimize resource input and increase targeted, positive outcomes.

Beginning with an initial health assessment conducted in 2010, PHDMC recognized staggering health disparities within predominantly black communities in Montgomery County, Ohio, with black residents shouldering a higher disease and premature mortality burden than their white counterparts. This reality, which reflects current nationwide disparities, has not positively changed since Montgomery County’s 2010 health assessment.

These noted disparities—coupled with community-level research and the lack of advancement—emphasized the need to target the social determinants of health, including education, income, physical safety, food availability, and more, as related to birth outcomes and chronic disease prevention within the aforementioned communities. In order to effectively address these concerns, PHDMC, with the help of 35 different community organizations, developed the 2016–2019 Montgomery County Community Health Improvement Plan (CHIP), which contains a number of targeted goals and objectives within each of the three priority areas—birth outcomes, chronic disease prevention, and behavioral health. Birth outcomes and chronic disease were also listed as two of the 15 priorities identified in the 2014 Montgomery County Strategic Plan, underscoring the immediacy of further targeting and addressing these two areas of need.

The goal of this project was twofold: identify the individual, community, and systems-level inputs that contribute to the growing disparities throughout Montgomery County and develop recommendations, based on stakeholder feedback, to address or minimize the identified factors and gaps.

In response to this need and request for assistance, JSI developed and implemented a three-phase approach, which has been detailed in Table 1 below, and that consisted of:

1. Phase I: Research and Assessment
2. Phase II: Community Engagement
3. Phase III: Plan Development

Through extensive experience, JSI has found that this type of phased approach, that centers those most affected by health inequities, results in a community health plan that is effective and sustainable. The three phases are sequential and build on each other (Table 1). For instance, the information collected during Phase 1 informed Phase 2 activities and the results from Phase 1 and Phase 2 activities led to the development of a health plan that is effective, sustainable, and community-owned. JSI’s methods, results, discussions, and recommendations for each objective are fully described in the sections that follow.

Table 1: Phased approach used for plan development

<table>
<thead>
<tr>
<th>PHASE 1: RESEARCH AND ASSESSMENT (CORE ACTIVITIES)</th>
<th>PHASE 2: COMMUNITY ENGAGEMENT (INTERMEDIATE OUTPUTS)</th>
<th>PHASE 3: PLAN DEVELOPMENT (OUTCOMES)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1.</strong> Assess the current status of the social determinants of health in the following target zip codes: 45402, 45405, 45406, 45414, 45415, 45416, 45417, 45426</td>
<td><strong>Objective 3.</strong> Identify barriers to and opportunities for addressing social determinants of health</td>
<td><strong>Objective 6.</strong> Develop a plan to address social determinants of health and reduce health disparities in the identified target zip codes within Montgomery County, Ohio</td>
</tr>
<tr>
<td>1a. Review completed community assessments and focus group summaries (i.e., Community Health Improvement Plans and Montgomery County Needs Assessment)</td>
<td><strong>Objective 4.</strong> Identify community members/organizations needed to form a collaborative partnership to address inequities in social determinants of health</td>
<td>The plan includes: Recommended system-level partners and community leader participants</td>
</tr>
<tr>
<td>1b. Perform asset mapping of the targeted areas</td>
<td><strong>Objective 5.</strong> Identify and prioritize the social determinants of health that will have the greatest impact on health disparities and health inequities</td>
<td>Proposed policy changes and evidence-based interventions</td>
</tr>
<tr>
<td>1c. Determine community perceptions of needs, resources, and challenges through a combination of focus groups, town halls, and/or interviews with residents, community leaders, and community organizations</td>
<td></td>
<td>A health impact assessment on recommended policies and interventions</td>
</tr>
<tr>
<td><strong>Objective 2.</strong> Identify current policies and interventions within Montgomery County that address inequities in the social determinants of health</td>
<td></td>
<td>Estimated costs and potential funding sources</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Objective 7.</strong> Identify and provide a rationale for potential neighborhoods/communities to be selected for a place-based initiative to address social determinants of health</td>
</tr>
</tbody>
</table>
Using the 1991 seminal work of Dahlgren and Whitehead as a structure guide, JSI implemented a community-driven plan that considered the multi-level inputs affecting chronic health and maternal and child health outcomes (Figure 1).

**Figure 1: Theoretical framework guiding plan development, Dahlgren and Whitehead, 1991**

This framework is holistic and illustrates the interconnected life contexts; recognizes different levels of intervention (i.e., individual, community, and societal); and lends itself to the identification of upstream factors and interventions. All of these components affect measurable health outcomes and are affected by structural and social determinants of health.

- **Individual lifestyle and behaviors:** These include behavioral practices and lifestyle choices such as smoking, alcohol, and other drug misuse, poor diet, or lack of physical activity.
- **Social support and community involvement:** Different levels of support from families and friends and community involvement have been identified as major factors that affect the health of individuals. JSI will collect and analyze data on these factors to identify points of intervention and inform programmatic and policy recommendations.
- **Living and working conditions:** These are mostly structural factors and include access to opportunities such as education, employment, health, welfare services, and housing, as well as structural practices such as access to essential goods like food, clothing, and fuel.
- **General socio-economic, cultural, and environmental conditions:** These are the macro-level, often upstream factors that reside in society, culture, the economy, and the environment affecting where people live, their income, accessibility to food and community resources, transportation, and employment.

In addition to the Dahlgren and Whitehead framework, JSI’s approach to social determinants of health focused on health inequities identified through various methods, including archival data collection, key informant interviews, a focus group, community forums, and root cause analysis. JSI understands that addressing the social determinants is not necessarily sufficient to eliminate the drivers of health disparities given the influence of other harder-to control inputs such as the economy, politics, and more. With that said, speaking to and confronting the social determinants of health serves to shed light on changeable behaviors, environments, and systems that perpetuate health disparities. With these intentions and the need for community-driven change in mind, JSI’s work focuses on bringing change to the following three areas:
1. **Community-focused practice**  
   Changes community norms, attitudes, awareness, practices, and behaviors. They are directed toward entire populations within the community or occasionally toward target groups within those populations. Community-focused practice is measured in terms of what proportion of the population actually changes.

2. **Systems-focused practice**  
   Changes organizations, policies, laws, and power structures. The focus is not directly on individuals and communities but on the systems, that impact health. Changing systems is often a more effective and long-lasting way to impact population health than requiring change from every single individual in a community.

3. **Individual-focused practice**  
   Changes knowledge, attitudes, beliefs, practices, and behaviors of individuals. This practice level is directed at individuals—alone or as part of a family, class, or group. Individuals receive services because they are identified as belonging to a population-at-risk.

This report aims to outline the foundation of the project and how these findings might inform future work. The remaining sections of this report include the various methodologies used for data collection; the results of the data collection; discussion around the meaning and implications of the results; conclusions; and final recommendations presented in the form of a community plan.

Given the heft of the report and the value of all included content, please note that qualitative and quantitative data collection methods and findings occupy about half of the paper while identified resources, partnerships, and recommended next steps fill the second half. Although abundant, the in-depth data presentations and discussions provide a uniform backbone to the eventual identified opportunities and suggestions. The table below outlines the general sections for quick reference.

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
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<tbody>
<tr>
<td>Quantitative Analysis: Methods</td>
<td>14</td>
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<tr>
<td>Qualitative Analysis: Methods</td>
<td>16</td>
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<tr>
<td>Quantitative Analysis: Results</td>
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<td>Qualitative Analysis: Results</td>
<td>38</td>
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<tr>
<td>Identified Resources</td>
<td>46</td>
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<td>Partnerships</td>
<td>56</td>
</tr>
<tr>
<td>Recommendations</td>
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</table>
APPROACH AND METHODS

Overview of Approach

JSI used the initial Request for Proposal (RFP) PC021701 and the submitted response as a guide to drive data collection efforts. In so doing, JSI collected quantitative, qualitative, and archival data (literature reviews, secondary data, and internet searches). In this section, we describe the main features of our data collection and knowledge development methods.

The plan was developed in order to:

1. Summarize demographic and socioeconomic characteristics, social determinants of health, and health standings associated with birth outcomes and chronic disease as well as other health-related priorities for Montgomery County and the eight zip codes in the county reporting high rates of infant mortality.
2. Identify unmet health needs, service gaps, and barriers to access specifically related to infant mortality, pregnancy, and premature birth through the collection and analysis of qualitative and quantitative secondary data and review of literature.
3. Further explore these unmet needs, service gaps, and barriers to access through primary data collection methods including key informant interviews and community forums aimed at engaging residents, service providers, and key stakeholders.
4. Present primary and secondary data findings (both quantitative and qualitative) in a comprehensive format that is engaging, applicable, visually appealing, and informative.
5. Develop and present an effective plan of action that identifies key priorities and evidence-based interventions addressing infant mortality and chronic disease disparities in Montgomery County and key zip codes of interest.

Compilation of Secondary Data

The collection of secondary data was designed to summarize and explain community demographic and socioeconomic characteristics, social determinants, and health standings associated with pregnancy and birth outcomes as well as chronic disease disparities. This secondary data was used to inform the team’s primary data collection procedures, materials, and measurement tools and generates an understanding of the kind of data currently available for the communities of interest. Following primary data collection, a synthesis of findings with secondary data was conducted to assess unmet needs, service gaps, and barriers to access. These comparisons informed the suggested strategies and interventions outlined later in this report.

A broad range of quantitative data was gathered to characterize demographic and socioeconomic factors for residents across eight zip codes (communities) of interest and in Montgomery County overall. All data from this collection effort was compiled from data sources provided by the Ohio Department of Health (ODH) or publicly available reports and sources including but not limited to:
1. 2015 and 2016 American Community Survey (ACS)
2. 2016 Montgomery County Community Health Improvement Plan (CHIP)
3. Montgomery County Environmental Public Health Tracking Portal (EPHTP)
4. 2014 Montgomery County Community Health Assessment (CHA)
5. 2010 US Census
6. 2015 Behavioral Risk Factor Surveillance System (BRFSS)
7. 2010–2014 Child Health Insurance Program (CHIP)
8. Uniform Data System (UDS) Mapper

Efforts were made to collect quantitative data addressing different levels of health and health care, education, economic stability, neighborhood and built environment, and social and community context outlined in the Healthy People 2020 Social Determinants of Health Framework. Quantitative data related to health and risk factors such as leading causes of morbidity and mortality, negative birth outcomes, and barriers related to health care and social determinants of health, were of particular interest.

Assessment of community characteristics, health status, risk factors, and birth outcomes

Secondary data were gathered from a multitude of sources and compiled in a single database in order to later compare and analyze all findings. Data were collected for Montgomery County as well as the following zip codes (when available): 45402, 45405, 45406, 45414, 45415, 45416, 45417, and 45426. In an effort to gain a more complete understanding of each community and make comparisons across different population groups, data were categorized by demographic characteristics such as race, gender, and education whenever possible.

All sources were reviewed, documented, and compiled in the same database and organized by substantive topic of interest. These topics included community characteristics (such as demographic, poverty, income, employment, education, and housing), birth outcomes (such as infant mortality, preterm birth, low birthweight, prenatal care, and smoking during pregnancy), and health risk factors and chronic disease (such as homicide, physical fitness, substance use, obesity, high blood pressure, cancer, heart disease, and respiratory disease).

Analysis of Secondary Data

Following the collection of all secondary data points, key indicators of interest concerning infant mortality and birth outcomes, chronic disease, and social determinants of health were selected to be further analyzed.
For infant mortality and birth outcomes, the following indicators were selected for additional analysis:\(^{12}\):

1. 2011–2013 Infant mortality rate per 1,000 live births (overall, white, and black)
2. 2011–2013 Preterm birth (% overall, % white, % black)
3. 2011–2013 Low birthweight (% overall, % white, % black)
4. 2011–2013 Late or no prenatal care (% overall, % white, % black)
5. 2011–2013 Smoking during pregnancy (% overall, % white, % black)

For chronic disease, the following indicators were selected for additional analysis:

1. 2011–2012 Heart disease deaths per 100,000
2. 2011–2012 Chronic lower respiratory disease deaths per 100,000
3. 2011–2012 Diabetes deaths per 100,000
4. 2011–2015 Unintentional heroin overdose deaths per 100,000
5. 2011–2012 Suicide rate per 100,000
6. 2011–2012 Homicide rate per 100,000.

For social determinants of health, the following indicators were selected for additional analysis:

1. 2010–2012 Life expectancy at birth
2. 2015 Percent of population living below the poverty line (% male, % female, % white, % black)
3. 2010 Employment rates (% employed, % unemployed)

These indicators were selected for additional analysis based on scientific relevance to their respective topic and completeness of secondary data at the zip code level. All zip code level data for indicators related to health outcomes and social determinants were compared to county estimates and classified into one of eight categories:

- Fares 25% worse than county
- Fares 10% worse than county
- Fares 10% better than county
- Fares 25% better than county
- Fares 25% lower than county
- Fares 10% lower than county
- Fares 10% higher than county
- Fares 25% higher than county

\(^{12}\) Data from 2014–2016 became available after this analysis was completed and are included in this report as an addendum.
The results of this analysis were used to inform the development of the final truth statements used during the community forums and root cause analysis conducted during the primary data collection phase (described below). Following primary data collection, relevant secondary data was summarized on data dashboards to provide visual representations of community characteristics and birth outcomes. The data was also used to inform and strengthen the development of suggested strategies and interventions.

**Literature Review**

In addition to the secondary data collection outlined above, an extensive literature review of Montgomery County infant mortality, birth outcomes, health standings, and other social determinants was conducted. Team members reviewed and discussed a wide range of literary sources, including recent news publications for Ohio, Montgomery County, and the city of Dayton, health department publications, and other government reports. This literature review provided important and supplemental context that informed the development of primary data collection procedures and the intervention strategies outlined in this report.

**Qualitative Data**

The qualitative data collection process consisted of six community oriented activities in order to develop a more accurate and personal perspective on residents’ experiences around birth outcomes, chronic disease, and certain factors influencing social determinants of health. These six activities, all of which are further detailed below, included:

1. Truth testing
2. Journey mapping
3. Identifying pain points and opportunities
4. Root cause analysis
5. Focus groups
6. Key informant interviews

Truth testing, journey mapping, and identifying pain points and opportunities all took place during community forums, where participants were asked to offer their input and experiences in order to provide context for the previously collected quantitative data. All community forum activities focused on personalized, possible residential experiences as a way to more effectively highlight gaps, barriers, and opportunities.

