Health and Its Social Context in Indianapolis' Northeast Community

A Baseline Assessment for the Diabetes Impact Project-Indianapolis Neighborhoods (DIP-IN)

Diabetes Impact Project – Indianapolis Neighborhoods

The Diabetes Impact Project – Indianapolis Neighborhoods (DIP-IN) is an eight-year partnership to reduce the burden of diabetes that is disproportionately impacting three areas of the city, the Near Northwest, Near West and the Northeast. Partners include community residents, community-based organizations, Eskenazi Health, Marion County Public Health Department, and many others.

For more information about DIP-IN, please visit our website at:
https://dipin.indianapolis.iu.edu/index.html

Funding

This project was supported by Eli Lilly and Company.

Suggested Citation

Weathers TD, Altman M, and Staten LK. *Health and Its Social Context in Indianapolis' Northeast Community: A Baseline Assessment for the Diabetes Impact Project – Indianapolis Neighborhoods.* Month 2024. Available from https://dipin.indianapolis.iu.edu/.

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Introduction

Communities are much like trees. Healthy communities – like healthy trees – live longer, more flourishing lives. In order to thrive, trees require the right environment, including nutrients in the soil, as well as water and sunlight in the right amount. So, too, do the people of a community.

A quick glance at the appearance of a tree gives us a good indication of its health. A tree full of green, well-shaped leaves, flexible branches, and intact bark are signs of a healthy tree, while wilted leaves, bare patches with dry branches, and marks in the trunk tell us that something could be wrong beneath the surface. We observe similar signs of the health status of a community when we talk about the community's rates of disease or early death.

One such outward sign that the health of the Northeast deserves attention came to light in 2017 when multiple partners were convened to address the high burden of diabetes in certain communities of Indianapolis. At that time, the diagnosed diabetes prevalence rates in three neighborhoods, including the Near West, "range(d) from 15% to over 17%, rates that [were] 1.5 to 2 times that of the national and global averages" [DIP-IN 1.0 Proposal to Eli Lilly and Company].

Image source: The Oregonian, 10/21/2010.
http://blog.oregonlive.com/kympokorny/2010/10/birch_trees_losing_ground.html

Such outward signs rightly draw our attention, but they do not tell us what is at the root of the problem or what remedies are needed. For that we must take a much closer look, examining a range of outward signs— as well as what lies beneath the surface— and throughout the social and physical environment in which the community is embedded.

Purpose

Where you live should not determine how long you live. Residents living, working, playing, and aging in the Northeast community of Indianapolis today deserve the same opportunity for a long and healthy life as other people living around the Indianapolis metropolitan area. The driving purpose of the 8-year project known as the Diabetes Impact Project – Indianapolis Neighborhoods (DIP-IN) is to reduce the burden of diabetes that is disproportionately impacting the three DIP-IN communities and improve the length and quality of life for all residents of the area. We want to close the gap that exists between this community and others here in the Indianapolis metro. In this report, we gather and summarize data that **describes the health and social context for health in the Northeast at the start of DIP-IN in 2018.** This report will be updated to reflect changes in the community at the conclusion of the project (2026).
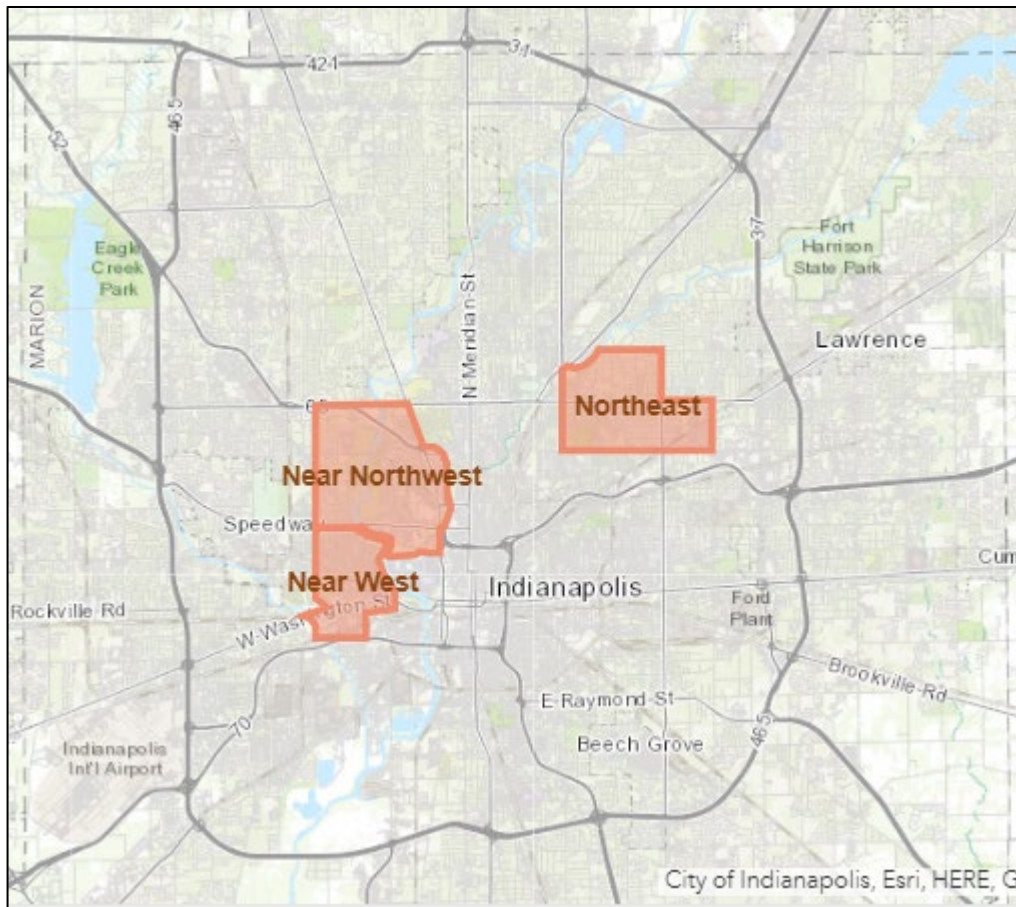
Figure 1. DIP-IN Communities within Marion County

Image source: The Polis Center at IU Indianapolis, SAVI Community Information System, DIP-IN Dashboard (https://savi.org/apps/dipin/), retrieved 02/10/2023.

The Northeast Community

The Place

The Northeast community is home to landmarks of historical and cultural significance, including Washington Park, Eastern Star Church, and Wes Montgomery Park. Washington Park was established in the early 1900s and is well-known for its baseball leagues [1]. Three league titles were won here by the Indianapolis Indians. A resident of the Northeast, Autumn Lowry, said that during a time when segregation was prevalent, both black and white baseball teams utilized the park. She added that Washington Park now offers various recreational options, such as disc golf and a center with activities like line dancing and basketball. According to Lowry, it also hosts the annual Community Love Fest during the summer, featuring vendors, food, basketball tournament, neighborhood cleanup activities, and Praise in the Park on Sundays.

The Avondale Meadows YMCA is a recent addition to the Northeast neighborhood, but has taken the role of an incredibly important entity. Besides offering health and wellness services, it's become a community hub that provides for neighborhood groups to host meetings and events. Eric Ellsworth, the CEO and president of the YMCA of Greater Indianapolis, said that the Avondale Meadows YMCA is "a source of pride for the community" [2].

As a whole, the Northeast comprises several neighborhoods: Oxford, Keystone Millersville, Avondale Meadows, and Arlington Woods.

The Northeast boundaries utilized by DIP-IN were defined by residents serving on Northeast Steering Committee in the first year of DIP-IN (Figure 1). Some other civic groups define the boundaries and names differently than we do. For purposes of this project, we are primarily focused on the area that is bounded by:
- 46th Street to the north
- 30th Street and 32nd Street to the south
- N Arlington Ave and Emerson Ave to the east
- N Keystone Ave and Fall Creek to the west

We have attempted to identify and share the best available data to describe the health and social context of the Northeast community at the start of DIP-IN (2018), matching as closely as possible to these boundaries. The best match uses a collection of census block groups. Sometimes, however, data are not available for block groups. In this case, we use census tracts or ZIP codes. Because tracts and ZIP codes are larger, they include some areas outside the DIP-IN Northeast boundaries. Table 1 lists all the block groups, tracts, and ZIP codes which are associated with the Northeast, in full or in part. In addition, available data regarding community resources, such as schools, groceries and libraries, were sometimes incomplete and we supplemented those data with our own knowledge of these places.

Figure 2. Community-Defined Boundaries of the Northeast
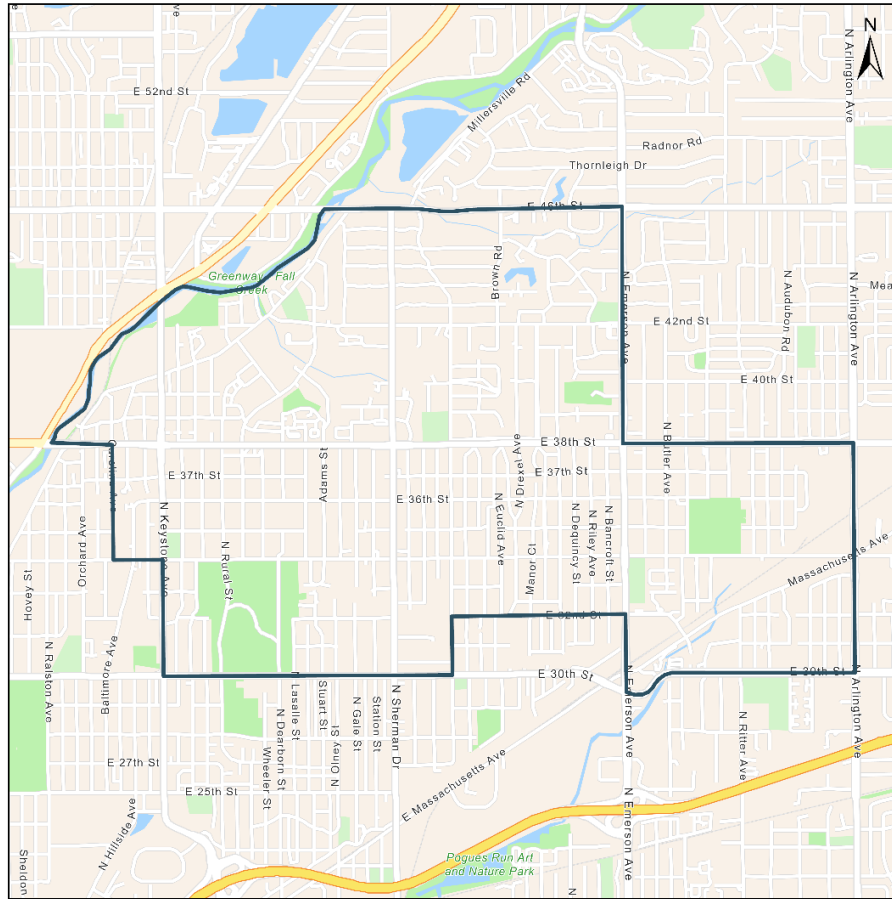
Image source*:* The Polis Center at IU Indianapolis, SAVI Community Information System (https://arcg.is/150jGX), 2024.

