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## Five Rivers Family Health Center Community Health Needs Assessment

Kara Yutzy

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Five Rivers Family Health Center Community Health Needs Assessment

Culminating Experience for Master of Public Health

Kara Yutzy

Chair: Sabrina Neeley, Ph.D., M.P.H.

Reader: Sylvia Ellison, M.A., M.P.H.

Reader: Meaghan Ebetino, M.D., M.P.H.

Wright State University Boonshoft School of Medicine

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### Abstract

**Objectives:** To conduct a community health needs assessment (CHNA) on the three zip codes around Five Rivers Family Health Center (FRFHC) in order to guide healthcare professionals in creating goals and priorities for needed health services in their health center's targeted community.

**Methods:** The investigator gathered zip code specific data from the American Community Survey, Public Health - Dayton & Montgomery County, the Dayton Police Department, and other online sources for the FRFHC CHNA zip codes. Data on the targeted zip codes was compared to data from Montgomery County, Ohio, and the United States.

**Results:** The greatest disparities between the FRFHC CHNA zip codes and Montgomery County, Ohio, and the US are in the areas of the social determinants of health, education, and infant health.

**Discussion:** Because the disparities seen in the FRFHC CHNA zip codes are multi-causal, a coordinated effort to collaborate between healthcare professionals and other community leaders must be emphasized in addressing and improving the disparities.

*Keywords:* health indicators, health disparities, community partnership, population health, social determinants of health

### Five Rivers Family Health Center Community Health Needs Assessment

Five Rivers Family Health Center (FRFHC) is a non-profit Federally Qualified Health Center (FQHC) located close to Good Samaritan Hospital in Dayton, OH. It is a member of Five Rivers Health Centers (FRHC), a group of five medical clinics that provides quality medical care to low income patients. FRFHC is a family medicine community-based center and is devoted to the health of the patients in its community (Five Rivers Health Centers, 2014). The community that the family center serves is defined as the three zip codes including and surrounding the FRFHC. These zip codes are 45402, 45405, and 45406. Striving to serve its community, leadership members of FRHC and FRFHC have made intentional changes since 2011 to improve the health of the clinic's patient population.

In 2015, all clinics within FRHC transitioned to FQHC status in 2015. Federally qualified health centers receive grant funds under Section 330 of the Public Health Service Act, as well as additional reimbursement from Medicare and Medicaid. To qualify for the additional funding, FQHCs must provide primary medical care services to underserved rural and urban communities, and must provide comprehensive services to their patients (Centers for Medicare & Medicaid Services, 2013).

To satisfy the FQHC requirements for comprehensive services, FRHC incorporated the Patient Centered Medical Home (PCMH) model. The PCMH model emphasizes team-based, comprehensive medical care that is centered around the patient. The Patient Protection and Affordable Care Act recognizes the potential of the PCMH model and encourages clinics to follow the model (Forman et al., 2013). Five Rivers Health Centers utilize the PCMH model to provide comprehensive services for the patients. The model increases preventive care with an emphasis on building provider-patient relationships (Five Rivers Health Centers, 2014).

In 2015, the Five Rivers Family Health Center expanded to a new site location with a bigger facility and additional services. In addition to the family medicine services provided, the patients have access to dietary, pharmacy, social work, and behavioral health consultants affiliated with Five Rivers Health Centers. The FRFHC is able to serve more patients with more services than ever before, and leadership and providers at the center are motivated to improve the health of the community members by using the center's resources to the fullest potential. Now that the FRFHC offers more comprehensive services, the providers are more empowered to accomplish this goal (L. Kellar, personal communication, December 14, 2015). As the FRFHC is now better situated to improve the health of the patients in its community, the leadership and healthcare providers must first understand the health needs of this community. Without having an awareness of the needs of the community, the center would not be able to best utilize all of the available resources to provide patients with the support they need.

Community health needs assessments are tools that inform public health and community leaders on the health status of a geographic area such as a state, county, or community (Public Health Accreditation Board, n.d.). These geographic areas may then be evaluated and compared to other areas of similar size (state to state, or community to community), or between areas of different size (state to county, or county to community). Results of the assessment inform public health policy and allow public health leaders to address the specific health needs of that area by creating a community health improvement plan.

The Public Health Accreditation Board (2015) mandates that state and county public health departments do a health assessment at least every five years to maintain accreditation. The Ohio Department of Health (2011) completed a health assessment for the state in 2011. The most recent assessment for Montgomery County, Ohio was in 2014 (Public Health - Dayton &

Montgomery County [PHDMC], 2014). Under the Patient Protection and Affordable Care Act, hospitals also must perform community health needs assessments, but the requirement is once every three years (Kansas Rural Health Works, 2013). To fulfill this requirement, Premier Health Network completed a community health needs assessment for each of its network hospitals in 2013, with a community health improvement plan that was developed based on the results of those assessments (Good Samaritan Hospital, 2013). The State of Ohio recently initiated the requirement that public health departments and hospitals align their community health assessments for the same years. FRHC, the healthcare system within which FRFHC and four other clinics are affiliated, is also required to complete a health needs assessment. A complete health needs assessment was required from FRHC upon application for FQHC status. Each year following approval of FQHC status, FRHC is required to update the assessment (National Health Care for the Homeless Council, 2014). However, the assessment for FRHC is for all five of its clinics that are spread throughout Dayton. The results of that assessment are still not specific to the needs of the community directly around FRFHC.

While the state, county, and hospital assessments give an indication to FRFHC on the health of the center's patients as citizens of Ohio and Montgomery County, the specific health needs of the smaller community may differ. Any differences in the health needs of the community around FRFHC from the greater Dayton community will influence how the leadership of FRFHC will address health services at the family center.

One example of a community health need is infant mortality. Healthy People 2020 indicates that the national goal for infant mortality rate is 6.0 infant deaths per 1,000 live births (U.S. Department of Health and Human Services [DHHS], 2016). The infant mortality rate in Ohio was 7.6 infant deaths per 1,000 live births, and 8.0 infant deaths per 1,000 live births in



Montgomery County, Ohio in 2012 (PHDMC, 2014). With these results, it seems likely that the patients in the community around FRFHC would also have an infant mortality rate above the national goal and that providers at the clinic would need to focus on improvements in prenatal and maternal care to improve this outcome. However, because the data is currently only available at the county level, the center cannot be certain of the infant mortality rate of its local community (T. Zryd personal communication, January 5, 2016).

A community health needs assessment (CHNA) informs the healthcare professionals and community leaders about the health and needs of a community (Reed & Fleming, 2014). The metrics that are assessed in a CHNA should be guided by the existing knowledge about health problems in the community, and should address the social determinants of health (Aly, McGee, & Stevens, 2016). These social determinants include social, physical, and economic factors in the environment, and are strong contributors to chronic health problems (Barnett, 2012). The assessment focuses on the health equity in the community so that disparities are identified and appropriately addressed. The metrics chosen for this assessment will monitor the progress that is made in the health of the community in future years and will identify hazards to the health of the community (Reed & Fleming, 2014).

### **Statement of Purpose**

To fully equip FRFHC to care for the health of its community, a community health needs assessment will be performed in the three zip codes including and surrounding the center. The results of this assessment will guide providers in creating goals and priorities for needed health services in their health center's targeted community, and with facilitating future prevention and clinical care initiatives at FRFHC.

## **Literature Review**

### **Social Determinants of Health**

The Robert Wood Johnson Foundation (RWJF) supports the concept that health for an individual begins where that individual lives his or her life, not where he or she goes to the doctor's office. Health is preserved when disease is prevented; however, in the United States disease prevention is not the emphasis (Robert Wood Johnson Foundation [RWJF], 2010). The foundation urges America to “Stop thinking of health as something we get at the doctor's office but instead as something that starts in our families, in our schools and workplaces, in our playgrounds and parks, and in the air we breathe and the water we drink... It's time we expand the way we think about health to include how to keep it, not just how to get it back" (RWJF, 2010, p. 6).

Public health professionals have named this concept of focusing on the conditions that impact health as the social determinants of health. Healthy People 2020 (n.d.), the Centers for Disease Control and Prevention (CDC) (2015c), and the World Health Organization (WHO) (2016b) have all identified the social determinants of health as being important in preserving health and preventing disease. The federal government also recognizes the importance of the social determinants of health, and the Office of the Surgeon General proposed a strategy in 2011 to improve the health of Americans by addressing these determinants (National Prevention Council, 2011).

The five domains of social determinants of health are economic stability, education, health and health care, neighborhood and built environment, and social and community context. All of these domains must be improved before the health of the individual can be improved (DHHS, 2016). The domains encompass things that cannot be fully controlled by the individual,

such as the neighborhood environment a child grows up in, or the education a child receives, or the relationships that an individual has the opportunity to make (DHHS, 2016).

The Health Impact Pyramid framework describes the different levels of intervention and the amount of impact each type of intervention has on the health of the population (Frieden, 2010). Interventions that target the socioeconomic factors have the greatest impact on individuals' health and require the least amount of effort from the individuals themselves (Frieden, 2010). Because the social determinants of health form the basis of the health of every individual, addressing these determinants across the nation will improve the health of the nation for a sustainable amount of time (DHHS, 2016). The social determinants of health have broad implications on the health of the nation; therefore, the field of public health is particularly interested in addressing these determinants (Meyer, Castro-Schilo, & Aguilar-Gaxiola, 2014). As important as it is to cure patients when they seek medical care, it is even more important to keep them from needing to see a healthcare professional in the first place, and that can be done by addressing and improving the social determinants of health (RWJF, 2010).

### **Race-based Health Disparities in the United States**

An investigation of racial disparities in the United States shows that being Black results in worse health outcomes than being White (Centers for Disease Control & Prevention [CDC], 2015a). The disparity report from the CDC reports that Blacks have higher rates of premature death due to chronic diseases such as heart disease and stroke. Sadly, Blacks more likely to die prematurely from chronic diseases; the same is true for homicide. The CDC reports that the homicide rate for Blacks is 665% higher than for Whites. Blacks also have a lower life expectancy overall, and have fewer years of life to live that are free from physical limitations due to chronic disease (CDC, 2015a). According to the CDC, Blacks have more unhealthy days,

both mentally and physically, and are more likely to self-report worse health than Whites. They are also more likely to be hospitalized for preventable reasons. Blacks with HIV have more hospitalizations and longer lengths of stay due to the disease than Whites (Oramasionwu et al., 2009). Black adolescent girls are more likely to become pregnant and give birth than White adolescent girls. Black babies are born prematurely at a higher rate than White babies, and they have higher infant mortality rates than White babies (CDC, 2015a).

**Poverty.** Living in an area of poverty has many effects on the individual's life, including financial and material deprivation. In addition to the monetary scarcity that poverty has on the individual, poverty also influences and affects the individual's health. In 2010, the CDC's *Morbidity and Mortality Weekly Report* investigated the rates of hospitalizations due to influenza between neighborhoods where more than 20% of the population lived below the federal poverty line and neighborhoods where less than 5% of the population lived below the poverty line. For residents in neighborhoods with increased poverty, the rate of hospitalizations due to influenza was doubled. In fact, for every step-wise increase in neighborhood poverty, influenza hospitalizations also increased in a step-wise fashion (Hadler et al., 2016).

In addition to poverty's association with increased risk of influenza, poverty is a risk factor for diabetes (Hsu et al., 2012). Not only is individual poverty a risk factor for diabetes, but neighborhood or community poverty is also predictive of higher rates of diabetes. To emphasize this point, the Moving to Opportunity ([nber.org/mtopublic/](http://nber.org/mtopublic/)) project demonstrated that when an individual moves from a high poverty neighborhood to a low poverty neighborhood, his or her hemoglobin A1c levels improve by up to 20% (Gaskin et al., 2013).

Preventive healthcare decreases risk for certain diseases, resulting in better health for individuals who receive that care. *A Morbidity and Mortality Weekly Report* (CDC, 2010)

showed that women living below the federal poverty line were less likely to engage in pap smears, a preventive health examination that allows for early detection of cervical cancers. Without early detection, the risk of cervical cancer mortality increases (CDC, 2010).

When health professionals engage with individuals living in poverty, they must be aware of the health effects of poverty. Poverty is a reality for many citizens in the United States, as 45.7 million Americans (15.6%) in 2015 lived below the poverty line (U.S. Census Bureau, 2015). At 18.7%, the poverty rate in Montgomery County, Ohio was even higher than the national rate (PHDMC, 2014).

**Unemployment.** For every week that passes where an individual is unemployed, family income decreases, and the individual's job skills and business connections diminish, decreasing the future likelihood of becoming employed (Nichols, Mitchell, & Lindner, 2013). Blacks are more likely to be unemployed than Whites (CDC, 2015a; Driscoll & Bernstein, 2012; Jackson et al., 2015). As of March, 2016, there was no difference in the national unemployment rates between men and women (Bureau of Labor Statistics, 2016). Unemployed individuals do not have as much insurance coverage as those who are employed, and when they do seek healthcare, they are more likely to report an increased time of waiting for healthcare services because of the cost of those services (Driscoll & Bernstein, 2012; Pharr, Moonie, & Bungum, 2012). Unemployment puts extra stress on the family (Pharr et al., 2012). Children do not perform as well in school if their parents are unemployed, and neighborhoods with many unemployed workers tend to have more crime and violence (Nichols et al., 2013).

Unemployed individuals are at a higher risk for developing new health issues that were not present prior to the loss of the job (Pharr et al., 2012; Strully, 2009). Individuals who are unemployed are at greater risk for engaging in risky behaviors such as smoking and alcohol

consumption, which can further exacerbate the negative health consequences of being unemployed (Pharr et al., 2012). Unemployed individuals are more likely to commit suicide; additionally, individuals who are unemployed for long periods of time are more likely to suffer premature death from natural causes than individuals who are employed, or who are able to be re-employed following job loss (Nichols et al., 2013). Mental health illnesses are increased in unemployed individuals, including depression and anxiety (Driscoll & Bernstein, 2012; McGee & Thompson, 2015; Pharr et al., 2012). Individuals self-report worse mental health when they are unemployed for any reason, whether they were fired, laid off, or chose to separate from their job voluntarily (Strully, 2009). Pharr, Moonie, and Bungum (2012) found that individuals unemployed for more than one year had statistically significant decreases in mental health.

**Education.** Education is an indicator of socioeconomic status, which in turn predicts health of the individual. Numerous studies have shown that higher education leads to lower systolic blood pressure (Cundiff, Uchino, Smith, & Birmingham, 2015), smoking, obesity (Vurbic et al., 2015), heart problems, and mortality (Schafer, Wilkinson, & Ferraro, 2013). The association between education and future health is strengthened or weakened depending on the context of the individual. The social environment of the individual moderates the effect of education on future health (Montez & Friedman, 2015). In other words, an individual with low educational attainment in a very supportive social environment will not struggle with as many health problems in the future as an individual with low educational attainment in an unsupportive social environment.

The City of Dayton recognizes the importance of education and strives to offer a high level of education to all children. In 2004, Dayton Public Schools (DPS) became partners with the City of Dayton, Montgomery County, The Dayton Foundation, and other foundation and

corporate supporters to emphasize quality education in neighborhood schools (Ferguson, 2009). At the time, five neighborhoods were chosen to create community based elementary schools, two of which are located in the zip codes studied in this 2016 Five Rivers Family Health Center Community Health Needs Assessment. From 2006 to 2010, the project worked to improve community connections and collaboration around the five community-based elementary schools (Ferguson, 2009).

**Housing.** Houses built before 1979 are likely to have lead-based paint, because the use of lead-based paint was not banned in the United States until 1979 (CDC, 2014b). Lead causes several health problems, and most greatly affects small children. Its effects include behavioral problems, learning disabilities, and seizures (U.S. Environmental Protection Agency, 2015). Parents must be educated about the importance of cleaning their house to avoid buildup of lead containing dust, picking up paint chips so children do not ingest them, and having the house and soil tested for lead by a professional (U.S. Department of Housing and Urban Development, n.d.).

In addition to lead, houses can harbor allergens that increase asthma, a disease that lowers the quality of life and demands regular medical care and follow-up (Colton et al., 2015; Wilson et al., 2010). Housing conditions that are particularly at risk of causing asthma exacerbations include presence of pets, mold, leaking water, pests such as cockroaches or rodents, holes in the walls, and inadequate housekeeping. Houses with basements or crawl spaces are less conducive to healthy respiratory living conditions, and if the house was built before 1951, the house will likely have more allergens than if it were built after that year (Wilson et al., 2010). Individuals living with more exposure to indoor allergens are therefore more likely to experience acute

asthma exacerbations, which decrease quality of life (Camacho-Rivera, Kawachi, Bennett, & Subramanian, 2014).

Poor housing conditions are associated with decreased physical health, but these health effects can be reversed if housing conditions are improved (Colton et al., 2015). When residents move from poorly maintained housing to new or newly renovated housing, asthma morbidity in children decreases (Colton et al., 2015). A *Cochrane* review by Thomson, Thomas, Sellstrom, and Petticrew (2013) showed that with improved living conditions, the general health and mental health of residents improved. Many other benefits were realized from the improvement of living conditions, including reduced sick days or reduced absent days from school, more disposable income, and better diet (Thomson, Thomas, Sellstrom, & Petticrew, 2013).

**Safety.** Neighborhood safety is associated with a healthier life (Christian et al., 2015; Meyer et al., 2014; Sun, Cenzer, Kao, Ahalt, & Williams, 2012). When parents perceive that a neighborhood is safe, their children have better general health and better development both socially and emotionally (Christian et al., 2015). Older adults who perceive their neighborhoods to be less safe experience faster cognitive decline than those who perceive their neighborhoods to be safe (Sun et al., 2012). When an individual has fewer fears about the safety of the neighborhood, he or she will have increased physical activity which then leads to better self-reported health (Meyer et al., 2014).

**Crime.** Crime rate in a neighborhood or community is correlated with mental health and well-being, as well as physical health (Cornaglia, Feldman, & Leigh, 2014; Dustmann & Fasani, 2012). The WHO has identified crime as a social determinant of health and created a commission to work on improving population health by decreasing crime rates (Commission on Social Determinants of Health, 2008). Increased rates of vacant houses in a neighborhood are



found in neighborhoods with higher crime rates. High crime rates increase the amount of anxiety and depression among the residents of a neighborhood, and cause residents to have loss of confidence (Morrall, Marshall, Pattison, & MacDonald, 2010). This relationship is true for both violent crime and property crime (Dustmann & Fasani, 2012). The mental health of women is more greatly affected by the crime rate than men, and women are more likely than men to change their habits to protect against the possibility of crime (Dustmann & Fasani, 2012; Morrall et al., 2010). Depression is twice as likely to affect individuals who have a high fear of the potential for crime than individuals who are not as worried about crime happening to them (Stafford, Chandola, & Marmot, 2007).