Following the community forums, JSI facilitated a root cause analysis with a different group of 15 community stakeholders. Implementation of the root cause analysis permitted an opportunity to identify the contributing factors and underlying causes of a problem, event, or health issue, such as infant mortality with direct stakeholder input. Instead of focusing on treating the downstream symptoms and outcomes, the root cause analysis focuses on targeting preventable, upstream factors and contributors.

Focus groups followed a format similar to that used for journey mapping, wherein participants answered questions and dialogued about an individual persona named Katelin and her particular life circumstances.
Lastly, JSI facilitated seven key informant interviews with identified community stakeholders with the goal of garnering informed insight related to individual lifestyle and behavior, social support and community involvement, living and working conditions, cultural and environmental conditions, and local policies and laws affecting Montgomery County birth outcomes and chronic disease.

Qualitative data collection methods ultimately personalized the collected information, ensuring community-based and contextual recommendations.

Overview of Community Forum Activities

The community forums were one of the two engagement strategies designed to get input from residents. The three-hour forums were structured to promote maximum interactivity and provide participants with opportunities to share their insights and experience through dialogue and facilitated activities. The approaches used in the forums were informed by human-centered design.

JSI conducted three community forums from October 17–19. The forums took place in the evenings at the following locations which were selected in collaboration with Public Health – Dayton & Montgomery County:

- Community Forum 1: The Marketplace Movement
- Community Forum 2: Five Rivers Health Center
- Community Forum 3: Wesley Community Center

In total, 36 people attended the three forums to provide input on infant mortality and chronic disease to PHDMC. As an incentive, all the participants were given a $40 gift card.

TRUTH TESTING

Truth testing created an opportunity for community residents to provide context to quantitative data by gauging participants’ awareness of their community’s health status and the possible reasons behind the morbidity or mortality rates. While the garnered data doesn’t necessarily tell the full story from a resident’s point of view nor can it fully explain noted inequities, it adds essential perspectives for progress.

Participants at each forum were put into groups of 4–8 and had discussions about the data points related to infant mortality, chronic disease, and social determinants of health. Each of those data points were turned into a plain language “truth statement.” The groups categorized the truth statements as either “agree,” “disagree,” or “don’t know.” A trained note taker recorded the group consensus and the rationale and discussion for each data point.

One limitation of this approach however, was data literacy. While the statements were in plain language, we did have to clarify some of them. The following statement, in particular, was misconstrued: “In my community, babies born these days will have a shorter life expectancy (will die earlier) than the overall Montgomery County average life expectancy.”
The participants' discussions about this statement centered on teen gun violence and unintentional injuries instead of mortality from all causes.

**JOURNEY MAPPING**

To best understand how PHDMC can improve the distribution and provision of health services, we must first understand what the current journey of seeking health care looks like for people who live in the target zip codes represented at the forum.

Forum participants were divided into small groups of equal size. With the guidance of a facilitator, each small group mapped the journey of seeking health care for a pre-defined persona who represented "a specific person but is not a real individual; rather, it is synthesized from observations of many people. Each persona represents a significant portion of people in the real world and enables the designer to focus on a manageable and memorable cast of characters, instead of focusing on thousands of individuals." The journey maps provided detailed insight into physical experience and feelings from the perspective of an illustrative community member.

The personas represented the typical Dayton and Montgomery County residents of the target zip codes who may seek care through the health system. Each persona had a name, a story, their own needs, and challenges faced when addressing birth outcomes and chronic disease prevention. By attaching a personal narrative to each persona, the activity created a space for empathy between the small group participants and the illustrative persona.

The facilitator asked each small group to put themselves in the shoes of one of the personas available to them (Appendix 2). They mapped the health seeking experience of a different persona to ensure the inclusion of diverse care journeys. The journey maps covered both functional and structural parts, for example where did s/he go to seek care, how did the process make him/her feel, and what was the quality of the experience.

**IDENTIFYING PAIN POINTS AND OPPORTUNITIES**

Once the different journey maps were completed, participants were equipped with sticky notes and markers to add pain points and opportunities in the health care journey that was previously mapped by their group. Facilitators stayed with their assigned group to answer questions and note additional ideas.

The pain points included factors that felt unpleasant or inconvenient or were problematic for the persona, like needing to find childcare in order to attend a health care appointment or having transportation access issues. The opportunities were areas that participants had specific recommendations for actions that could be taken to improve the persona's experience, such as an online waiting room clock showing how long the wait is at the local urgent care clinics before someone goes to seek care.

This activity expanded upon the journey maps, creating a dynamic, thoughtful, and realistic illustration of a resident's experience in trying to receive needed care.
ROOT CAUSE ANALYSIS

A root cause analysis is a process used to identify the contributing factors and underlying causes of a problem, event, or health issue, such as infant mortality. Addressing the root causes of an issue is more effective and efficient than addressing the symptoms of a problem. A root cause analysis helps to identify how and why something happened, with the goal of preventing it from recurring. By conducting a root cause analysis, stakeholders, including non-traditional ones, can begin to understand the complexity of infant mortality in their community. A root cause analysis, coupled with an action planning process, can be used to create a shared understanding of infant mortality and its influences among stakeholders within a particular community. It can spur innovative ideas and strategies, guided by best practices, for addressing the factors and underlying causes that impact infant mortality in that community.

The benefits of a root cause analysis include:

- Identifying and categorizing the underlying factors that impact infant mortality in a community
- Providing direction to a planning process for developing and prioritizing strategies to address the causes and factors that impact infant mortality
- Revealing potential problems related to the strategies suggested for addressing the causes of infant mortality

JSI and the Montgomery County Health Department felt that the RCA process would contribute to the achievement of the Montgomery County Community Health Improvement Plan (CHIP) goal and objective for birth outcomes that is stated below. The intent was not to duplicate but complement and leverage the 2016 CHIP strategies to maximize the impact on infant mortality disparities.

Goal 1.3: Reduce infant mortality and racial disparity in zip codes 45402, 45405, 45406, 45414, 45415, 45416, 45417, and 45426.

Objective 1.3.4: Implement a long-term plan/strategy to address social determinants of health in a majority of the Black community (racial disparity) by December 31, 2019.

Fifteen diverse community stakeholders were invited to participate in the RCA process. JSI prepared important background data regarding infant mortality and social determinants of health in Dayton and Montgomery County—at the zip code level—that was sent to invitees for review before the RCA and as stimulus for the discussion.
The RCA was held on Wednesday, October 18th from 9–1pm at 3123 Research Blvd., Suite 2225 Kettering, OH 45420. The 15 attendees were:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ORGANIZATION</th>
<th>ROLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matt Dunn</td>
<td>Montgomery County</td>
<td>Community Programming Manager</td>
</tr>
<tr>
<td>Shanae Hesperth</td>
<td>CareSource</td>
<td>Certified ACC Life Coach</td>
</tr>
<tr>
<td>Shanise Wade</td>
<td>Community Health Centers of Greater Dayton</td>
<td>Community Outreach Coordinator</td>
</tr>
<tr>
<td>Onope Carter Daboiku</td>
<td>Association for the Study of African-American Life and History</td>
<td>Wordsmith and Storyteller</td>
</tr>
<tr>
<td>Greer Standford Randle</td>
<td>ASLAI, INC (Association for the Study of African American Life and History) and DAEC (Dayton Africana Elders Council)</td>
<td>Vice President &amp; Recruitment Manager</td>
</tr>
<tr>
<td>Richard Wright</td>
<td>Parity, Inc.</td>
<td>Executive Director</td>
</tr>
<tr>
<td>Ashley Seybold</td>
<td>PHDMC</td>
<td>Epidemiologist</td>
</tr>
<tr>
<td>James Hoffer</td>
<td>The Foodbank Inc.</td>
<td>Garden Manager</td>
</tr>
<tr>
<td>Jared Grandy</td>
<td>City of Dayton HRC (Human Relations Council)</td>
<td>Community Police Relations Coordinator</td>
</tr>
<tr>
<td>Erica Fields</td>
<td>City of Dayton HRC (Human Relations Council)</td>
<td>Administrator, Community/Public Relations</td>
</tr>
<tr>
<td>Robbie Brandon</td>
<td>Sunlight Village, Inc.</td>
<td>Founder of Sunlight Village, Inc.</td>
</tr>
<tr>
<td>Ella Jordan Isaac</td>
<td>Trotwood-Madison County Schools</td>
<td>Parent Engagement Specialist</td>
</tr>
<tr>
<td>Bill Dudley</td>
<td>MVOC (Miami Valley Organizing Collaborative)</td>
<td>Lead Organizer for MVOC</td>
</tr>
</tbody>
</table>

A trained JSI facilitator guided the groups through identifying root causes using a series of “why” questions. The typical RCA is a day long process and ends with a preliminary action plan. The Montgomery County RCA was only four hours long which limited the time for creating a complete preliminary action plan.

To begin the session, the facilitator discussed the definitions of social determinants of health. The purpose
of this was to encourage the participants to think broadly about root causes of infant mortality in order to identify the contributing factors at the individual, interpersonal, community, and societal levels. To aid this discussion, the facilitator reviewed the Social-Ecological Model (SEM), a theory-based framework for understanding the multifaceted and interactive effects of personal and environmental factors that determine behaviors.\(^\text{13}\)

All RCA attendees were asked to individually reflect on the root causes that they felt were the most important drivers of infant mortality in the target community and elements from their work or personal experience that led them to note that. All the risk and protective factors from the group were placed on the Social-Ecological Model during the brainstorming process. They included risk and protective factors at each of the upper levels (i.e., interpersonal, community, and societal) of the SEM.

The group reviewed each factor that came up during the brainstorm session to ensure there was a shared understanding of the concepts. After the review of risk and protective factors, RCA participants were asked to identify leverage points i.e. determinants that are highly interconnected and that would create the most significant impact on infant mortality upon intervention and/or determinants where there is a significant will and synergy for intervention.

These “leverage points” suggest areas that will be more likely to have an impact on infant mortality and chronic disease.

The time allotted for the RCA only allowed a preliminary action plan to be drafted for one leverage point. All participants agreed that a sensible next step would be to complete a preliminary action plan for the second leverage point that was prioritized by the group. The group also agreed that additional meetings would be needed to create a much more detailed work plan.

**FOCUS GROUP**

JSI conducted one focus group with residents and stakeholders recruited during the Infant Mortality Conference. Of the 12 participants, 10 were African American, four were community leaders, and three were county or city officials. All the focus group participants signed a consent form and received a stipend (Appendix 1). The focus group moderator used questions listed in the guide (Appendix 1) to collect information, beliefs, and perceptions about how social determinants of health affect the day-to-day experiences of a specific persona. Similar to the journey mapping activity, JSI asked participants questions related to housing, food, health care, mental health, work, parenting, substance use, transportation, and crime as related to a young African American woman in Dayton named Katelin. Katelin is a 24-year-old who attended college for two years and the mother of a five-month-old baby named Sasha. Further descriptions about Katelin’s life were provided to participants as a way to establish a believable and relatable example. Some details included were that Katelin took an unpaid maternity leave from her job as a cashier supervisor at Kroger’s to care for her infant whose father is not currently involved. Katelin lives with her mother in an apartment and they both rely on public transportation and receive food assistance.

\(^{13}\) Colorectal Cancer Control Program (CRCCP), Social Ecological Model [https://www.cdc.gov/cancer/crccp/sem.htm](https://www.cdc.gov/cancer/crccp/sem.htm) Accessed: January 05, 2018
Established questions were used to generate narratives from participants so as to capture their views, opinions, observations, and experiences related to Katelin’s life circumstances in Dayton. All discussions were transcribed verbatim and eventually coded for analytical purposes.

**Key Informant Interviews**

JSI requested of a list of major stakeholders from PHDMC to participate in a key informant interview. JSI contacted the individuals included on the list below and invited them to participate in an interview that was centered around getting stakeholder input related to 1) individual lifestyle and behavior; 2) social support and community involvement; 3) living and working conditions; 4) cultural and environmental conditions; and 5) local policies and laws affecting Montgomery County birth outcomes and chronic disease. The specific questions asked during the interviews are included in Appendix 2.

JSI conducted seven interviews with PHDMC officials and community leaders. Some of the interviews took place in-person and others over the telephone. All the interviews were recorded, transcribed verbatim, and eventually coded for analysis. The process that was used for this has been described below.

**Qualitative Data Analysis**

The narrative transcripts of the focus group and the key informant interviews were analyzed using procedures informed by grounded theory methods.\(^{81, 82}\) To facilitate sorting and comparison of the data, coding was done using MAXQDA 12 — a qualitative research computer software.

Dr. Vega and three other members of his team coded the data. Analyses of the transcripts required multiple readings and coding iterations. The first level of analysis involved identifying all the themes emerging from the transcripts and developing a codebook through a series of recursive analyses.

The second level of analysis, axial coding, focused on sorting and classifying the constructs in order to formulate explanations to understand participants’ perceptions of and experiences related to the thematic areas of interest for this project.

Marked passages were identified by descriptive code words developed in the open and axial coding phases. Using MAXQDA 12, passages associated with a given code were extracted by the coding team, collected from narratives of each participant as a set, and compiled in a data dictionary. This strategy facilitated the interpretation of instances of a given code word by comparing and contrasting instances within and across groups (i.e., residents and stakeholders).
RESULTS

Secondary data analysis

In total, over 1,700 individual data points were collected for 190 variables across 8 zip codes and Montgomery County. The assessment captured quantitative data related to pregnancy and birth outcomes, demographic characterizations, employment rates, income statistics, education rates, health insurance coverage, housing characteristics, substance abuse prevalence, sexual health, causes of death, cancer prevalence, and other chronic disease prevalence. These data provided valuable background information and context that characterized each community of interest, allowed the JSI team to directly compare specific populations within each community, and gave insight into barriers to care, health inequities, and determinants of health.