Table 1. Block Groups, Tracts, and ZIP Codes of the Northeast

Block Groups	Tracts	ZIP Codes
180973226002	18097322600	46205
180973226003	18097322700	46218
180973226004	18097350500	46226
180973227001	18097350600	
180973227002	18097350700	
180973227003	18097360102	
180973505001		
180973505002		
180973506001		
180973506002		
180973506003		
180973506004		
180973506005		
180973507001		
180973507002		
180973601021		
180973601022		

The People

There are many ways to describe the people of a community. In this section, we give a general idea of the make-up of the Northeast in terms of sex, race/ethnicity, and age distributions. While all these characteristics shape our health and our interactions with each other, these are personal characteristics we generally cannot change. In subsequent sections of this report, we will describe people of the community in other important ways that are changeable, such as the level of education completed. These changeable characteristics are greatly influenced by the larger community and society in which people live.

As detailed in Table 2, the Northeast's service area includes approximately 15,000 residents (ACS, 2018). In comparison to the whole of Marion County, Northeast's service area:

- Has an older population, based on median age averaged across block groups;
- Has a much higher proportion of residents who belong to a minority racial/ethnic group, with substantially more Black residents and fewer White residents than across Marion County (Figure 3).

Table 2. Demographics of the Northeast, 2018

Demographics	Northeast Service Area		Marion County	
	No.	Percent of Total	No.	Percent of Total
Total population	15,007	100%	944,523	100%
Sex				
Male	7,121	47.5%	455,007	48.2%
Female	7,886	52.6%	489,516	51.8%
Age				
Median age	42.8	N/A	34.4	N/A
Dependency Ratio	.59	N/A	.58	N/A
Age <18 years	3,288	21.9%	234,068	24.8%
Age 18-64 years	9,265	61.7%	597,100	63.2%
Age 65+	2,454	16.4%	113,355	12.0%
Race/Ethnicity				
White, non-Hispanic	875	5.8%	528,704	56.0%
Black, non-Hispanic	13,077	87.1%	261,724	27.7%
Hispanic	760	5.1%	96,260	10.2%
Asian	38	0.3%	29,367	3.1%
Other	257	1.7%	28,468	3.0%

Data source: The Polis Center at IU Indianapolis, SAVI (Classic) Community Information System (https://classic.savi.org/savi/), using American Community Survey (ACS) 5-Year Estimates 2018, retrieved 08/06/2023.

Figure 3. Racial/Ethnic Distribution in the Northeast DIP-IN Community Compared to Marion County in 2018
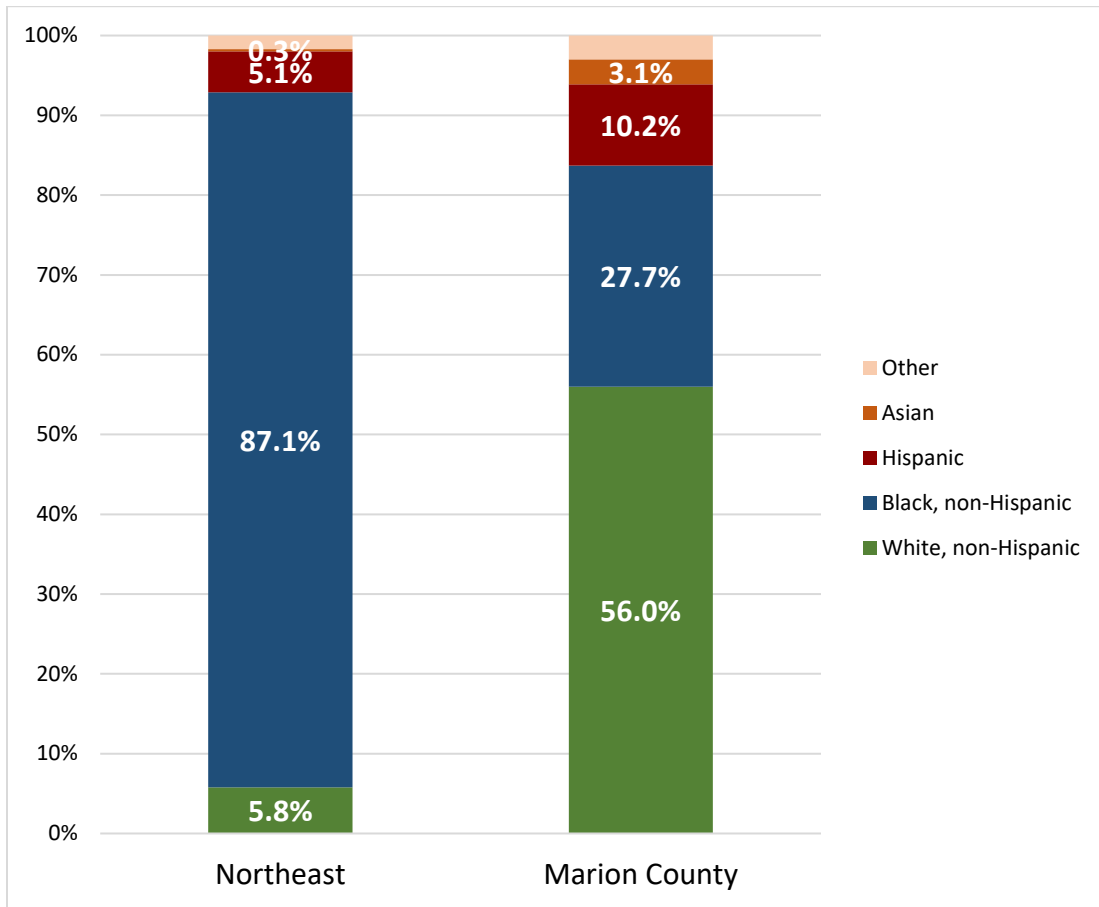
Data source: The Polis Center at IU Indianapolis, SAVI (Classic) Community Information System (https://classic.savi.org/savi/), using American Community Survey (ACS) 5-Year Estimates 2018, retrieved 08/06/2023.

In Figure 4 below, we use a population pyramid to show the makeup of residents based on age group and sex, with females shown on the left (blue) and males on the right (green). The largest proportion of females are 60-64 years old, while the largest proportion of mails are 15-19 years old. There are fewer school-age children, ages 5-9 and 10-14, than those under age 5. This may indicate that residents are leaving the area when their children reach school age.

Figure 4. Age and Sex Distribution of Northeast's Service Area, 2018
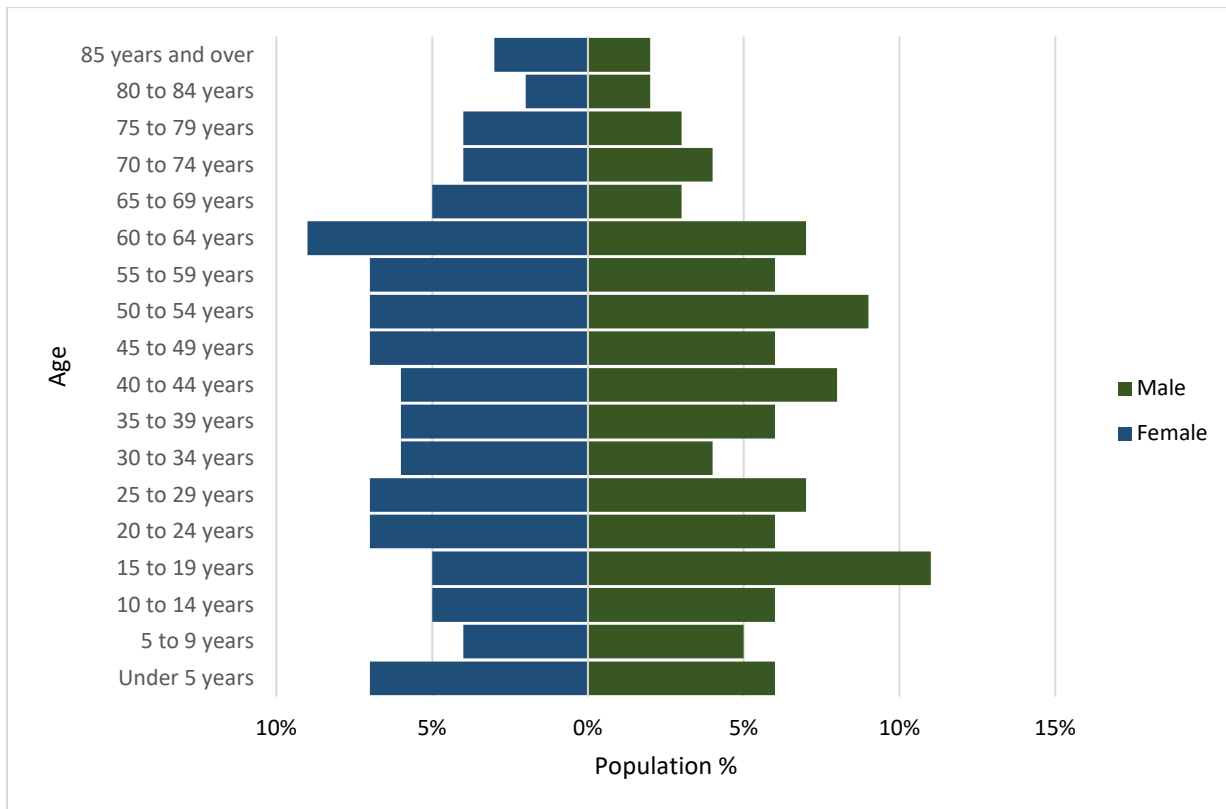
Data source: The Polis Center at IU Indianapolis, SAVI (Classic) Community Information System (https://classic.savi.org/savi/), using American Community Survey (ACS) 5-Year Estimates 2018, retrieved 08/06/2023.

The Visible Tree: What are outward signs of the people's health?

If you are feeling sick and go to see the doctor, they will take a good look at you and ask about your signs and symptoms before making a diagnosis and prescribing treatment. No doubt someone will take your temperature and blood pressure, and possibly run some tests.

Looking at the average length of life and the types of illness that lead to early death in a community likewise serve as signs and symptoms of the community's health on the whole. In a sense, we are beginning our investigation by starting at the end of life, then we will work our way back to try to understand neighborhood conditions that may be contributing to patterns of poor health in the community.

