DOES PLACE MATTER?

Health Equity in Defiance County

December 2018

Defiance County General Health District
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[www.defiancecohealth.org](http://www.defiancecohealth.org)

**Our Mission:**

To protect health, prevent disease and injury and promote the health and well-being for everyone in Defiance County.
BACKGROUND

What is health equity?

Health equity is when everyone has a “fair opportunity to attain their full health potential” and that no one is “disadvantaged from achieving this potential”\(^1\). Health inequity can be defined as differences in health status or in the distribution of health determinants between population group\(^2\).

Where does health inequity come from?

Health inequity arises from root causes that are caused by socio-economic and political context. The root causes include unequal allocations of power and resources such as goods, services and societal attention\(^3\). Another root cause of health inequity is the distribution of power and resources differently across race, gender, class, sexual orientation, gender expression and other dimensions of an individual\(^3\). Interventions targeting root causes hold the greatest promise for promoting health equity\(^3\).

What is health inequality?

Health inequality is the observable health difference between subgroups within a population\(^4\). It’s the difference in the distribution or allocation of resources between groups\(^4\).

What is health disparities?

Health disparities are “preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by socially disadvantaged populations”\(^5\).

Why Equity matters?

All people have a right to health. In a culture of health, everyone has the opportunity to live a healthier life, no matter who we are or where we live. Health professionals must work together to ensure that all individuals have the opportunity to make healthy choices and to achieve a better health for all.
**BACKGROUND**

Framework for reducing Health Inequities

Health is determined by more than genetics, individual behavior choices and visits to the doctor’s office. Health is determined by the environment in which we live, work, play and the systems and policies that establish and maintain these environments. Figure 2. is displaying the framework showing upstream and downstream influences on health. This concept is demonstrating how health professionals need to work upstream in order to properly address downstream effects. The upstream influences are the drivers of health such as the social inequities, institutional power, and living conditions (including physical, social, economic and work environments). The downstream influences are the impact of upstream such as risk behaviors, disease, injury and mortality. This framework was created by Bay Area Regional Health Inequities Initiative.

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**Figure 2. Moving upstream from individual behaviors to system and policies changes**

![Diagram showing upstream and downstream influences on health](image-url)
METHODOLOGY

Census tracts are “small, relatively permanent statistical subdivisions of a county” established by the United States Census Bureau for analyzing population. The tracts generally encompass a population between 1,200 to 8,000 people. Census tracts do not always follow city or township boundaries. The Bureau of Census follows people rather than political boundaries. Below is a map of Defiance County nine census tract numbers and locations.

The report includes the following indicators and/or topics of relevance to health equity in Defiance County:

- Population characteristics
- Income
- Poverty rates
- Education attainment
- 4-year graduation rates
- Unemployment rates
- Uninsured status
- Food Assistance
- Housing Burden
- Other Contributing Factors
- Mortality
- Life Expectancy

Data presented throughout this report are for the period of 2012-2016 unless otherwise specified. For complete method and sources see Appendix A and references.

Mortality data note: these data were provided by the Ohio Department of Health. The Department specifically disclaims responsibility for any analyses, interpretations or conclusions.
Does Place Matter? Health Equity in Defiance County

DEMOGRAPHICS

Table 1. Total Population

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Total (2012-2016)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>35,301</td>
<td>91.7%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>734</td>
<td>1.9%</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>3661</td>
<td>9.5%</td>
</tr>
<tr>
<td>Other*</td>
<td>807</td>
<td>2.1%</td>
</tr>
<tr>
<td>Other**</td>
<td>1484</td>
<td>3.9%</td>
</tr>
</tbody>
</table>


*Multiple Races refers to those who identify as two or more races/ethnicities

**Other includes groups whose total population was less than 1% (Asian, American Indian or Alaskan Native, Native Hawaiian or other Pacific Islander, and some other Race)

Between 2012-2016, the average population of Defiance County was 38,488 people. Approximately 92% of the population was White with 50% being females. Figure 4 is displaying the population of Defiance County by gender and age group. The largest age group in Defiance County is individuals between the ages of 55-59 years. The median household income was $50,822 during the same time period.