Community characteristics

Demographic characteristics such as age, race/ethnicity, language, and health insurance coverage were gathered in order to understand each zip code’s unique community composition. Social, economic, and environmental factors such as income, employment, education, housing, and health risk factors/outcomes were also compiled for each community and Montgomery County overall. These data are summarized below.

DEMOGRAPHIC CHARACTERISTICS

Table 1.1 below summarizes key household-related indicators of interest for each of the eight zip codes and Montgomery County overall.

![Table 1.1: Demographic indicators comparing zip codes to county data](image)

Seven of the eight zip codes of interest had a noticeably higher proportion of Black/African Americans (AA) compared to the county average of 20.7%, while only one zip code had a lower proportion. Six out of eight zip codes had a larger proportion of black/AA residents than white residents (Figure 1.A).
The median age across all eight zip codes ranged from 37.2 years old to 45.8, while the median age across all of Montgomery County was 39.4 years. In every zip code of interest, there was a smaller proportion of foreign born residents compared to the overall county average of 4.9%, and a larger proportion of residents reporting that only English is spoken at home compared to the overall county average of 94.2%. Finally, in every zip code of interest, a smaller proportion of the population was uninsured compared to the county average of 10.0% (Table 1.2 and Figure 1.3). There were no obvious overall trends in public or private insurance coverage for the eight zip codes of interest compared to county coverage rates.

<table>
<thead>
<tr>
<th>Montgomery County</th>
<th>45402</th>
<th>45405</th>
<th>45406</th>
<th>45414</th>
<th>45415</th>
<th>45416</th>
<th>45417</th>
<th>45418</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health insurance coverage (% uninsured)</td>
<td>9.4%</td>
<td>9.1%</td>
<td>8.6%</td>
<td>8.4%</td>
<td>7.7%</td>
<td>7.0%</td>
<td>8.8%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Health insurance coverage (% medicare or other public)</td>
<td>39.7%</td>
<td>38.7%</td>
<td>33.6%</td>
<td>26.4%</td>
<td>21.4%</td>
<td>31.5%</td>
<td>40.0%</td>
<td>26.3%</td>
</tr>
<tr>
<td>Health insurance coverage (% medicaid or private)</td>
<td>51.0%</td>
<td>52.1%</td>
<td>57.7%</td>
<td>69.2%</td>
<td>72.9%</td>
<td>63.5%</td>
<td>51.2%</td>
<td>60.5%</td>
</tr>
</tbody>
</table>

**Table 1.2: Health Insurance access comparing zip codes to county data**

**Key:**
- **Rates 25% lower than county**
- **Rates 10% lower than county**
- **Within 10% of county**
- **Rates 10% higher than county**
- **Rates 25% higher than county**

*Note: In analyses where more than two standards are provided, order of standards correspond to zip code values.*

& 2010 American Community Survey. 2. 2010 American Community Survey.
POVERTY AND INCOME

Table 1.3 below summarizes key poverty and income related indicators of interest for each of the eight zip codes and Montgomery County overall. The median income in Montgomery County was higher than seven out of eight zip codes of interest, and was noticeably higher in six.

<table>
<thead>
<tr>
<th>Montgomery County</th>
<th>45402</th>
<th>45405</th>
<th>45406</th>
<th>45414</th>
<th>45415</th>
<th>45416</th>
<th>45417</th>
<th>45426</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income (median earnings in $)</td>
<td>$43,029</td>
<td>$38,100</td>
<td>$33,000</td>
<td>$27,000</td>
<td>$22,000</td>
<td>$17,000</td>
<td>$12,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>Before poverty line (% of population)</td>
<td>18.6</td>
<td>20.1</td>
<td>20.4</td>
<td>20.3</td>
<td>20.0</td>
<td>20.0</td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Before poverty line (% of population 18-64 years old)</td>
<td>17.9</td>
<td>19.0</td>
<td>20.3</td>
<td>18.4</td>
<td>18.8</td>
<td>20.0</td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Males below poverty line (% of males 18-64)</td>
<td>17.9</td>
<td>19.0</td>
<td>20.3</td>
<td>18.4</td>
<td>18.8</td>
<td>20.0</td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Females below poverty line (% of females 18-64)</td>
<td>19.9</td>
<td>20.0</td>
<td>20.3</td>
<td>18.4</td>
<td>18.8</td>
<td>20.0</td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td>White below poverty line (% of White 18-64)</td>
<td>13.6</td>
<td>14.0</td>
<td>14.0</td>
<td>14.0</td>
<td>14.0</td>
<td>14.0</td>
<td>14.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Black / AA below poverty line (% of Black / AA 18-64)</td>
<td>34.6</td>
<td>35.0</td>
<td>35.0</td>
<td>35.0</td>
<td>35.0</td>
<td>35.0</td>
<td>35.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Hispanic below poverty line (% of Hispanic 18-64)</td>
<td>63.3</td>
<td>63.3</td>
<td>63.3</td>
<td>63.3</td>
<td>63.3</td>
<td>63.3</td>
<td>63.3</td>
<td>63.3</td>
</tr>
</tbody>
</table>

A larger proportion of residents reported living below the poverty line in seven out of eight zip codes compared to the Montgomery County average. This was also true for segmented populations such as all adults, male adults, and female adults (Figure 1.C). Further, in six out of eight zip codes, a larger proportion of white adults reported living below the poverty line compared to county averages. In four out
of eight zip codes, a larger proportion of black/AA adults reported living below the poverty line compared to county averages. Zip code 45415 had a noticeably higher median income and lower rates of residents living below the poverty line compared to Montgomery County and all other zip codes for the following population segments: overall population, adults, male adults, female adults, white adults, and black/AA adults.

Figure 1.C: Population (18-64) below poverty line by race and location

2015 American Community Survey

EDUCATION AND EMPLOYMENT

Table 1.4 below summarizes key education and employment related indicators of interest for each of the eight zip codes and Montgomery County overall.

Table 1.4: Education indicators comparing zip codes to county data

<table>
<thead>
<tr>
<th>Less than high school diploma (% of population over 25)</th>
<th>45402</th>
<th>45405</th>
<th>45406</th>
<th>45414</th>
<th>45415</th>
<th>45416</th>
<th>45417</th>
<th>45426</th>
<th>Montgomery County</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.6</td>
<td>17.0</td>
<td>13.9</td>
<td>12.0</td>
<td>8.9</td>
<td>19.4</td>
<td>20.4</td>
<td>12.5</td>
<td>10.3</td>
<td>17.8</td>
</tr>
<tr>
<td>High school graduate (% of population over 25)</td>
<td>29.7</td>
<td>30.1</td>
<td>32.4</td>
<td>32.2</td>
<td>27.8</td>
<td>34.9</td>
<td>33.4</td>
<td>33.0</td>
<td>27.8</td>
</tr>
<tr>
<td>More than high school diploma (% of population over 25)</td>
<td>46.5</td>
<td>53.7</td>
<td>53.7</td>
<td>54.9</td>
<td>63.4</td>
<td>45.6</td>
<td>46.1</td>
<td>54.5</td>
<td>61.9</td>
</tr>
<tr>
<td>High school graduate or higher (% of population over 25)</td>
<td>78.1</td>
<td>82.8</td>
<td>87.1</td>
<td>86.3</td>
<td>92.3</td>
<td>77.7</td>
<td>78.4</td>
<td>88.7</td>
<td>89.2</td>
</tr>
<tr>
<td>Male high school graduate+ (% of male over 25)</td>
<td>73.9</td>
<td>80.8</td>
<td>86.3</td>
<td>84.9</td>
<td>93.0</td>
<td>74.7</td>
<td>77.0</td>
<td>80.4</td>
<td>88.9</td>
</tr>
<tr>
<td>Female high school graduate+ (% of female over 25)</td>
<td>82.0</td>
<td>84.7</td>
<td>87.7</td>
<td>87.9</td>
<td>91.6</td>
<td>79.7</td>
<td>79.4</td>
<td>90.2</td>
<td>89.3</td>
</tr>
<tr>
<td>White high school graduate+ (% of white over 25)</td>
<td>86.2</td>
<td>85.7</td>
<td>86.3</td>
<td>86.3</td>
<td>92.1</td>
<td>70.8</td>
<td>67.0</td>
<td>87.4</td>
<td>90.3</td>
</tr>
<tr>
<td>Black / AA high school graduate+ (% of Black / AA over 25)</td>
<td>74.5</td>
<td>82.4</td>
<td>87.4</td>
<td>90.4</td>
<td>93.9</td>
<td>82.3</td>
<td>61.0</td>
<td>89.1</td>
<td>88.3</td>
</tr>
<tr>
<td>Hispanic high school graduate+ (% of Hispanic over 25)</td>
<td>83.9</td>
<td>86.2</td>
<td>89.2</td>
<td>87.0</td>
<td>82.7</td>
<td>80.0</td>
<td>71.9</td>
<td>91.4</td>
<td>74.7</td>
</tr>
</tbody>
</table>

KEY:

- Rates 25% lower than county
- Rates 10% lower than county
- Within 10% of county
- Rates 10% higher than county
- Rates 25% higher than county

Note: In instances where more than one citation is provided, order of citations corresponds to age group, county. 1. CHIS 2010-2014, 2. 2018 American Community Survey, 3. 2015 American Community Survey

26
In every zip code except 45415, a larger proportion of the adult population aged 25 years or older reported an educational attainment that was less than receipt of a high school diploma compared to the Montgomery County rate of 10.3% (Figure 1.E). The proportion of adults aged 25 years or older reporting an educational attainment of only high school graduate was slightly higher than the Montgomery County average (27.8%) for all zip codes except for zip code 45415. Finally, the proportion of adults aged 25 or older reporting an educational attainment beyond high school was lower than the Montgomery County average (61.9%) for all zip codes except zip code 45415. In combination, only zip code 45415 surpasses the county proportion of adults aged 25 or older with high school graduate or higher educational attainment—the rest of the counties report lower rates.

Among white adults aged 25 or older, only zip code 45415 surpasses the white adult county proportion of at least high school graduate educational attainment. Among black/AA adults aged 25 or older, four out of eight zip codes reported high school graduate or higher educational attainment that is greater than the black/AA county proportion.

![Figure 1.E: Education attainment (population 25+ years) by location](image)

*CHIP 2010-2014 (zip codes); 2016 American Community Survey (county)*

In every zip code, a smaller proportion of the working age population (16 years or older) were employed compared to the Montgomery County rate of 69.0% (Table 1.5). The proportion of the working age population not in the labor force was higher than the Montgomery County average (24.0%) for all zip codes. Finally, the proportion of the working age population that is unemployed was higher than the Montgomery County average (7.0%) for five out of eight zip codes.

In every zip code, the proportion of unemployed working age males was higher than the county average of 9.1%, while the proportion of unemployed working age females was higher than the county average of 8.4% in six out of eight zip codes. In Montgomery County, the white working age unemployment rate was lower than the black/AA unemployment rate (7.5% compared to 16.4%, respectively), and similar
trends were evident in every zip code except 45416. Two out of eight zip codes reported a lower rate of white working age unemployment (7.5%), and four out of eight reported lower rates of black/AA working age unemployment (16.4%).

| Table 1.5: Employment indicators comparing zip codes to county data |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                  | 45402 | 45405 | 45406 | 45414 | 45415 | 45416 | 45417 | 45426 | Montgomery County |
| Employed (% of population over 16)
1 |
| Not in labor force (% of population over 16)
1 |
| Unemployed (% of population over 16)
1 |
| Unemployed (% of population over 20)
1 |
| Male unemployed (% of males over 20)
1 |
| Female unemployed (% of females over 20)
1 |
| White unemployed (% of White over 20)
1 |
| Black / AA unemployed (% of Black / AA over 20)
1 |
| Hispanic unemployed (% of Hispanic over 20)
1 |

**Key:**
- Rates 25% lower than county
- Rates 10% lower than county
- Within 10% of county
- Rates 10% higher than county
- Rates 25% higher than county

> Census 2010

**Figure 1.F: Employment (population 16+ years) by location**

**Housing**

Table 1.6 below summarizes key household related indicators of interest for each of the eight zip codes and Montgomery County overall. The average family size in Montgomery County was 2.9 people, which remained approximately the same across all zip codes of interest. Apart from one zip code, the proportion
of husband-wife families with their own children under the age of 18 out of all husband-wife families was smaller than the county proportion (36.4%).

Table 1.6: Housing indicators comparing zip codes to county data

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<th>45406</th>
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<tr>
<td>Average family size (% of people)²</td>
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<td>3.1</td>
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<tr>
<td>Family households (% of all households)²</td>
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<td>51.3</td>
<td>56.9</td>
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<td>62.7</td>
<td>65.6</td>
<td>60.6</td>
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<td>Husband-wife families with own children under 18 (% out of all husband-wife families)²</td>
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<td>37.2</td>
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<td>29.4</td>
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<td>Single female householder with own children under 18 (% of all female householders with no husband present)²</td>
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<td>39.9</td>
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<td>52.6</td>
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<td>Female single parent households (% of all households)²</td>
<td>23.2</td>
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<td>26.4</td>
<td>19.1</td>
<td>11.8</td>
<td>27.1</td>
<td>32.3</td>
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<td>Male single parent households (% of all households)²</td>
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<td>Owner-occupied housing units (% of housing units)²</td>
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<td>67.8</td>
<td>53.9</td>
<td>59.7</td>
<td>63.0</td>
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<tr>
<td>White householder (% of owner-occupied units)²</td>
<td>78.2</td>
<td>89.3</td>
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<td>54.5</td>
<td>18.7</td>
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KEY:
- Rates 25% lower than county
- Rates 10% lower than county
- Within 10% of county
- Rates 10% higher than county
- Rates 25% higher than county

In five out of eight zip codes, the proportion of all housing units that are owner-occupied (as opposed to renter-occupied) was lower than the Montgomery County average (63.0%). Apart from one zip code, the proportion of all owner-occupied households with white householders was lower than the county proportion (82.5%), and the proportion of all owner-occupied households with black householders was higher than the county proportion (14.0%) (Figure 1.G). There were no obvious trends across zip codes by proportion of family households out of all households; proportion of single females with their own children out of all female householders with no husband present; or proportion of female single parent or male single parent out of all households.