Life Expectancy

Life expectancy is an important measure of health compared across cities, counties, and countries around the world. Life expectancy at birth, the calculation most commonly reported, is a prediction of how long babies born in a specific time and place can expect to live, based on how long past residents of that community have lived. However, it is also a reflection of the conditions of everyday life and the supports that are made available for the community's wellbeing. A 2016 study compared the life expectancy of poor people living across the U.S. [3]. In a ranking of the 100 largest metro areas of the U.S., Indianapolis ranked among the 10 cities where being poor shortens life the most, for both men and women (Chetty et al., 2016; Irwin & Bui, 2016). Poor residents of Indianapolis live shorter lives than residents of New York City, Los Angeles, Chicago, and most of these 100 large metro areas. Why? Most simply stated, these cities differ in the availability of resources that help buffer the effects of poverty on health – resources such as high-quality public schools or a robust public transportation system. Neighborhood conditions and resources affect residents' health and wellbeing on a daily basis.

Our prior analysis of life expectancy among communities of the Indianapolis metro area by ZIP code for the period 2009-2013 [5] brought to light substantial differences in length of life between communities separated only by a short distance. That report raised awareness about the disparities in our own backyard and set in motion a number of efforts to tackle these disparities, including DIP-IN. In the more recent analysis of deaths in the pre-COVID era (2014-2018) – which includes DIP-IN's baseline year of 2018, we found that the gap between the shortest- and longest-living ZIP codes of the metro area had widened to 16.8 years, compared to a gap of 13.6 years for the prior 5-year period (2009-2013) [6]. Residents of the shortest-living ZIP code in the metro area can expect to live only 68.0 years on average, while residents of the longest-living ZIP code have an average lifespan of 84.8 years, as long as the top high-income countries of the world [7]. This growing disparity demonstrates the need to shift societal attention away from increasing human longevity to increasing *equity* across people in health and length of life [8].

Reported below are the life expectancy values (in years) for each of the three ZIP codes that are part of the Northeast (NE) community, in context with Marion County, the Indianapolis MSA, state of Indiana, and the U.S., based on data through 2018. It is important to remember that shorter life expectancy represents lost years of life averaged across all residents. Not all will live to retirement age – some will live longer, well into their 80s, and some will die in their teens, decades too soon.

For the five-year period (2014-2018), we found that residents of NE ZIP codes could expect to live shorter lives than residents across Marion County, the Indianapolis metro area, the state of Indiana, and the U.S. on the whole.

- Life expectancy in these three ZIP codes was 68.0 years – 74.3 years, which indicates that NE residents lived shorter lives, on average, by 10.5 - 16.8 years compared to residents of the longest-living ZIP code of the Indy metro area (at 84.8 years).
- All three of the NE ZIP codes are within the lowest quintile (20%) for life expectancy at birth (2014-2018) relative to the 104 ZIP codes of the Indy metro area (shaded red in Figure 5), and all three lost life expectancy between the two time periods.
- All three NE ZIP codes have life expectancy that is below the range observed across the wealthy developed nations of the world (74.9-83.8 years).
- The NE ZIP code 46218 was found to have the lowest life expectancy of the 104 ZIP codes in the Indianapolis metro, at 68.0 years. This ZIP code also lost 2.5 years of life expectancy between the time periods.

Table 3. Life Expectancies by Place and Time

Place	Community	2009-2013 LE at Birth	2014-2018 LE at Birth	2018 LE Rank (of 104)	Gap from Highest ZIP (Years)	Net change
46205	Northeast	74.5	73.9	92	10.9	-0.6
46218	Northeast	70.5	68.0	104	16.8	-2.5
46226	Northeast	76.2	74.3	86	10.5	-1.9
Metro ZIP with highest LE		84.0	84.8	1	--	+0.8
Marion Co.	Marion County	76.4	75.9		8.9	-0.5
Indianapolis MSA	Indianapolis MSA	77.7	77.5		7.3	-0.2
Indiana	Indiana	77.6	76.8		8.0	-0.8
U.S.	U.S.	78.8	78.6		6.2	-0.2
Developed nations in OECD	Global	Lowest = 74.1 years Highest = 83.4 years	Lowest = 74.9 years Highest = 83.8 years			+0.8 +0.4

Data sources:
[1] All data except developed nations in OECD are as reported or cited in [6].
[2] Source for developed nations in OECD is [7].

Figure 5. Marion County ZIP Codes by Life Expectancy Quintile (2018)
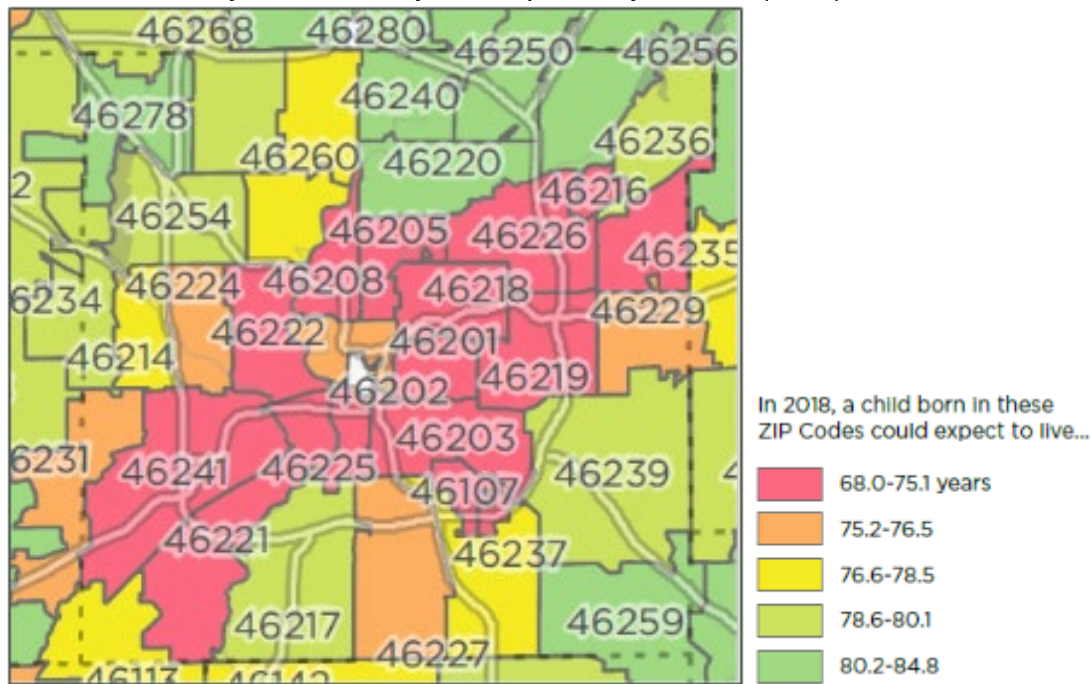
* Red = 20% of ZIP codes with lowest life expectancy of metro area
Image source: Weathers et al., 2021

Low life expectancy, simply put, means many residents are dying prematurely. Diabetes is the 6th leading cause of death for residents of Marion County, and among the top causes of lost years of potential life due to premature death [9]. Diabetes is contributing to the low life expectancy in these communities, underscoring the importance of addressing these place-based disparities.

In the latest life expectancy analysis, we also identified significant upstream community-level predictors of life expectancy in metro Indianapolis, which include high racial residential segregation and proportion of residents with low educational attainment, living at/near poverty, and high overall social vulnerability [6]. The DIP-IN ZIP codes are disproportionately affected by these social conditions that, in turn, contribute to poorer health and shorter lives. These are the upstream gaps that DIP-IN aims to address with residents and multi-sector partners through policy, systems, and environmental change in these communities. We will explore these factors and more in part two of this report.

Deaths

Based upon life expectancy, residents of DIP-IN communities are dying earlier than residents of other Indianapolis communities. What are the leading causes of their death? How are the patterns of death different in this community compared to the county? Also, how is the disproportionate burden of diabetes in these communities contributing to premature death?

For the five-year period from 2014-2018, the Marion County Public Health department recorded 5,011 deaths among residents of ZIP codes in the Northeast community (here defined by ZIP codes 46205, 46218 and 46226). **A higher proportion of deaths occurred among male residents (53.5%) than female residents (46.5%),** even though males represent 47% of the population. (ACS 5-Year Estimates, 2018). **By race/ethnicity, deaths in this community disproportionately occurred among Black residents.** As the figure below demonstrates, 67.9% of all deaths were among Black residents even though Black persons represent just 57.9% of the population. In contrast, deaths among Hispanic persons represented just 1.5% of deaths though they represent 9.2% of the population. The proportion of total deaths among White residents (29.9%) is similar to their representation in the population (29.2%).

Figure 6. Proportion of Deaths and Population by Race/Ethnicity in Northeast ZIP Codes (46205, 46218, 46226), 2014-2018
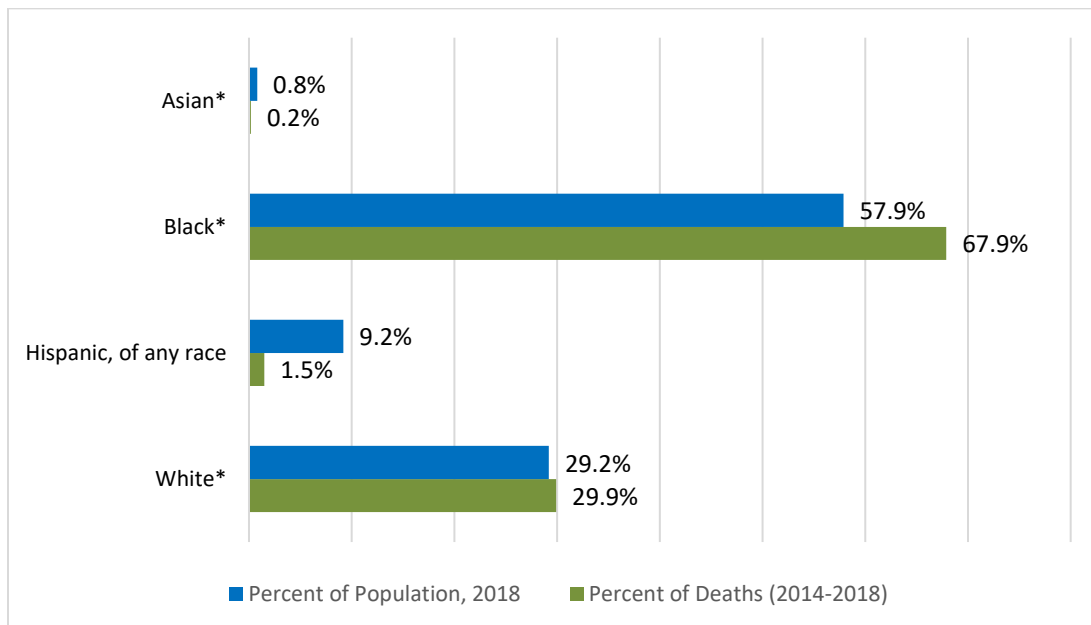
*Non-Hispanic
Data sources:
[1] Deaths - Marion County Public Health Department
[2] Population - The Polis Center at IU Indianapolis, SAVI Community Information System (https://www.savi.org/) using American Community Survey (ACS) 5-Year Estimates 2018, retrieved 02/01/2024.