Figure 4. Population Pyramid for Defiance County
Percent of Total Population, 2012-2016

Figure 5. Race/Ethnicity for Defiance County
Population, 2012-2016

88% non-Hispanic White
9% non-Hispanic Black
2% non-Hispanic Other Race
1% Hispanic Any Race

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Population health can be defined as “the distribution of health outcomes within a population, the range of personal, social, economic, and environmental factors that influence the distribution of health outcomes, and the policies and interventions that affect those factors”\textsuperscript{12}. These groups are often geographic population, ethnic groups or any other defined group. The map below is illustrating the population differences across Defiance County. The darker the shade of green the higher the population in that area. This report will be addressing different indicators that impact population health.

\textbf{Figure 6. Population by Census Tract, 2012-2016}\textsuperscript{11}
Income is one of the driving forces behind health disparities. The relationship between income and mortality is well established, however, it’s not fully understood. This report will help understand the link between different health disparities and inequities within Defiance County. The average median income in Defiance County was $50,822 from 2012-2016\textsuperscript{13}. Ohio’s median income was $50,674 within the same timeframe\textsuperscript{13}.

![Figure 7. Household Median Income by Census Tract, 2012-2016\textsuperscript{13}](image)

Figure 7 and 8 are displaying the household median income by census tract. Four of the nine census tracts have a median income less than Defiance County as a whole. The median income of the census tract 9582 is almost double the income of the census tract 9588.

![Figure 8. Household Median Income by Census Tract, 2012-2016\textsuperscript{13}](image)
POVERTY

Federal poverty levels are used to determine eligibility for certain federal health programs including Medicaid and the Children’s Health Insurance Program (CHIP). Often those living in poverty have poor health, high levels of disease and disability, and have limited access to healthcare. Between 2012-2016, Defiance County had 13.6 percent of its residents living in poverty. The poverty rate in Defiance County is lower than both Ohio (15.4 percent) and in the United States (15.1 percent) for the same time period.

The federal poverty line for individuals in the United States is $12,140. The federal poverty line for a family of 4 in the United States is $25,100. Figure 9 and 10 are displaying the poverty rate by census tract. There are areas within Defiance County that have higher rates of poverty than others. The highest poverty rate is in the census tract of 9588 (25.5 percent), followed by census tract 9586 (20.0 percent).
From 2012-2016, 20 percent of all Defiance County children were living in poverty\textsuperscript{15}. Children who are living in poverty are at an increased risk for poor academic achievement, inadequate healthcare access, poor nutrition and food insecurity\textsuperscript{17}. The graph below shows the children poverty rates in Defiance County from 2012-2016. Three census tracts have higher percent of children living in poverty than Defiance County’s average. It’s important to identify the areas that have not only the highest rates of poverty, but children living in poverty, in order to tailor interventions aimed at reducing poverty which can lead to healthier lives for both adults and children residents of Defiance County.

Figure 11. Percent of Children Living in Poverty, 2012-2016\textsuperscript{15}
EDUCATION ATTAINMENT

Research shows that education attainment level is linked to a variety of health outcomes\textsuperscript{18,19}. Individuals without a high school diploma not only have higher incidences of risk behaviors such as smoking, drinking, chronic disease but they also have higher mortality rates and shorter life span compared with high school graduates\textsuperscript{20}.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure12.png}
\caption{Percent High School Graduate or higher by Census Tract, 2012-2016\textsuperscript{21}}
\end{figure}

Ohio’s education attainment was similar to Defiance County (89.5\% vs. 89.8\%) from the 2012-2016 American survey 5-year estimates. The lowest education attainment was in the census tract of 9583. The health benefits of education impact at an individual level (skills development and knowledge), community level (the health related to characteristics of the environments in which people live, work and play), and the larger social/cultural context (social policies, residential segregation and unequal access to resources)\textsuperscript{18}.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure13.png}
\caption{Percent High School Graduate or higher by Census Tract, 2012-2016\textsuperscript{21}}
\end{figure}
Higher levels of education provide individuals with knowledge and cognitive abilities to make healthier behavioral choices. Higher education often leads to employment at a higher income level as well as being able to work in safer and healthier working conditions\textsuperscript{20}. Despite the complexity of the multiple factors that link education to health, staying in school to graduate is one of the strongest predictors of health\textsuperscript{22}.