Figure 1.G: Renter-occupied housing units by race and location

Census 2010

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**BIRTH OUTCOMES**

*Table 2* below summarizes the key indicators of interest related to infant mortality, pregnancy, and birth outcomes for each of the eight zip codes and Montgomery County overall. These data were used to characterize the disease burden and health inequities related to infant mortality faced by Montgomery County residents. Additionally, these data were used to inform the development of qualitative primary data collection tools as well as provide residents and community leaders with discussion points and reference data during community forum exercises.

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<td><strong>Smoking during pregnancy (%)</strong>&lt;sup&gt;1&lt;/sup&gt; (2011-2013)&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>Overall</td>
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<td>22</td>
<td>18.4</td>
<td>13.4</td>
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<td>32.4</td>
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<tr>
<td>Black / African American</td>
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<td>11.2</td>
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<td>18.4</td>
<td>6.7</td>
<td>7.9</td>
<td>16.4</td>
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</tbody>
</table>

**KEY:**
- Fares 25% worse than county
- Fares 10% worse than county
- Fares 10% better than county
- Fares 25% better than county

**Sources:**
1. Montgomery County environmental health tracking portal
2. Community Health Assessment 2014 DPH

30
INFANT MORTALITY RATES

Compared to the overall county average (8.6 deaths per 1,000 live births), the white infant mortality rate was 31.4% lower (5.9 deaths per 1,000 live births) and the black infant mortality rate was 96.5% higher (16.9 deaths per 1,000 live births) (Figure 2.A). In every zip code, the black infant mortality rate was noticeably higher than the white rate (Figure 2.B).

Figure 2.A: Infant mortality rate by race

Figure 2.B: Infant mortality rate by race and location

2011–2013 Montgomery County Environmental PH Tracking Portal
**Preterm Births**

Compared to the overall county percentage (11.4% of all births), the percentage of white preterm births was 9.6% lower (10.3% of all births), while the percentage of black preterm births was 28.1% higher (14.6% of all births) (*Figure 2.C*). In every zip code of interest except 45405, a higher proportion of black births were preterm compared to white births (*Figure 2.D*).
LOW BIRTH WEIGHT:

Compared to the overall county low birthweight percentage (9.7% of all births), the percentage of white births reported as low birthweight was 26.0% lower (7.7% of all births), while the percentage of black births reported as low birthweight was 46.4% higher (14.2% of all births) (Figure 2.E). In every zip code of interest, a higher proportion of black births were reported as low birthweight compared to white births (Figure 2.F).
LATE (3rd TRIMESTER) OR NO PREGNATAL CARE

Compared to the overall county percentage of mothers who reported receiving late or no prenatal care (5.2% of mothers), the percentage of white mothers reporting late or no prenatal care was 23.8% lower (4.2% of mothers), while the percentage of black mothers was 26.9% higher (6.6% of mothers) (Figure 2.G). In six out of eight zip codes of interest, white mothers reported receiving late or no prenatal care at higher rates than black mothers (Figure 2.H).

Figure 2.G: Late (3rd Trimester) or no prenatal care by race

2011–2013 Montgomery County Environmental PH Tracking Portal

Figure 2.H: Late (3rd Trimester) or no prenatal care by race and location

2011–2013 Montgomery County Environmental PH Tracking Portal
SMOKING DURING PREGNANCY

Compared to the overall county percentage of mothers who reported smoking during pregnancy (14.1% of mothers), the percentage of white mothers who reported smoking during pregnancy was 12.8% higher (15.9% of mothers), while the percentage of black mothers was 18.5% lower (11.9% of mothers) (Figure 2.1). In every zip code of interest, white mothers reported smoking during pregnancy at higher rates than black mothers (Figure 2.2).

Figure 2.1: Smoking during pregnancy by race

Figure 2.2: Smoking during pregnancy by race and location

2011–2013 Montgomery County Environmental PH Tracking Portal
HEALTH RISK AND CHRONIC DISEASE

Table 3.1 summarizes the key indicators of interest related to health risk factors and chronic disease outcomes for Montgomery County, with comparisons between the total population, white, and black/AA residents. Although many of these data were not available at the zip code level and do not allow for direct comparison between zip codes of interest, the striking racial health disparities helped to characterize and explain community disease burdens and health inequities that informed the development of JSI’s suggested interventions and strategies.

The average age at death between white and black Montgomery County residents was striking, with white residents living almost seven years longer than black/AA residents. Similarly, black/AA residents reported noticeably higher rates of “fair” or “poor” health compared to white residents. There was a higher proportion of black/AA residents than white residents that reported being current smokers and a lower proportion that reported being physically active. Most striking of these statistics was that black/AA residents in Montgomery County have a reported homicide death rate that was over eight times higher than white residents.

Black/AA residents of Montgomery County showed higher rates of heart disease, stroke, diabetes, and cancer deaths than white residents and were also more often reported to have high blood pressure or be overweight or obese than white residents.

Table 3.2 summarizes the key indicators of interest related to causes of death and other chronic disease incidence for each of the eight zip codes and Montgomery County overall. These data were used to characterize and compare the disease burden and health inequities related to chronic disease faced by Montgomery County residents.

<table>
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<th>Table 3.1: Health Risk Factors and Chronic Disease Outcomes</th>
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<td>Health Risk Factors</td>
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<td>Average age at death (years)</td>
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<td>No health care coverage (% adults)</td>
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<td>Stroke deaths rate per 100,000</td>
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<td>Diabetes deaths rate per 100,000</td>
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<tr>
<td>Cancer deaths rate per 100,000</td>
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<td>Overweight or obese (% adults)</td>
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<tr>
<td>High Blood Pressure (% adults)</td>
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<tr>
<td>(2014-2015)</td>
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Sources:
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2. Behavioral Risk Factor Surveillance System (BRFSS)
3. 2013 American Community Survey
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<td>Septicemia rate per 100,000</td>
<td>26.3</td>
<td>23.7</td>
<td>9.1</td>
<td>23.7</td>
<td>31.7</td>
<td>34.8</td>
<td>24.0</td>
<td>32.8</td>
<td>21.5</td>
</tr>
<tr>
<td>(2011-2012)&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other disease incidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast Cancer incidence (female) rate per 100,000</td>
<td>148.0</td>
<td>62.7</td>
<td>140.5</td>
<td>169.9</td>
<td>101.4</td>
<td>150.9</td>
<td>132.6</td>
<td>113.6</td>
<td>129.0</td>
</tr>
<tr>
<td>(2011-2012)&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Cancer incidence (all types) rate per 100,000</td>
<td>424.4</td>
<td>427.1</td>
<td>452.0</td>
<td>594.7</td>
<td>411.8</td>
<td>445.8</td>
<td>446.5</td>
<td>420.4</td>
<td>453.5</td>
</tr>
<tr>
<td>(2011-2012)&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever told you had asthma&lt;sup&gt;2&lt;/sup&gt;(county), 3 (top-coded)</td>
<td>25.7</td>
<td>14.6</td>
<td>17.7</td>
<td>13.4</td>
<td>10.2</td>
<td>na</td>
<td>20.7</td>
<td>16.8</td>
<td>14.7</td>
</tr>
<tr>
<td>Ever told you have a depressive disorder, including depression, major depression, dystymia, or minor depression&lt;sup&gt;2&lt;/sup&gt;(county), 3 (top-coded)</td>
<td>30.5</td>
<td>19.1</td>
<td>18.9</td>
<td>28.6</td>
<td>16.6</td>
<td>na</td>
<td>16.3</td>
<td>16.8</td>
<td>18.4</td>
</tr>
<tr>
<td>HIV cases per 1,000</td>
<td>5.2</td>
<td>4.5</td>
<td>3.9</td>
<td>0.8</td>
<td>1.5</td>
<td>3.0</td>
<td>2.5</td>
<td>2.1</td>
<td>1.4</td>
</tr>
<tr>
<td>(2012-2016)&lt;sup&gt;4&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STD cases per 1,000</td>
<td>113.3</td>
<td>101.6</td>
<td>111.3</td>
<td>55.5</td>
<td>37.5</td>
<td>86.1</td>
<td>112.8</td>
<td>92.5</td>
<td>40.9</td>
</tr>
<tr>
<td>(2012-2016)&lt;sup&gt;4&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**KEY:**
- Fares 25% worse than county
- Fares 10% worse than county
- Fares 10% better than county
- Fares 25% better than county

Sources:
1. Montgomery County's external FH tracking portal
2. 2015 BRFSS 2015 Dayton OH MMEA
3. BRFS (year unknown, data provided to HIV by ODH via 8/29 email)
4. Health Department reported cases, data provided to JSI by ODH via 8/29 mail

Over half of all zip codes of interest showed rates of heart disease, diabetes, homicide, and septicemia deaths that were at least 10% worse compared to Montgomery County averages. Half of all zip codes of interest showed rates of chronic lower respiratory disease deaths and unintentional drug overdose deaths that were at least 10% worse compared to Montgomery County averages. Seven out of eight zip codes showed rates of HIV cases and STD cases that were at least 10% worse than Montgomery County averages (and in most cases, at least 25% worse). Finally, over half of all zip codes of interest showed rates of suicide deaths that were at least 10% better than Montgomery County averages. Although there were data available to make racial comparisons for each of these death rates, it is likely that many disease burdens are disproportionately shouldered by black/AA residents within each zip code similar to the disparities noted in Table 3.1.
QUALITATIVE DATA ANALYSIS: RESULTS

Due to the consistent convergence of the provided answers, the findings reported here combine data from stakeholder and resident focus groups and interviews. The main findings, presented below, are organized by the socio-ecological factors affecting infant mortality and chronic disease outcomes, including housing, transportation, crime, food hardship, and health care services.

Housing

When focus group participants (i.e., decision makers and Dayton residents) were asked about how housing conditions in Dayton impact infant mortality and chronic disease, respondents frequently mentioned affordability and structural features of public housing. According to participants, there is a need to both expand availability of affordable housing in Dayton and increase public housing safety. Participants also consistently mentioned the need for expanded availability of resources and services near affordable housing as factors necessary in improving the lives of its residents. In this regard, a senior county government official stated that "access to those community supports and resources can be lacking, especially in having a choice that is modernized, safe, in a safe neighborhood." This participant also added that it is important to locate affordable housing in "places of opportunity near employment."

Some residents who live in public housing complexes described them as hazardous due to structural issues such as broken, boarded-up windows, unreliable trash collection, and crime. A focus group participant shared her observations by saying:

"you drive through and there's trash everywhere. The trash cans are overflowing, there's all kind of trash gathered around the trash cans. You see broken windows, you see boarded up windows. There's people living here, there's children here, but it's completely not cared for in terms of a property... Perhaps that day, maybe they only do trash twice a week or twice a month rather and maybe that's two weeks' worth of trash that's just piled up. Maybe two weeks from now I'll go up there and be like okay, they cleaned it up. Then it piles up again. It could be the residents, but I have not been made aware of any special initiatives that they're doing to make sure that there's ongoing maintenance of the facilities, I am not aware of that."

Transportation

The Dayton Rapid Transit Authority (RTA) is the fourth largest transportation system in Ohio and one of only five transit systems in the nation that uses electric trolleys. It consists of 31 routes, 3,300 stops, and a fleet of 284 buses, carrying about 11.3 million passengers per year. RTA's latest strategic plan [1] acknowledges its role as a conduit for jobs, education, and health. Additionally, the plan highlights the importance of creating regional partnerships with employment centers, social service agencies, shopping centers, and health care facilities to enhance access to public transportation. Participants in the focus
group, however, noted the need to improve RTA bus frequency and connect routes to specific areas of service such as health care.

"We have a transportation system here, they're all very nice people, but it's not like a robust system like you would find in Chicago or New York. The buses don't run every 10 minutes, they run every 30, 40. Anything you're trying to do could be a five, six-hour situation especially when you're talking about people who need to go to work."

For some residents it is difficult to access medical care using public transportation because “Outside of the clinics, how many actual pediatricians’ offices sit in that area that are accessible by bus? When we were just helping a young lady find a doctor, the doctors were all in South Main Street, south of town.”

Despite the overwhelming evidence indicating the links between transportation and health, the RTA Board of Trustees has not identified this as priority.

"Our board has not instructed the staff to use health metrics as a guide or as a decision-making tool in planning transportation projects or allocating funding to transportation projects .... Our board does not expressly see the connection between transportation work we do and health issues in our region. I would say that in terms of health issues in general, our board is probably more aware of the opioid crisis in Ohio than things like chronic disease or premature or low birthweight births, simply because it's an issue that has gotten more attention in the media.”

JSI conducted an ancillary study to calculate the average time it would take residents of the target zip codes to get to the largest women’s health center that provides OB/GYN services to the county’s low-income population. Although 3 routes serve the center (Routes, 5, 7, and 140), it takes an average of 42 minutes to get from the geographic center of each zip code to the Five Rivers Center for Women's Health by public transport. This highlights the need to provide more efficient transportation options. The details and findings of the study are included on the textbox below.
Ancillary study

Public transportation access to a Medicaid facility providing OB/GYN services to Dayton residents living in zip codes: 45406, 45417, 45402, 45414, 45416, 45405, and 45415

Objectives

1) To determine mean walking time to get to the OB/GYN facility via public transportation from each of the zip codes.
2) To determine average trip length, in minutes, to get to the facility.

Methods

1. Identified OB/GYN facility: Five Rivers Center for Women’s Health (CWH) located at 161 Wyoming Ave, Dayton Ohio.
2. Rationale for selection: CWH is the largest health care facility that provides OB/GYN services and accepts Medicaid—the health coverage that the majority of the residents in those zip codes utilize.
3. Identified physical address closest to each zip the population centroid (i.e., the populated census block that minimizes distance to all other places in the zip code) for each zip code utilizing Arc GIS.
4. Calculated mean walking time and average trip length between each zip code population centroid and the Center for Women’s Health using Google Maps.

Results

The average walking time to reach a clinic for residents of the designated zip codes is 10 minutes. The average trip length was 42 minutes.