In Table 4, the ten leading causes of death are listed in rank order for comparison between Marion County and the Northeast ZIPs combined. Causes are shaded red whenever they are ranked higher as a cause in the Northeast than in Marion County. Also, in the final column, an "H" indicates a higher proportion of total deaths attributed to that cause in the Northeast than in Marion County, based on simple difference in proportions.

Table 4. Top Ten Causes of Death by Place as Percent of Total Deaths

Rank	Marion County (2016)[1]	Percent of All Deaths	Rank	Northeast ZIPs Combined (2014-2018)[2]	Percent of All Deaths	NW Higher (H) or Lower (L) than MC
1	Cancer	21.0%	1	Cancer	20.9%	L
2	Heart disease	19.0%	2	Heart disease	20.1%	H
3	Chronic lower respiratory diseases	7.1%	3	Accidents	6.0%	L
4	Accidents	7.0%	4	Chronic lower respiratory diseases	5.9%	L
5	Cerebrovascular disease	4.2%	5	Cerebrovascular disease	5.3%	H
6/7	Diabetes	3.2%	6	Assault (homicide)	4.4%	H
6/7	Alzheimer's disease	3.2%	7	Diabetes	4.1%	H
8	Kidney disease	2.7%	8	Kidney disease	3.8%	H
9	Assault (homicide)	2.1%	9	Alzheimer's disease	2.6%	L
10	Chronic liver disease and cirrhosis	1.9%	10	Chronic liver disease and cirrhosis	1.8%	L
	Percentage of Deaths from 10 Top Causes:	71.4%		Percentage of Deaths from 10 Top Causes:	74.9%	

Data sources:
[1] Marion County - Bowman et al., 2018b
[2] Internal analysis by T. Weathers using death data for Near West, 2014-2018, obtained from Marion County Public Health Department.

Key findings include:

- **The top ten causes of death are the same for the NE ZIP codes as for Marion County overall (2014-2018).** The top ten primary causes account for 75% of all deaths in the Northeast.
- Across the U.S., Marion County, and in ZIP Codes of the NE, **about half of all deaths are due to cancer, heart disease, cerebrovascular disease** (strokes primarily), **and diabetes**, diseases which increase with age [10]. In the Northeast ZIP codes, these causes accounted for 50.4% of all deaths among residents 2014-2018.
- **Notably, diabetes was the primary cause for 4.1% of deaths in the Near Northwest, higher (by 28%) relative to the percentage county wide (3.2%).** However, due to the interlatedness of diabetes and heart disease, the role of diabetes in cardiovascular deaths must also be considered. "Cardiovascular disease is the number one cause of

death among people living with diabetes, resulting in 2/3 of deaths in people with type 2 diabetes" [11]. Roughly one-fourth of all deaths in the NE in this period were attributed to heart or cerebrovascular disease.

- **Homicide** accounts for 2.1 times the proportion of deaths in this community as it does county-wide (4.4% vs 2.1%), making it the 6th leading cause of death among NE residents.
- While **accidents (unintentional injuries)** are ranked higher in the NE (3rd) as a leading cause of death, they account for fewer deaths in the NE (6.0%) than across Marion County (7.0%).

Diabetes-Related Death Rates

Because diabetes is a disease that naturally becomes more prevalent with age, it is important to take into account the ages of people living in a given place to compare two different communities. This is referred to as "age-adjustment." The age-adjusted death rate applies the same population age distribution to all communities so that differences seen are not simply the result of one community consisting of mostly young people (who would not yet have diabetes) while another consists of mostly older people (who are more likely to have diabetes). Table 5 below, shows the age-adjusted mortality rate for diabetes within the NE ZIP codes. Calculations are based upon deaths by ZIP from 2009-2018 – a ten-year period – while for the county the 2018 rate is reported.

Table 5. Age-adjusted Diabetes Mortality Rates in Northeast ZIP Codes, 2009-2018

Place	Diabetes Age-adjusted Mortality Rate (per 100,000 residents)	Age-Adjusted Rate Ratio (ZIP/County)
46205	35.4	1.86
46218	43.4	2.29
46226	25.0	1.32
Marion Co (2018)	19.0	*(reference group)*

Source: Kiehl et al., 2022

In Northeast ZIP codes, the age-adjusted death rate for diabetes is substantially higher than the rate for Marion County residents on the whole. As indicated in the 3rd column, the death rate in these ZIP codes is 1.32 – 2.29 times the diabetes death rate for the county.

Figure 7. Diabetes Age-Adjusted Death Rate for Northeast ZIP Codes, 2009-2018
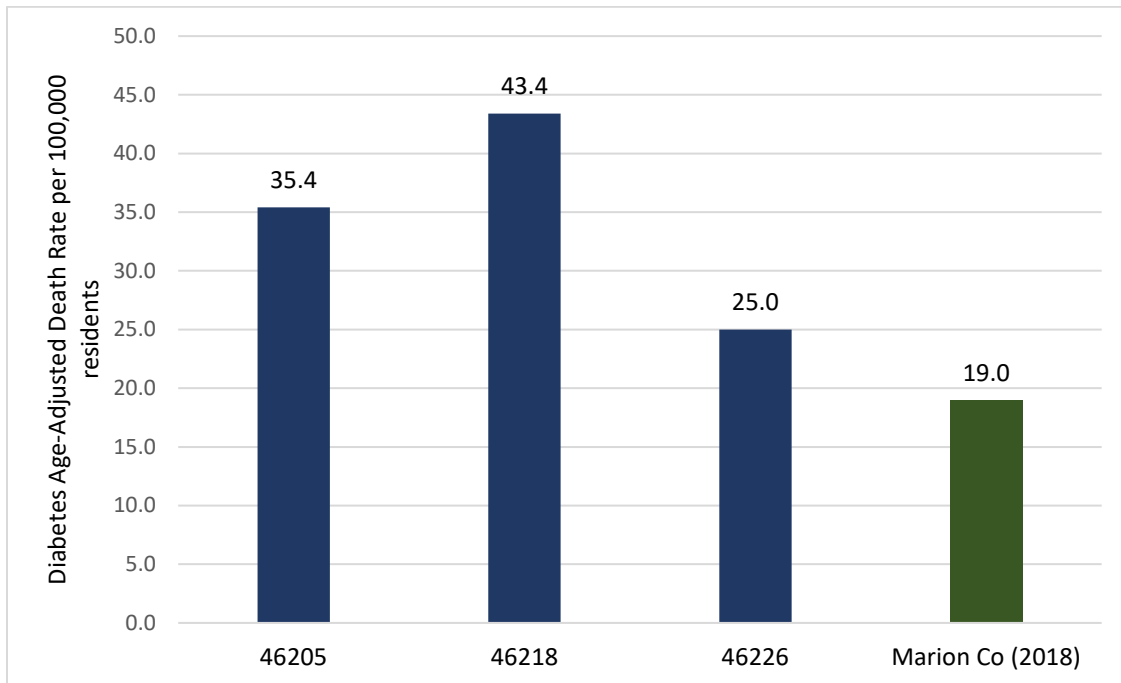
Source: Kiehl et al., 2022

Years of Potential Life Lost

Deaths from conditions like heart disease, diabetes, and Alzheimer's disease naturally increase with age. However, deaths from other causes, such as accidents or homicide, tend to occur at younger ages, and this appears to be how many lives are cut short in the Northeast. Deaths among younger people lower the overall life expectancy of the community more than deaths at older ages. Across the Near Northeast ZIPs, 60.9% of all deaths that occurred from 2014-2018 were considered "premature," in that they occurred among people less than age 75 years old – the average age of death in the U.S. [12]. In the five year period, premature death took 63,347 years of potential life from residents of the Northeast. Of the 3,050 premature deaths among Northeast residents, each life was cut short, on average, by more than 20 years.

Table 6 shows the causes of death accounting for the greatest number of lost years of life among residents who died before age 75 – referred to as Years of Potential Life Lost (YPLL). This is not a simple count of premature deaths, but rather a sum of the lost years of potential life. For example, deaths from accidents (unintentional injuries) represented 6.0% of all Northeast deaths, but accounted for 14.5% of all the YPLL for the Northeast. This is because accidents often take the life of young people, and, in the NE, these accidental deaths cut short each affected life by an average of 33.6 years. We use the measure of Years of Potential Life Lost to better understand what causes of death are driving down the average life expectancy.

In Table 6, the ten leading causes of Years of Potential Life Lost (YPLL) are listed in rank order for comparison between Marion County and the Northeast ZIP codes combined. Causes are

shaded red whenever they are ranked higher as a cause in the Northeast than in Marion County. Also, in the final column, an "H" indicates a higher proportion of total deaths attributed to that cause in the Northeast than in Marion County, based on simple differences in proportions.

Table 6. Top Ten Causes of Years of Potential Life Lost

Rank	Marion County (2016)[1]	Percent of All YPLL	Rank	Northeast ZIPs Combined (2014-2018)[2]	Percent of All YPLL	NW Higher (H) or Lower (L) than MC
1	Accidents	19.0%	1	Assault (homicide)	14.9%	H
2	Cancer	16.0%	2	Accidents	14.5%	L
3	Heart disease	11.0%	3	Cancer	14.4%	L
4	Assault (homicide)	7.9%	4	Heart disease	12.4%	H
5	Certain conditions originating in the perinatal period (birth)	5.2%	5	Certain conditions originating in the perinatal period (birth)	5.4%	H
6	Suicide	4.4%	6	Suicide	3.7%	L
7	Chronic lower respiratory diseases	3.7%	7	Cerebrovascular disease	3.5%	H
8	Diabetes	3.0%	8/9	Chronic lower respiratory diseases	3.2%	L
9	Birth defects	2.7%	8/9	Diabetes	3.2%	H
10	Chronic liver disease and cirrhosis	2.5%	10	Birth defects	2.6%	L
	Percentage of YPLL by Top 10 Causes:	75.4%		Percentage of YPLL by Top 10 Causes:	77.8%	

Data sources:

[1] Marion County - Bowman et al., 2018b

[2] Internal analysis by T.Weathers using death data for Near Northwest, 2014-2018, obtained from Marion County Public Health Department.