In 2011, Montgomery County, Ohio had a higher crime rate than both the State of Ohio and the United States. According to the 2013 DMCPH CHNA, the 2011 crime rates for Montgomery County, Ohio and the United States were as follows:

Table 1. *Crime Rates per 100,000 in Montgomery County, Ohio, and the United States*

<b>Crime Rate per 100,000</b>	<b>Property Crime</b>	<b>Violent Crime</b>
Montgomery County	3,799.5	402.4
Ohio	3,354.7	307.4
United States	2,908.7	386.3

Source: Public Health - Dayton & Montgomery County, 2014

**Substance use.** Substance use, whether drugs or alcohol, has negative effects on the physical health of the individual (Fox, Oliver, & Ellis, 2013; Lintzeris et al., 2016). The physical effects include both short- and long-term effects and vary depending on the substance being used. Short-term effects include toxicity of the substance on the human body and the increased risk of accidents that can happen to the individual under the influence (Fox et al., 2013). Long-

term effects include both accumulation of the substance's short-term effects through the years, as well as increased risks from the mode of ingestion, such as smoking, snorting, or injecting the substance (Fox et al., 2013). Long-term use of substances can cause mental health issues such as depression (Pape & Norström, 2016).

Substances not only negatively affect the physical health of the user, but also have an impact within the family and community (Fox et al., 2013; Lintzeris et al., 2016). The developing fetus exposed to substances that the mother ingests experiences negative physical, mental, and cognitive effects compared to unexposed fetuses (Association of Women's Health Obstetric and Neonatal Nurses, 2015). Children of parents who misuse substances are more likely to experience abuse and neglect, are less likely to excel in school, and more likely to begin drug use themselves (De Bortoli, Coles, & Dolan, 2014). Individuals using substances develop a tolerance to the substance and become more consumed by their pursuit of the next high, and therefore less energy is spent on nurturing relationships with family and friends. As the tolerance grows, they become less able to function in society, are not able to care for themselves as well, and become a burden to social services (Lintzeris et al., 2016).

Unfortunately, all age groups in Dayton, Ohio are affected by substance use. Students in Dayton high schools were surveyed to evaluate the prevalence of substance use among 11th and 12th graders (Falck, Nahhas, Li, & Carlson, 2012). Approximately one-third of students had problematic substance use (Falck et al., 2012). Additionally, a study by Ekeh et al. (2014) of elderly trauma patients in Miami Valley Hospital were also shown to be affected by alcohol and drug use, though the prevalence was not as great as among younger populations. Of those screened, 11% of elderly patients tested positive for substances, while 42% of those less than sixty-five years of age tested positive (Ekeh et al., 2014).

Among all drugs, pharmaceutical opioid pain medications and heroin have been receiving increased attention recently. The CDC (2016c) has declared that an opioid overdose epidemic currently afflicts the United States. Opioids act on the pleasure and reward regions of the brain; the euphoric high that they give explains the addictive nature of the drugs. Unfortunately, opioids lead to tolerance in individuals who use them regularly (National Institute on Drug Abuse, 2014). As individuals use increasingly large doses to achieve the same high, they can overdose, causing the respiratory rate to decrease which can lead to convulsions, coma, or even death. In 2014, over 28,000 people in the United States died of an opioid overdose. Of those deaths, about 50% involved a pharmaceutical opioid, the kind prescribed by a physician (Substance Abuse and Mental Health Services Administration, 2016).

Heroin is not usually a drug of first choice; often, the individual has experience with other drugs, known as gateway drugs such as smoking cigarettes or marijuana, using crack cocaine, or even using painkillers prescribed by a physician (National Institute on Drug Abuse, 2011; National Institute on Drug Abuse, 2016). Carlson, Nahhas, Martins, and Daniulaityte (2016) studied factors that predict which individuals will switch to heroin. Those who are most likely to begin using heroin are those who are young, White, and have used pharmaceutical opioids illicitly. The earlier people start using pharmaceutical opioids the more likely they are to switch to heroin. Additionally, if the individual has ever used the pharmaceutical opioids for reasons other than to treat a medical condition (such as to get high) or has ever injected the pharmaceutical opioids, he or she is more likely to switch to heroin use (Carlson, Nahhas, Martins, & Daniulaityte, 2016).

Montgomery County has been especially affected by the opioid epidemic compared to other areas of Ohio. In 2014, it had the second highest age-adjusted rate for unintentional drug

overdose deaths of all counties in Ohio (Ohio Department of Health, 2015). Public Health - Dayton & Montgomery County reported that the unintentional drug overdose deaths occurred most frequently in White men aged 25 to 54 years old. The deaths were most common for single or divorced individuals who had a high school diploma or less. Fifty-eight percent of the unintentional drug overdose deaths in Montgomery County were related to heroin (PHDMC, 2014).

**Infant health.** Infant mortality, or the death of a child in the first year of life, is used as an indicator of the general health of a population (CDC, 2016a). Unfortunately the rate of infant mortality is higher in the United States than in other developed countries, and this elevation could be due to the fact that the United States also has a higher rate of preterm births than other developed countries (Jacob, 2016). Infant mortality can be due to preterm births, as already stated, birth defects, sudden infant death syndrome, complications in pregnancy, or other injuries (CDC, 2016a).

One factor that impacts the risk of infant mortality is whether or not the child's father is present in the child's life. If the father is not present, the child is almost three times more likely to die than children whose fathers are present. Regardless of ethnic group, having established paternity reduces the risk of infant mortality (Ngui, Cortright, & Michalski, 2015). An unemployed mother is more likely to have a baby that dies in the first year of life than an employed mother (Scharber, 2014).

Birth weight is an indicator of the health of a baby, and is linked to the survival and development of the child (Gebremedhin, Ambaw, Admassu, & Berhane, 2015). Appropriate birth weight indicates a healthy, full-term pregnancy and sets a baby up for a healthy first year of life. Low birth weight babies are more likely to have complications surrounding the birth as well

as health complications in the first years of life and developmental delays (Gill, May-Benson, Teasdale, & Munsell, 2013). Low birth weight is defined as any child born less than 2.5 kilograms, and is one of the major causes of infant mortality (CDC, 2016a).

Preterm birth is defined as a birth before thirty-seven weeks of pregnancy. A baby who is born prematurely is more likely to die in the first year of life than a baby who is born at full term (CDC, 2015d). In fact, premature birth is the leading cause of infant mortality (World Health Organization [WHO], 2015). A preterm baby has not had enough time to develop its internal organs; therefore, it may have problems breathing and feeding, and is at greater risk of neurologic and developmental delays (CDC, 2015d). Maternal stress and maternal exposures to cigarette smoke are two of the causes for preterm births (Behrman & Butler, 2007).

A gap in infant health indicators exists between Black and White babies in the United States (National Center for Health Statistics, 2011). The infant mortality rate among Blacks is more than twice as high as the infant mortality rate among Whites. Similar disparities exist in the rates of preterm births and low birth weight babies between the races. The difference in infant mortality rate could be explained by the increased rates of preterm births and low birth weights among Black babies as they must overcome more hurdles to experience good health than White babies (Lu et al., 2010).

Healthy People 2020's national goal for infant mortality rate is 6.0 infant deaths per 1,000 live births (DHHS, 2016). In 2012, the infant mortality rate was 7.6 infant deaths per 1,000 live births in Ohio and 8.0 infant deaths per 1,000 live births in Montgomery County (PHDMC, 2014). Healthy People 2020 has set a target of 7.8% for low birth weight babies in the nation (DHHS, 2016). In 2012, the low birth weight rate was 8.5% in Ohio and 9.7% in Montgomery County (PHDMC, 2014). The Healthy People 2020 target for preterm births is

11.4% (DHHS, 2016). In 2012, the rate of preterm births was 12.3% in Ohio and 14.0% in Montgomery County (PHDMC, 2014).

***Prenatal care.*** Pregnancy is a time of rapid change and development, when the fetus is at risk of developmental anomalies (WHO, 2002). During pregnancy, the fetus is susceptible to exposures from harmful environments through the mother's bloodstream; this exposure may be unintentional. The health of the mother also may be compromised during the course of the pregnancy. Complications due to the pregnancy or harm to the fetus can be detected early and harm may be avoided if the mother receives proper prenatal care (WHO, 2016a).

Proper prenatal care consists of screening the mother for infections that could harm the baby, or other environmental exposures such as smoking or alcohol use that would negatively affect the fetus, treatment of any underlying diseases or infections, vaccinations to bolster the baby's immune status once born, identification of any warning signs indicating pregnancy complications, as well as supporting the woman during the many changes of pregnancy and motherhood (American Congress of Obstetricians and Gynecologists, 2012; WHO, 2016a). If the mother does not receive any prenatal care during her pregnancy, her baby is three times as likely to be born with low birth weight, and she is five times more likely to die during the pregnancy and delivery (DHHS, 2012).

The WHO (2016a) recommends that each mother should have at least four prenatal care visits during the course of her pregnancy, the first during her first trimester. However, the U.S. Department of Health and Human Services recommends a pregnant woman should see her doctor once monthly during weeks four through twenty-eight, twice each month through week thirty-six, and every week for the remainder of the pregnancy after week thirty-six (DHHS,

2012). This number of recommended visits adds up to eleven to fourteen total visits during a pregnancy of average length of forty weeks.

Infants are the future of the nation; therefore, Healthy People 2020 recommends protecting them during pregnancy with adequate prenatal care visits to detect problems early. Healthy People 2020 has set a goal of 77.9% of women receiving prenatal care in the first trimester (DHHS, 2016). In 2012, 74.7% of women in Montgomery County received prenatal care in the first trimester (PHDMC, 2014).

**Cancer.** Cancer is a condition where the cells in the body grow and reproduce at a rate faster than usual (American Cancer Society, 2016a). Cancer is caused when the genes that normally keep the cell growth in check are changed so that the cells can grow at a fast and unregulated rate. These cells usually form a mass, or tumor, and eventually will disrupt normal body functioning and can cause death (National Cancer Institute, 2015). Conditions that increase an individual's risk of developing cancer include lifestyle choices such as tobacco and alcohol use, physical activity and diet, as well as sun exposure, radiation exposure, obesity and exposure to other carcinogens (American Cancer Society, 2016b).

The most common types of cancers in the United States are breast, lung, prostate, and colon cancers. Deaths are most common in lung, colon, pancreatic, and breast cancers (National Cancer Institute, 2016). Men in the United States have a risk of 42% for developing cancer at some point in their lives, while women have a 38% risk. Of those who develop cancer, 37% of men and 33% of women die from the cancer (American Cancer Society, 2016a).

Individuals with lower socioeconomic status are at greater risk of dying from cancer than individuals with higher socioeconomic status (CDC, 2014a). Individuals with lower socioeconomic status are less likely to receive cancer screenings than individuals with higher

socioeconomic status (Parrish, Mason, & Harris, 2013). Because they do not receive cancer screenings, their cancer is more likely to be caught at a later stage, at a point where proper treatment is not as effective (CDC, 2014a). They also have higher risk factors for cancer, including obesity, physical inactivity, and tobacco use (Parrish et al., 2013). Low socioeconomic status individuals are more likely to live in an environment that exposes them to more carcinogenic substances, predisposing them to develop cancer (CDC, 2014a).

In the United States as well as in Ohio, heart disease is the leading cause of death (CDC, 2015b; DHHS, 2016). However, in 2012 the leading cause of death in Montgomery County was cancer (PHDMC, 2014). The Healthy People 2020 goal for cancer death rates is 161.4 deaths per 100,000 people (DHHS, 2016). In Montgomery County in 2012, the cancer death rate for all types of cancer at all sites was 188.8 per 100,000 people (PHDMC, 2014).

### **Methods**

The topics chosen for the Five Rivers Family Health Center community health needs assessment were modeled after the most recent community health needs assessments of Good Samaritan Hospital (Good Samaritan Hospital, 2013) and Public Health - Dayton & Montgomery County (2014). The investigator included background demographic data about the county from the 2014 Public Health - Dayton & Montgomery County Community Health Needs Assessment.

### **Data Collection & Analysis**

The zip codes studied in this assessment were 45402, 45405, and 45406. For this assessment's purposes, the zip codes are referred to as the FRFHC CHNA zip codes. Data specific to the zip codes were obtained from several online sources as well as through personal communications with several organizations. When data specific to Montgomery County, Ohio, and the United States are reported for comparison, the data were obtained from the same source



as the data for the targeted zip codes, if possible. However, some sources did not include information for the selected zip codes, Montgomery County, Ohio, and the United States, in which case data from similar years for Montgomery County, Ohio, and the United States were obtained from other sources.

The United States Census demographic data presented in this report are estimates from the American Community Survey 2010-2014 and come from the American FactFinder website (U.S. Census Bureau, 2016). The estimates are five year estimates based on the Census Bureau's Population Estimates Program. The investigator downloaded Excel data sheets from American FactFinder containing information about the FRFHC CHNA zip codes 45402, 45405, and 45406, as well as information concerning Montgomery County, Ohio, and the United States for comparison. The data did not provide information about trends, only cross-sectional information about the demographic information for the residents in the selected areas of comparison during the five year period. The investigator downloaded the following Excel sheets from the FactFinder website: "Children Characteristics," "Commuting Characteristics," "Educational Attainment," "School Enrollment," "Selected Housing Characteristics," "Financial Characteristics," "Physical Housing Characteristics for Occupied Housing Units," "Income in the Past 12 Months," "Selected Economic Characteristics," "Employment Status," "Poverty Status in the Past 12 Months," and "Age and Sex."

The investigator determined the number of public schools available to students in the FRFHC CHNA zip codes and obtained educational indicators such as fourth grade proficiency levels and school performance indices to assess the strength of education in the targeted zip codes. The data for proficiency levels and performance indices for public schools in Montgomery County in 2015 were found on the Ohio Department of Education webpage.

The crime analyst at the Dayton Police Department (n.d.) was contacted to obtain the property and violent crime rates in the FRFHC CHNA zip codes from 2014 and 2015. Property and violent crime rates in 2014 for Montgomery County and Ohio were obtained from the website of the Office of Criminal Justice Services (2014) for Ohio.

Public Health - Dayton & Montgomery County maintains a tracking portal for all zip codes in Montgomery County. Health information was obtained concerning asthma, substance use, birth outcomes, and cancer from the tracking portal. The prevalence of emergency room visits due to childhood asthma gave an indication of the burden of asthma in the FRFHC CHNA zip codes compared to Montgomery County. The prevalence of hospital visits due to accidental drug overdose and the prevalence of unintentional heroin overdose deaths gave an indication of the burden of substance use in the selected zip codes compared to Montgomery County. The prevalence of very low birth weight babies, the prevalence of preterm births, and the prevalence of infant mortality by race gave an indication of infant health in the targeted zip codes compared to Montgomery County. The prevalence of mothers receiving no or late prenatal care and the prevalence of mothers who smoked during pregnancy gave an indication of prenatal care in the three zip codes compared to Montgomery County. The incidence and mortality rates for all cancer types and the incidence and mortality rates for the three most common types of cancer gave an indication of the burden of cancer in the selected zip codes compared to Montgomery County. The investigator obtained the incidence and mortality rates for all cancer types and the incidence and mortality rates for the three most common types of cancer for Ohio and the United States from the CDC and the National Cancer Institute (Centers for Disease Control & Prevention & National Cancer Institute, 2016).

Key informant interviews were conducted to determine community leaders' perceptions of the needs of the community. The study did not require the approval of the Wright State University's Institutional Review Board (see Appendix A) because it did not include personal information about the interviewees. By incorporating the results of the interviews, the CHNA identifies resources and resource gaps in the community and sheds light on the health needs and priorities of the community (Pennel, McLeroy, Burdine, & Matarrita-Cascante, 2015). Health priorities direct a community to focus on certain topics in the following years, and often result in a community health improvement plan (Reed & Fleming, 2014).

Thirteen key informant interviews were conducted. One church leader from each zip code, one leader from an organization serving 45405 and 45406, and nine organizational leaders that served all three zip codes were interviewed. The investigator interviewed leaders from St. John Lutheran Church (45402), Calvary Missionary Baptist Church (45405), North Riverdale Lutheran Church (45406), Good Shepherd House (45405 and 45406), Big Brothers Big Sisters, Daybreak Dayton, Good Neighbor House, Citywide Development Corporation, Equitas Health Dayton, Foodbank, Inc. Dayton, For Love of Children, Miami Valley Life Alliance, and Greater Dayton Christian Connection. During the interview, the investigator kept written notes in Microsoft Word. After the interview, the investigator identified key themes that appeared to be prominent responses among the informants. The responses were compiled to highlight common needs of the community as told by organizational leaders of the community. The key informant interviews included eight questions that the informants answered verbally:

1. What issues or concerns do you see in this community?
2. What are the health issues in this community?
3. What environmental issues are there in this community?

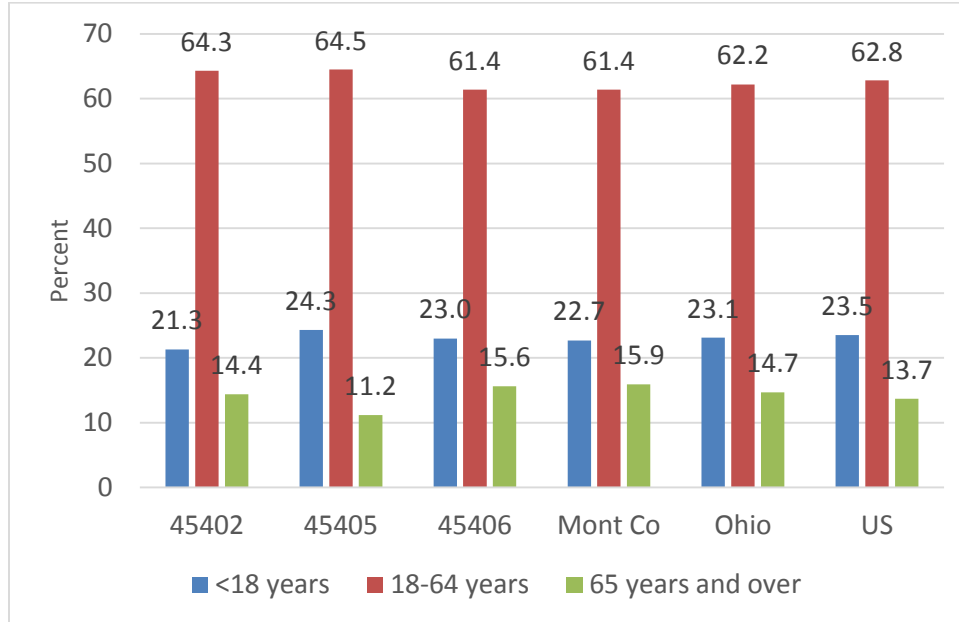
4. What safety, violence, or crime concerns are there in this community?
5. What employment concerns are there in this community?
6. What transportation concerns are there in this community?
7. What is going well in the community?
8. What resources does this community have?

## **Results**

### **Demographics**

Figures 1-8 show the demographic information for the residents living in the FRFHC CHNA zip codes compared to Montgomery County (MC), Ohio, and the United States (US). Age, race, insurance status, poverty status, unemployment status, and access to transportation are reported.

For age comparison, ages were divided into three groups (0 to 17 years, 18 to 64 years, and  $\geq 65$  years) and the percent of residents in each age group are reported in Figure 1.