<table>
<thead>
<tr>
<th>Zip Code</th>
<th>Population Centroid</th>
<th>City</th>
<th>State</th>
<th>Walk (min.)</th>
<th>Trip length</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>45402</td>
<td>657 Easton St</td>
<td>Dayton</td>
<td>OH</td>
<td>11</td>
<td>27</td>
<td>14</td>
</tr>
<tr>
<td>45405</td>
<td>51 W Beechwood Av</td>
<td>Dayton</td>
<td>OH</td>
<td>5</td>
<td>29</td>
<td>7</td>
</tr>
<tr>
<td>45406</td>
<td>1852 Parkhill Dr</td>
<td>Dayton</td>
<td>OH</td>
<td>10</td>
<td>35</td>
<td>14</td>
</tr>
<tr>
<td>45414</td>
<td>5800 Kendon St</td>
<td>Dayton</td>
<td>OH</td>
<td>14</td>
<td>61</td>
<td>22 transfer to 7</td>
</tr>
<tr>
<td>45415</td>
<td>7952 Flower Ave</td>
<td>Clayton</td>
<td>OH</td>
<td>14</td>
<td>46</td>
<td>16</td>
</tr>
<tr>
<td>45416</td>
<td>4151 Natchez Ave</td>
<td>Trotwood</td>
<td>OH</td>
<td>10</td>
<td>48</td>
<td>8 transfer to 7</td>
</tr>
<tr>
<td>45417</td>
<td>250 S Gettysburg Av</td>
<td>Dayton</td>
<td>OH</td>
<td>6</td>
<td>49</td>
<td>8 transfer to 7</td>
</tr>
<tr>
<td></td>
<td>Average time in minutes</td>
<td></td>
<td></td>
<td>10</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>
Crime

Dayton residents expressed an ongoing concern about crime in their neighborhoods. The focus group participants provided rich narratives alluding to the pervasiveness of crime and linking it to housing conditions, racism, indifference, lack of opportunities, and unresponsiveness on the part of city officials.

With regards to the ubiquity of crime in Dayton, participants discussed the normalization of gun violence to the extent that “kids go to school talking about gun violence—like their cousin getting shot or their father shooting someone.” Other participants shared the ongoing reminders of crime in their lives. One of them said, “Every night, I hear gunshots. My kids lay and sleep on the floor just to avoid gunshots.” Another participant added, “You can still see the bullet hole in the brick of a building where a woman got shot in the head.”

The participants drew a connection between crime and the physical, structural environment. For example, one participant viewed abandoned properties as a magnet for criminal activities: “people are doing things in properties because they’ve been abandoned, they’re blighted—people are taking advantage of that.” The same participant also stated that authorities are not doing enough to address the physical environmental conditions that contribute to crime.

Similarly, other participants shared their frustration with the way city officials and law enforcement officers respond to crime. One participant felt that police officers fail to address crime forcefully enough: “They don’t respond. I don’t see the enforcement of law around these things and it’s difficult for me to live here.” Other participants recommended the creation of opportunities for black kids as a way to reduce crime. This view, shared by one participant, captures the group’s sentiments about lack of opportunities and crime: “I think everything comes down to jobs and money. A lot of boys wouldn’t be in the street if there wasn’t so much racism and everyone could work for what they needed.”

A community resident provided a historical perspective of crime in Dayton that is suffused with mistrust towards the government and acknowledges the role of racism.

“Back in the day the amount of killing and violence going on now did not exist or happen when I was growing up. Now I am in my 70s but still, back in the 60s the black communities were too united and working towards civil rights to be killing each other. I just never grew up around that or hearing of black people killing other black people. That was unheard of. That is a new phenomenon young people are caught up in. And I think it’s by design, the government has been putting drugs in our communities and trying to conduct “science” studies but
injecting us with diseases to kill us. I think everything comes down to jobs and money. A lot of boys wouldn’t be in the street if there wasn’t so much racism and everyone could work for what they needed.”

Several community residents expressed frustration that crime continues to go unaddressed. For instance, when city officials consulted with the community about ways to improve West Dayton, they did not address crime—which was a chief concern of the residents.

“...those groups of people who live in the area, after everybody did their whole conversation about look at all the great things we’re trying to do to really impact the look of the community. They’re like, ’Okay, that’s really nice, but what are you all going to do about crime’ Every single time the conversation turned to, ’I have people next door to me selling drugs. I have people coming up and down the streets.’ There’s obvious drug activity happening in places. There’s obvious police—from their point of view, right or wrong, it’s their point of view—police neglect. They don’t respond. I don’t see the enforcement of law around these things and it’s difficult for me to live here.” [DC2]  

Food Hardship

Food hardship, defined as limited or uncertain availability of nutritionally adequate and safe food, represents a serious problem in Dayton. In a recent study, the Dayton metropolitan area ranked the worst in Ohio and ninth in the country in terms of food hardship. When findings from this study were shared with focus group participants, they unanimously agreed with the data. Many of the participants said that they have personally experienced food insecurity, one of whom stated, “everything you just described, either from personal experience to what I lived through and have grown up living, as well as just being in my position and hearing the conversations around food access, it is 100% a real thing.”

Participants drew a connection between the lack of large grocery stores in West Dayton and the predominantly available low-quality, unaffordable food. Given the lack of available public transportation options to large grocery stores, residents need a car to access high-quality affordable food. Lacking a car, thus, compromises many low-income residents’ ability to access quality affordable food, as a participant clearly expressed:

“There are a lot of mom and pop stores, very nice people, but they cannot compete with prices at a Wal-Mart or a Meyers could offer nor can they compete with the quality that a lot of those places can offer. That’s the biggest struggle in West Dayton. Can you go get food? Yes, you can, but it’s not going to be cheap and it’s not always going to be great. It’s expensive and if you don’t have a car, you pretty much kind of stuck with that unless you can get somebody to take you to the grocery store.”

Participants also shared information about the multiple initiatives that have been put in place to address food hardship in Dayton. They include food banks, food pantries, urban agricultural projects, community gardens, a food policy council, as well as other hunger-targeted initiatives. Overall, the participants indicated feeling hopeful about these developing efforts and the fact that some government officials are embracing this important issue.

Health care

At a systems level, the city of Dayton exhibits a robust health care infrastructure, featuring the Kettering Health Network, Premier Health Partners, Dayton Children’s Hospital, and two FQHCs that primarily provide care to low-income residents.

On the patient-provider experience, the data garnered in this needs assessment present opportunities for improvement. [DC4] In discussing their experience with health care providers, some participants made it clear that interactions and communication with their providers are, in part, shaped by the providers’ implicit biases, discrimination, racism, and mistrust. One participant’s reaction to the vignette captures the constellation of factors that might contribute to patient treatment:

“It depends on who’s caring for her, and how they care about their clients and patients, how she was dealt with. Did they have attitude where they were blaming the mom, did they automatically assume something just because if she was on CareSource or private pay, or were they giving her information? ...Were they being, were they explaining everything to her, was she understood? Were they giving her short answers, were they leaving her out of things, it just depends on those factors...”

Patients’ mistrust in providers creates a major barrier to pursuing and receiving optimal care. For example, patients may withhold information due to fear of negative consequences, such as interventions from social service agencies, as illustrated by this provider quote.
“I deal with moms who are reluctant to even go to that ER or that Urgent Care because when I get there, you might find out that I have no electricity, that my boyfriend just beat me up, and now you gonna call Children’s Services and take my baby away from me. So, I’m not even gonna show up at any of these places. That’s the population I deal with.” [crosstalk 00:32:54]

Breastfeeding

In 2012, the American Academy of Pediatrics (AAP) reaffirmed its recommendation of “exclusive breastfeeding for about the first six months of a baby’s life, followed by breastfeeding in combination with the introduction of complementary foods until at least 12 months of age, and continuation of breastfeeding for as long as mutually desired by mother and baby.”[1] A focus group participant echoed this by stating, “the AAP says the third most important thing you can do [for your baby] is support breastfeeding.”

Overall, participants in the focus groups and interviews demonstrated an awareness of the importance of breastfeeding; however, they mentioned a number of challenges, such as an absence of workplace accommodations for breastfeeding mothers. Deciding when to go back to work frequently poses a dilemma for some mothers, even before they have their baby, as one pregnant participant said:

“What’s sad is that is [ability to continue breastfeeding] what’s going to determine whether I return to the job or not. Because I’m currently pregnant, I have two months left. So, I’m having the anxiety of what am I going to do? Because my last two children, I fully breastfed, I was fortunate enough to be able to stay at home, and with the last one, about 8 months, and I was able to leave the job I was at to go feed my baby, and then go back to work, or somebody brought her [the baby] to me.”

Although there are state and federal policies and regulations to support breastfeeding, the implementation varies across employers. In one focus group, participants used Kroger as an example to convey the challenges of supporting breastfeeding in the workplace. They stated that in some positions, women cannot take multiple breaks to pump. Additionally, the law does not establish how many breaks a woman is allowed to take if she is breastfeeding, which can vary from mother to mother.

“Sometimes it’s so inconvenient, especially if the mom needs to pump more often because of her anatomy. Some moms can go many hours, a lot can’t. And the law does not require, it doesn’t say how many breaks you are allowed to take. So, under the federal law, she could take
as many breaks as she wanted, but tell that to the local Kroger manager, that may or may not connect and who's her advocate?”

As stated in the participant’s above quotation, those legal protections and allowances prove difficult to enforce.

Participants thought highly of La Leche League—a non-governmental, nonprofit organization that organizes advocacy, education, and training related to breastfeeding. To them, La Leche is a source of support, motivation, and peer-learning because some mothers “… need to see other women breastfeeding, they need to hear the stories of other women, their peers. And that's how they learn, when they can sit next to a woman who has had some problems with birthing, had some problems with breastfeeding, and she shares her problems and that's how this pregnant woman can avoid these problems by hearing from her peers.”

However, La Leche meetings don’t seem to be well-attended, a reality noted by at least one participant who shared that the lack of routine attendance “…saddens me so much that women are not attending these League meetings.” Other participants highlighted geographical distance as a potential barrier to attending La Leche meetings. Some of the meeting locations are closed or logistically impossible to access, with one participant noting that “Just looking at the location of the groups in Dayton, the one downtown is not meeting right now. They're all out in the suburbs.” [DC5]

Participants also expressed concern around the sometimes unhelpful involvement of medical providers in supporting breastfeeding, specifically that the provider will “blame whatever the baby’s; having on the breastfeeding, which unfortunately, a lot do. Or whatever. Something's wrong with your baby, blame breastfeeding which is not right.” [DC6]

Racism

For many participants, the experience of racism was present, ongoing, persistent, painful, and manifested in a variety of contexts. Most of the quotes related to racism surfaced during the participants’ discussions about their experience with health and human services providers. For instance, an African American female participant characterized the experience with providers as negative.

“A lot of them are actually negative. I hate say. They weren't listened to. [crosstalk 00:35:11] No one listens to them. They didn't care. They were treated like they weren't nothing, because like I said, they didn't pay out of pocket, they're CareSource, they're just another statistic.”
A person’s level of education or being deemed “articulate” did not protect them from the harmful effects of racism. During the discussion, a white female participant stated that a person with a two-year education should be articulate when she said, “But this mom has two years of college, right? Okay, I would assume that she would be pretty articulate.”

In contrast, a black female participant responded by saying that education or being articulate does not protect one from discrimination.

“I have bachelors, I have five kids, three of them which I birthed. Two of them, I'm just taking care of because their mother stepped out of their life. And when people see me, they automatically assume "This mother is on welfare [crosstalk 00:35:48], she has five different dads for all five of those children. [crosstalk 00:35:50] She can't take care of them." I'm already being judged based off of what you see, you don't even know I have a bachelor's degree. And you wouldn't even know that because- [crosstalk 00:36:03] people having a conversation with me and they automatically assume. They see me just viewing, first off, a lot of people already judge a book off its cover, so automatically they assume whatever, and they don't care how you talk or anything else. They see what they see so they go off that. Sometimes, not everybody, but that is what I get a lot. [crosstalk 00:36:19]"

Another participant agreed and reinforced the strong, often negative influence of race on interactions.

“The fact that I'm trying to get assistance temporarily, because you know it's available, and I just need it momentarily, I'm automatically discounted. Because I'm black. I mean, I sit down, articulation has nothing to do with it. My education helps me to not go off and hit this lady and go do something else [crosstalk 00:37:23] but, she's African-American, so your education [crosstalk 00:37:25] will help you to navigate through it. But no, trust and believe you will not get treated any better because of your education.”

One other participant shared the experience of two young black mothers seeking care and how the fact that they were black influenced the quality of care they received.

“One was African, the other one was African-American, and they were both dilated, effaced a little bit. "Oh we'll just go ahead and induce you." And gave her drugs, and we end up with two drugged babies because they gave her pills, they gave her pit and an epidural [crosstalk
Mental Health

Participants identified mental health as an important issue. They were concerned about existing mental health problems in the community, limited access to mental health services, and the lack of satisfaction with existing mental health services. Participants noted that women seem to experience a disproportionate mental health burden because women tend to face unique life circumstances that trigger psychological distress and become further compounded by reluctance to access needed services. A participant shared her observation in relation to this when she said, “Many of them will not seek help. …they do not seek and they may be around friends and they do not know how to provide them the support or resources, but most times they will not go, or seeking any type of professional help to get rid of, or experience or get diagnosed with the depression or whatever it may be occurring.” Other participants echoed this observation and said that stigma around mental health further contributes to untreated symptomatology.

For women who seek help for mental health problems, finding such services proves difficult. As one participant asked, “even if we find somebody who has a mental health issue, then what do we do?”