Key findings include:

- The top ten primary causes of premature death account for 78% of all YPLL in the Northeast. **Nine of the top 10 causes of YPLL are the same in the Northeast as in Marion County.** The two lists differ in that Cerebrovascular Diseases displaces Chronic Liver Disease and Cirrhosis as a leading cause of YPLL in the Northeast.
- A main difference that exists between Marion County and the Northeast is the impact of **homicide**. In Northeast ZIPs, homicide accounted for more YPLL than any other cause at 14.9%, 1.9 times the proportion in Marion County (7.9%).
- **Accidents (unintentional injuries), which include accidental drug overdose, are a leading cause of Years of Potential Life Lost, though they account for a smaller percentage of YPLL in the Northeast than Marion County.** As mentioned above, accidents accounted for 6.0% of all deaths but 14.5% of the Years of Potential Life Lost

among Northeast residents from 2014-2018. Accidental drug overdoses related to the "Opioid Epidemic" are considered a main factor in drops in U.S. life expectancy in the past decade [13].

- Also, **heart disease and cerebrovascular diseases account for a higher proportion of YPLLs in the Northeast than across Marion County**. While these chronic diseases increase with age, they are affecting people at younger and younger ages, and are the number one cause of death among people with diabetes.
- Notably, diabetes as a primary cause of death accounts for only 3.2% of YPLLs in the Northeast. **However, of the 130 premature deaths attributed to diabetes in this time period, each person lost, on average, more than 15 years of potential life.**

Illness

If we are interested in understanding the health of a community it is vital to understand what diseases that community is facing. Knowing which diseases are the most common in the Northeast will help us to consider ways to prevent these illnesses or improve management to lessen their effects on resident's lives, including lost years of life. Some illnesses are more likely to lead to death than others. For example, heart disease is a leading cause of death and lost years of potential life in the U.S. and the Northeast, while arthritis is not. However, the various forms of arthritis often make it harder for an affected person to do the things that they find meaningful.

Every year, the U.S. Centers for Disease Control and Prevention (CDC) partners with all 50 states to conduct a phone survey of adults to learn more about their health. Started in 1984, it is the longest-running and largest survey of health conducted in the world [14]. The CDC's 500 Cities project uses these survey results to estimate similar results at the census tract level within cities [15]. The data are reported by Census Tract, not ZIP codes, so we have summarized these data for the Northeast by listing the best and worst rates for each measure, as well as the average value of the 6 census tracts within the Northeast in the table below. (For a map of the census tracts, see Figure 2.)

When comparing the Northeast's tract average to the Indianapolis rate, the Northeast has higher/worse rates for all illness indicators except cancer. For cancer, the Northeast area's tract average is similar to the Indianapolis rate. There are no indicators where the Northeast has better/lower rates compare to the Indianapolis rate. (See color code in Table 7).

In Table 7, illness indicators are sorted in order of the Northeast Tract Average, highest to lowest. Among adult residents of the Northeast, more than half have diagnosed high blood pressure and more than one-third have diagnosed high cholesterol. Both of these conditions are in themselves risks for heart disease and stroke. Nearly one-third have been diagnosed with a form of arthritis, while **more than one in five currently suffer from diabetes**. More than one in ten adult residents have asthma, coronary heart disease, and COPD.

The prevalence rates of these illnesses vary widely across the census tracts of the Northeast. In every case, the tract with the worst rate is among the worst 25% of all tracts in Indianapolis. The same two tracts were consistently the tracts with the best rates among all other Northeast tracts. Overall, the majority of the worst rates were concentrated in one tract.

Health includes both physical and mental health. Residents of the Northeast are more likely to report having ≥ 14 poor physical health days in the past month (19.5%) than to have ≥ 14 poor mental health days in the past month (17.8%). These rates are both higher than reported for Indianapolis. Everyday quality of life is being impacted by poor health in this segment of the population.

Table 7. Estimated Rates of Illness, 2017

Illness Indicator	Worst Northeast Census Tract		Best Northeast Census Tract		Northeast Tract Average	Indianapolis Rate	Color Code
High blood pressure	56.1%	*	45.4%		51.7%	34.2%	
High cholesterol	39.1%	*	33.6%		37.2%	32.3%	
Arthritis	34.5%	*	27.8%		32.0%	23.9%	
Diabetes	25.3%	*	18.6%		22.3%	11.7%	
Poor physical healthy days (>14 in past 30)	21.7%	*	14.1%		19.5%	13.7%	
Poor mental health days (>14 in past 30)	20.6%	*	12.5%	*	17.8%	15.1%	
Current asthma	15.1%	*	12.1%		14.1%	11.3%	
Chronic obstructive pulmonary disease (COPD)	13.1%	*	8.2%		11.6%	8.0%	
Coronary heart disease	11.2%	*	7.8%		9.6%	6.1%	
Stroke	8.3%		5.2%		7.0%	3.5%	
Cancer	7.0%	*	4.9%		6.2%	5.7%	
Chronic kidney disease	6.0%	*	4.1%		5.3%	3.1%	

Data source: CDC, 500 Cities Project, 2017 (released in 2019)
*Census track ranked in the worst/best 25% of all census tracts in Indianapolis

Meaning	Color Code
The Northeast Tract Average is WORSE than the Indianapolis rate. (Rate Ratio >1.10	
The Northeast Tract Average is SIMILAR to the Indianapolis rate. (Rate Ratio=0.9-1.10)	
The Northeast Tract Average is BETTER than the Indianapolis rate. (Rate Ratio <0.9)	

Diabetes Prevalence

Utilizing prevalence rates produced by CDC Places by census tract, the following estimates of diabetes prevalence in the Northeast in 2017 and 2019 were developed by population weighting the prevalence of the 6 constituent census tracts.

As Table 8. demonstrates, the estimated prevalence of diagnosed and undiagnosed diabetes in the Northeast in both 2017 and 2019 is substantially higher than in Marion County, Indiana, or the U.S. In fact, diabetes prevalence in the NE in 2017, prior to the start of DIP-IN, was 1.7 times the prevalence in Marion County.

Table 8. Diabetes Prevalence Estimates

Diabetes Prevalence Estimates	Northeast		Marion County		Indiana		U.S.	
	2017	2019	2017	2019	2017	2019	2013-2016	2017-2020
Adult Population [1]	12,534	12,824						
Diagnosed Diabetes Prevalence [2]	22.4%	23.9%	11.9%	12.7%	11.8%	12.4%	10.2%	11.3%
Undiagnosed Diabetes Prevalence [3]	2.8%	3.4%	2.8%	3.4%	2.8%	3.4%	2.8%	3.4%
Total Prevalence	25.2%	27.3%	14.7%	16.1%	14.6%	15.8%	13.0%	14.7%

Data sources:
[1] ACS 5-Year Population Estimates for years ending 2017 or 2019
[2] CDC PLACES Tract Estimates of Crude Diagnosed Diabetes Prevalence
[3] CDC 2020 and 2022 National Diabetes Statistics Report, data for 2013-2016 or 2017-2020 respectfully

Health Risk Behaviors

Diseases such as diabetes and heart disease develop over years. Before disease is diagnosed, often there are warning signs of increased risk for disease. For example, it is now well known that smoking increases risk for various cancers, heart disease, and COPD, among other things. One might say that a person dies from smoking, rather than lung cancer. Health risk behaviors have been referred to as the "actual causes of death." When U.S. deaths are analyzed based on the health risk behaviors that contribute to death, the leading causes of death are: 1) tobacco use, 2) obesity, and 3) physical inactivity [16].

Diet, physical activity, and smoking are examples of health risk behaviors, but a person's behavior choices do not happen in a vacuum. These choices are influenced and often limited by factors outside a person's control. For example, eating a healthy, nutritious diet is far more difficult if living paycheck to paycheck where "choices" depend on the money in hand and what's in stock at the corner store, especially when there are no full-service groceries nearby. Furthermore, the chronic stress of daily life can increase the likelihood of obesity through various pathways, including changes in the way the body processes food [17]. Behaviors can be altered through both individual *and* community actions to reduce risk and prevent related deaths. A simple example impacting diet and obesity is the policy change allowing SNAP benefits to be used at fresh farmer's markets. We focus more attention on contextual influences in the latter half of this report.

As with the disease rates reported above, we draw from the CDC's 500 Cities Project to review rates of health risk behaviors among adult residents of the Northeast. Again, the health risk behaviors are sorted in the table from most common to least common.

Table 9. Prevalence of Health Risk Behavior

Health Behavior	Worst Northeast Census Tract		Best Northeast Census Tract		Northeast Tract Average	Indianapolis Rate	Color Code
Obesity (2017)	51.2%	*	41.3%		48.3%	35.4%	
Sleeping <7 hours/night (2016)	46.4%	*	40.0%		44.5%	36.4%	
No physical activity (2017)	44.6%	*	31.4%		40.8%	29.6%	
Current smoking (2017)	29.7%	*	18.9%		27.1%	22.1%	
Binge drinking (2017)	12.8%		10.4%	*	11.3%	17.6%	

Data sources:

[1] CDC, 500 Cities Project, 2017 (released in 2019)

[2] CDC, 500 Cities Project, 2016 (released in 2018)

*Census track ranked in the top/bottom 25% of all census tracts in Indianapolis.

Meaning	Color Code
The Northeast Tract Average is WORSE than the Indianapolis rate. (Rate Ratio >1.10)	
The Northeast Tract Average is SIMILAR to the Indianapolis rate. (Rate Ratio=0.9-1.10)	
The Northeast Tract Average is BETTER than the Indianapolis rate. (Rate Ratio <0.9)	

The Northeast tract(s) ranked among the worst 25% in the city for all behaviors except binge drinking. Almost half of adults in the Northeast (based on tract average) are obese, while more than two out of five adults are getting too little sleep and physical activity. Nearly 30% are currently smoking, and 11% of Northeast adults engage in binge drinking.

Smoking is a risk in relation to heart disease, stroke, certain types of cancer and chronic lung disease, and it is cited as the "leading cause of preventable death" [16]. Separately it has been reported that the rate of smoking among pregnant women in the Northeast is 16% (SAVI, 2018), nearly one-and-a-half the Marion County rate reported for 2017 [9,18]. The maternal smoking rate in the Northeast is lower than the state average, but it is higher than the national average of 7.2% (Tauras et al., 2018). Smoking during pregnancy increases risk of low birth weight and prematurity which can lead to infant death [19].

Additionally, physical *inactivity* is higher on average in the Northeast (40.8%) and in all 6 tracts compared to Indianapolis as a whole (29.6%) [20]. The CDC defines physical inactivity as adults aged 18 years old or older having no leisure-time physical activity in the past month [21] [22].

All of these behaviors place residents at higher risk of poor health and disease, and all may impact diabetes risks and management [23]. According to the American Diabetes Association, individuals who smoked two packs per day had a 45% higher incidence rate of type 2 diabetes for men and 74% higher for women compared to those who never smoked [23]. Additionally, in the United States, 70% of the risk for type 2 diabetes is linked to overweight and obesity, with each 2.2 pounds of weight gain over 10 years increasing the risk by 4.5% [23]. Modest weight loss and increased physical activity have been shown to reduce the risk of type 2 diabetes [23].