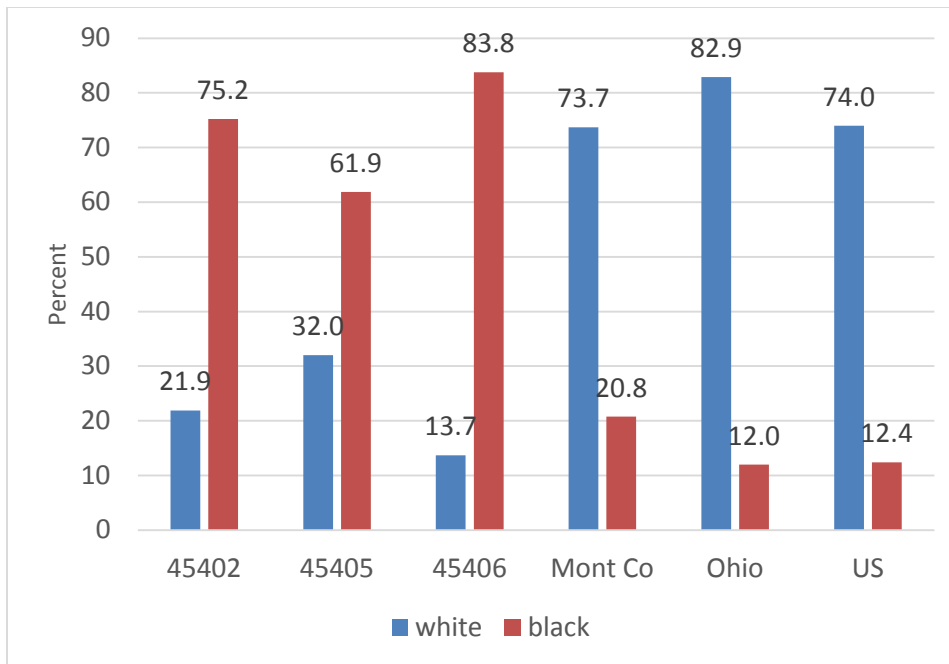


*Figure 1.* Age comparison of residents living in FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

The percent of residents in the FRFHC CHNA zip codes in the three age groups appears to be similar to the percent of residents in MC, Ohio, and the US. Over one-half of the residents are working age adults, about one-quarter of the residents are children less than 18 years of age, and about 15% of the residents are over the age of 65. The number of residents present in each age group within the selected zip codes was expected based on knowledge of national, state, and county data.

Race comparison for the targeted zip codes, MC, Ohio, and the US are reported in Figure 2.

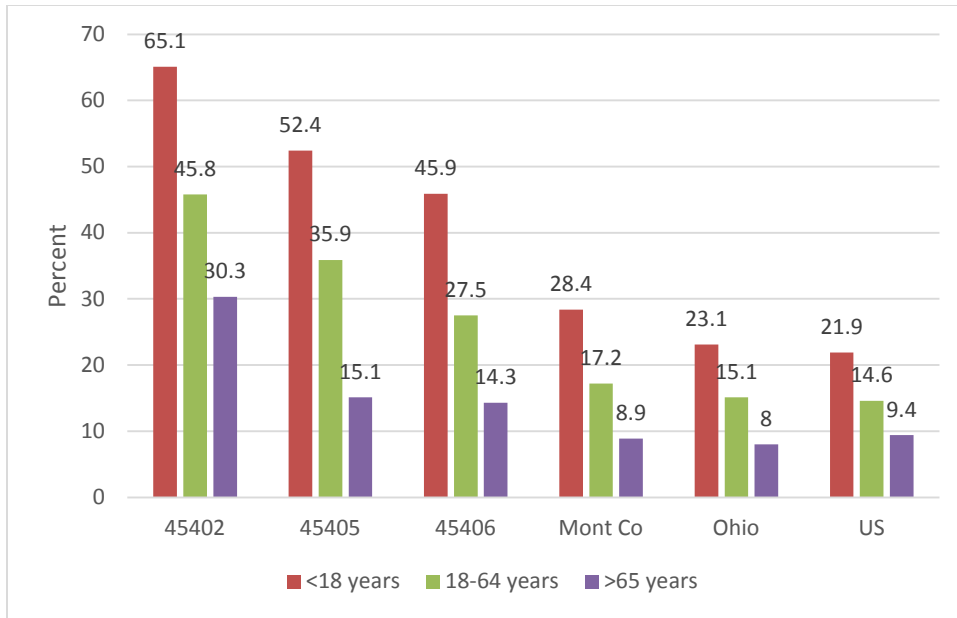


*Figure 2. Race comparison of residents living in FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).*

Source: American Community Survey (U.S. Census Bureau, 2015)

In the FRFHC CHNA zip codes, 61 to 84% are Black, and 13 to 32% are White. In MC, Ohio, and the US, 12 to 21% are Black and 73 to 83% are White. The percentage of Black and White residents are opposite between the targeted zip codes and MC, Ohio, and the US. Of the three selected zip codes, 45405 had the smallest representation gap between the races.

The poverty status of the residents in the FRFHC CHNA zip codes is reported as the percentage of residents living below the federal poverty line. Poverty status is reported for three age groups and by race for the targeted zip codes, MC, Ohio, and the US (Figure 3). The three age groups are 0 to 17 years, 18 to 64 years, and  $\geq 65$  years.

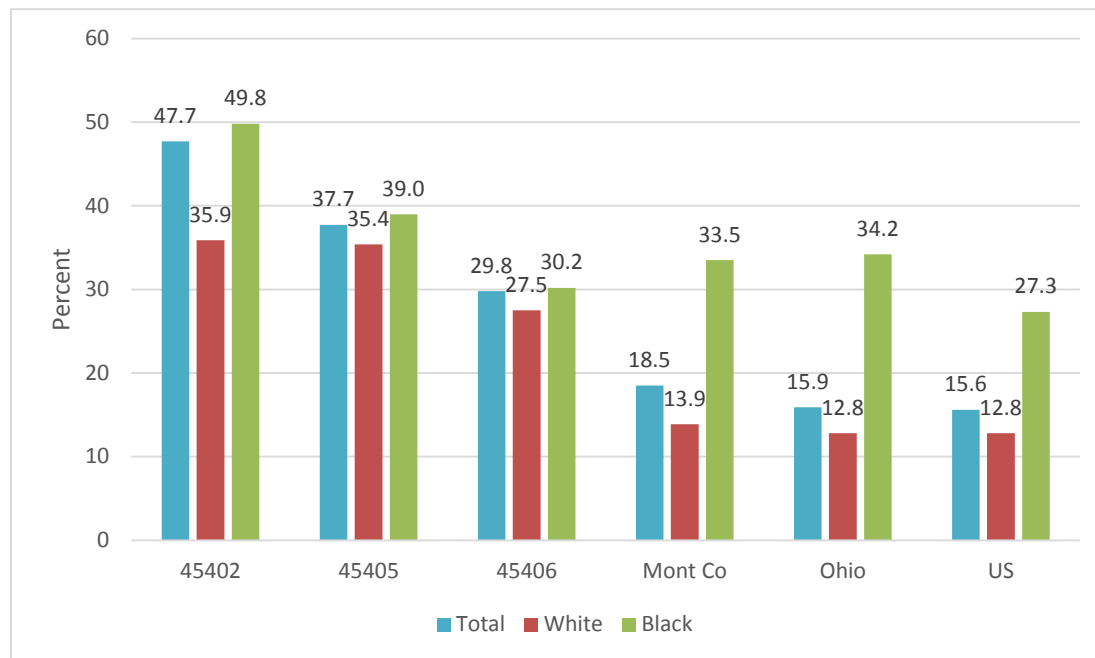


*Figure 3.* Residents living below poverty level by age groups in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

In 45402, 65.1% of those 0 to 17 years old, 45.8% of those 18 to 64 years old, and 30.3% of those 65 years and older live below the federal poverty level. In 45405, 52.4% of those 0-17 years old, 35.9% of those 18-64 years old, and 15.1% of those 65 years and older live below the poverty level. In 45406, 45.9 % of those 0 to 17 years old, 27.5% of those 18 to 64 years old, and 14.3% of those 65 years and older live below the poverty level. In MC, 28.4% of those 0 to 17 years old, 17.2% of those 18 to 64 years old, and 8.9% of those 65 years and older live below the poverty level. In Ohio, 23.1% of those 0 to 17 years old, 15.1% of those 18 to 64 years old, and 8.0% of those 65 years and older live below the poverty level. In the US, 21.9% of those 0 to 17 years old, 14.6% of those 18 to 64 years old, and 9.4% of those 65 years and older live below the poverty level.

When assessing poverty, it is apparent that a higher poverty rate is seen in every age group in the FRFHC CHNA zip codes than in MC, Ohio, and the US (see Figure 4).



*Figure 4.* Residents living below poverty level by race in the FHFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

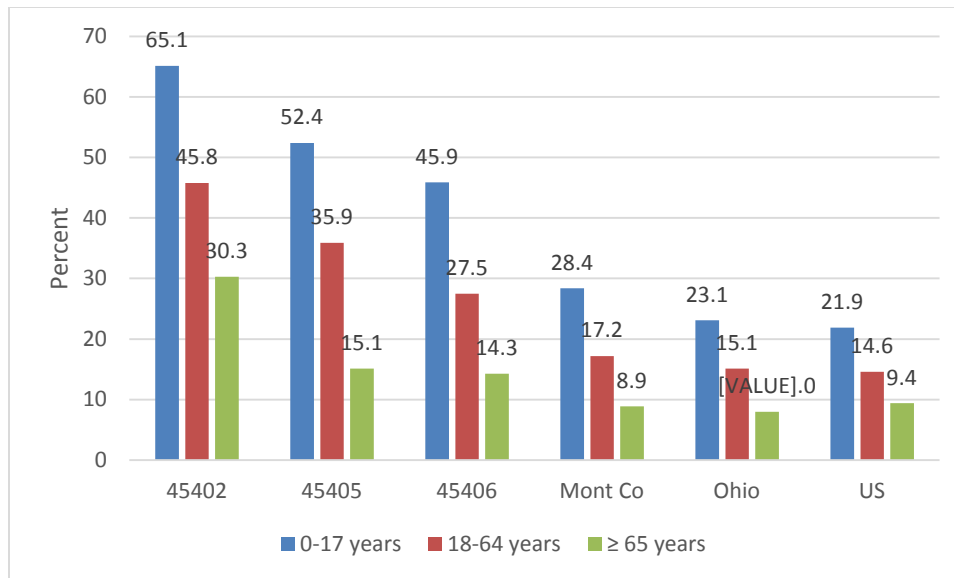
The zip code with the highest rate of poverty in the FRFHC CHNA is 45402, which has poverty rates that are almost three times higher in all age groups compared to the poverty rates in MC, Ohio, and the US. The other two zip codes, 45405 and 45406, have poverty rates in all age groups that are more than twice the poverty rates in MC, Ohio, and the US. This assessment shows that in all geographic areas of study, as the age increases, the percent of residents living in poverty decreases. A higher percentage of children live in poverty than working age adults, and a higher percentage of working age adults live in poverty than retired adults.

The total prevalence of residents living below the federal poverty level in 45402 was 47.7%. The prevalence of White residents living below the poverty level was 35.9%, and the



prevalence of Black residents living below the poverty level was 49.8%. The total prevalence of residents living below the poverty level in 45405 was 37.7%. The prevalence of White residents living below the poverty level was 35.4%, and the prevalence of Black residents living below the poverty level was 39.0%. The total prevalence of residents living below the poverty level in 45406 was 29.8%. The prevalence of White residents living below the poverty level was 27.5%, and the prevalence of Black residents living below the poverty level was 30.2%. The total prevalence of residents living below the poverty level in MC was 18.5%. The prevalence of White residents living below the poverty level was 13.9%, and the prevalence of Black residents living below the poverty level was 33.5%. The total prevalence of residents living below the poverty level in Ohio was 15.9%. The prevalence of White residents living below the poverty level was 12.8%, and the prevalence of Black residents living below the poverty level was 34.2%. The total prevalence of residents living below the poverty level in the US was 15.6%. The prevalence of White residents living below the poverty level was 12.8%, and the prevalence of Black residents living below the poverty level was 27.3%.

Residents living in the FRFHC CHNA zip codes have higher rates of poverty than elsewhere in the nation (see Figure 5). However, the poverty rates of Blacks in the selected zip codes are not that different from the poverty rates of Blacks elsewhere in the nation. The reason for the similarity may be due to the fact that the poverty rates of Blacks elsewhere in the nation are two to three times higher than the poverty rates of Whites.



*Figure 5.* Residents living below the poverty level by age in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

Forty-five to sixty-five percent of those less than 18 years of age are living below the poverty level in the FRFHC CHNA zip codes compared to 20 to 30% in MC, Ohio, and the US. Twenty-five to forty-five percent of residents 18 to 64 years live below the poverty line in the targeted zip codes compared to 14 to 18% of residents in MC, Ohio, and the US. In 45402, 30.3% of residents 65 years of age and older live below the poverty level. In 45405 and 45406, about 15% of residents 65 years of age and older live below the poverty level. In MC, Ohio, and the US, about 8 to 9% of residents 65 years of age and older live below the poverty level. This assessment shows that in all geographic areas of study, as the age increases, the percent of residents living in poverty decreases. A higher percentage of children live in poverty than working age adults, and a higher percentage of working age adults live in poverty than retired adults.

The prevalence of total unemployment to the prevalence of unemployment of males and females was compared between the FRFHC CHNA zip codes, MC, Ohio, and the US (see Figure 6).

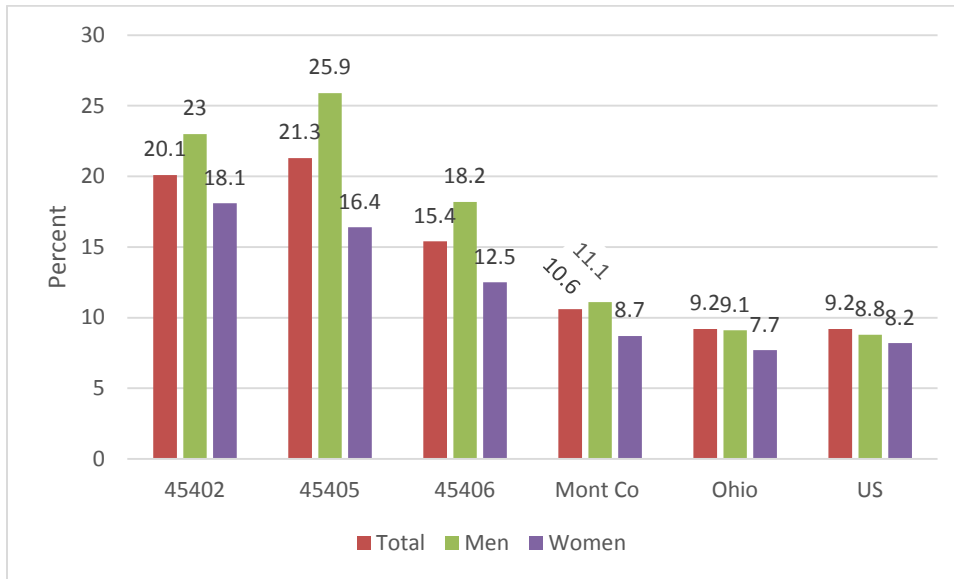
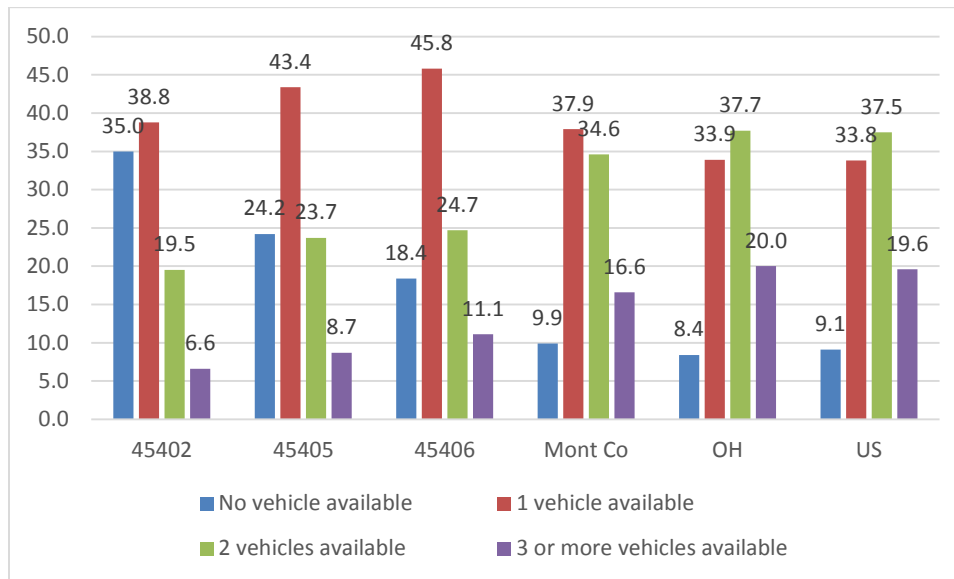


Figure 6. Prevalence of unemployment by sex in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

Unemployment in the FRFHC CHNA zip codes is more prevalent than in MC, Ohio, and the US. The total unemployment rates in the selected zip codes range from 15% to 21%, almost two times higher than the unemployment rates of MC, Ohio, and the US which range from 9% to 11%. Although the unemployment rates for men and women in MC, Ohio, and the US are similar to one another, the unemployment rates for men and women in the FRFHC CHNA zip codes are not. In the three targeted zip codes, men have higher unemployment rates than women by about five percentage points. In 45405, the unemployment rate for men is 9.5 percentage points higher than the unemployment rate for women.

The number of vehicles available to households was reported as a percent. The number of vehicles is reported as 0, 1, 2, or  $\geq 3$  vehicles available to the household (see Figure 7).

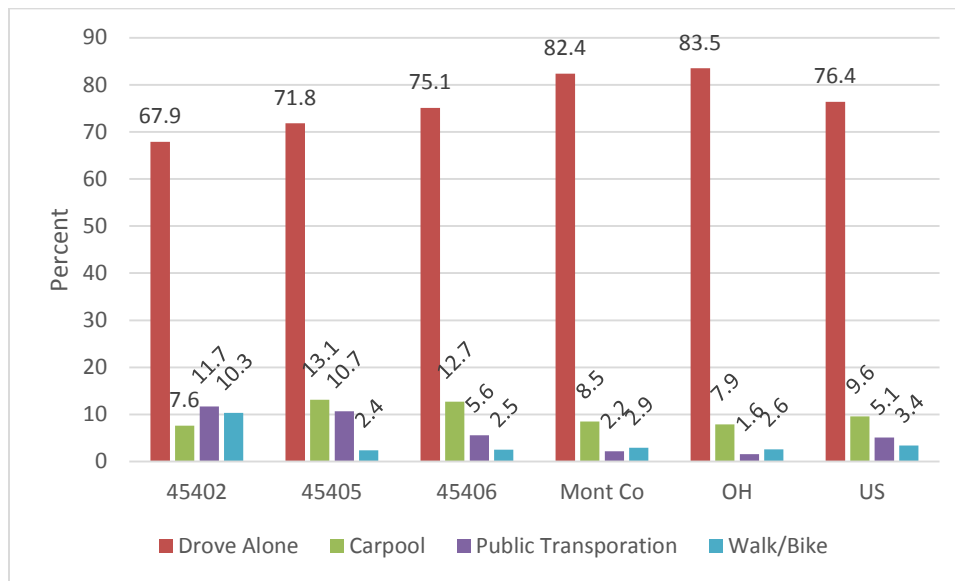


*Figure 7.* Percent of vehicles available per household in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

In 45402, 35% to 40% of households have access to no vehicle or one vehicle, about 20% of households have two vehicles available, and about 7% of households have three or more vehicles available. In 45405, about 25% of households have no vehicle available or two vehicles available, about 43% of households have one vehicle available and about 9% of families have three or more vehicles available. In 45406, about 18% of families have no vehicle available, about 45% of families have one vehicle available, about 25% of families have two vehicles available, and about 11% of families have three or more vehicles available. In MC, Ohio, and the US, about 9% of families have no vehicle available, 30% to 40% of families have one or two vehicles available, and 16% to 20% of families have three or more vehicles available.