Participants also said that mental health services are scarce in the area and the few that are available through CareSource require a referral that you could only get by “acting crazy.” This is how a participant described the referral process:

“Sometimes, I know that when moms who have CareSource, they'd want a referral, so you literally have to check yourself into a hospital or something and act crazy for them to even refer you out. It's like you can't just reach out. I don't know how it is now, I know maybe a year or two back, and even my sister dealt with a similar situation with her daughter, where they're like "Well, this is only for this. You have to go to the hospital. They have to check 'me in, they have to be assessed. And then get the help.”
ENVIRONMENTAL SCAN: FEDERAL, STATE, COUNTY RESOURCES TO ADDRESS INFANT MORTALITY AND CHRONIC DISEASES

In this section, we present an extensive number of resources available at all levels of interventions (federal, state, city/county) that are designed to address chronic disease and/or infant mortality. JSI identified these resources through research activities, including archival research, focus groups, and interviews. For the purposes of this report, we use the term “resource” to mean:

"... existing programs, assets, organizations, partnerships, strategies, funding sources, assets, and capabilities that enable Montgomery County residents, policymakers, and stakeholders to curtail the problem of infant mortality using a holistic approach that tackles social determinants of health."

The resources are organized around two major sections: 1) chronic disease and 2) infant mortality. These sections are categorized into three clusters: federal resources, state resources, and city/county-level resources. When appropriate, the three resource clusters will be sorted out according to the socio-ecological model of SDH which involves the individual, community, and policy contexts.

Local entities often manage federal resources. For example, the Women, Infants, and Children (WIC) is a federal program but is managed by Montgomery County. As such, they will be considered as a county/local resource. The other resources also target more than one socioecological domain. For instance, the Diabetes Self-Management Education and Support is a chronic disease management program sponsored by the Centers for Disease Control and Prevention that offers interventions at the individual, community, and policy level.

The federal government response to infant mortality or chronic disease may involve multiple offices. For instance, the Administration of Children and Families hosts numerous offices charged with addressing the needs of infants, children, and families, such as the Children's Bureau, Early Childhood Development, and Family and Youth Services Bureau.

At the state level, the resources are mostly identified by comprehensive action plans and collaboratives such as Ohio Perinatal Quality Collaborative, Ohio Infant Mortality Reduction Plan, and the Chronic
Disease Plan. These plans provide a roadmap for action and usually stem from a facilitated collaboration between subject matter experts, policy makers, researchers, health professionals, and community leaders.

At the local level, current resources are organized around the 2016–2019 Community Health Improvement Plan (CHIP) which includes goals addressing infant mortality and chronic disease prevention. In addition to chronic diseases and infant mortality, the Montgomery County Family and Children First Council (FCFC) and United Way of the Greater Dayton Area (UWGDA) Joint Strategic Plan addresses food access; substance abuse—alcohol and opioids; neighborhood stability/affordable housing; stable employment; community violence—gun violence and domestic violence; mental health; homelessness; and concentrated poverty. Lastly, the PHDMC Sponsors Moms & Babies First: Ohio’s Black Infant Vitality Program, which represents an evidence-based program promoting infant health.

This section also provides statistics on all the nonprofits registered in Montgomery County that provide health and human services, housing, education, and physical activity services.

**Federal, State, and County/city Level Resources and Partnerships to Address Infant Mortality**

**Federal Government**

The federal government funds many initiatives designed to reduce infant mortality that address different individual, community, and policy contexts. Examples of these initiatives include:

- Collaborative Improvement and Innovation Network to Reduce Infant Mortality (IM CoIIN)
- Title V Block Grants
- Maternal, Infant, and Early Childhood Home Visiting Program
- Women, Infants, and Children
- Title V Maternal and Child Health Services Block Grant Program

The following offices within the Administration of Children and Families are charged with addressing the health of mothers and infants.

- Children’s Bureau (CB)
- Early Childhood Development (ECD)
- Family and Youth Services Bureau (FYSB)
- Office of Child Care (OCC)
- Office of Community Services (OCS)
- Office of Child Support Enforcement (OCSE)
- Office of Family Assistance (OFA)
- Office of Head Start (OHS)

**STATE-LEVEL RESOURCES**

The 2016–2017 Ohio state budget funds three major programs to reduce disparities in infant mortality: 1) Ohio Collaborative to Prevent Infant Mortality (OCPIM), 2) Ohio Perinatal Quality Collaborative, and 3) Collaborative Improvement and Innovation Network to Reduce Infant Mortality. The activities funded by OCPIM are listed below to show the wide variety of strategies, services, and resources fostered by these programs. These activities are organized into four levels—Individual, Interpersonal, Community, and Public Policy—to reflect the social determinants of health framework guiding this report (Fig. 1).

**Individual**

1. Identify care management services for high-risk mothers. These consist of face-to-face visits and culturally competent outreach that includes developing a plan for any identified medical and behavioral health risks.
2. Use historical and current data to identify members who are most in need of interconception interventions.
3. Implement disease and care management of community members with chronic diseases and histories of poor birth outcomes to improve health in subsequent pregnancies.
4. Provide depression screenings and cognitive behavioral therapy.
5. Improve the administration of progesterone for at-risk mothers.
6. Require additional disease screening for newborns.
7. Implement evidence-based tobacco cessation programs for pregnant women in areas with high infant mortality rates.
8. Use progesterone for women at risk of preterm birth.
9. Improve care for infants with neonatal abstinence syndrome (NAS).
10. Improve antenatal corticosteroids administration for women in preterm labor.
11. Decrease late onset and bloodstream infections in babies in the NICU.
12. Increase the use of human milk as medicine.
13. Reduce elective deliveries before 39 weeks.
14. Increase access to evidence-based cessation services and resources for families.
15. Increase access to quality health care for female adolescents and women.
16. Increase the screening, identification, intervention, and treatment of women at risk for mental health issues, addiction, and domestic violence.
17. Increase the proportion of planned pregnancies.
18. Refocus targeted, evidence-based prenatal and postpartum home visiting and care coordination programs for at-risk women so as to drive specific outcomes, for example, post-partum visits, infant well checks, and immunization.
19. Support policies, procedures, and services that will increase exclusive breastfeeding for all babies.
20. Increase the number of women, men, and youth who develop a reproductive life plan.
21. Ensure the appropriate management of chronic medical disorders before, during, and after pregnancy by developing partnerships among private and public insurers, public health care agencies, community health centers, and quality-care improvement initiatives.
22. Increase the screening, identification, and treatment of pregnant women at risk for preterm delivery.
23. Reduce late entry into prenatal care.

Interpersonal

1. Increase efforts to include young men in reproductive health initiatives.
2. Promote the inclusion of culturally appropriate men as home visitors or community health providers in evidence-based or promising-practice programs to engage at-risk fathers.
3. Create opportunities for men to discuss lessons learned and give advice that can be passed onto others.

Community and Social Institutions

1. Support enhanced care management programs that target women in high-risk neighborhoods and engage leaders in those neighborhoods to connect women to care.
2. Conduct state infant and child mortality reviews.
3. Increase the number of providers and educators who emphasize preconception care.
4. Increase the number of providers who conduct comprehensive medical and psychosocial risk assessments throughout pregnancy and modify care as a result of findings.
5. Encourage community engagement and ownership in promoting optimal infant health at the local level across Ohio.
6. Collaborate with public and private organization partners to develop a pilot project that promotes the use of a reproductive life plan tool by women’s primary care providers.
7. Collaborate with public partners to promote the 5A’s of weight control (a brief intervention counseling method) for obese women of childbearing age in targeted geographic areas of the state.
8. Collaborate with OCPIM partners to promote preconception/interconception health strategies among women of childbearing age.
9. Increase awareness about the importance of involved and committed fathers in children’s lives.
10. Offer trainings and resources to prenatal care providers, pediatric health care providers, hospitals, child care centers, and home visiting programs to promote optimal infant health.

Public Policy

1. Develop and support strategic partnerships, among public, nonprofit, and private entities, that address the social determinants of health, especially in the areas of educational attainment, employment, poverty, income, housing, health care, racism, and safety.
2. Increase diversity and competency of the health care and allied health workforce through recruitment, retention, and training of individuals from racial and ethnic minority and culturally diverse communities.
3. Ensure the availability and use of a wide array of data sources (e.g. health care, demographic, economic, and market research) to enhance data-driven decision-making for policy and program development so as to achieve health equity in birth outcomes.
4. Build capacity at all levels of decision-making to include local community members so as to get community-based solutions to eliminate disparities in infant mortality.
5. Improve funding and resource allocation to build and sustain partnerships, community-based initiatives, programs, and services in local communities to achieve health equity.
6. Support policies, procedures, and services to promote infant health, for example, safe sleep, breastfeeding, immunization, special health needs, neonatal abstinence, and violence and injury prevention.
7. Develop and release a new Ohio Connections for Children with Special Needs (OCCSN) birth defects information system at ODH with improved capacity to collect timely and accurate data (e.g. prevalence rates for specific disorders and condition-specific mortality rates) for research/epidemiologic use and to facilitate referrals to local services such as early intervention to improve health outcomes for infants and toddlers with birth defects.
8. Continue support for extending the Medicaid benefit to all residents living below 138 percent of the Federal Poverty Level.

COUNTY/CITY LEVEL

CENTERINGPREGNANCY®

Hospitals and community health centers in the county provide progesterone therapy to reduce preterm birth, including preterm birth in women diagnosed with short cervix.

A CenteringPregnancy® Program is a group-based intervention for pregnant women who have similar due dates and their partners. Each group has 8 to 12 people and meets regularly throughout the pregnancy. They also meet once during the postpartum period. These groups promote:

- Better birth outcomes
- More provider and patient contact
- Patient empowerment and learning
- Self-care
- Support and friendship
Montgomery County: Moms & Babies First: Ohio's Black Infant Vitality Program

This program consists of certified community health workers that conduct regularly scheduled home visits educating parents on prenatal and postpartum care and toddler health and care through age one.

It also has a fatherhood component that engages men throughout the pregnancy and beyond.

Home visitation activities include:

- Educating clients on each stage of the pregnancy
- Monitoring clients' understanding of the health education received from clinics and social service agencies
- Continuous monitoring of the health status of the expectant mother and newborn
- Making referrals to various agencies for assistance
- Reinforcing positive changes in health behaviors
- Prenatal education
- Healthy eating and nutrition information
- Discussing changes during each trimester of pregnancy
- Tips on how mothers can care for themselves during pregnancy
- Labor and delivery education
- Postpartum education
- Breastfeeding support
- Information on mom and baby care
- Lessons on providing a safe sleep environment
- Tracking mom and baby until age one
- Infant and toddler development
- Parenting skills
- Stress reduction pointers
- Family planning

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

WIC provides Federal grants to states for supplemental food, health care referrals, and nutrition education for low-income pregnant women, breastfeeding women, and children under the age of five. (See child nutrition programs.)

In addition to food, WIC provides the following benefits:

- Health screening
- Nutrition
- Breastfeeding peer support
- Immunization screening and referral
- Substance abuse referral

Other mother, infant, and children health programs that serve the Montgomery County Dayton communities are:

- The BABY & ME-ToBacco Free Program,™ an evidence-based, smoking cessation program created to reduce the burden of tobacco on the pregnant and postpartum population.
- Help Me Grow Brighter Futures, a community collaborative program of the Greater Dayton Area Hospital Association (GDAHA) that provides a broad array of services for eligible families with
infants and toddlers. These services include, but are not limited to, intervention service coordination, the Nurse-Family Partnership, and Parents as Teachers.

- The Montgomery County Dayton Jobs and Family Services Fatherhood Initiative, designed to help men provide for their children by offering employment training and assistance, parenting skills, and support services.

- Healthy Start, a free federally-funded program to help pregnant women, infants, and families have healthy lives.

**FEDERAL, STATE, AND COUNTY/CITY LEVEL RESOURCES AND PARTNERSHIPS TO ADDRESS CHRONIC DISEASES**

**FEDERAL LEVEL RESOURCES**

The federal government, through the Department of Health and Human Services (HHS), addresses chronic disease through four core strategies:

1. Epidemiology and surveillance to monitor trends and track progress

The federal government monitors key risk factors for, and indicators of, chronic disease burden through surveillance and data systems maintained at state and national levels:

- Behavioral Risk Factor Surveillance System (BRFSS)
- National Health and Nutrition Examination Survey (NHANES)
- National Health Interview Survey (NHIS)
- National Vital Statistics System (NVSS)
- Other national survey data
- Medicare fee-for-service claims data

2. Policy and environmental approaches

The federal government promotes health policies and supports and reinforces healthful behaviors such as:

- Smoke-free air laws that protect nonsmokers from secondhand tobacco smoke
- Bans on artificial trans fats that eliminate cardiotoxin from the food supply
- Environmental approaches that make healthy choices easier, more convenient, affordable, and safe
- Community design and zoning standards that improve street connectivity and transportation alternatives to encourage walking and biking
- Bans on flavored cigarettes to help combat youth smoking

3. Optimizing health care systems to effectively deliver clinical and other services to prevent, detect, and mitigate chronic diseases.

It involves initiatives such as:
• Health care reform developments (e.g. the Affordable Care Act and meaningful use regulations) that provide opportunities to drive additional population health improvement
• Expanded population coverage
• Requirements for coverage of effective clinical preventive services
• Changes in the organization of and payment for care
• Enhanced involvement of a broad range of health professionals in delivering care
• Increased deployment and use of health information technology and associated tools (e.g. reminders and clinical decision support)
• Increased measurement and reporting of successes and shortfalls

4. Community Programs Linked to Clinical Services

HHS also funds programs that give people and communities the tools and skills to manage chronic diseases and address key problems (e.g. cardiovascular disease, diabetes, arthritis, and falls in the elderly). Examples include:

• Chronic Disease Self-Management Program
• National Diabetes Prevention Program
• Million Hearts
• Evidence-Based Strategies to Prevent HIV

STATE-LEVEL INITIATIVES

The state of Ohio developed a plan to help communities across the state reduce the burden of chronic disease. The Plan to Prevent and Reduce Chronic Disease: 2014–2018 (Chronic Disease Plan) is the result of collaborative “efforts of experts from public health, health care, business, education, transportation and planning, and state and local government who used national guidelines and state and local data to develop a coordinated approach to chronic disease prevention and health promotion.”

The state plan is aligned with the federal priorities and consists of four core areas: Environmental Approaches (15 objectives), Health System Interventions (six objectives), Community Linkages (three objectives), and Data and Surveillance (four objectives). Selected resources culled from the plan are shown below.