Overall, there is a clear connection between these health risk behaviors and many of the leading causes of lost years of potential life identified in the Northeast.

Preventive Health Care

Regular doctor's visits and health screenings are vital to preventing disease before it happens or treating it to minimize its severity. However, not everyone has access to health care and screenings. This section, also using self-reported data from the Behavioral Risk Factor Surveillance System (BRFSS), demonstrates the degree to which Northeast adults are receiving preventative care. It points types of preventive care where improvements to access and uptake are most needed.

Table 10. Preventive Healthcare Use and Access

Health Behavior	Worst Northeast Census Tract		Best Northeast Census Tract		Northeast Tract Average	Indianapolis Rate	Color Code
Cholesterol screening (2017)	76.1%		86.5%	*	81.1%	78.3%	
Pap smear (2016)	78.6%		80.5%	*	79.5%	78.0%	
Mammography (2016)	78.1%		79.2%	*	78.7%	74.9%	
Annual Checkup (2017)	73.3%		78.4%	*	76.6%	67.3%	
Colorectal cancer screening (2016)	52.8%	*	68.0%	*	57.3%	62.1%	
Dental Visit (2016)	35.4%	*	58.9%		42.7%	57.6%	
Population without Health Insurance† (2016)	22.1%	*	13.7%		19.7%	15.0%	

Data sources:
[1] CDC, 500 Cities Project, 2017 (released in 2019)
[2] CDC, 500 Cities Project, 2016 (released in 2018)
†A higher percentage of the population without health insurance is worse for health
*Census track ranked in the worst/best 25% of all census tracts in Indianapolis

Meaning	Color Code
The Northeast Tract Average is WORSE than the Indianapolis rate. (Rate Ratio >1.10	
The Northeast Tract Average is SIMILAR to the Indianapolis rate. (Rate Ratio=0.9-1.10)	
The Northeast Tract Average is BETTER than the Indianapolis rate. (Rate Ratio <0.9)	

The rates of dental visits among Northeast tracts on average were worse than the Indianapolis rate, while the average annual checkup rates were better than the Indianapolis rate. Across the board, the Northeast tract averages demonstrate that residents are getting similar preventative care in most areas, even with less access through insurance than Indianapolis residents overall.

The highest rate of preventive care in the Northeast was cholesterol screening, with over 80% of adults receiving screening in 2017. The second highest rates of preventative care in the Northeast were among women, with almost 80% getting a pap smear and mammography. The rates fall from there, with about three out of four adults getting an annual checkup and just over

half of adults receiving colorectal cancer screening. Dental visits occurred in about 43% of residents. Twenty percent of adults in the Northeast lacked insurance.

Key Takeaways: Outward Signs of the Community's Health

In the preceding section, we have taken a close look at the outward signs of health and illness among residents of the Northeast, likening this to what can be known about the health of a tree by looking at its leaves, branches, and trunk. Key findings are summarized here.

Life Expectancy

Life expectancy is an important measure of health compared across cities, counties, and countries around the world. Life expectancy is partly a reflection of the conditions of everyday life and the supports that are made available for the community's wellbeing.

- For the five year period (2014-2018), residents of NE ZIP codes could expect to live shorter lives than residents across Marion County, the Indianapolis metro area, the state of Indiana, and the U.S. as a whole.
- In the three ZIP codes of the NE, life expectancy ranged from 68.0 years – 75.1 years, and this was 10.5-16.8 years less than the longest-living ZIP code of the metro area.
- All three of the NE ZIP codes are within the lowest quintile (20%) for life expectancy at birth (2014-2018) relative to the 104 ZIP codes of the Indy metro area.

Leading Causes of Death & Years of Potential Life Lost (YPLL)

Given the overall shorter lives of Northeast residents compared to the county, metro, state, and nation, we reviewed causes of death among Northeast residents compared to Marion County at large and also identified which causes of death accounted for the largest proportion of lost years of life among those dying prematurely (prior to age 75).

- Similar to the county and U.S., about half of all deaths among Northeast residents are due to cancer, diabetes, cerebrovascular disease, and heart disease. Likewise, the top ten leading causes of death were the same for the NE as for Marion County.

- While **accidents (unintentional injuries)** are ranked higher in the NE (3rd) as a leading cause of death, they account for fewer deaths in the NE (6.0%) than across Marion County (7.0%).
- **Homicide** accounts for 2.1 times the proportion of deaths in this community as it does county-wide (4.4% vs 2.1%), making it the 6th leading cause of death among NE residents.
- **Diabetes** was the primary cause for 4.1% of deaths in the Near Northwest, higher (by 28%) relative to the percentage county wide (3.2%). However, the role of diabetes in cardiovascular deaths must also be considered due to the interrelatedness of these two diseases. In fact, "cardiovascular disease is the number one cause of death among people living with diabetes, resulting in 2/3 of deaths in people with type 2 diabetes" [11].

Roughly one-fourth of all deaths in this period were attributed to heart or cerebrovascular disease.

The top 5 causes of Years of Potential Life Lost (YPLL) account for 62% of lost years of life in the Northeast: assault (homicide), accidents, cancer, heart disease, and certain conditions originating in the perinatal period (birth). Nine of the top 10 causes of YPLL are the same in the Northeast as in Marion County.

- **Accidents (unintentional injuries),** which include accidental drug overdose, are a leading cause of Years of Potential Life Lost, though they account for a smaller percentage of YPLL in the Northeast than Marion County. As mentioned earlier, accidents accounted for 6.0% of all deaths but 14.5% of the Years of Potential Life Lost among Northeast residents from 2014-2018. Accidental drug overdoses related to the "Opioid Epidemic" are considered a main factor in drops in U.S. life expectancy in the past decade [13].
- A main difference that exists between Marion County and the Northeast is the impact of **homicide**. In Northeast ZIPs, homicide accounted for more YPLL than any other cause at 14.9%, 1.9 times the proportion in Marion County (7.9%).
- In addition to homicide, **heart disease and cerebrovascular diseases** account for a higher proportion of YPLLs in the Northeast than across Marion County. While these chronic diseases increase with age, they are affecting people at younger and younger ages, and are the number one cause of death among people with diabetes.
- Notably, **diabetes** as a primary cause of death accounts for only 3.2% of YPLLs in the Northeast. However, of the 130 premature deaths attributed to diabetes in this time period, each person lost, on average, more than 15 years of potential life.

Prevalence of Illness & Health Risk Behaviors

Knowing which diseases are the most common in the Northeast will help us to consider ways to prevent these illnesses or improve management to lessen their effects on resident's lives, including lower quality of life and/or lost years of potential life.

- Health includes both physical and mental health. Residents of the Northeast are more likely to report having many days ($\geq$ 14) of **poor mental or physical health** per month (17.8% and 19.5% respectively). These rates are higher than reported for Indianapolis (15.1% and 13.7% respectively). Everyday quality of life is being impacted by poor health in this segment of the population.
- When comparing the Northeast's tract average to the Indianapolis rate, the Northeast has higher/worse rates for all illness indicators except cancer. For cancer, the Northeast area's tract average are similar to the Indianapolis rate. There are no indicators where the Northeast has better/lower rates compare to the Indianapolis rate.
- The estimated prevalence of diagnosed and undiagnosed **diabetes** in the Northeast in both 2017 and 2019 is substantially higher than in Marion County, Indiana, or the U.S. In fact, diabetes prevalence in 2017, prior to the start of DIP-IN, was 1.7 times higher in the Northeast than in Marion County.

Diseases such as diabetes and heart disease develop over years. Certain health risks and behaviors are associated with increased disease risk over time.

- More than 40% of adults in the Northeast are getting too little sleep and physical activity and are obese. About 30% of adults currently smoke, and 11% engage in binge drinking. All of these behaviors place residents at higher risk of poor health and disease.
- The Northeast tract(s) ranked among the worst 25% in the city for all **health risk behaviors** except binge drinking.
- Notably, the *maternal* smoking rate reported for the NE is higher than the county rate and lower than the state rate.

Overall, there is a clear connection between these health risk behaviors and many of the leading causes of lost years of potential life identified in the Northeast.

Preventive Health Care

Regular medical care and health screenings help to prevent disease or minimize its severity. However, not everyone has access to health care and screenings.

- Among the Northeast residents, **dental visits** occurred in less than half, and 20% of adults were **uninsured** (2016). These rate reflect less access to care than reported for Indianapolis. However, **annual checkups** are more commonly utilized in the Northeast (76.6%) than in Indianapolis as a whole (67.3%). All other preventative care measures among the Northeast tracts, on average, are similar to the Indianapolis rate.
- In the Northeast, the highest rates of preventative care in 2017 was for cholesterol screening, pap smears, and mammography, with around 80% of adults receiving these services.

In summary, this review of the community's health indicates specific causes of death that are cutting the lives of residents and community members short. Next, we turn to the role of the community's physical and social environment in the health of its residents, which may further guide next steps.

The Environment & Root System: How is the place itself supporting health?

Earlier, we described the ways that communities, much like trees, require the right environment to thrive. Having now taken a close look at the outward signs of health among the *people* of the Northeast, we turn our attention to the *place* that is the Northeast. What can we learn about how this *place* is affecting the health of its *people*, for good or for bad?

Health is kept or lost over a lifetime through the accumulation of experiences we have every day – at home, at work, at school, or wherever we interact with our world. In fact, about 75% of the factors that affect our health are part of our everyday living experiences (called "social determinants of health"), not our individual biology, genetics, or health behaviors (Tarlov, 1999). Therefore, while maintaining one's health takes personal action, it is influenced by the greater social and physical environment in which we live our lives (Figure 9). This includes other people in our social circle; organizations where we may work, learn, volunteer, or worship; the community's overall values and norms; the built environment surrounding us (buildings, streets, stores, sidewalks); and importantly, the policies that are put in place by governments or leaders that either support or hinder health. That's why we consider these conditions of life to be like the "environment" and the "root system" necessary to nourish healthy communities.