Figure 14. Percent Bachelor’s Degree or higher by Census Tract, 2012-2016\textsuperscript{21}

Approximately sixteen percent of Defiance County residents have a bachelor’s degree or higher education. Individuals who have a higher educational attainment often times have lower rates of health problems such as chronic diseases\textsuperscript{22}. Higher educational attainment also aids in increased income\textsuperscript{22}.

Figure 15. Percent Bachelor’s Degree or higher by Census Tract, 2012-2016\textsuperscript{21}
UNEMPLOYMENT RATES

The population in the labor force is the civilian non-institutionalized population 16 years and older who have jobs or are actively looking for jobs\(^\text{23}\). Persons in the labor force are classified as unemployed if they do not have a job, are currently available for work, and have actively looked for work in the previous month\(^\text{23}\). People that do not have a job and are not looking for one are considered not to be in the labor force.

Education attainment can impact the employment opportunities an individual receives. Unemployment has been linked with higher rates of alcoholism, smoking and depression\(^\text{22}\). There are studies to support that unemployment causes the loss of latent functions such as social contact, social status and time structure that can result in stigma, isolation and loss of self-worth\(^\text{24}\).

From 2012-2016, Defiance County had an unemployment rate of 6.8 percent. There are areas within Defiance County with higher rates of unemployment shown in Figure 16. The census tract 9588 has the highest unemployment rate in Defiance County.
The unemployment rate in Defiance County varies from 2.9% to 16.1%. The average unemployment rate for Defiance County as a whole was 6.8% vs. Ohio’s 7.2%. The highest unemployment rate was in the census tract of 9588, which is more than double the rate of Defiance County. As shown on page 9, this area also has the highest percentage of the population living in poverty and had the lowest percent of residents with higher education such as a bachelor’s degree.
HEALTH INSURANCE

Delaying or not receiving health care could negatively impact one’s health. Uninsured individuals often postpone getting health care and have difficulty obtaining care when they seek it. According to the American Community Survey 5-year estimates, 9.1% of Defiance County population is without health insurance coverage. Ohio’s total population without health insurance was 8.5% during the same time period.

Within Defiance County there are areas that have higher percentages of uninsured. The census tract 9582 had the highest percent of individuals without insurance (13.2 percent). Of the 13.2% without health insurance, 30% household income was less than $25,000 and were between the ages of 25-34 years old. The same census tract had the highest median income ($63,582) and the lowest unemployment rate (2.9%) in the county.
FOOD ASSISTANT PROGRAMS

The Ohio Food Assistance Program (Supplemental Nutrition Assistance Program, SNAP) offers nutrition assistance to eligible, low income individuals and families. Previous research shows that food insecurity increases the risk of adverse health outcomes, complicates the ability to manage illness, and is linked to higher health care costs. SNAP assists with reducing food insecurity by enabling families to purchase healthier foods.

**Figure 20. Percent of Household receiving Food Stamps/SNAP by Census Tract, 2012-2016**

![Chart showing the percent of households receiving food stamps/SNAP by Census Tract, 2012-2016.](image)

In Ohio approximately 14.8% of households receive food stamps/SNAP vs. 13.1% in Defiance County. Figure 20 and 21 are displaying the percent of households receiving food stamps/SNAPS. The census tract households receiving the highest percent of food stamps/SNAP is 9588 (25.2 percent). The census tract receiving the lowest percent of food assistance is 9582 (5.0 percent).