The prevalence of residents who utilized four different modes of transportation to commute to work were compared between the FRFHC CHNA zip codes and MC, Ohio, and the US (see Figure 8). The four modes of transportation that are reported are driving alone, carpooling, public transportation, and walking or bicycling.



*Figure 8.* Modes of transportation to work in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

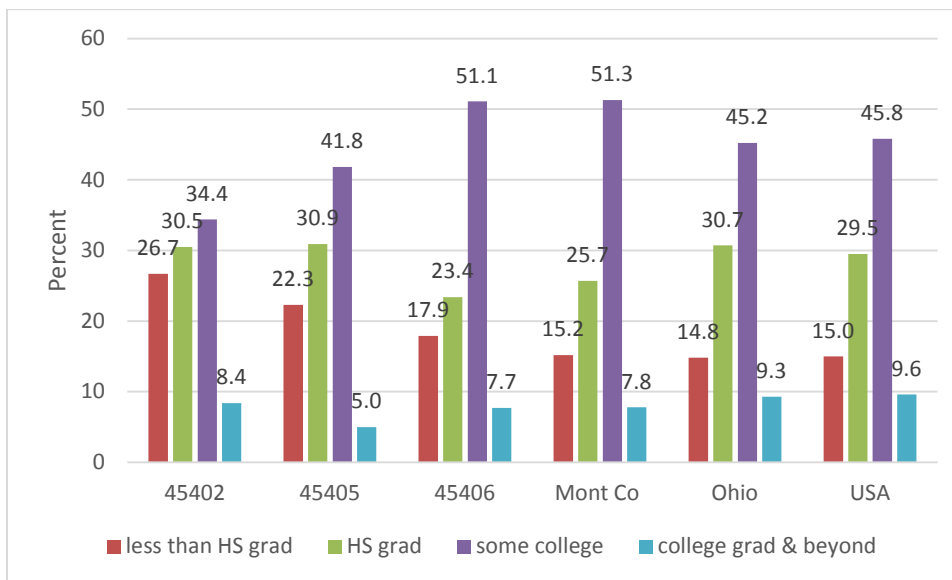
Source: American Community Survey (U.S. Census Bureau, 2015)

About 65% to 85% of residents in the FRFHC CHNA zip codes, MC, Ohio, and the US drove alone to work. About 7% to 13% of residents in the selected zip codes, MC, Ohio, and the US carpoolled to work. About 11% of residents in 45402 and 45405 utilized public transportation to commute to work. About 5% of residents in 45406 and the US utilized public transportation to commute to work. About 2% of residents in MC and Ohio utilized public transportation to commute to work. In 45405, 45406, MC, Ohio, and the US, about 2% of residents walked or biked to work. In 45402, about 10% of residents walked or biked to work. In the selected zip codes, a higher prevalence of residents carpool or use public transportation to

travel to work than in MC, Ohio, and the US. A lower prevalence of residents in the targeted zip codes drive alone to work compared to MC, Ohio, and the US.

## Education

The educational attainment among individuals 18 to 24 years old in the FRFHC CHNA zip codes were compared to the educational attainment among individuals 18 to 24 years old in MC, Ohio, and the US (see Figure 9). The educational attainment reports the highest level of education an individual has completed.



*Figure 9.* Educational attainment for individuals between ages 18 to 24 in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

The Ohio Department of Education reports performance indices for public schools in Ohio. The performance indices measure how well students are performing on the Ohio Achievement Assessment (OAA) and Ohio Graduation Test (OGT) in order to be compared to other schools (Ohio Department of Education, 2014). School performance indices were reported for schools in the FRFHC CHNA zip codes. They were then compared to the schools with the

highest and lowest performance index scores in Montgomery County. To maintain anonymity, schools are listed by the zip code, the level of education provided, followed by a number if there is more than one school of that type in its zip code. For example, the four high schools in the selected zip codes are renamed 45402 High School #1, 45402 High School #2, 45402 High School #3, and 45406 High School. Performance indices are reported as both a number and a letter grade.

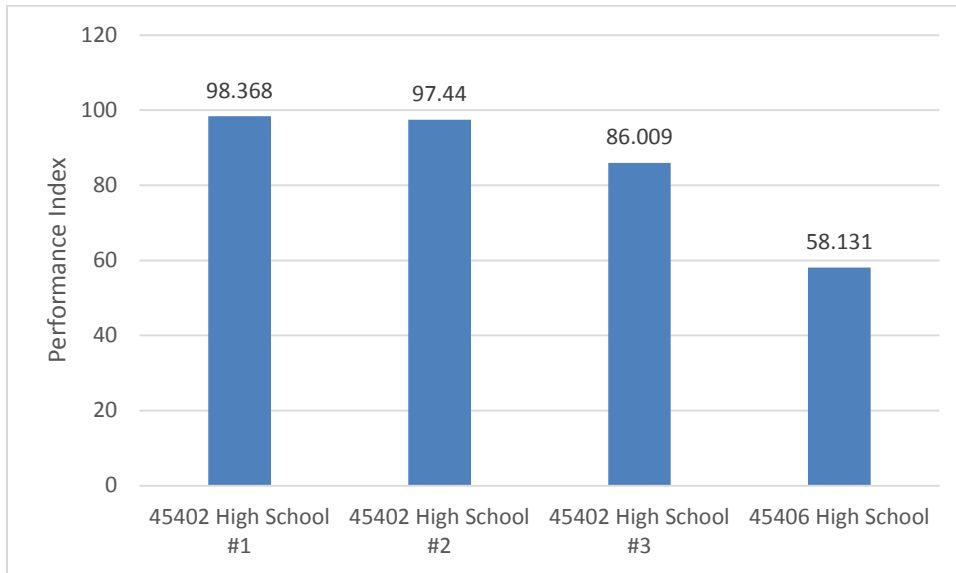
Table 2. *Letter Grade Categories by Performance Indices*

Letter Grade	Performance Index
A	>107.96
B	95.94-107.96
C	83.95-95.94
D	60.00-83.95
F	<59.99

Source: Ohio Department of Education, 2014

There are three high schools in 45402, one in 45406, and none in 45405. In addition to the three traditional public high schools, the FRFHC CHNA zip codes also have three alternative or vocational education options for high school students. In 45405, the Alternative School offers education for non-traditional students up to age twenty-one, such as those who are returning to high school, pregnant students, students who are working and going to school, and those with other special circumstances. Vocational School #1 offers vocational training for students who have dropped out of high school. Vocational School #2 offers technology vocational training for high school students.

The performance indices for the four traditional high schools are reported together (see Figure 10). The three non-traditional high schools do not have performance indices, and therefore cannot be compared with the traditional high schools.



*Figure 10.* Performance indices of high schools in 45402 and 45406 (2014).

Source: Ohio Department of Education, 2014

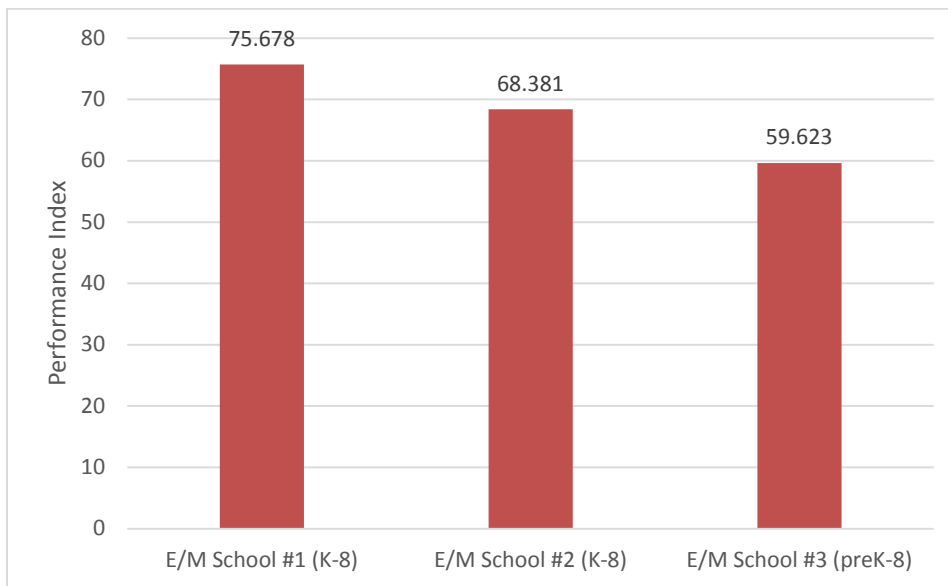
With performance indices between 97 and 99, 45402 High Schools #1 and #2 receive B letter grades. The 45402 High School #3 has a performance index of 86 and receives a C letter grade. The 45406 High School has a performance index score of 58 and receives a D letter grade. For comparison, the highest performance index for all high schools in MC is in Oakwood, which received a performance index of 113 and an A letter grade. The lowest performance index for all high schools in MC is the 45406 High School.

The performance indices for the elementary and middle schools are reported for each zip code separately (see Figures 11-13). Each elementary and middle school offers a different set of grades, some offer pre-K through eighth grade, some offer only grades K-2, 2-6, or 7-8. To generalize the comparison, all elementary and middle schools in each zip code are combined into



the same graph. The schools are renamed E/M for elementary and middle school with a number, e.g., E/M School #1, E/M School #2, etc. The grades offered at each school are reported in parentheses.

Four elementary/middle schools exist in 45402, although one of the schools only offers grades K-2. Because the performance index is based on OAA tests, the first of which is not taken until the third grade, the K-2 school does not receive a performance index score. The three elementary and middle schools that have performance indices are reported below with their performance scores (see Figure 11).



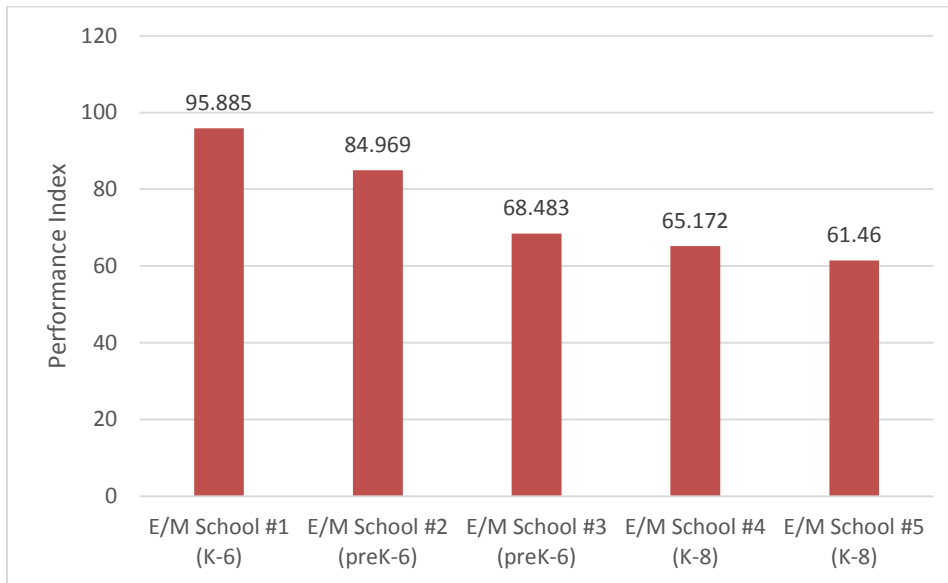
*Figure 11.* Performance indices for elementary and middle schools in 45402 (2014).

Source: Ohio Department of Education, 2014

With performance indices between 68 and 76, E/M Schools #1 and #2 in 45402 receive D letter grades. E/M school #3 has a performance index of 59 and receives an F letter grade. For comparison, the elementary or middle school in MC with the highest performance index is in Oakwood, and received a performance index of 112 and an A letter grade. The elementary or middle school in MC with the lowest performance index is in Dayton Public Schools, but not

within the FRFHC CHNA zip codes, and received a performance index of 56 and an F letter grade.

Five elementary/middle schools exist in 45405. The performance indices for these five schools are reported below (see Figure 12).

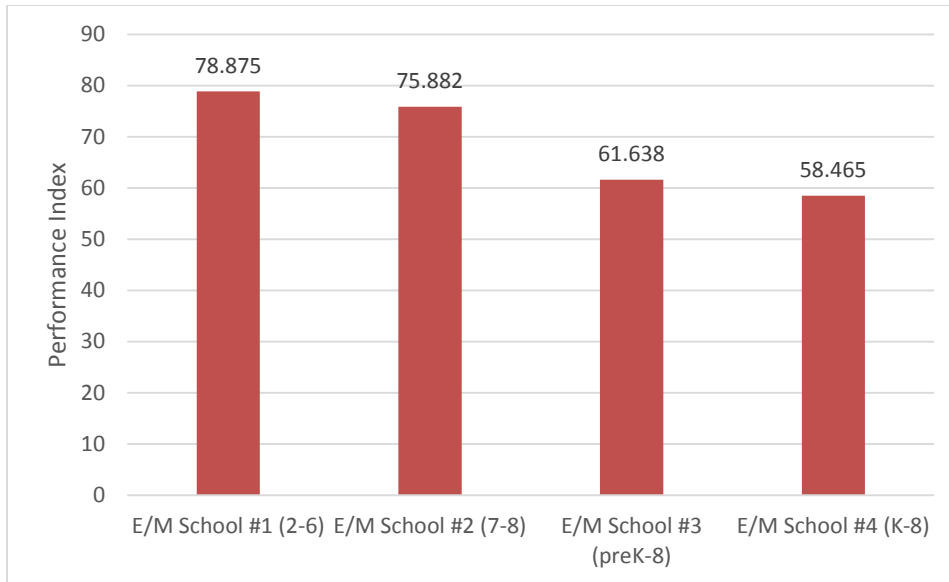


*Figure 12.* Performance indices for elementary and middle schools in 45405 (2014).

Source: Ohio Department of Education, 2014

With performance indices between 84 and 96, E/M Schools #1 and #2 receive C letter grades. With performance indices between 61 and 69, E/M Schools #3, #4, and #5 receive D letter grades. For comparison, the elementary or middle school in MC with the highest performance index is in Oakwood and received a performance index of 112 and an A letter grade. The elementary or middle school in MC with the lowest performance index is in Dayton Public Schools but not within the FRFHC CHNA zip codes and received a performance index of 56 and an F letter grade.

Four elementary/middle schools exist in 45406. The performance indices for these four schools are reported in Figure 13.



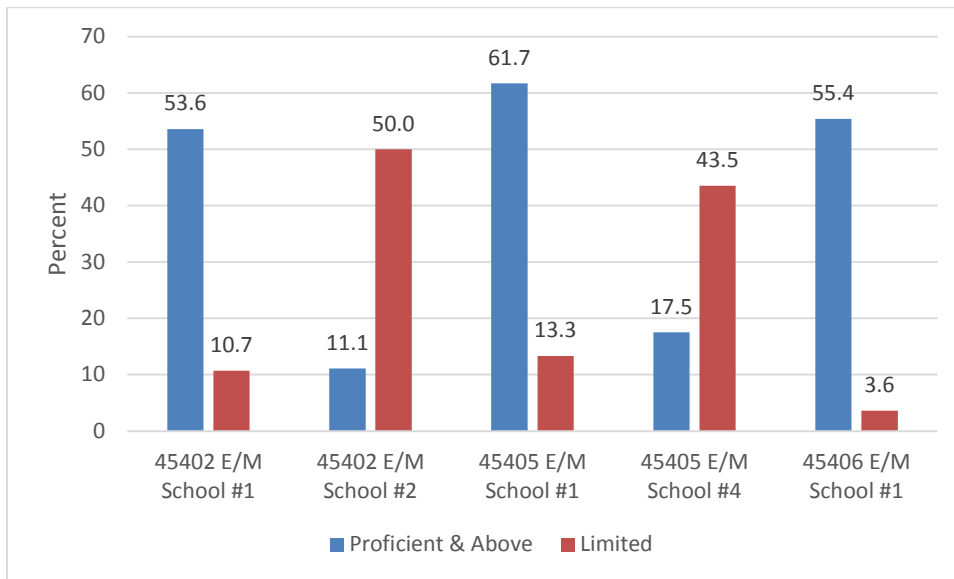
*Figure 13.* School performance indices for elementary and middle schools in 45406 (2014).

Source: Ohio Department of Education, 2014

With performance indices between 61 and 79, E/M Schools #1, #2, and #3 receive D letter grades. With a performance index of 58, E/M School #4 receives an F letter grade. For comparison, the elementary or middle school in MC with the highest performance index is in Oakwood and received a performance index of 112 and an A letter grade. The elementary or middle school in MC with the lowest performance index is in Dayton Public Schools but not within the FRFHC CHNA zip codes and received a performance index of 56 and an F letter grade.

The Ohio Department of Education releases the results of the proficiency exams in grades 4th through 9th. Proficiency is reported as Percent Advanced, Percent Accelerated, Percent Proficient, Percent Basic, and Percent Limited. The Ohio Department of Education considers that a student at the accelerated level of proficiency is being prepared appropriately for college (Ohio Department of Education, 2016). Proficiency levels at the fourth grade for English Language Arts were compared between schools in the FRFHC CHNA zip codes (see Figure 14).

Only five of all the elementary and middle schools in the FRFHC CHNA zip codes had proficiency levels reported by the Ohio Department of Education.