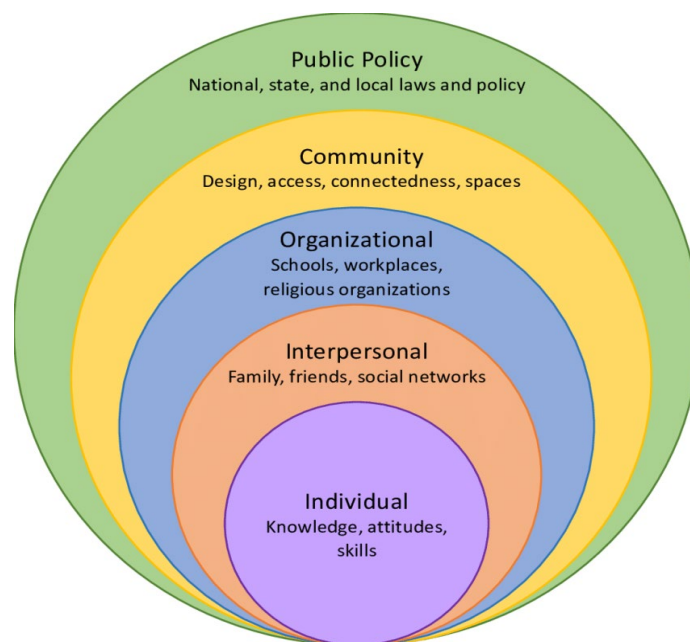*Figure 9. The Socio-Ecological Model of Health*

Image source: Creative Commons Attribution 4.0 International

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In our review of residents' health, we looked at the "leading causes of death" (such as heart disease and diabetes), and "actual causes of death," (those behaviors like smoking and lack of physical activity which increase the risk for such diseases). Now, let's take one step further to look at the social conditions that contribute to death. In a nationally-published study, Galea and his co-authors combined data from 47 studies to identify the leading social causes of death [24]:

1. Low education
2. Racial residential segregation
3. Low social support (from other people in one's life)
4. Poverty (when experienced personally)
5. Income inequality (the size of the gap between the top 20% of wage earners and the bottom 20% of wage earners in a given place)
6. Area-level poverty (when one lives in a community where many people are poor, even if the individual is not)

These social causes of death, like poverty, account for a similar number of deaths as the diseases we tend to think of first, like heart disease. People are exposed to these social conditions, and over time, disease develops which ultimately cuts life short. In fact, there is a well-known social gradient when it comes to the distribution of health and length of life. It works like a ladder: each step up the ladder increases access to health-promoting environments (with safe housing, quality schools, parks and groceries) and each step down increases exposures and vulnerabilities to health-*harming* conditions [25,26]. This demonstrates the *connection* between disease and the social causes of death.

Therefore, societies as a whole can put in place policies that help to reduce health differences based on one's social position on this ladder. There are likely important differences in the conditions of daily life on the Northeast compared to longer-living areas of the same city; in this section, we will take a close look at the characteristics of the community as a whole to identify clues which may explain the life expectancy gap and guide further action. We want to identify those characteristics that may be increasing residents' vulnerability to illness and affecting life expectancy overall.

Community-Wide Social Context

We begin by taking a look at a few key indices (scores derived by combining several data items) that reflect the community context in which health is embedded, like soil to a tree. These indices are used nationally for ease in comparison of one place to another.

Social Vulnerability

The Social Vulnerability Index (SVI) describes an area's overall vulnerability in times of crisis, as calculated by the U.S. Centers for Disease Control and Prevention. Through the combination of 15 data points (Figure 10), the SVI identifies communities likely to require assistance in the event of an emergency, such as a natural [27].

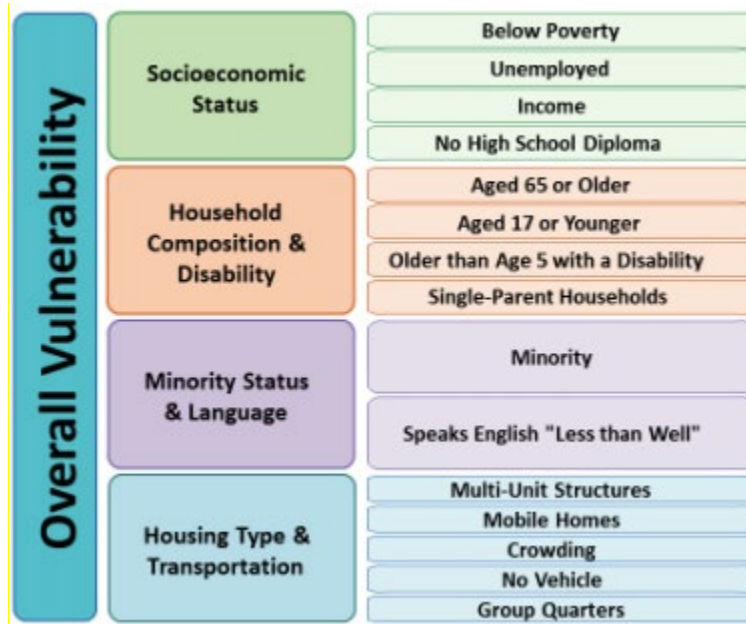*Figure 10. Indicators in the Social Vulnerability Index*

Image source: Centers for Disease Control & Prevention, SVI Documentation, 2020.

Of the 6 tracts within the Northeast (Figure 11):

- Five out of the 6 census tracts tracked are considered to have a high vulnerability, as shaded by the dark blue.
- Another tract, shaded in aqua, is considered to have moderate–high vulnerability.
- There are no tracts in the boundaries of the Northeast with a low-to-medium or low level of vulnerability, which would be shaded pale green or yellow.

This shows a concentration of social vulnerability in the Northeast which raises the risks for poor health and lost years of potential life in times of both crisis and normalcy.

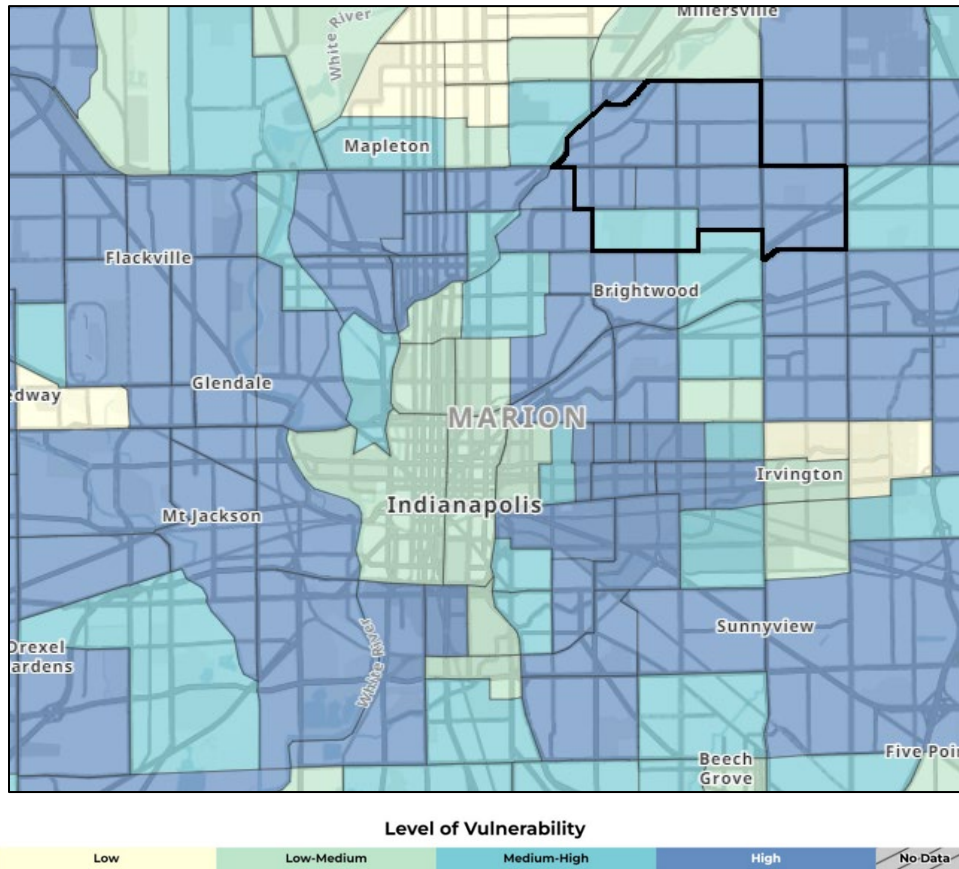*Figure 11. Social Vulnerability Index Map of Marion County Tracts, 2018*

Image source: Centers for Disease Control & Prevention, SVI, 2018 Documentation. Retrieved 02/10/2023 from
https://svi.cdc.gov/map.html.
Note: Near West tracts outlined in black by M. Altman.

Opportunity

The degree of opportunity presented to children in their communities today is associated with their overall life expectancy as adults. Neighborhoods affect a child's quality of education and wellbeing, their expectations for the future, and their chances of moving up the social ladder. The Child Opportunity Index 2.0 compares and ranks each census tract in the U.S. on 29 different measures that affect the opportunity for children to thrive in the area. Acevedo-Garcia and colleagues describe the dimensions of neighborhood opportunity captured in the Child Opportunity Index (COI) (Figure 12).

Figure 12. Dimensions of the Child Opportunity Index 2.0

The COI 2.0 indicators capture:
> • Availability and quality of neighborhood institutions (e.g., early childhood education centers and schools)
> • Peer and adult influences that help shape children's norms and expectations (e.g., high school graduation rate and adults with high-skill jobs)
> • Neighborhood social structure and economic resources (e.g., neighborhood poverty and employment)
> • Environmental quality (e.g., air pollution)
> • Resources for healthy living (e.g. green space, healthy food outlets, walkability)

Recreated from Acevedo-Garcia et al., 2020 by M. Altman.

Across all metros in the United States, people living in areas of very-low child opportunity have a life expectancy that is 7 years shorter than residents of very-high child opportunity [28]. Furthermore, the Indianapolis metro ranks among the top ten metros with the widest (worst) life expectancy gap between very high and very low opportunity areas (Acevedo-Garcia et al., page 43).

The following page shows two maps of the COI: first, across the Indianapolis metro area (Figure 13) and second, focused on the Northeast (Figure 14). Both maps are shaded to indicate where a census tract falls in the five opportunity levels, from very low (lightest color) to very high (darkest color).

- In Figure 13, the pattern of child opportunity for the Indianapolis metro is similar to the area's maps of life expectancy [5]: the lowest opportunity areas are concentrated near the urban core, while the highest opportunity areas form a ring in the suburban transition, just outside the I-465 loop.
- In Figure 14, all tracts within the black-outlined area of the Northeast reflect very child opportunity levels.

Overall, these results reflect a neighborhood environment in the Northeast that is, on the whole, failing to support the growth and development of children in the area. In such an environment, upward mobility along the 'ladder' of the social gradient may be impeded for Northeast children— **low childhood opportunity places the future health of children living in the Northeast at risk.** Without improving opportunity for children in the area, cycles of poor health and shortened lives are likely to continue from one generation to the next.