**Figure 21. Percent of Household receiving Food Stamps/SNAP by Census Tract, 2012-2016**

![Map showing the percent of households receiving food stamps/SNAP by Census Tract, 2012-2016.](image)
Housing cost typically is the largest single expense in a family’s budget. It is recommended that one’s housing cost should not exceed 30 percent of a household’s total income. Affordable, quality housing is central to health. Insufficient housing is associated with increased risk of injury and respiratory illnesses. Within Defiance County 17 percent of households have housing cost over 30% of their household income.

Figure 22. Households with housing costs over 30% of household income, percent by census tract 2012-2016.

Figure 22 and 23 are displaying the percent of households with housing cost over 30% of household income. There are approximately 25.3 percent of residents in Defiance County as renter occupied. In 2017 there were an estimated 203 active Housing and Urban Development (HUD)-subsidized rental units in Defiance County.
Figure 24 is displaying the percent of the Hispanic or Latino population by census tract. Approximately, 22 percent of the Hispanic or Latino population live in the census tract of 9588. Figure 25 is displaying the percent of residents with no available vehicles at household. As a county, the average no available vehicles is 1.7% vs Ohio 8.4%. The census tract 9588 had the lowest median income and 4-year graduation rate. This population also had the highest percent of poverty, unemployment and residents on food assistance. The goal of this report is to define areas within Defiance County who are experiencing health inequities in order to provide solutions to the problems.
The rapid aging of the United States population is being driven by Americans living longer and there are proportionally more elder adults than in previous generations\textsuperscript{37}. There are areas within Defiance County with higher households with residents 65 years of age and older. The two highest census tract with households with seniors include 9584 and 9587.
MORTALITY

Health outcomes can be influenced by many of the social factors previously discussed in this report (income, poverty, being uninsured, education and where a person lives). These factors can have adverse impacts on the rates of mortality. Mortality rates provide the opportunity to identify areas where premature deaths could have been prevented. Between 2012-2016, Defiance County age adjusted mortality rate from all causes of death of 771.9 per 100,000 residents\textsuperscript{35}. The five leading causes of death in Defiance County were\textsuperscript{35}:

- Disease of the Heart
- Cancer
- Chronic Lower Respiratory Disease
- Unintentional Injuries
- Cerebrovascular Diseases

![Figure 27. Average age of death by census tract, 2012-2016\textsuperscript{35}](image)

The average age of death among Defiance county residents was 74.8 years old between 2012-2016. Ohio’s average age at death is 77.5 years vs. United States 78.8 years. The average age of death by census tract ranged from 72 to 78 years in Defiance County. To properly compare groups, age-adjusted mortality rates were calculated on page 21.
Figure 28 is displaying the age adjusted mortality rate from all causes of death. The higher the age-adjusted mortality rate, the higher deaths occurred in that area. The census tract East (9588) has the highest deaths per 100,000 residents. Even though there are not 100,000 residents in the census tract, this number is used to be able to compare to other populations. The census tract North (9585) had the next highest mortality rate. In figure 27, East (9588) average age of death was the lowest at 72 years. It is important to note that areas that have higher elder population may experience higher overall mortality as a result of the aging population. To account for these differences and to accurately compare between communities, the mortality rates were age-adjusted. Standardizing or age-adjusting the rates takes into account the communities with larger population of elder individuals or nursing homes, and populations with larger younger individuals.
Does Place Matter? Health Equity in Defiance County
COMPARISON

Comparing geographic data allows users to easily look at differences. Table 2 is comparing Defiance County outcomes to neighboring counties (Fulton, Henry, and Williams), the state of Ohio and the United States. The comparison will help put the data findings in perspective.