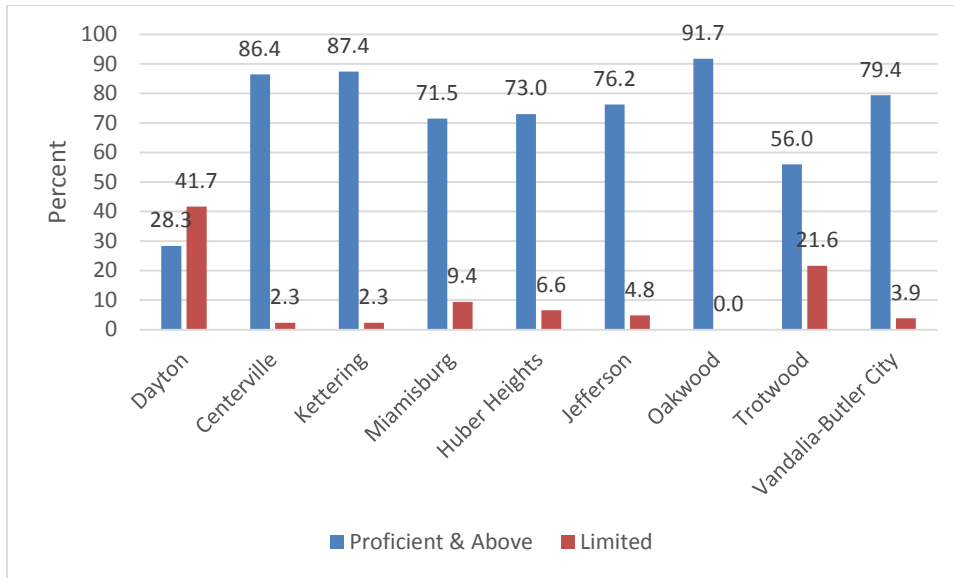


*Figure 14.* Comparison of fourth grade English language arts proficiency for selected schools in 45402, 45405, and 45406 (2015).

Source: Ohio Department of Education, 2015

Three elementary and middle schools, 45402 E/M School #1, 45405 E/M School #1, and 45406 E/M School #1, had fourth grade English language arts proficiency levels of ‘Proficient and above’ greater than 50% and proficiency levels of ‘Limited’ less than 15%. Two elementary and middle schools, 45402 E/M School #2 and 45405 E/M School #4, had fourth grade English language arts proficiency levels of ‘Proficient and above’ less than 20% and proficiency levels of ‘Limited’ greater than 40%.

Average proficiency levels of Dayton Public School (DPS) were compared to other school districts in Montgomery County (see Figure 15).

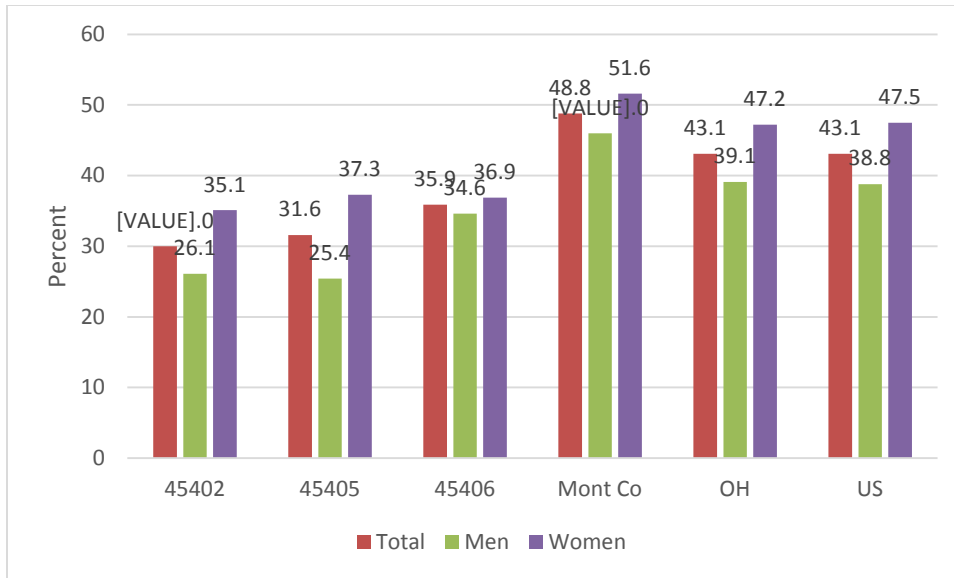


*Figure 15.* Comparison of fourth grade English language arts proficiency in Montgomery County school districts (2015).

Source: Ohio Department of Education, 2015

Less than 30% of DPS had fourth grade English language arts proficiency levels of ‘Proficient and above’. About 40% of DPS had fourth grade English language arts proficiency levels of ‘Limited’. About 55% of Trotwood’s school district had fourth grade English language arts proficiency levels of ‘Proficient and above’. About 20% of Trotwood’s school district had fourth grade English language arts proficiency levels of ‘Limited’. In other school districts in MC, about 70% to 90% had fourth grade English language arts proficiency levels of ‘Proficient and above’, with less than 10% having fourth grade English language arts proficiency levels of ‘Limited’.

To assess the number of post-high school students who pursued a college education, the college enrollment among young adults aged 18 to 24 years was compared between the FRFHC CHNA zip codes, MC, Ohio, and the US (see Figure 16). College enrollment is also reported separately for men and women.



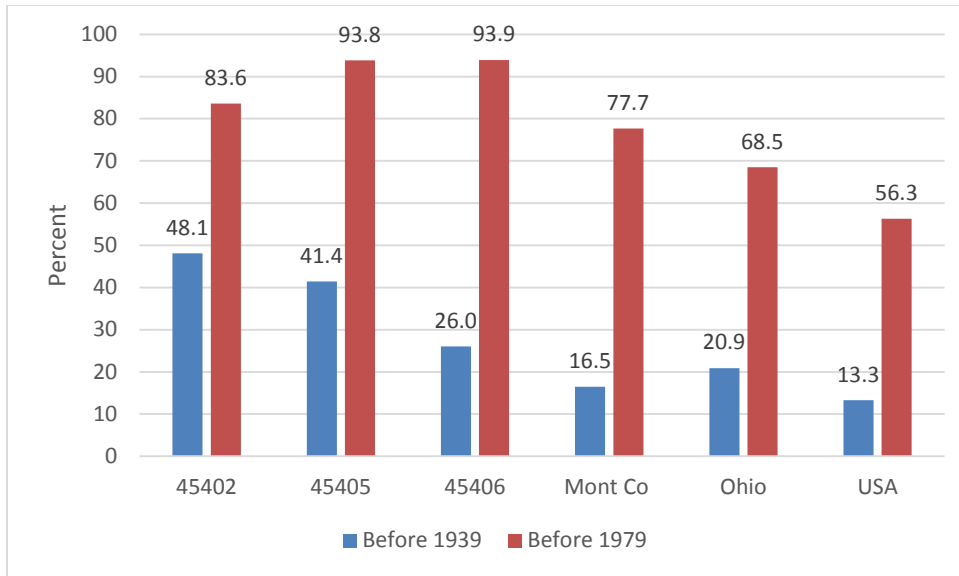
*Figure 16.* Number of 18 to 24 year olds enrolled in college by sex in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

Between 30% and 36% of adults 18 to 24 years old are enrolled in college in the FRFHC CHNA zip codes. Twenty-five percent to 35% of men and 35% to 38% of women are enrolled in college. In MC, Ohio, and the US, about 43% to 50% of adults 18 to 24 years old are enrolled in college. Thirty-eight percent to 46% of men and 47% to 52% of women are enrolled in college.

## Housing

The percentage of houses that were built before 1939 is reported next to the percentage of houses that were built before 1979 (see Figure 17). The older the house, the more allergens are present to exacerbate asthma. Houses built before 1979 could contain lead based paint.

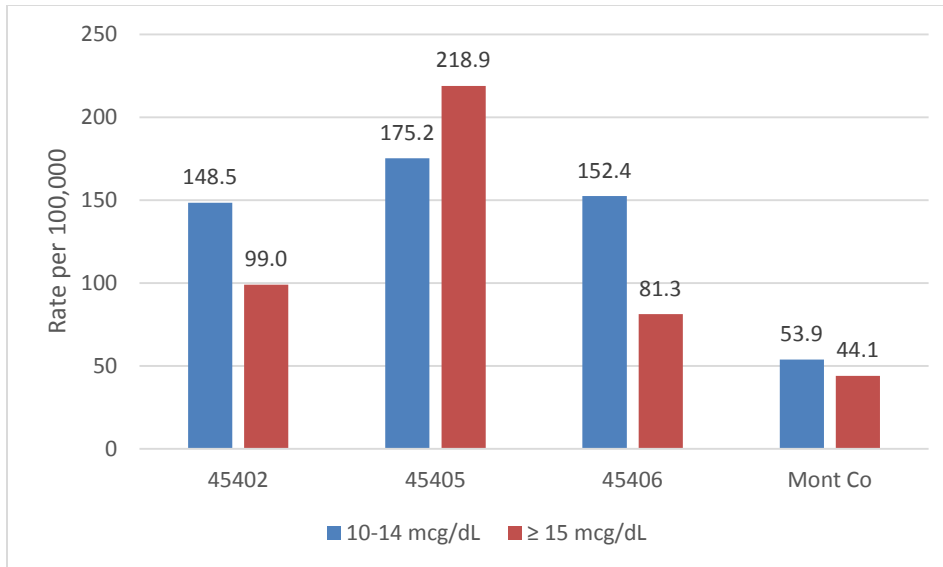


*Figure 17.* Percentage of houses built before 1939 and 1979 in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

In 45402 and 45405, between 40% and 50% of the houses were built before 1939. In 45406, MC, Ohio, and the US between 10% and 30% of the houses were built before 1939. In the FRFHC CHNA zip codes, between 80% and 95% of the houses were built before 1979. In MC, Ohio, and the US, between 55% and 80% of the houses were built before 1979.

Elevated blood levels were reported for the FRFHC CHNA zip codes and MC as rates per 100,000 (see Figure 18). The elevated blood levels are divided into two groups, one for blood lead levels between 10 and 14 mcg/dL and one for blood lead levels  $\geq 15$  mcg/dL. The reference level for blood lead levels is 5 mcg/dL that represents the 97.5<sup>th</sup> percentile for blood lead levels according to the National Health and Nutrition Examination Survey (Centers for Disease Control & Prevention, 2016b).



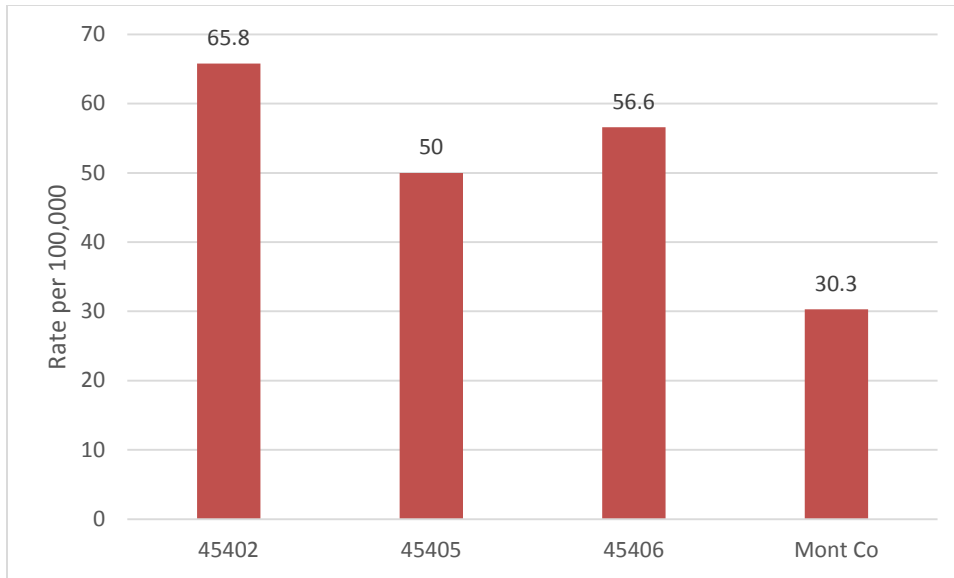
*Figure 18.* Elevated blood lead levels, rate per 100,000 in the FRFHC CHNA zip codes and Montgomery County (2010-2014).

Source: PHDMC, 2014

The rates of blood lead levels 10-14 mcg/dL in the FRFHC CHNA zip codes is between 148 mcg/dL and 176 mcg/dL, which is about three times higher than the rate of blood lead levels 10-14 mcg/dL in MC. The rates of blood lead levels  $\geq 15$  mcg/dL in 45402 and 45406 are between 80 mcg/dL and 100 mcg/dL, which is about two times higher than the rate of blood lead levels  $\geq 15$  mcg/dL in MC. The rate of blood lead levels  $\geq 15$  mcg/dL in 45405 is almost 220 mcg/dL, which is about five times more than the rate of blood lead levels  $\geq 15$  mcg/dL in MC.

To determine the burden of asthma in the FRFHC CHNA zip codes, the rates of emergency department visits due to asthma were reported for the selected zip codes and compared to the rates of emergency department visits in MC that were due to asthma (see Figure 19).



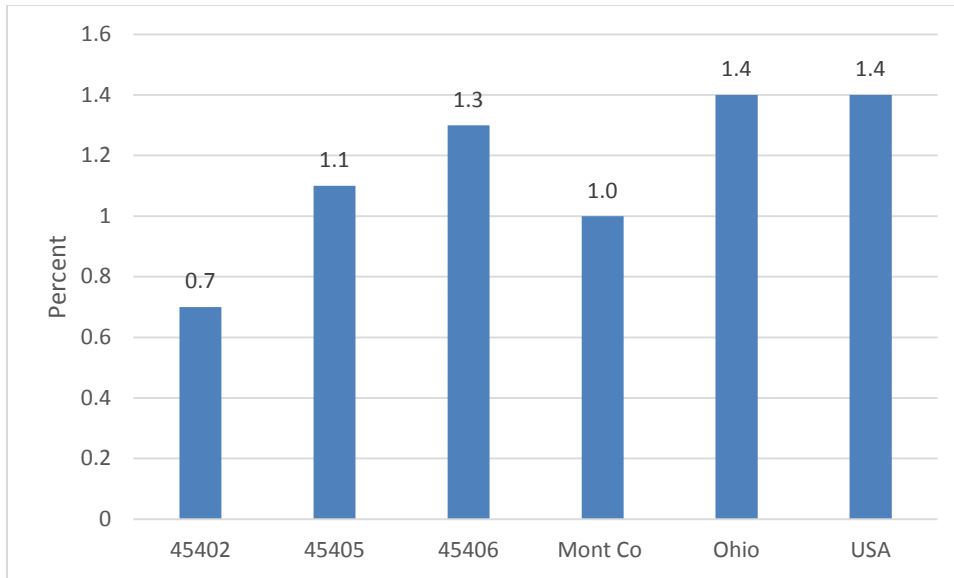


*Figure 19.* Asthma-related emergency department visits by zip code in Montgomery County (2012-2013).

Source: PHDMC, 2014

The rate of asthma-related emergency department visits in 45402 was 65.8 per 100,000. The rate of asthma-related emergency department visits in 45405 was 50.0. The rate of asthma-related emergency department visits in 45406 was 56.6. The rate of asthma-related emergency department visits in MC was 30.3, about half as much as the rates in the FRFHC CHNA zip codes.

The prevalence of occupied housing units that lacked complete plumbing or kitchen facilities in the FRFHC CHNA zip codes was compared to the prevalence in MC, Ohio, and the US (see Figure 20).



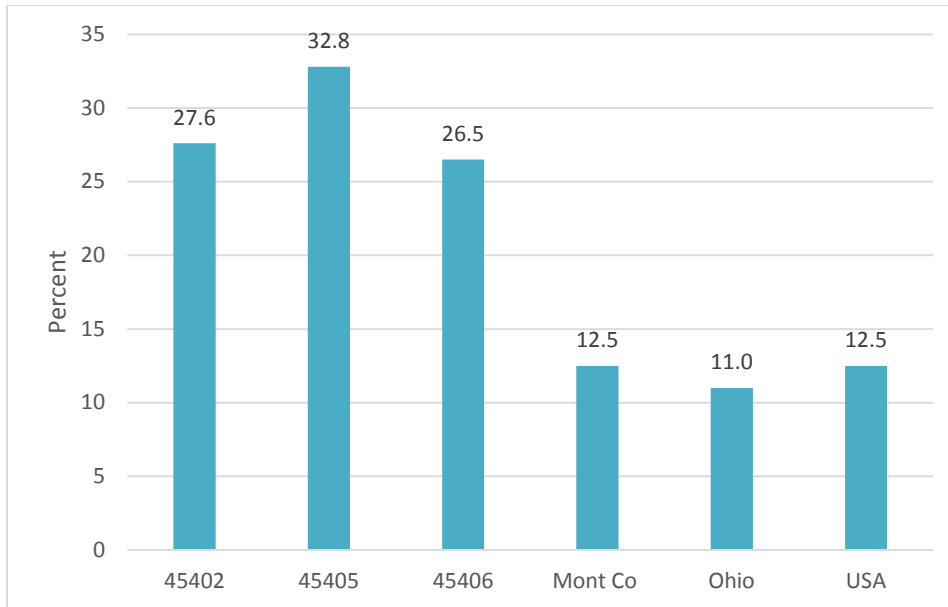
*Figure 20.* Prevalence of occupied housing units lacking complete plumbing or kitchen facilities in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

The percentage of occupied housing units in the FRFHC CHNA zip codes, MC, Ohio, and the US without complete plumbing or kitchen facilities is between 0.7% and 1.4%. At 0.7%; 45402 has the lowest percent of occupied housing units without complete plumbing or kitchen facilities. At 1.4%, Ohio and the US have the highest percent of occupied housing units without complete plumbing or kitchen facilities.

### **Crime**

The prevalence of vacant houses in the FRFHC CHNA zip codes was compared to the prevalence of vacant houses in MC, Ohio, and the US (see Figure 21).

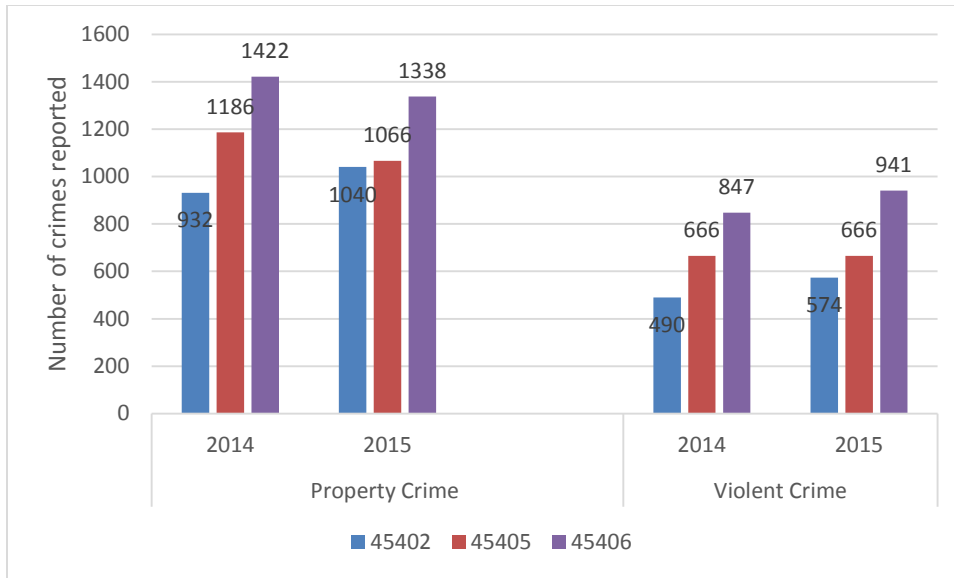


*Figure 21.* Percentage of vacant houses in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US (2010-2014).

Source: American Community Survey (U.S. Census Bureau, 2015)

Between 26% and 33% of houses in the FRFHC CHNA zip codes are vacant. Between 11% and 13% of houses in MC, Ohio, and the US are vacant, which is about half as much as in the selected zip codes.