Opportunities and Partnerships

Participants in the focus groups, interviews, community forums, and root cause analyses identified several opportunities and offered suggestions to address various community needs across a number of areas, including service delivery, community capacity building, and social determinants of health. These participant-influenced suggestions add to and expand upon the universe of potential ways to mobilize the aforementioned results.

SERVICE DELIVERY

Most of the suggestions the participants gave focused on the delivery of health services, particularly in relation to service integration and reducing the burden of bureaucracy and red tape. Here are some of the suggestions:
• Integration/collaboration of siloed resources; use of place-based strategies
• Linking service providers who aren’t closely connected
• Confronting bureaucracy and red tape that creates barriers for clients
• Have accessible hours, location, and services
• More robust care and wrap-around services coordination that allows clients to fully access existing resources in non-traditional ways (removing barriers to care and service utilization utilizing more place-based strategies), and that seamlessly integrates siloed resources
• A parenting model involving mothers

COMMUNITY CAPACITY BUILDING

Participants also called attention to the need to increase community capacity to promote advocacy around community organizing; the inclusion of community voice; public policy that responds to the harmful impacts of racism, discrimination, and residential segregation; and addressing implicit bias.

SOCIAL DETERMINANTS OF HEALTH

Finally, a number of participants made specific recommendations related to social determinants of health:

• More financial support for the infant mortality coalition and the kind of social determinants of health interventions that are innovative
• Individual-level education
• Provider education around impact of social determinants on infant mortality and reducing implicit bias
• More robust campaign strategy to increase awareness and mobilization around addressing infant mortality disparities in the target community

PARTNERSHIPS

The participants identified a number of partners that could be brought on board as PHDMC moves forward in the development and implementation of the next phase of the community work plan. Those potential partners stem from various sectors including the business community, the government center, legal services, and housing.

Montgomery County has experienced a number of successful partnerships involving entities from multiple sectors:

• Since 2004, Good Samaritan Hospital, the City of Dayton, and City Wide have worked together to improve the neighborhoods surrounding the hospital through the Phoenix Project. Through this public-private partnership, nearly $20M has been invested by the partners, leveraging an additional $100M in other private and public investments.
• In 2012, the DaVinci Collaborative comprised of leaders from Dayton Children’s Hospital, The Salvation Army KROC Center, the City of Dayton, The Greater Old North Dayton Business Association, and City Wide was formed to create a comprehensive community development plan for the Old North Dayton and McCook Field Neighborhoods.
- In December of 2014, the City of Dayton, Wright-Dunbar Inc., and City Wide announced the formation of the community's newest asset-based community collaboration that will focus on advancing the Greater Wright-Dunbar area in West Dayton.

- The Choice Neighborhood program builds on the successful groundwork of the HOPE VI program authorized during the Bush Administration. HOPE VI gave housing authorities the opportunity to engage residents in the active process of rebuilding their community through the creation of mixed income housing.

- Hall Hunger Initiative, PHDMC, and Montgomery County—agencies addressing food access within Dayton and Montgomery County—are working collaboratively to address the issues of hunger and access to healthy foods as the Dayton-Montgomery County Food and Hunger Coalition. The CHIP objectives pertaining to food access have been adopted by the coalition.

- The Community Initiative to Reduce Gun Violence is comprised of a multijurisdictional team to reduce group-related gun violence and homicides in Dayton, Trotwood, and Montgomery County.

A large number of businesses and organizations have collaborated in the development of the CHIP and are likely to do so again as the PHDMC moves forward. These partners include maternal, infant, and child health providers, social services agencies, community-based organizations, private businesses, educational institutions, and the police department.

Another source of untapped resources is the abundance of nonprofit organizations in the county. A review of the IRS Form 990 records [1] shows that over 4,000 nonprofit organizations are registered to operate in Montgomery County. Of those, about 3,669 have declared net assets over $500,000. From those, we selected the type of organizations most relevant to our work and ended up with 991 organizations. They are shown in Table 4 below and are organized around their main function as determined by their National Taxonomy of Exempt Entities (NTEE) code, which is an IRS designation to classify nonprofit organizations.

Table 4. Selected organizations registered as non-profits in Montgomery County, Ohio categorized by NTEE code

<table>
<thead>
<tr>
<th>NTEE Code</th>
<th>Organization Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>O59</td>
<td>Youth Development Programs</td>
</tr>
<tr>
<td>X21</td>
<td>Protestant</td>
</tr>
<tr>
<td>P26</td>
<td>Human Service Organizations</td>
</tr>
<tr>
<td>B94</td>
<td>Parent Teacher Group</td>
</tr>
<tr>
<td>J40</td>
<td>Labor Unions/Organizations</td>
</tr>
<tr>
<td>S80</td>
<td>Community Service Clubs (Kiwanis, Lions, Jaycees...)</td>
</tr>
<tr>
<td>Y41</td>
<td>Fraternal Benevolent Societies</td>
</tr>
<tr>
<td>T22</td>
<td>Private Independent Foundations</td>
</tr>
</tbody>
</table>
**DISCUSSION**

In a 1986 speech, Bayard Rustin, an activist and colleague of Dr. Martin Luther King, Jr. said, “The question of social change should be framed with the most vulnerable group in mind...”¹⁵ Two decades later, in a 2005 article for the Lancet, Michael Marmot, Chair of the World Health Organization’s Commission on Social Determinants of Health, stated out that “if the major determinants of health are social, so must be the remedies.”¹⁶ These two quotes, delivered decades ago and years apart, reinforce the immediate need to address the problems many Dayton community residents face as evidenced by the data collected throughout the needs assessment. The findings presented in this report clearly uncovered very specific needs—shaped by structural and social determinants of health—of a highly vulnerable population that lives in a geographical area that is rich in resources, innovations, goodwill, and committed leadership.

Quantitative and qualitative findings indicate that residents in the catchment area experience ongoing and prolonged stressors that are fueled by adverse conditions such as inadequate housing, crime, food hardship, and barriers to sufficient health care services. Those stressors affect community residents throughout their entire lifespan—from birth to death—and are further compounded by pervasive racism.

While the findings of this needs assessment do not provide an explicit answer, one can infer from the aforementioned information that the pernicious effects of stress on Dayton’s black residents may have a detrimental effect on birth outcomes and chronic disease. The scientific literature supporting the link between stress, birth outcomes, and chronic disease is robust.¹⁷ Scientists have noted that the cumulative effects of dealing with racism, combined with the impact of poverty, crime, poor housing, single-parenting, and/or unemployment, leads to chronic stress, resulting in ongoing wear and tear on the body.

The detrimental effects of stress on chronic disease outcomes and infant mortality are driven by changes in certain hormonal levels. Exposure to chronic stress causes increased levels of two key hormones: adrenaline and cortisol. Adrenaline increases a person’s heart rate and elevates blood pressure. Cortisol increases blood sugar, suppresses the digestive and reproductive systems, alters the immune system, and slows growth processes. In pregnant women, high levels of cortisol restrict blood flow to the placenta, stunting fetal growth.

The underlying rationale guiding the following discussion and recommendations is twofold: the harmful effects of the stress resulting from the detrimental impact of the conditions in which African American residents in Dayton live, work, nurture, and play, and the pervasive role of racism.

The four main conclusive findings stemming from this needs assessment are:

1) Black people that live in the targeted zip codes suffer. They experience more psychosocial and structural inequalities than their white counterparts. [1]
2) There is distinctive zip code variability.
3) Inequalities exist in the midst of resources and opportunities.

¹⁵Time on Two Crosses: The Collected Writings of Bayard Rustin (1986), Simon and Schuster. New York
4) Fundamental changes in the way Montgomery County resources are mobilized to promote health and wellbeing are required.

PSYCHOSOCIAL AND SOCIAL INEQUALITIES

When we compared over 1,000 data points from each zip code (using numerical data obtained from several archival sources) to those of the county at large, all but one zip code (i.e., 45415) showed worse outcomes than Montgomery County as a whole. Black people in the selected areas fared worse than white people on the following indicators:

- Percentage of mothers who reported receiving late or no prenatal care
- Preterm births are 28.1% higher (14.6% of all births)
- Low birthweight
- Infant mortality rates
- Housing indicators (e.g., proportion of units that are owner-occupied)
- Median income
- Poverty measures
- Employment
- Proportion of husband-wife families
- Health insurance
- Reported “fair” or “poor” health
- Heart disease deaths
- Stroke deaths
- Diabetes deaths
- Cancer deaths
- Obesity
- Average age at death
- Educational attainment

These quantitative findings show that, from cradle to death, the black community in Montgomery County experiences worse health outcomes than their white counterparts. The qualitative data not only echoes these findings, but it also paints a nuanced and complex picture of the life context of the residents of the selected areas of Montgomery County. Some participants live in housing complexes that could be described as hazardous due to their poor structural conditions. Poor housing conditions are also associated with higher crime rates\textsuperscript{18} which are a main concern for many residents. Crime rates in Dayton are among the highest in the nation and as such, a significant contributor to stress within the community.

For those that lack a vehicle, access to good quality food, health care services, schools, and jobs remains a challenge because of the limited public transportation system. An ancillary health access study that we conducted showed that to get to the primary source of OB/GYN services for women on Medicaid, a woman residing in any of the eight targeted zip codes will have to walk approximately 10 minutes to get to the bus stop. It will then take her an average of 42 minutes to reach the OB/GYN facility.

The selected zip codes included in this needs assessment are also located in a food desert. The lack of grocery stores in the area reduces the availability of quality, nutritious food products. This situation, however, is expected to improve with the recent establishment of a new large grocery store—Gem City Market—in West Dayton.

The city of Dayton has a strong health care infrastructure, featuring the Kettering Health Network, Premier Health Partners, Dayton Children’s Hospital, and two FQHCs that primarily provide care to low-income residents. However, data on the patient-provider experience collected in this needs assessment indicate that residents that successfully overcame transportation and health insurance barriers and secured health care services often experienced implicit biases, discrimination, and racism from providers. This led to patients mistrusting providers. For many participants, the experience of racism was present, ongoing, persistent, and painful.

**Unique Zip Code Variability**

Black residents of the combined selected zip codes experience less desirable outcomes in housing, school, education, and health indicators than residents of Montgomery County as a whole. However, when we compared black residents across the selected zip codes, unique patterns emerged. For example, zip code 45402 has the lowest rates of educational attainment, employment, housing, and poverty levels. In sharp contrast, zip code 45415 (where 37% of the residents are black) exhibits the highest rates of all those indicators among the targeted eight zip codes. It also fared better than the county, as a whole, in terms of poverty levels, unemployment, and educational attainment. Better indicators, however, do not eliminate infant mortality disparities. Despite the fact that black women in zip code 45415 were more likely to receive prenatal care than black women in the rest of the zip codes, they had the second highest infant mortality rates in the county and came second in premature birth rates and third on low birthweight rates.

Finally, among residents in zip code 45415, the infant mortality rate in 2011–2013 among black people was 27.9 per 100,000, whereas it was 0 among white people. While this discrepancy could be attributed to an unlikely or unexpected event that occurred during the year when the data was collected, it serves as a reminder that the health disparities experienced among black residents occurred regardless of income or educational level.

[1] This conclusion, by itself, is not surprising and it supports, but doesn’t add to, what the current CHIP and the Montgomery County/United Way of Greater Dayton Work Plan already documented.

**Inequalities Exist Within the Midst of Resources and Opportunities**

The stressors experienced by many black residents in Montgomery County are manifested in the midst of abundant resources, each of which has potential to provide an individual or synergistic contribution to improving residents’ quality of life. For almost any ailment or malaise affecting the residents of the county, there are numerous resources that can address or mitigate their adverse impact.

Let’s take interventions to address infant mortality as an example. Our needs assessment showed that the federal government has about eight offices at the Department of Health and Human Services and at least
six major initiatives dealing with infant mortality. The Ohio State Infant Mortality Strategic Plan promotes over 40 strategies to address infant mortality. Montgomery County is currently implementing innovative evidence-based interventions such as progesterone therapy, fatherhood initiatives, CenteringPregnancy®, community health workers, and a home visiting program. The latter lists 19 distinct strategies to address infant mortality.

In addition, over 80 partners were named in the CHIP. There are also over 900 nonprofits registered in the county with at least $500,000 in net resources and whose mission is aligned with current efforts to address chronic disease and infant mortality. Specifically, there are about 359 faith-based organizations, over 99 health-related nonprofits, about 150 community-oriented organizations, and 74 organizations related to labor unions.

Numerous partnerships have formed in Montgomery County at both the state and federal levels to address either infant mortality or chronic disease. Those partnerships have taken place across multiple sectors such as housing, neighborhood revitalization, and public safety.

Additionally, Montgomery County consists of talented leadership that is fully committed to addressing the problems of infant mortality and chronic disease. This leadership, along with the support of a strong health care infrastructure and workforce, serves as a necessary ingredient for positive change. The stakeholders that participated in the needs assessment, some of whom are service providers, identified numerous growth opportunities and made specific, actionable, and measurable suggestions. Those suggestions can be clustered in three areas:

1. Increase community capacity to organize, advocate, and utilize data
2. Foster health systems integration
3. Confront issues of racism and promote health equity

Of the utmost importance are the four plans that are in place to address infant mortality and/or teenage pregnancy. The plans are the product of long hours of committee meetings; literature reviews to identify best practices; identification, contact, and mobilization of partners; and consensus building. Each of those plans represents a commitment by the state, county, or community to act on the problem, identify priorities, and mobilize resources.

**FUNDAMENTAL CHANGES ARE REQUIRED IN THE WAY MONTGOMERY COUNTY RESOURCES ARE MOBILIZED TO PROMOTE HEALTH AND WELLBEING**

The findings of this needs assessment present a conflicting reality: black residents in Montgomery County suffer, yet, the county contains a plethora of resources, goodwill, and talented leadership. In order to make progress, the central question then becomes—why aren’t existing resources mitigating that suffering?