Table 2. Data Comparison by County, States, and Nation, 2012-2016

<table>
<thead>
<tr>
<th></th>
<th>Defiance County</th>
<th>Fulton County</th>
<th>Henry County</th>
<th>Williams County</th>
<th>Ohio</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Income</td>
<td>$50,822</td>
<td>$55,860</td>
<td>$54,941</td>
<td>$45,044</td>
<td>$50,674</td>
<td>$55,322</td>
</tr>
<tr>
<td>Poverty Rate</td>
<td>13.6%</td>
<td>11.2%</td>
<td>10.2%</td>
<td>14.4%</td>
<td>15.4%</td>
<td>15.1%</td>
</tr>
<tr>
<td>High School Graduation Rate</td>
<td>89.8%</td>
<td>90.4%</td>
<td>91.3%</td>
<td>88.6%</td>
<td>89.5%</td>
<td>87.0%</td>
</tr>
<tr>
<td>Higher Education Graduation Rate</td>
<td>15.8%</td>
<td>17%</td>
<td>16%</td>
<td>14.2%</td>
<td>26.7%</td>
<td>30.3%</td>
</tr>
<tr>
<td>Unemployment Rates</td>
<td>6.8%</td>
<td>6.2%</td>
<td>5.3%</td>
<td>5.8%</td>
<td>7.2%</td>
<td>7.4%</td>
</tr>
<tr>
<td>Individuals without Health Insurance Coverage</td>
<td>9.1%</td>
<td>5.2%</td>
<td>6.4%</td>
<td>6.6%</td>
<td>8.5%</td>
<td>11.7%</td>
</tr>
<tr>
<td>Food Stamp Usage</td>
<td>13.1%</td>
<td>10.9%</td>
<td>8.9%</td>
<td>14.5%</td>
<td>14.8%</td>
<td>13.0%</td>
</tr>
</tbody>
</table>
CONCLUSION

This report highlights different factors, but it doesn’t account for all influences on one’s health. It’s important to address social, economic and environmental factors to understand what influences health. There are areas in Defiance County who experience different health inequities than others. The goal of this report was to identify areas who experience health inequities and disparities in order to provide solutions to the problems.

Figure 30 is displaying the census block data where there are areas of deficiencies. The index is based on measures created by the United States Health Resources and Services Administration using data from the 2013 American Community Survey Five Year Estimates. The ADI takes into account income, poverty, education and other factors that influence one’s health. The findings from the ADI map reflect the results of this report. Health professionals contribute to building healthy communities and address health inequities by collaborating amongst multiple stakeholders and community members.
APPENDIX A: METHODS

Average Age of Death by Census Tract:

Death certificate data was collected from the years 2012-2016 from the Ohio Department of Health (ODH) Vital Statistics. The data was analyzed in an excel spreadsheet. The census tract numbers were assigned based on address of the resident by ODH. Records without census tracts were excluded from the data analysis. The average age of death per year was calculated by adding the ages at death, then dividing it by the total number of deaths in that census tract that year. An example of the Excel spreadsheet equation used to calculate the average age of death was the following: =AVERAGE(B3-B7). After the average age of death by census tract was determined for each year, these results were then averaged to prevent any one year’s outlying data point from skewing the results.

Age-Adjusted Mortality Rate:

Age-adjusted mortality rate by census tract was used for the direct age-adjustment. This is a summary rate that is a weighted average of the rates for each age group in the population. The weights used in adjustment represent between populations with different age distribution and comparison of rates within a population over time. The age-adjusted mortality rates are standardized to the age distribution of the U.S. 2000 standard population. To generate the age-adjusted rates, age-specific rates are calculated for age groups, then multiplied by the standard population proportion for the respective age group and summed to give an overall age-adjusted rate. The direct method age-adjusted mortality rate equation can be seen below. Rates are presented in this report as the number of deaths per 100,000 persons.

\[
\text{Rate} = \left( \frac{\text{Number of Age Group Deaths}}{\text{Total Age Group Population}} \right) \times 100,000 \times \text{Adjustment Factor}
\]
Census Tract Farmer/Ney (9582)
Census Tract Hicksville (9583)
Census Tract Mark Center/Sherwood (9584)
Census Tract North (9585)
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Census Tract West (9586) and South (9587)
Census Tract East (9588)
REFERENCES


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