The number of property and violent crimes in the FRFHC CHNA zip codes from both 2014 and 2015 were compared (see Figure 22).

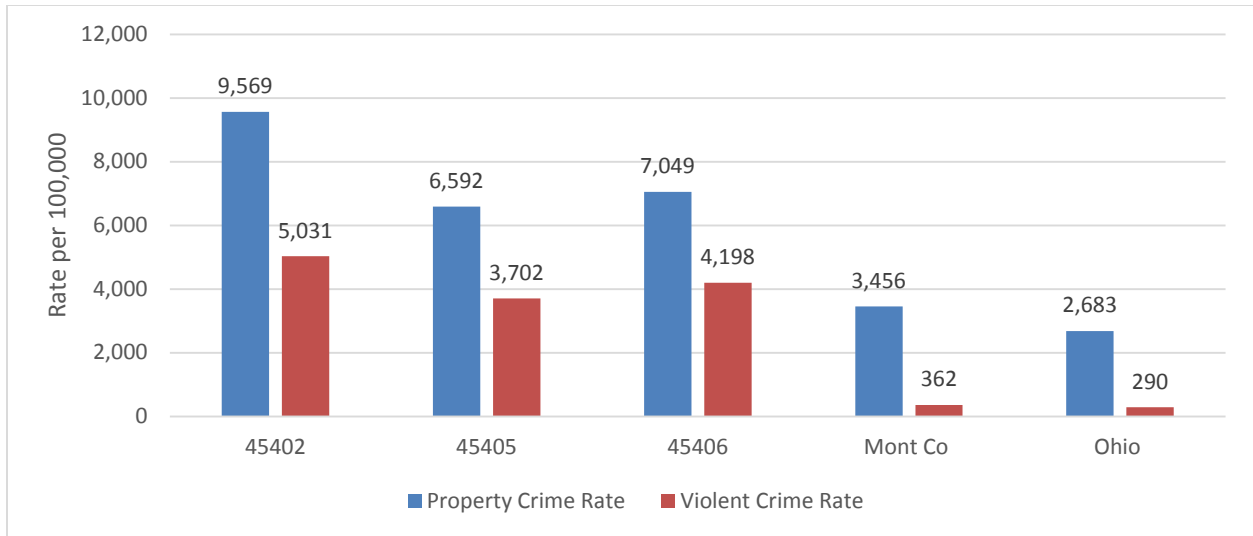


*Figure 22.* Number of property and violent crimes in 45402, 45405, and 45406 as reported by the Dayton Police Department (2014-2015).

Source: Dayton Police Department, n.d.

In 2014, the number of property crimes in the FRFHC CHNA zip codes is between 900 and 1,500 crimes. In 2015, the number of property crimes in the selected zip codes is between 1,000 and 1,400 crimes. In 2014, the number of violent crimes in the targeted zip codes is between 400 and 900 crimes. In 2015, the number of violent crimes in the three selected zip codes is between 500 and 1,000 crimes.

The property and violent crime rates of the FRFHC CHNA zip codes to the property and violent crime rates of Montgomery County and Ohio (see Figure 23).

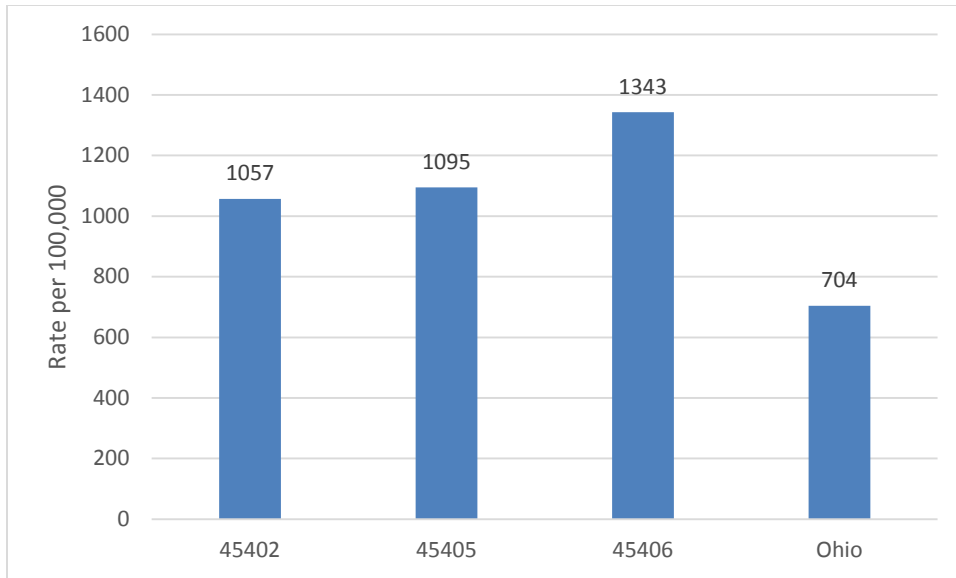


*Figure 23.* Property and violent crime rates per 100,000 in the FRFHC CHNA zip codes, Montgomery County, and Ohio (2014).

Source: Dayton Police Department, n.d.; Ohio Office of Criminal Justice Services, 2014

The property crime rates in the FRFHC CHNA zip codes are between 6,500 and 9,600 per 100,000. The property crime rates in MC and Ohio are between 2,500 and 3,500, which is about half as much as in the selected zip codes. The violent crime rates in the selected zip codes are between 3,700 and 5,100. The violent crime rates in the targeted zip codes are between 290 and 370, which is about ten times lower than in the targeted zip codes.

The rates of domestic violence per 100,000 for 2014 are compared between the FRFHC CHNA zip codes, MC, and Ohio. The rate for Montgomery County is reported as a range only (see Figure 24).

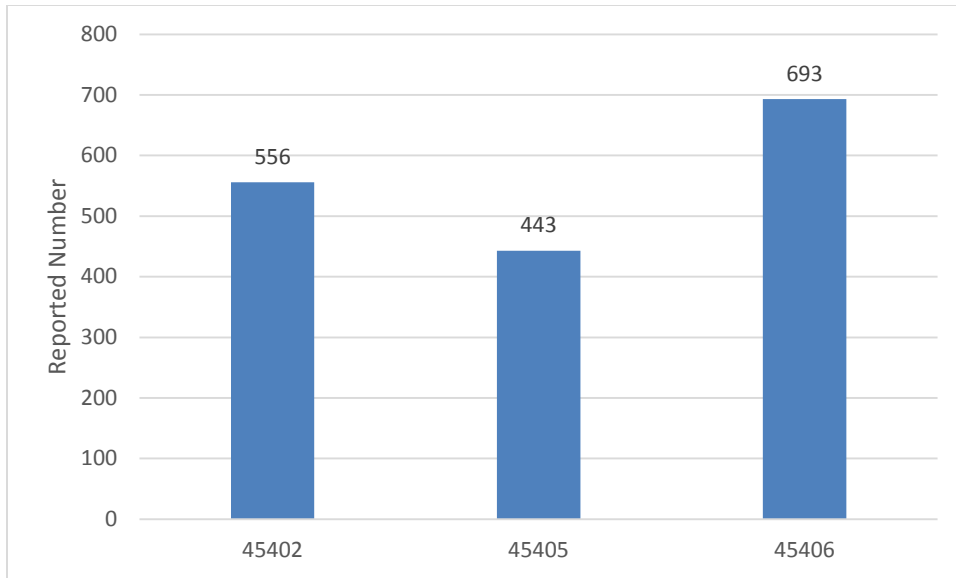


*Figure 24.* Domestic violence in 45402, 45405, 45406, and Ohio, rate per 100,000.

Source: Dayton Police Department, n.d.; Ohio Office of Criminal Justice Services, 2014

The domestic violence rates per 100,000 in the FRFHC CHNA zip codes are between 1,000 and 1,400. The domestic violence rate in Ohio is 704. The domestic violence rate in MC is not reported in this graph because it was found as a range only. The domestic violence rate in MC is between 647 and 1,270.

The number of drug-related offenses in the FRFHC CHNA zip codes were analyzed (see Figure 25).



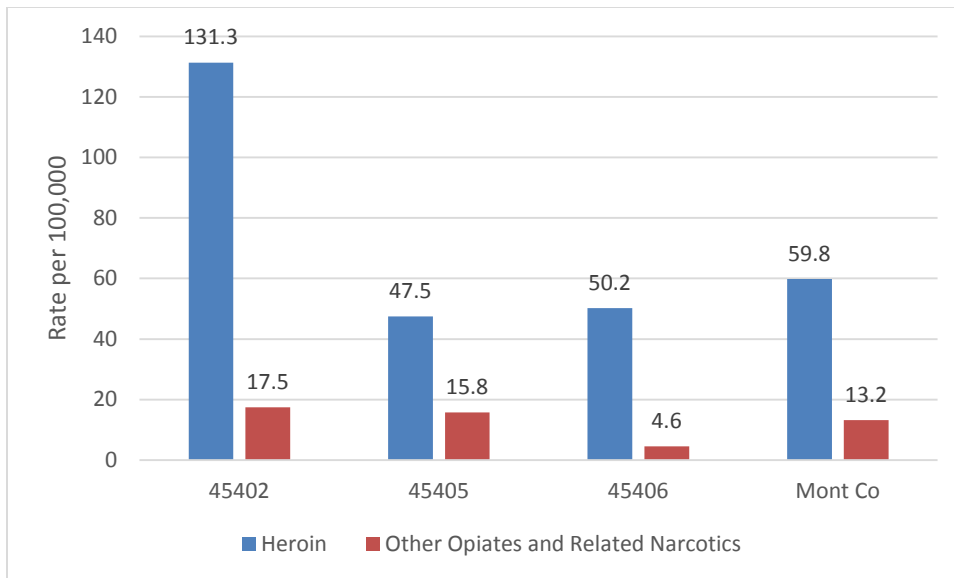
*Figure 25.* Number of drug-related offenses in 45402, 45405, and 45406 (2014-2015).

Source: Dayton Police Department, n.d.

The 45402 zip code had 556 drug-related offenses in the years 2014 and 2015. Zip code 45405 had 443 drug-related offenses in the years 2014 and 2015. Zip code 45406 had 693 drug-related offenses in the years 2014 and 2015.

### **Substance Use**

To understand the burden of substance use in the FRFHC CHNA zip codes, the rates per 100,000 of hospital visits due to accidental heroin and opiate overdose for the targeted zip codes were compared to the rate of hospital visits in MC that were due to accidental heroin and opiate overdose (see Figure 26).



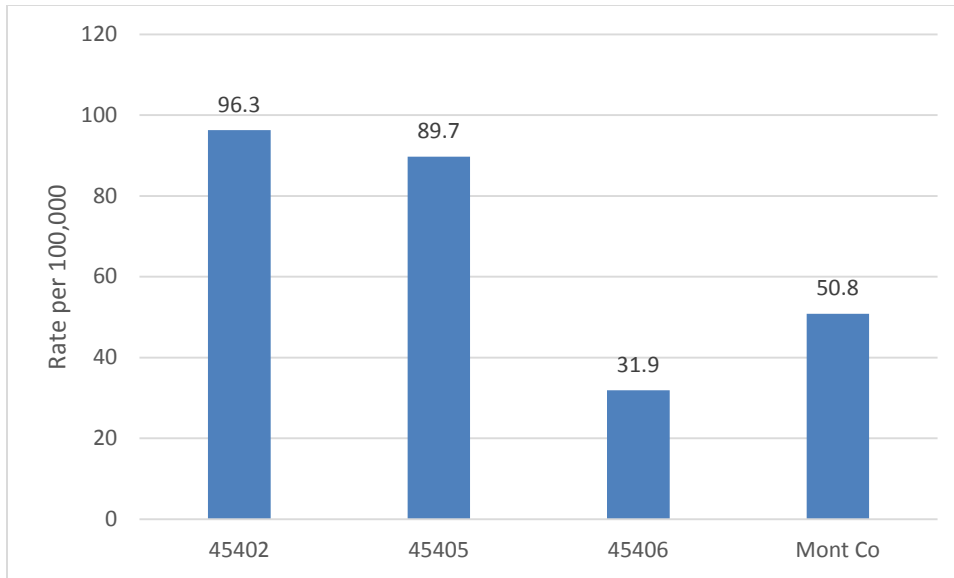
*Figure 26.* Hospital visits due to accidental heroin and opiate overdose, rate per 100,000 in the FRFHC CHNA zip codes and Montgomery County (2015).

Source: PHDMC, 2014

There were 131.3 hospital visits per 100,000 due to accidental heroin overdose in 45402. There were between 47 and 51 hospital visits per 100,000 due to accidental heroin overdose in 45405 and 45406. There were 59.8 hospital visits per 100,000 due to accidental heroin overdose in MC. Between 13 and 18 hospital visits per 100,000 were due to accidental overdose of opiates and related narcotics in 45402, 45405, and MC. The rate of hospital visits due to accidental overdose of opiates and related narcotics in 45406 was 4.6 per 100,000.

The rates per 100,000 of deaths due to accidental heroin overdose for the FRFHC CHNA zip codes were compared to the rate of deaths due to accidental heroin overdose in MC (see Figure 27).





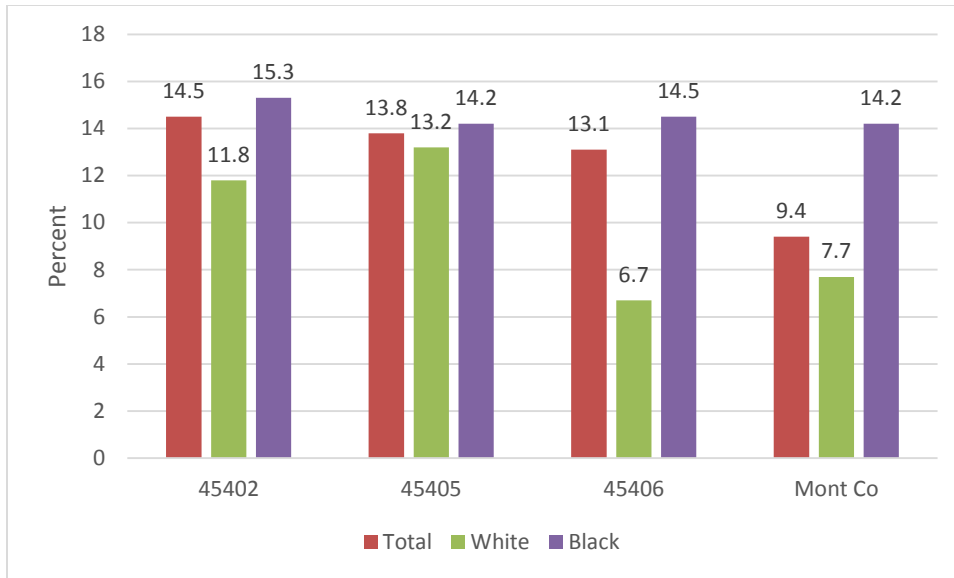
*Figure 27. Unintentional heroin overdose death rate per 100,000 in the FRFHC CHNA zip codes and Montgomery County (2011-2015).*

Source: PHDMC, 2014

There were 96.3 deaths per 100,000 in 45402 due to unintentional heroin overdose. There were 89.7 deaths per 100,000 in 45405 due to unintentional heroin overdose. There were 31.9 deaths per 100,000 in 45406 due to unintentional heroin overdose. There were 50.8 deaths per 100,000 in MC due to unintentional heroin overdose.

### **Infant Health**

The rates of low birth weight babies in the FRFHC CHNA zip codes by race were compared to the rate of low birth weight babies in MC by race (see Figure 28).

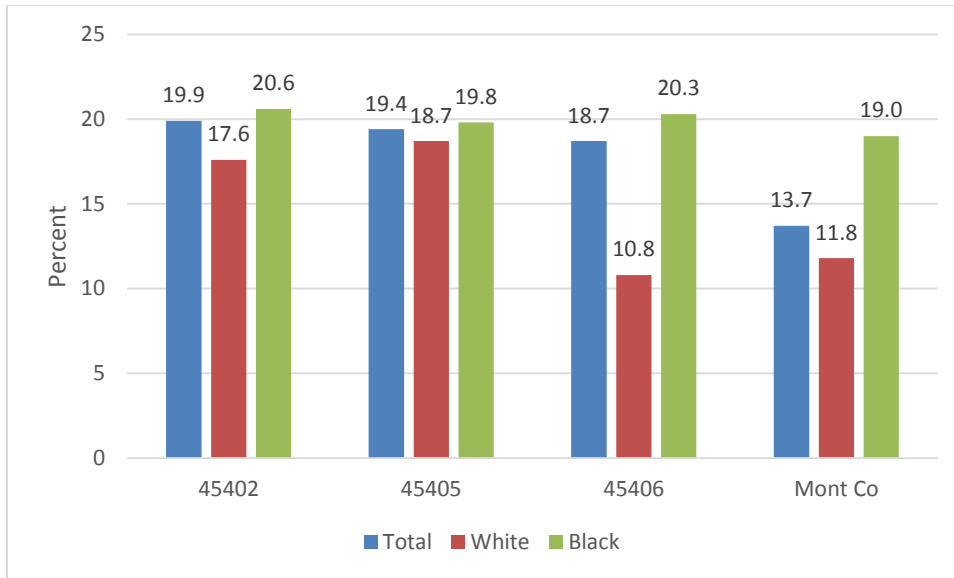


*Figure 28.* Percentage of low birth weight in the FRFHC CHNA zip codes and Montgomery County (2011-2013).

Source: PHDMC, 2014

In the FRFHC CHNA zip codes, between 13% and 14.5% of babies are born with a low birth weight. In MC, 9.4% of babies are born with a low birth weight. In 45402 and 45405, the percent of White babies born with low birth weight is between 11% and 13.5%. In 45406 and MC, the percent of White babies born with low birth weight is between 6.7% and 7.7%. In the selected zip codes and in MC, the percent of Black babies born with low birth weight is between 14% and 15.5%.

The rates of preterm births in the FRFHC CHNA zip codes were compared to the rate of preterm births in MC (see Figure 29).

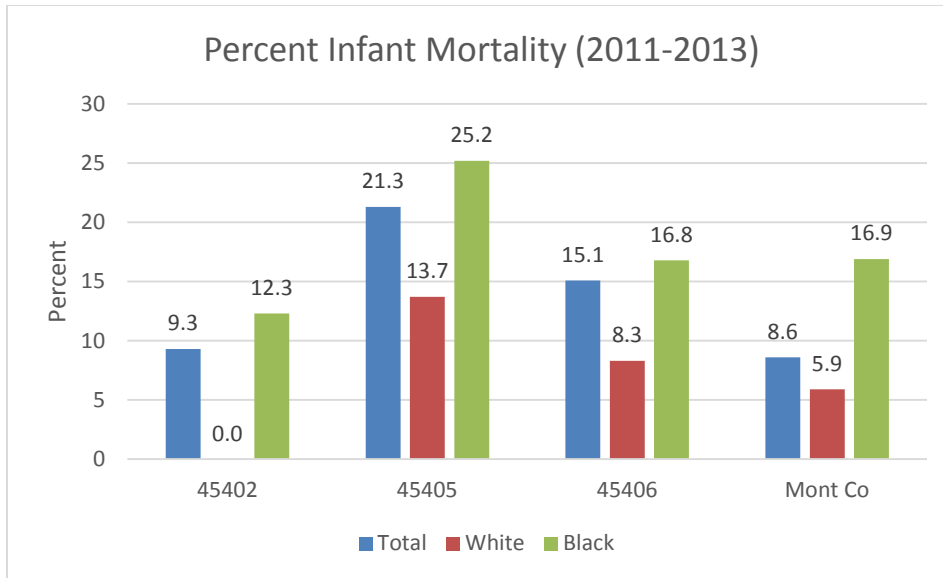


*Figure 29.* Percentage of preterm births in the FRFHC CHNA zip codes and Montgomery County (2011-2013).