Part of the answer exists in the fact that income, education level, and employment status do not necessarily create immunity against externally enforced and internally experienced distress. The noted comparisons between indicators in zip codes 45415 and 45402 perfectly illustrate this disconnect between the presence of perceived resources and the reality of ongoing stress. Despite the fact that indicators in 45415 are significantly more favorable than those of 45402 in terms of income, employment, and educational attainment, the infant mortality rate is similar in both zip codes.
Similarly, consider the case of Serena Williams. In a recent interview the renowned and wealthy athlete openly discussed the difficulties she faced during the recent delivery of her child. According to Williams, health professionals repeatedly ignored several of her health concerns post-delivery. Given her advanced status as an athlete, one can only assume that Williams possesses exceptional self-awareness and a unique understanding of how her body works. However, she reports that providers told her she was simply “confused” when she correctly self-diagnosed a pulmonary embolism—a condition with which she had previous personal experience. Williams went on to suffer a severe hematoma in her abdomen when stitches from her cesarean section came undone—due to a constant cough brought on by her pulmonary embolism—ultimately restricting her to her bed for six weeks upon release from the hospital.

While severe health complications meant that Williams experienced upsetting limits in providing direct care to her newborn, her seemingly secure financial and personal status most likely ensured that all of her child’s needs were fully met. However, if someone of wealth and fame can experience such life-threatening, and initially dismissed, complications during or post-delivery, it should come as no surprise that many women, particularly black and other women of color, routinely find themselves in harrowing situations where systemic racial disparities directly impact stress and health outcomes for themselves and their children.

Unfortunately, most women who find themselves in situations similar to Williams will not have the opportunity to fully recover or even the assurance that their newborns’ needs will be fully met without their active involvement. Williams’ experience, and that of black mothers who have lost a child before the 12th month, show us that income, employment, education, and influence, per se, will not eliminate disparities in birth outcomes or chronic disease. Based on the knowledge revealed by this needs assessment, we make the following recommendations.

**Recommendations**

The Montgomery County Dayton Health Department has adopted evidence-based innovations such as progesterone therapy, home visits, community health workers, and CenteringPregnancy®. It has also recognized the importance of upstream factors associated with health disparities and acknowledged the role of social determinants of health in producing and maintaining those disparities. Most importantly, it has adopted collective impact as a way to address the myriad health challenges affecting the county’s residents. However, there are two important components that are absent. One is a clear articulation and adoption of health equity principles and the other is the lack of a strong community voice in the decision-making process. With this in mind, we suggest that within the frame of collective impact, county leaders should 1) incorporate health equity in all policies and 2) amplify the voice of those most affected by these health inequalities—community residents.

The JSI Team recommends the strategy outlined below that calls for the inclusion of health equity in all policies by promoting community involvement, adopting a place-based initiative, and creating a sustainability plan.

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Goal: Reduce infant mortality rate and improve chronic disease outcomes among Montgomery County residents by incorporating health equity in all policies, programs, and practices affecting where people live, nurture, work, play, and age.

Objective 1: To establish a shared understanding of the health implications of policy and programmatic decisions affecting the built environment in Montgomery County.

- Create a small workgroup that can champion sustainable health equity activities throughout the department.
- Ensure that the workgroup has the capability, tools, resources, and authority to implement the proposed activities.
- Implement activities such as:
  - Raising awareness of health disparities by promoting cross-departmental activities like brownbag lunches, to discuss root causes of health disparities;
  - Championing health equity;
  - Discussing health equity in other sectors such as transportation, housing, community development, and public safety;
  - Partnering with other county and city government departments, boards, commissions, and committees to identify opportunities to mitigate the negative impact of the social determinants of health;
  - Partnering with other health departments in the state (Cuyahoga: hipcuyahoga.org/) that are undertaking similar efforts to promote health equity;
  - Identifying and adopting a curricula/guide to direct discussions related to equity;
  - Promoting opportunities to discuss issues of race and racism across all levels of the PHDMC department.

Objective 2: To develop an inclusionary community governance body that can identify and prioritize socioeconomic, health, and structural needs, and identify, develop, or modify the necessary resources to address them.

- Create a community governance body selection criterion that includes residents of diverse sociodemographic and geographical backgrounds as well as public and private partners from multiple sectors.
- Create networking opportunities to foster formal and informal interactions between community governance members and PHDMC employees.
- Assign meaningful decision-making roles to the community governance committee that include responsibility, accountability, consultation, and/or information.
- Provide capacity building activities to the community, particularly on data utilization, that would allow members of the community governance body to measure their progress and monitor infant mortality, chronic disease, and social determinants of health such as transportation needs, housing affordability, and unemployment rates.
- Remove or mitigate participation barriers such as those related to childcare, transportation, language, and meeting times.
- Create a preparedness plan to respond to unanticipated natural (e.g., tornadoes, floods) and economic disasters (e.g., closures of major stores, loss of employers).
Objective 3: To implement a place-based initiative (see Appendix 4 for a description along with three selected examples)

- Create consensus around the meaning of “place-based initiative.”
- Consult with community residents, PHDMC staff, and other county officials about the components and extent of the place-based initiative.
- Work with the community governance body to identify at least one modifiable social determinant of health.
- Convene local funders to support the sustainability of the place-based effort for at least a 10-year period.
- Assist community with coordinating existing programs into a seamless series of free, coordinated, and best-practice programs.
- Provide evaluation and data collection support for the initiative.

Objective 4: To develop a sustainability plan to ensure the long-term survival of the above referenced health equity initiatives.

- Define the meaning of sustainability in the context of health equity.
- Create an environmental scan of available resources including funding sources, health equity champions, donor resources, and supporters.
- Develop a sustainability plan.
- Assign responsibilities for components of the sustainability plan to members of the community governance body to better ensure plan implementation.

**Embracing Health Equity**

According to the Robert Wood Johnson Foundation (RWJF),\(^{20}\) "health equity means that everyone has a fair and just opportunity to be healthier. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care."

By adopting principles of collective impact, PHDMC has made significant advances towards health equity. The evidence found in this needs assessment, however, did not document an aggressive and assertive effort to confront forms of oppression such as homophobia, racism, sexism, and ageism. In addition, there is abundant evidence showing that community residents, service providers, and PHDMC officials recognize the adverse impact of the identified social determinants of health on the wellbeing of county residents. However, there is no evidence that community residents had a meaningful role in the decisions that affect their life circumstances.

To incorporate principles of health equity, the PHDMC should consider the following steps:

1. Have discussions acknowledging the root causes of health disparities.

2. Insert discussions on health equity in other sectors such as transportation, housing, community development, and public safety.

3. Partner with other county government sectors to identify opportunities to mitigate the negative impact of the social determinants of health.

4. Incorporate evaluation practices that measure outcomes among disadvantaged groups and size of gaps between disadvantaged and advantaged groups.

5. Advocate for health equity.

6. Confront racism aggressively and assertively.

7. Partner with other health departments that are undertaking similar efforts to promote health equity.

8. Ensure ongoing capacity building activities to implement health equity practices and confront racism.

**LEVELS OF INTERVENTION**

The socio-ecological model guiding the needs assessment categorizes determinants of health in three different levels: 1) individual, social support, 2) community involvement, and 3) socio-economic, cultural, and environmental conditions. The findings presented show that numerous interventions have been adopted by the state of Ohio and PHDMC. The most upscale of those interventions focus on the individual level, namely, CenteringPregnancy® and progesterone therapy. For that reason, this report does not contain individual level interventions; rather, it focuses on higher level interventions.

**COMMUNITY INVOLVEMENT MODEL**

Forty years ago, the World Health Organization sponsored a conference on primary health care in Alma-Ata, former USSR. The 1978 Declaration of Alma-Ata emerged from that meeting, pronouncing, among other things, that:

> The people have a right and duty to participate individually and collectively in the planning and implementation of their health care.

The presence or availability of resources and the goodwill of those that manage them do not necessarily lead to their utilization. Community residents—the end users of those resources and services and the most negatively affected by the social determinants of health—should have an active voice in guiding their utilization. Based on the findings of the needs assessment and the Alma Ata Declaration (see Appendix 3), we call for the creation of a community involvement model that can identify, activate, prioritize, and inform the accessibility and utilization of those resources.

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21 http://www.who.int/publications/almaata_declaration_en.pdf?ua=1
The mere existence of services in a certain administrative area does not prove that they are used correctly or used at all. Services have to be accessible to be used. This means organizing a supply of care that is geographically, financially, and culturally accessible. For the purposes of this report, we define community involvement as a participatory mechanism which allows Montgomery County residents to identify, prioritize, activate, and plan the effective accessibility and utilization of resources in the places that they live, work, play, and nurture.

Community involvement can take different forms and roles. For starters, the most basic level is to provide information to the community and notify them of major decisions. The second level is to consult with members of the community and obtain their input. The third level is partnering, that is a formal arrangement with community members to be part of the decision-making process. The fourth and highest level is collaboration in which the community, organized through a governance body, is part of the decision-making process and has a say in how resources are distributed and utilized.

Below are a number of best practices to implement community involvement mechanisms.

- Allocate funding for capacity building assistance to enhance community residents' advocacy, communication, and data utilization skills
- Define the roles and responsibilities of all partners
- Listen intentionally
- Create a culture of trust and transparency
- Train staff to engage with the community
- Utilize data and advocacy to support efforts to improve equity

There are a number of county health departments that have successfully adopted this practice, for example:

- Kansas City Develops MOU and Shares Space with Community Organizers
- Maricopa County Department of Public Health (DMCPH) Health Equity Cloud
- Alameda County Advances Equitable Housing Policies
- Cook County Partners with Community to Tackle Structural Racism and Build Community Power

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22 Listed in https://healthequityguide.org
CONCLUSION

This needs assessment and community plan were developed in response to PHDMC’s need to identify the impact of social determinants on the wellbeing of Montgomery County residents living in eight designated zip codes. To most effectively meet this need, JSI conducted an environmental scan of the existing literature, documents, and plans related to birth outcomes and chronic disease. JSI also collected over 1,000 data points on sociodemographic and health indicators from a focus group, key informant interviews with community leaders and county government officials, a community forum comprising three participatory activities, and a study assessing the relationship between public transportation and access to a health care facility. All analyses were conducted through a health equity lens while considering the influence of social determinants of health and any existing resources. Ultimately, the findings suggest that:

1. Black people that live in the targeted zip codes experience more psychosocial and structural inequalities and inequities than their white counterparts.
2. Abundant resources combined with talented and committed leadership exist in Montgomery County.
3. Fundamental changes in the way Montgomery County resources are mobilized to promote health and wellbeing are required.

The JSI Team makes the following recommendations:

- County leaders should incorporate health equity in all current and future policies and find mechanisms to amplify the voice of those most affected by these health inequalities—community residents.
ADDENDUM: BIRTH OUTCOMES 2014-2016 DATA

This needs assessment utilized infant mortality data from 2011–2013. After the report was completed, the 2014–2016 infant mortality data became available. That data is included in this addendum. Note that the new data indicates that two of the zip codes: 45405 and 45426 exhibit higher infant mortality rates for whites residents than for black residents. The remaining zip codes show there were no infant mortality rates for white residents. Overall, the infant mortality rates have not changed—the infant mortality rate among black residents is more than two times as large as that of white residents (13.1 vs 4.5). Thus the original findings, conclusions, and recommendations remain unchanged.

BIRTH OUTCOMES

Table 2 below summarizes the updated key indicators of interest related to infant mortality, pregnancy, and birth outcomes for each of the eight zip codes and Montgomery County overall for 2014–2016. The 2011–2013 data for these same indicators were used to characterize the disease burden and health inequities related to infant mortality faced by Montgomery County residents, which was used to inform the development of qualitative primary data collection tools, interviews, and community forum exercises.

<table>
<thead>
<tr>
<th>Table 2: BIRTH OUTCOME key indicators comparing zip codes to county data</th>
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<tbody>
<tr>
<td>Infant mortality rate - Deaths per 1,000 live births (2014-2016)</td>
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<td>Overall</td>
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<td>White</td>
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<td>Black / African American</td>
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<td>Preterm births (Gestation &lt;37 weeks) - % (2014-2016)</td>
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<td>Overall</td>
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<td>White</td>
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<tr>
<td>Low birth weight (&lt;2,500g or 5.5 lbs) - % (2014-2016)</td>
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<td>Overall</td>
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<td>White</td>
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<td>Black / African American</td>
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<td>Late or no prenatal care - % (2014-2016)</td>
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<td>Overall</td>
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<td>Smoking during pregnancy - % (2014-2016)</td>
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<td>Black / African American</td>
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KEY: Fares 25% worse than county Fares 10% worse than county Fares 10% better than county Fares 25% better than county

Source: Public Health - Dayton & Montgomery County, Department of Epidemiology
INFANT MORTALITY RATE — DEATHS PER 1,000 LIVE BIRTHS

Compared to the overall county average (6.8 deaths per 1,000 live births), the white infant mortality rate was 33.8% lower (4.5 deaths per 1,000 live births) and the black infant mortality rate was 92.6% higher (13.1 deaths per 1,000 live births) (Figure 2.A). In every zip code except 45405 and 45426, the black infant mortality rate was noticeably higher than the white infant mortality rate (Figure 2.B).
PRETERM BIRTHS (GESTATION <37 WEEKS)

Compared to the overall county percentage (11.3% of all births), the percentage of white preterm births was 9.7% lower (10.2% of all births), while the percentage of black preterm births was 27.4% higher (14.4% of all births) (Figure 2.C). In every zip code of interest except 45402, a higher proportion of black births were preterm compared to white births (Figure 2.D).

![Figure 2.C: Preterm births by race](image)

![Figure 2.D: Preterm births by race and location](image)
LOW BIRTH WEIGHT (<2,500G OR 5.5LBS)

Compared to the overall county low birthweight percentage (9.4% of all births), the percentage of white births reported as low birthweight was 16.0% lower (7.9% of all births), while the percentage of black births reported as low birthweight was 39.4% higher (13.1% of all births) (Figure 2.E). In every zip code of interest, a higher proportion of black births were reported as low birth weight compared to white births (Figure 2.F).

Figure 2.E: Low birth weight by race

![Bar chart showing low birth weight by race in Montgomery County.]

2014-2016 Public Health – Dayton Montgomery County, Department of Epidemiology

Figure 2.F: Low birth weight by race and location

![Bar chart showing low birth weight by race and location across different zip codes.]

2014-2016 Public Health – Dayton Montgomery County, Department of Epidemiology