Source: PHDMC, 2014

In the FRFHC CHNA zip codes, between 18% and 20% of births were preterm. In MC, 13.7% of births were preterm. In 45402 and 45405, between 17% and 19% of White babies were born preterm. In 45406 and MC, between 10% and 12% of White babies were born preterm. In the selected zip codes and in MC, between 19% and 21% of Black babies were born preterm.

The rates of infant mortality by race in the FRFHC CHNA zip codes were compared to the rate of infant mortality by race in MC (see Figure 30).



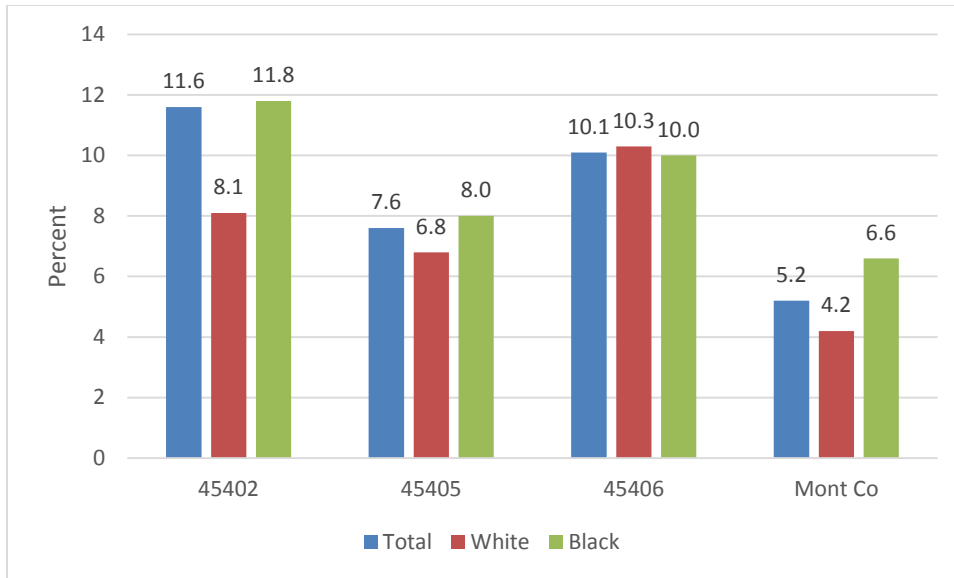
*Figure 30.* Percentage of infant mortality by race in the FRFHC CHNA zip codes and Montgomery County (2011-2013).

Source: PHDMC, 2014

The total infant mortality rate in 45402 was 9.3%. The total infant mortality rate in 45405 was 21.3%. The total infant mortality rate in 45406 was 15.1%. The total infant mortality rate in MC was 8.6%. The infant mortality rate for White babies in 45402 was 0%, with 85 White babies born in 45402. The infant mortality rate for White babies in 45405 was 13.7%. The infant mortality rate for White babies in 45406 was 8.3%. The infant mortality rate for White babies in MC was 5.9%. The infant mortality rate for Black babies in 45402 was 12.3%. The infant mortality rate for Black babies in 45405 was 25.2%. The infant mortality rates for Black babies in 45406 and MC were between 16% and 17%.

### **Prenatal Care**

The prevalence of mothers receiving late or no prenatal care in the FRFHC CHNA zip codes was compared to the prevalence of late or no prenatal care in MC by race (see Figure 31).

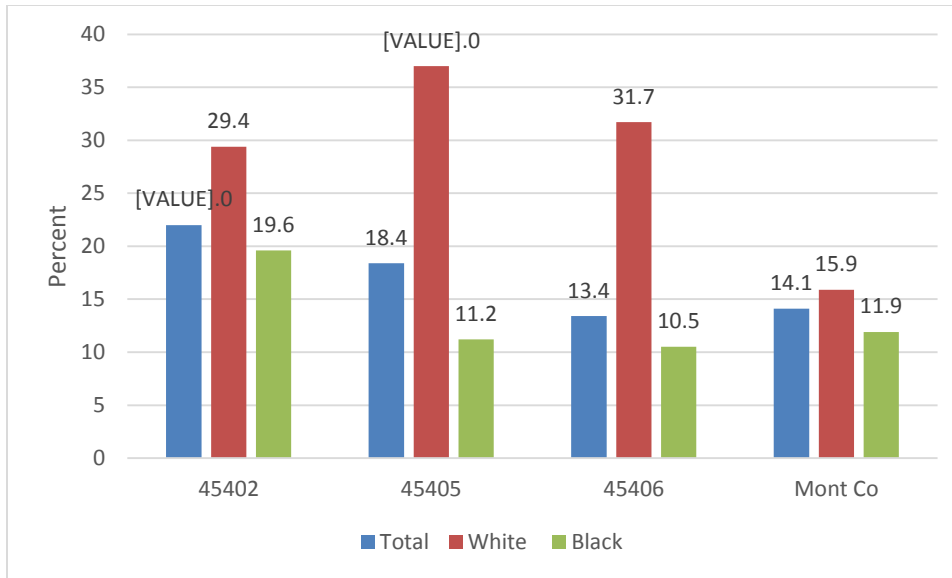


*Figure 31.* Percentage of mothers receiving late or no prenatal care by race in the FRFHC CHNA zip codes and Montgomery County (2011-2013).

Source: PHDMC, 2014

In 45402, 11.6% of mothers received late or no prenatal care, with 8.1% of White mothers and 11.8% of Black mothers receiving late or no prenatal care. In 45405, between 6% and 8% of all mothers received late or no prenatal care. In 45406, between 10% and 11% of all mothers received late or no prenatal care. In MC, 5.2% of all mothers received late or no prenatal care, with 4.2% of White mothers and 6.6% of Black mothers receiving late or no prenatal care.

The prevalence of mothers who smoked during pregnancy by race in the FRFHC CHNA zip codes was compared to the prevalence of mothers who smoked during pregnancy in MC (see Figure 32).



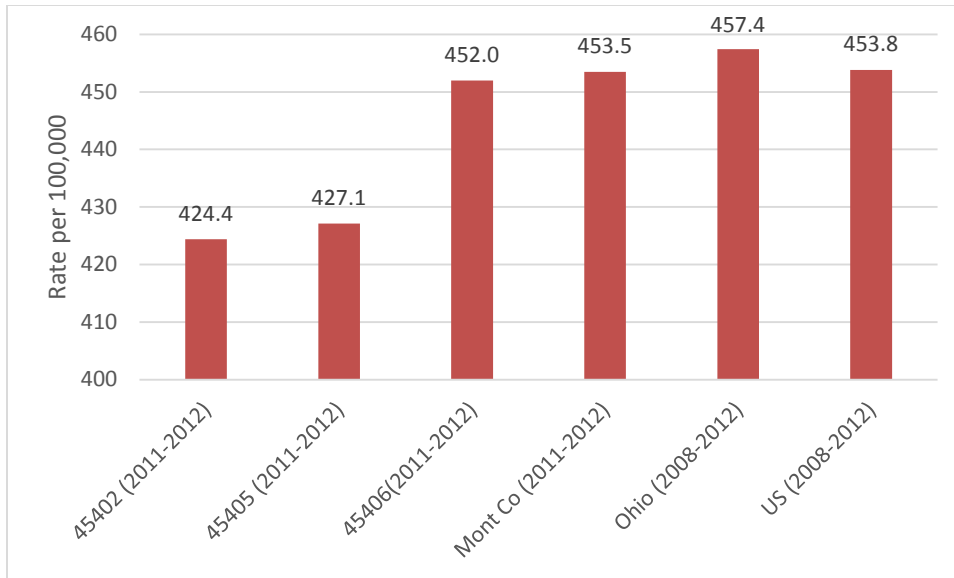
*Figure 32.* Percentage of mothers who smoked during pregnancy by race in the FRFHC CHNA zip codes and Montgomery County (2011-2013).

Source: PHDMC, 2014

In 45402, 22.0% of mothers smoked during pregnancy. In 45402, the percent of White mothers who smoked during pregnancy was 29.4% and the percent of Black mothers who smoked during pregnancy was 19.6%. In 45405, 18.4% of mothers smoked during pregnancy. In 45405, the percent of White mothers who smoked during pregnancy was 18.4% and the percent of Black mothers who smoked during pregnancy was 11.2%. In 45406, 13.4% of mothers smoked during pregnancy. In 45406, the percent of White mothers who smoked during pregnancy was 31.7% and the percent of Black mothers who smoked during pregnancy was 10.5%. In MC, between 11% and 16% of all mothers smoked during pregnancy.

### **Cancer**

The rates per 100,000 for cancer incidence of all types in the FRFHC CHNA zip codes were compared to the rates of cancer incidence in MC, Ohio, and the US (see Figure 33).

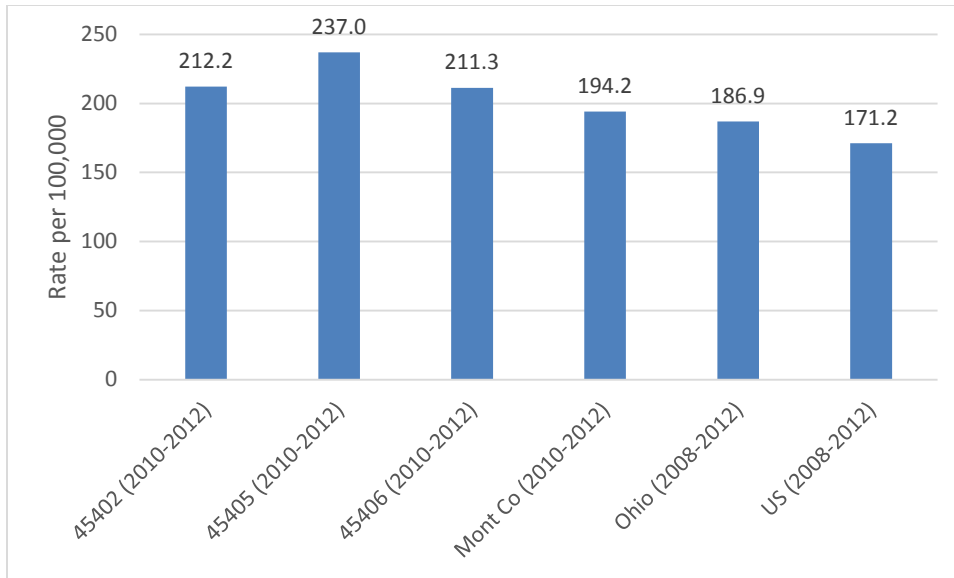


*Figure 33.* Cancer incidence, all types, rate per 100,000 in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US.

Source: PHDMC, 2014; CDC, 2016; National Cancer Institute, 2016

In 45402 and 45405, the rates of cancer incidence of all types were between 424 and 428 per 100,000. In 45406, MC, Ohio, and the US, the rates of cancer incidence of all types were between 452 and 458.

The rates per 100,000 for cancer mortality of all types in the FRFHC CHNA zip codes were compared to the rates of cancer mortality in MC, Ohio, and the US (see Figure 34).



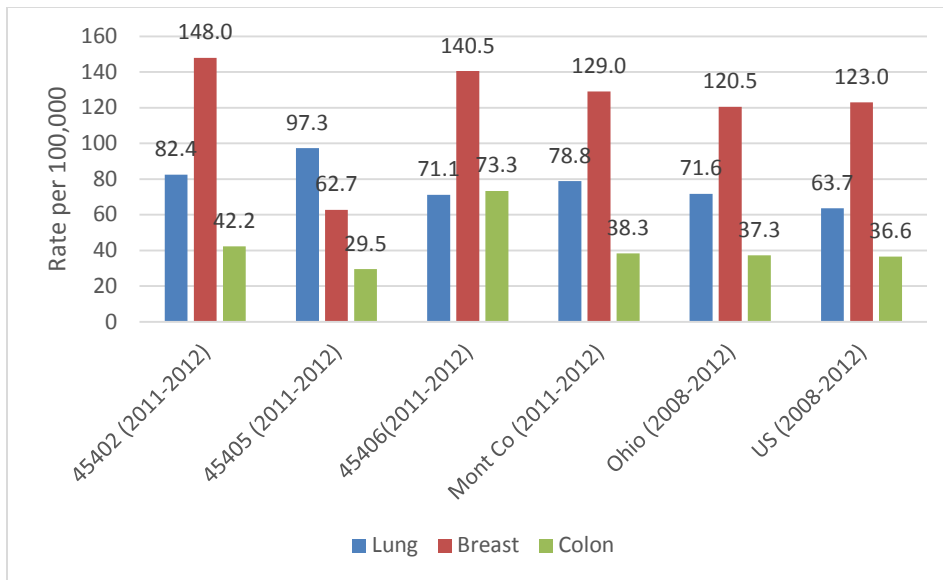
*Figure 34.* Cancer mortality (all types) rate per 100,000 in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US.

Source: PHDMC, 2014; CDC, 2016; National Cancer Institute, 2016

The rates of mortality for all types of cancer in the FRFHC CHNA zip codes were between 211 and 237 per 100,000. The rates of mortality for all types of cancer in MC, Ohio, and the US were between 171 and 195.

The rates of cancer incidence per 100,000 for lung, breast, and colon cancers in the FRFHC CHNA zip codes were compared to the rates of cancer incidence of lung, breast, and colon cancers in MC, Ohio, and the US (see Figure 35).



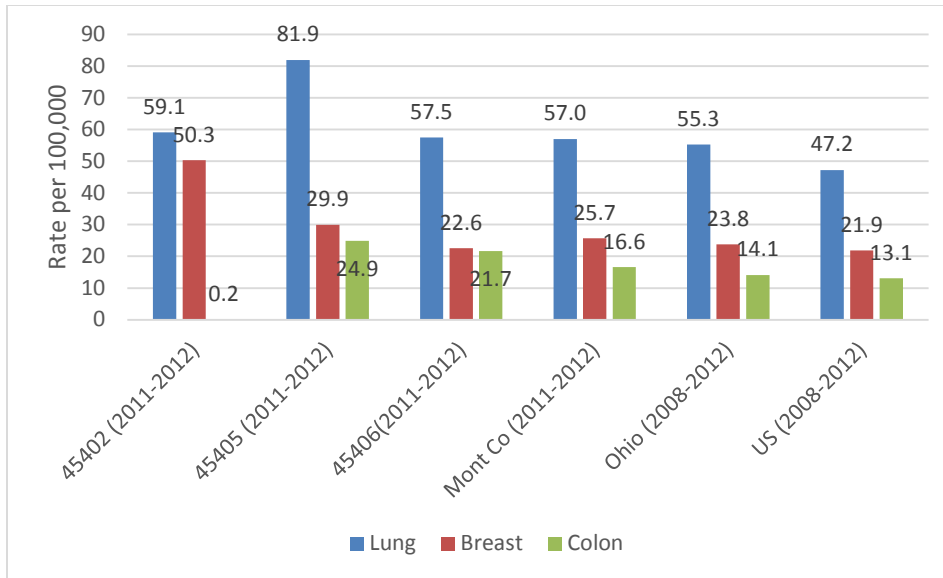


*Figure 35.* Incidence rates per 100,000 of lung, breast, and colon cancers in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US.

Source: PHDMC, 2014; CDC, 2016; National Cancer Institute, 2016

The lung cancer incidence rates for the FRFHC CHNA zip codes, MC, Ohio, and the US were between 63 and 98 per 100,000. The breast cancer incidence rates for 45402 and 45406 were between 140 and 150. The breast cancer incidence rates for 45405 was 62.7. The breast cancer incidence rates for MC, Ohio, and the US were between 120 and 130. The colon cancer incidence rates for 45402, 45406, MC, Ohio, and the US were between 29 and 43. The colon cancer incidence rate for 45405 was 73.3.

The rates of cancer mortality per 100,000 for lung, breast, and colon cancers in the FRFHC CHNA zip codes were compared to the rates of cancer incidence of lung, breast, and colon cancers in MC, Ohio, and the US (see Figure 36).



*Figure 36.* Mortality rates per 100,000 for lung, breast, and colon cancers in the FRFHC CHNA zip codes, Montgomery County, Ohio, and US.

Source: PHDMC, 2014; CDC, 2016; National Cancer Institute, 2016

The lung cancer mortality rates in 45402, 45406, MC, Ohio, and the US were between 47 and 60 per 100,000. The lung cancer mortality rate in 45405 was 81.9. The breast cancer mortality rate in 45402 was 50.3. The breast cancer mortality rates in 45405, 45406, MC, Ohio, and the US were between 21 and 30. The colon cancer mortality rate in 45402 was 0.2. The colon cancer mortality rates in 45405 and 45406 were between 21 and 25. The colon cancer mortality rates in MC, Ohio, and the US were between 13 and 17.

### **Key Informant Interviews**

The responses from the key informant interviews were compiled based on popularity of response. If a response was mentioned by at least three informants, it was included in the results.

**What issues or concerns do you see in this community?** Informants gave six responses: food insecurity, poverty, heroin, lack of education, lack of jobs, crime, and emotional pain.

Seven informants listed food insecurity as a concern. Common themes regarding food insecurity included special dietary needs being unmet in certain patient populations such as diabetic or hypertensive patients, and lack of fresh foods and produce. One informant quoted a Food Research and Action Center (FRAC) analysis done by the United Nations and the United States Department of Agriculture that lists Dayton as the ninth hungriest city in the United States.

Six informants listed heroin and drugs as a concern. The informants acknowledged that drug use is linked with other negative outcomes, such as poverty, hunger, and violence. Informants also mentioned the difficulty a treatment-seeking individual encounters when looking for a way out of drug addiction.

Six informants mentioned lack of education and problems with literacy as a concern in the community. The informants mentioned that students in the FRFHC CHNA zip codes do not receive equal education as students in other areas of Dayton and Montgomery County.

Four informants listed poverty as a concern, and the common themes within poverty included lack of living wage jobs, and reliance on check cashing and payday loan places like CheckSmart that place exorbitant fees on customers who have no other options.

Four informants mentioned the lack of living wage jobs as a concern in the community. The informants remark on the disappearance of living wage jobs over the past decades. Several large companies moved away from Dayton and those unskilled jobs left with them. The informants recognize that it is now very difficult to get a job and then keep it.

Four informants reference crime in the FRFHC CHNA zip codes as a concern. Informants mentioned drugs as a cause of crime, and prostitution or other sex crimes as a specific area of concern.

Three informants commented on the emotional pain present in the FRFHC CHNA zip codes. One informant opined that the emotional pain is the root of the problem that is plaguing the community. Another opined that emotional pain leads to behavioral problems that in turn lead to the concerns in the community. A common theme within emotional pain is that there is a poor sense of family in the community as children are being raised by people other than their parents. The children of the community have no sense of normalcy as experienced by others in the United States.

**What are the health issues in this community?** Seven informants mentioned diabetes as a health concern in the FRFHC CHNA zip codes, as it is a difficult disease to manage and there is a lack of knowledge and education about it in the community. Various other chronic diseases were mentioned including hypertension, heart disease, and obesity. Three informants included drug abuse as a health concern and mentioned the need for male mentors for adolescents in the community. Three more informants mentioned poor nutrition and lack of food as a health concern. Three informants addressed the difficulty that residents in the community have when filling and purchasing their prescriptions.

**What environmental issues do you see in this community?** Only four of the informants could think of any environmental issues present in the FRFHC CHNA zip codes, and the responses revolved around housing as an issue. Informants shared that buildings are outdated in the community, and that they are not being maintained and kept up. One informant was concerned about homes lacking fire and carbon monoxide detectors to keep inhabitants safe in the home. Others mentioned the abandoned houses as a concern because of how children can go and play there in an unsafe environment. Another informant referenced people living in homes with broken windows, or doors without locks as a concern.

**What safety, violence, or crime concerns are there in this community?** Responses regarding safety, violence, and crime varied widely between informants. The only response mentioned several times was a concern about drugs in the FRFHC CHNA zip codes. Three informants referenced drug-related crimes and violence.

**What employment concerns are there in this community?** Four informants referred to the lack of trades and unskilled jobs available for the residents of the FRFHC CHNA zip codes. Four informants mentioned the lack of education hindering residents from qualifying for certain jobs. Three informants linked drug addictions to the problem of keeping drugs and passing urine drug screens at work. Three informants mentioned how the family unit has changed in the selected zip codes as children are raised by grandparents because their parents are working multiple jobs and families have become multigenerational. Three informants referenced transportation as an obstacle to finding jobs. Individuals with no transportation options have nowhere to work within walking distance.

**What transportation concerns are there in this community?** Although most informants agreed that the public bus system in Dayton (RTA) is an accessible mode of transportation, five informants mentioned that it is not convenient when residents must rely on buses as the sole mode of transportation. Informants share how the bus lines are inconvenient for grocery shopping and bringing bags of groceries home on the bus and how the bus lines primarily stay in the Dayton area and do not travel to areas with good food or jobs. Only recently have they started going to the Fairfield Mall in Beavercreek. One informant shared that for individuals with mobility issues, taking the bus is difficult.

**What is going well in the community?** The informants responded in three central themes to this question. Five informants mentioned the effort that has been put into updating the

downtown area and how the updates have attracted more businesses and events. The library, walking path, community gardens, bike rental system, and the effort to fix up old houses were specifically referred to.

Four informants mentioned how there is a community of non-competition among different services and organizations in Dayton right now. Non-profit organizations are connecting with each other; people are networking and helping each other out. Churches are getting out in the community and are active with social outreach. The informants mentioned the spirit of coming together in unity within the city which is fostering much collaboration.

Three informants appreciated how the young people are invested in the community. The informants believed that the young people are beginning to see that they can do something for good in the community. The residents have a sense of empowerment, and are becoming aware of how to ask the local government for help.

### **Discussion**

The Five Rivers Family Health Center Community Health Needs Assessment (FRFHC CHNA) informs public health and healthcare workers in the targeted zip codes of 45402, 45405, and 45406 about the health status and needs in the community. The health indicators reported in this assessment include asthma, birth outcomes and infant mortality, as well as cancer rates. These indicators can be used to predict health status or needs of the community that were not covered in the assessment such as rates of diabetes and hypertension. Given the indicators discussed in this assessment, health professionals can set well-informed health goals for the community in a Community Health Improvement Plan. Future assessments using the same indicators can be performed to track the health status of residents within the community.

## Demographics

Although the ages of residents in the FRFHC CHNA zip codes are comparable to the ages of residents in Montgomery County (MC), Ohio, and the United States (US), the selected zip codes have larger percentages of Black residents, residents living in poverty, and unemployed residents. Similar to MC, Ohio, and the US, children in the targeted zip codes have the highest rates of poverty compared to working age and retired adults, and Black residents have higher rates of poverty than White residents.

The racial composition in the FRFHC CHNA zip codes is almost opposite the racial composition in MC, Ohio, and the US. Whereas MC, Ohio, and the US are majority White and minority Black, the targeted zip codes are majority Black and minority White. Given the known racial disparities, it is expected that residents in the selected zip codes will have higher rates of negative health indicators such as chronic diseases, infant mortality, homicides, and teen pregnancies.

Overall, residents living in the FRFHC CHNA zip codes have higher rates of poverty than elsewhere in the nation. The zip code with the highest rate of poverty is 45402. The poverty rates of Whites in the targeted zip codes are higher than in MC, Ohio, and the US. However, the poverty rates of Blacks in the selected zip codes are not that different from the poverty rates of Blacks in MC, Ohio, and the US. The reason for the similarity may be due to the fact that the poverty rates of Blacks elsewhere in the nation are 2 to 3 times higher than the poverty rates of Whites.

Unemployment in the FRFHC CHNA zip codes is more prevalent than in MC, Ohio, and the US. Men have higher rates of unemployment than women in the selected zip codes while the unemployment rates for men in MC, Ohio, and the US is similar to the unemployment rates for

women. More families in the selected zip codes have no access to a vehicle for transportation than in MC, Ohio, and the US. While the high prevalence of families without access to a vehicle in the selected zip codes may be surprising, it could be attributed to the urban location of the these zip codes. Families in the selected zip codes have more access to the bus system in MC so there may be less of a need for private transportation. A problem for families who rely on the bus system is that they are limited in where they can travel for work. Some of the biggest areas for employment in MC include the Fairfield Commons Mall, the Greene Town Center, and the Dayton Mall, all of which are outside of the targeted zip codes. If the buses do not travel to those locations, workers without a vehicle are not able to search for employment there. Until 2014, there were no bus stops near the Fairfield Commons Mall, now there are three. Although there is a bus stop at the Dayton Mall, it is an inconvenient 100 yards away from the main entrance of the mall. There are still no bus stops at the Greene Town Center.

### **Education**

Education in the FRFHC CHNA zip codes is inferior to the education in MC. Schools in the selected zip codes have lower proficiency rates and lower performance indices than schools elsewhere in MC. Although 45406 had similar rates of educational attainment than MC, 45402 and 45405 experienced lower educational attainment. Surprisingly, 45402 had the highest percent of individuals who did not graduate high school among the selected zip codes, even though it has three high school options compared to one in 45406, and none in 45405. Without a good education, the students of the selected zip codes are less qualified for good jobs and less prepared for a college education. Key informants from the community recognize that when young adults receive a below average education, they are less prepared for working a livable wage job, and more likely to continue the cycle of poverty.



**Housing**

The increased prevalence of old houses in the FRFHC CHNA zip codes may be contributing to worsened health indicators such as elevated blood lead levels and increased trips to the emergency department due to asthma. There is an increased prevalence of vacant houses in the selected zip codes, which has been shown to be linked to increased crime rates. Property and violent crime rates in the targeted zip codes are higher than in MC, Ohio, and the US. The crime rates in 45402 are highest among the three selected zip codes. Because individuals exposed to higher rates of crime often have higher rates of depression and other mental illnesses as well as worsened physical health, healthcare professionals must be aware that the mental health of the residents in the selected zip codes may be adversely affected due to the increased exposure to both property and violent crimes.

**Crime**

Given the drug-related offenses reported by the Dayton Police Department and the reported concerns of the key informants, it is clear that drug use is a problem among the FRFHC CHNA zip codes. Six of the thirteen key informants mentioned drugs, heroin specifically, as a concern or issue in the selected zip codes. Drug use leads to about one drug-related offense every one to two days in the targeted zip codes. The 45406 zip code has the highest number of drug-related offenses among the three zip codes; however, the population in 45406 is larger than the population in 45402 and 45405.

**Substance Use**

In the FRFHC CHNA zip codes, rates of hospital visits due to unintentional heroin overdose is higher than rates of hospital visits due to unintentional overdoses of opiates and other related narcotics in the selected zip codes, similar to the rates of hospital visits due to overdoses

found in MC. The zip code with the highest rate of hospital visits due to unintentional heroin overdoses is 45402, with a rate that is two times higher than the rate of hospital visits due to unintentional heroin overdoses in MC. Deaths due to unintentional heroin overdoses are highest in 45402 and 45405.

### **Infant Health**

Birth indicators in the FRFHC CHNA zip codes are worse than in MC. Higher rates of low birth weight and preterm babies and higher rates of infant mortality are found in the selected zip codes than in MC. Lower rates of mothers who receive appropriate prenatal care are found in the three zip codes than in MC. In the selected zip codes and in MC the birth indicators listed above are worse for Blacks than for Whites.

### **Cancer**

Rates of cancer incidence in the FRFHC CHNA zip codes are generally lower than the rates of cancer incidence in MC, Ohio, and the US. The rates of cancer mortality in the selected zip codes are similar to the rates found in MC, Ohio, and the US. Although some selected zip codes have higher rates of deaths due to certain cancers, the results are not generalizable to the selected zip codes. Cancer does cause a large percentage of deaths in the targeted zip codes, but it does not cause a disproportionately larger percentage of deaths when compared to MC.

Overall, the key informants believe that the FRFHC CHNA zip codes have issues that are preventing residents from living a life as healthy as it could be. Concerns that informants mentioned several times include food insecurity, poverty, lack of living wage jobs, poor education, and heroin. Most informants recognize that these concerns are related, and that a deficit in one area leads to deficits in other areas. For example, if an individual does not have a job that pays a livable wage, he or she is more likely to live in poverty and be unable to provide

enough food for the family. Children who grow up in families where there is not enough food are sent to school hungry. Hungry children are not as able to concentrate on schoolwork and therefore are less likely to excel in school and be prepared for college. If they are unable to graduate college, they are not qualified for a job with livable wages, and the cycle starts again with their new families. People who are stuck in a generational cycle of poverty experience stress in multiple areas of life, and drugs offer a way to escape the stress, so drug use increases in areas where there is more poverty.

The key informants perceive that effort is being made to improve the FRFHC CHNA zip codes, with the new downtown updates, bike system, and renovation of old houses. They also have experienced the community leaders making an effort to work together to serve the community and cultivate unity. Another positive quality that the key informants perceive is that the young people are invested in improving the community and believe they are empowered to do good in the community. Creative innovation and collaboration must be combined with empowerment among the residents of the three zip codes to improve the indicators of health at multiple levels in the community.

Based on the results of this assessment, residents in the FRFHC CHNA zip codes are expected to be hospitalized at a higher rate due to influenza than residents living MC, Ohio, and the US. Diabetes is expected to be present in the targeted zip codes at a higher rate compared to MC, Ohio, and the US. Residents in the selected zip codes are also expected to utilize preventive healthcare to prevent future diseases less than residents in MC, Ohio, and the US. Because of the influence of poverty, residents living in the three zip codes are therefore expected to have worse health outcomes as compared to residents in MC, Ohio, and the US.

## **Recommendations**

### **Recommendations for Five Rivers Family Health Center**

Given the results of this community health needs assessment, there are several things that Five Rivers Family Health Center (FRFHC) can do to help improve the health of the community.

- When recommending a special diet for patients to follow, ensure that the patients are able to access healthy foods from the grocery store and that they are able to prepare the food at their home.
- Encourage students to pursue their education, and refer their pediatric patients to attend The Ladder. The Ladder is a mentoring organization sponsored by FRFHC that exposes students to careers in the healthcare field and encourages them to invest in their education.
- Healthcare professionals at FRFHC should be aware of the symptoms of lead poisoning in children to allow for early detection and treatment.
- Educate patients on the ways to remove allergens in houses that exacerbate asthma. Additionally, special care should be taken to educate all patients with asthma about a proper emergency plan for asthma exacerbations to prevent visits to the emergency department. The FRFHC could consider implementing a program like the Dayton Asthma Alliance at Dayton Children's Hospital that identifies children with asthma and assesses whether the asthma is linked to a child's living environment.
- Screen all patients for drug use and take appropriate intervention measures to dissuade patients from using drugs and to prevent drug overdoses.
- Educate female patients about the importance of receiving appropriate prenatal care and abstaining from smoking during pregnancy.

### **Recommendations for Public Health**

Public Health professionals should focus on improving the social determinants of health in the FRFHC CHNA community.

- Address poverty among children and improve adequate food and educational opportunities.
- Improve the housing opportunities to reduce preventable hospital visits due to things like lead poisoning and asthma from allergens in old houses.
- Create initiatives to increase naloxone availability for patients who have overdosed on heroin or other opiates.
- Ensure appropriate prenatal care for women to decrease rates of preterm and low birth weight babies. Offer parenting strategies and breastfeeding support to new parents to decrease infant mortality.
- Increase screening to allow for early detection of cancers.

### **Recommendations for Future Research**

Future community health needs assessments can be done and compared to the current assessment to assess the trajectory of the community's health indicators. Additional research can be done to determine why racial disparities of health exist in the selected zip codes. It would be interesting to compare the rates of chronic diseases such as diabetes and hypertension between the FRFHC CHNA zip codes, MC, Ohio, and the US. Comparing the mental health of the residents of the selected zip codes to MC, Ohio, and the US would also be enlightening.

### **Limitations**

There are a number of limitations that are present in this community health needs assessment. The assessment is limited to data already available at the zip code level on the

internet or at various organizations. There are a number of topics that would be interesting to compare between the FRFHC CHNA zip codes and MC, Ohio, and the US, but if it has not been surveyed and reported at the zip code level, it cannot be included in the report.

Most data is based on survey responses, which requires a certain number of respondents in order to be generalized to the prevalence of the zip code. Data from the Behavioral Risk Factor Surveillance System (BRFSS) would have been interesting to include, but because there were not enough respondents, the information could not be reported for those factors. Also, because the respondents are samples from the zip code, a degree of uncertainty is present in all reported results which was not accounted for in this report.

### **Conclusion**

The Five Rivers Family Health Center Community Health Needs Assessment gives insight into the health status of the zip codes included in the assessment and compares it to the health status of Montgomery County, Ohio, and the United States. Given the assessment results, a number of conclusions can be drawn about the health FRFHC CHNA zip codes, and recommendations for Five Rivers Family Health Center and public health can be made.

The areas where the FRFHC CHNA zip codes have the largest disparities compared to MC, Ohio, and the US are in the social determinants of health, education, and infant health. Collaboration between Five Rivers Family Health Center and public health is required to reduce the disparities that are shown in this assessment.

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
## Appendix A - Wright State University IRB Communication



Office of Research and Sponsored Programs  
201J University Hall  
3640 Col. Glenn Hwy.  
Dayton, OH 45435-0001  
(937) 775-2425  
(937) 775-3781 (FAX)  
e-mail: [rsp@wright.edu](mailto:rsp@wright.edu)

**DATE:** May 06, 2016

**TO:** Kara Yutzy, PI, Medical Student  
Family Medicine Department  
Sabrina Neeley, Ph.D., Faculty Advisor

**FROM:** Jodi Blacklidge   
Program Facilitator, IRB-WSU

**SUBJECT:** SC# 6208

*'Five Rivers Family Health Center Community Health Needs Assessment'*

The above-listed project does not meet the Federal definition for human subjects research, specifically "a systematic investigation designed to contribute to generalizable knowledge". Therefore, the project does not require approval from the Wright State University Institutional Review Board.

If you have any questions or require additional information, please contact me at 775-3974.

Best wishes for a successful project.

## Appendix B - List of Tier 1 Core Public Health Competencies Met

<b>Domain #1: Analytic/Assessment Skills</b>
Describes factors affecting the health of a community (e.g., equity, income, education, environment)
Identifies quantitative and qualitative data and information (e.g., vital statistics, electronic health records, transportation patterns, unemployment rates, community input, health equity impact assessments) that can be used for assessing the health of a community
Applies ethical principles in accessing, collecting, analyzing, using, maintaining, and disseminating data and information
Uses information technology in accessing, collecting, analyzing, using, maintaining, and disseminating data and information
Selects valid and reliable data
Selects comparable data (e.g., data being age-adjusted to the same year, data variables across datasets having similar definitions)
Identifies gaps in data
Collects valid and reliable quantitative and qualitative data
Describes public health applications of quantitative and qualitative data
Uses quantitative and qualitative data
Describes assets and resources that can be used for improving the health of a community (e.g., Boys & Girls Clubs, public libraries, hospitals, faith-based organizations, academic institutions, federal grants, fellowship programs)
Contributes to assessments of community health status and factors influencing health in a community (e.g., quality, availability, accessibility, and use of health services; access to affordable housing)
Explains how community health assessments use information about health status, factors influencing health, and assets and resources
<b>Domain #2: Policy Development/Program Planning Skills</b>
Contributes to state/Tribal/community health improvement planning (e.g., providing data to supplement community health assessments, communicating observations from work in the field)
Identifies current trends (e.g., health, fiscal, social, political, environmental) affecting the health of a community
<b>Domain #3: Communication Skills</b>
Solicits input from individuals and organizations (e.g., chambers of commerce, religious organizations, schools, social service organizations, hospitals, government, community-based organizations, various populations served) for improving the health of a community
Conveys data and information to professionals and the public using a variety of approaches (e.g., reports, presentations, email, letters)
Describes the roles of governmental public health, health care, and other partners in improving the health of a community
<b>Domain #4: Cultural Competency Skills</b>
Describes the diversity of individuals and populations in a community
Describes the ways diversity may influence policies, programs, services, and the health of a community
<b>Domain #5: Community Dimensions of Practice Skills</b>
Describes the programs and services provided by governmental and non-governmental organizations to improve the health of a community
Recognizes relationships that are affecting health in a community (e.g., relationships among health departments, hospitals, community health centers, primary care providers, schools, community-based organizations, and other types of organizations)
Collaborates with community partners to improve health in a community (e.g., participates in committees, shares data and information, connects people to resources)
Engages community members (e.g., focus groups, talking circles, formal meetings, key informant interviews) to improve health in a community
<b>Domain #6: Public Health Sciences Skills</b>
Retrieves evidence (e.g., research findings, case reports, community surveys) from print and electronic sources (e.g., PubMed, Journal of Public Health Management and Practice, Morbidity and Mortality Weekly Report, The World Health Report) to support decision making
Recognizes limitations of evidence (e.g., validity, reliability, sample size, bias, generalizability)
<b>Domain #7: Financial Planning and Management Skills</b>
n.a.

<b>Domain #8: Leadership and Systems Thinking Skills</b>
Incorporates ethical standards of practice (e.g., Public Health Code of Ethics) into all interactions with individuals, organizations, and communities
Describes public health as part of a larger inter-related system of organizations that influence the health of populations at local, national, and global levels
Describes the ways public health, health care, and other organizations can work together or individually to impact the health of a community
Contributes to development of a vision for a healthy community (e.g., emphasis on prevention, health equity for all, excellence and innovation)