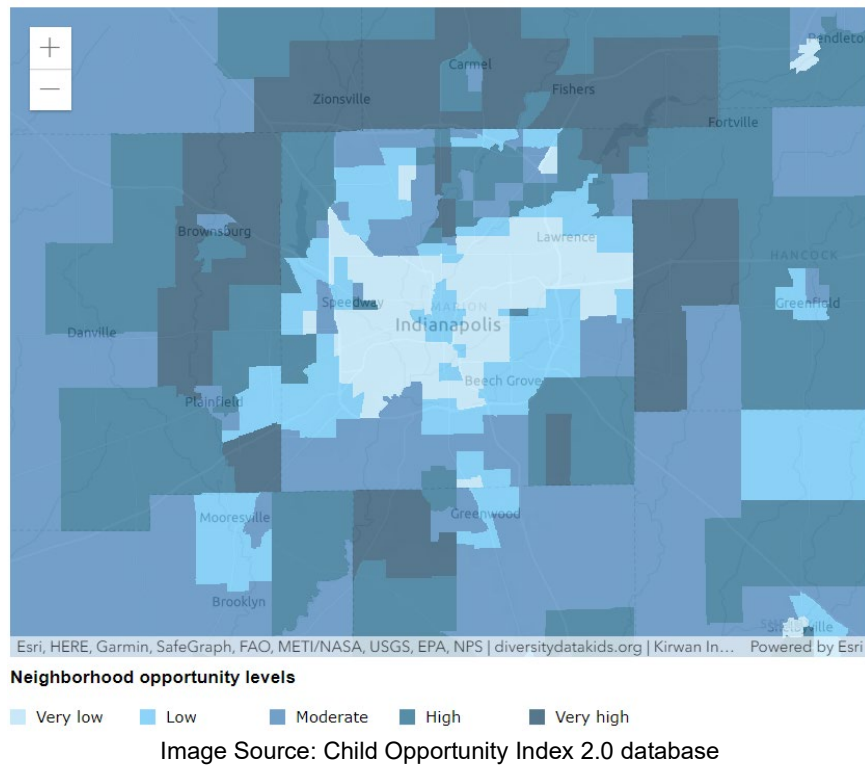*Figure 13. Map of the Child Opportunity Index 2.0 in Metropolitan Indianapolis, 2015*

Neighborhood opportunity levels

Very low   Low   Moderate   High   Very high

Image Source: Child Opportunity Index 2.0 database

Figure 14. Map of the Child Opportunity Index 2.0 in the Northeast, 2015

Child Opportunity Levels

Overall COI by **Census Tract**, nationally-normed for **2015**

Very Low   Low   Moderate   High   Very High
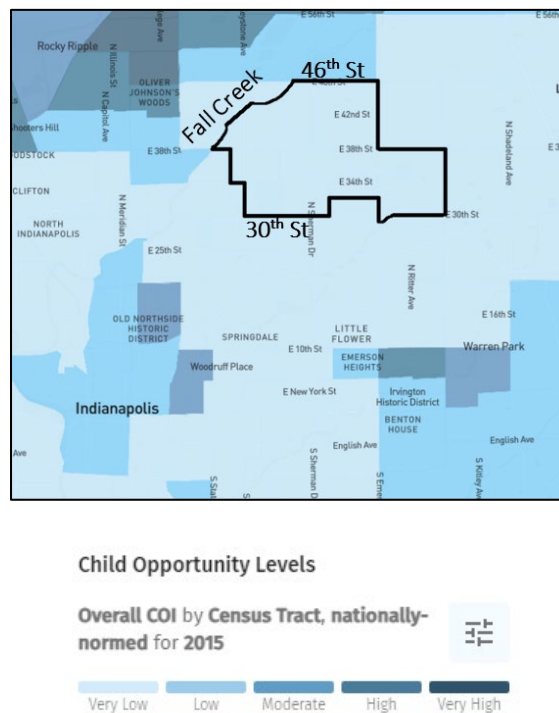
Image Source: Child Opportunity Index 2.0 database.
Note: Northeast streets labeled and boundary outlined in black by M. Altman.

Diversity

The legacy of redlining and racial residential segregation in Indianapolis and the United States persists today— while areas of greater racial and ethnic diversity experience longer life expectancy, historically segregated neighborhoods have shorter life expectancy [29].

The Northeast saw significant change in its racial makeup between 1950 and 1980 as Indianapolis implemented efforts to integrate the city [30]. This prompted many white families to move to the suburbs [30]. We reviewed the racial/ethnic diversity index published online by the City Health Dashboard to document the area's current level of diversity. This scale ranges from 0 to 100, where 0 describes a community made up entirely of one racial group (no diversity), and 100 describes a community that has equal representation of all racial/ethnic groups. Overall, the 6 tracts in the Northeast are less diverse than the city of Indianapolis on the whole, with a score of 35 vs 70.5 (2018). The most diverse Northeast tract scored a 43.4, while the least diverse tract scored a 26.7. The figure below shows racial and ethnic diversity throughout Indianapolis in 2018, with the Northeast areas outlined in purple (Figure 15).

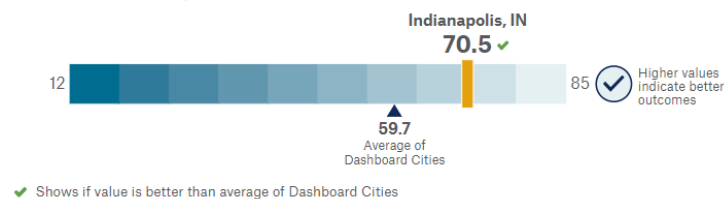*Figure 15. Racial/Ethnic Diversity Index, 2018*
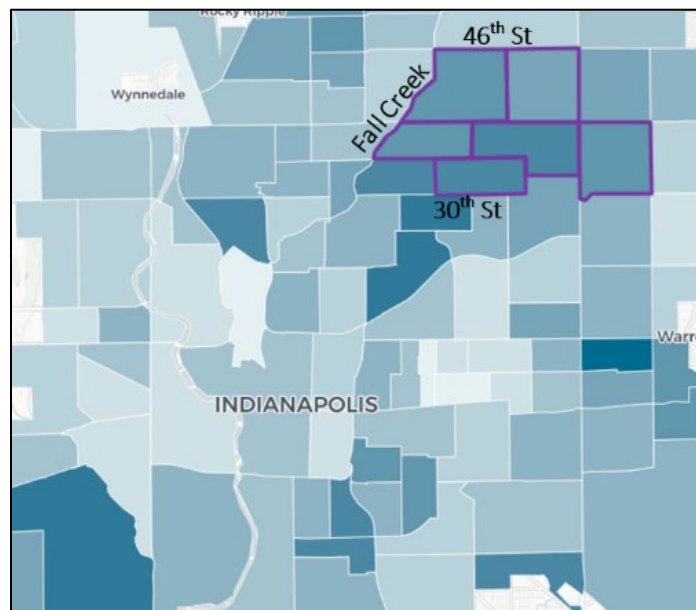
Image source: City Health Dashboard using American Community Survey 5 year estimate 2018.
Note: Near West tracts outlined in purple. Streets labeled in black by M. Altman.

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Consistent with the tract-level variation in the racial/ethnic diversity score, the proportion of the residents by tract who are people of color is higher compared to Indianapolis on the whole. The percentage of people of color living in the Northeast indicates that there is still a significant amount of racial residential segregation.

- The most racially segregated tract (8% of the Northeast population) was made up of 96.5% people of color.
- The least segregated tract (12% of the Northeast population) was made up of 85.8% of people of color.

Neighborhood Change

Research on the relationship between urban development and health indicates that "neighborhood change processes likely have both detrimental and beneficial effects on health" [31]. Several neighborhoods near the downtown center have drawn developers' interest in recent years with the opportunity to buy and renovate properties. Unfortunately, these tend to be sold at a price that is unaffordable to most long-time residents of the area, raising concerns about gentrification. Rising housing costs and property taxes may displace long-time residents who can no longer afford to live within the community, with resulting harmful impacts on t their health and disruption of social ties within the community [32,33].

According to the Index of Neighborhood Change reported by the SAVI Community Information System, the socioeconomic composition of the Northeast has remained stable overall comparing 2020 to 2015. This index factors in the change in proportion of population that are White (as increases may signal minority displacement), change in percent of population with a 4-year college degree, and change in per capita income (as both of these may signal displacement of people with lower socioeconomic status due to rising cost of living in a gentrified area).

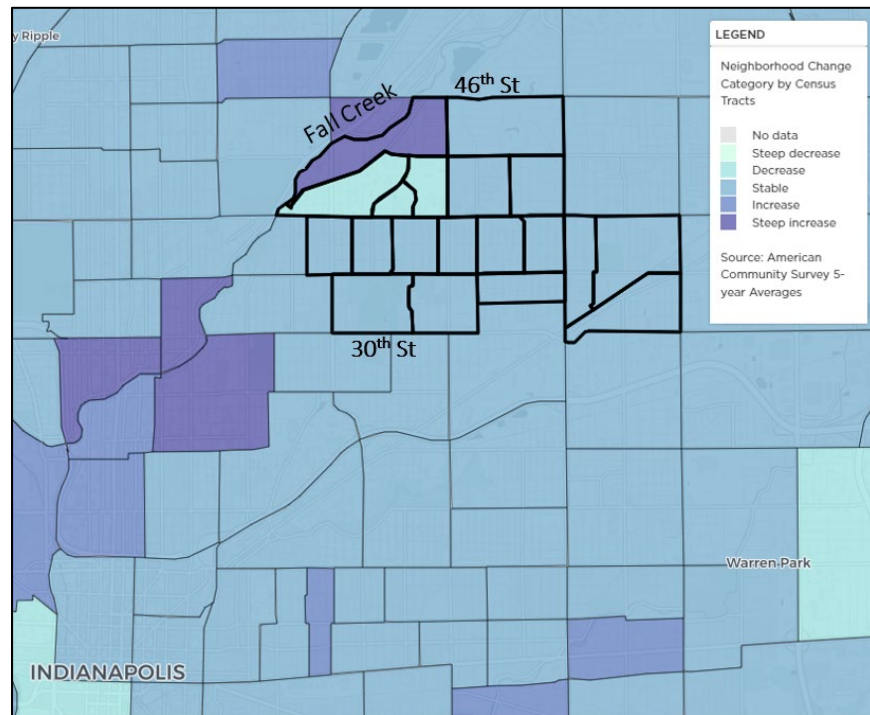*Figure 16. Index of Neighborhood Change, 2020*

Image source: The Polis Center at IU Indianapolis, SAVI Community Information System, The Polis Center (https://www.savi.org/), retreived 08/15/2023.
Note: Near West streets labeled in black by M. Altman.

Education

Educational attainment is a key indicator of social class and a powerful predictor of adult health. Across the U.S., the quality of one's health rises in step with education level. Within Indiana, 35.6% of those who have not completed high school are in fair or poor health, compared to just 7.9% of those with college degrees – 4.5 times as many. Conversely, 65.0% of those who completed college are in very good or excellent health, compared to only 29.9% of those who have not completed high school [34]. The effects of education compound over a lifetime, impacting health at every stage. Opportunities to obtain a quality education are not fairly available to all, as demonstrated by the Child Opportunity Index, and this has lasting, widespread consequences [28].

One way we assess the educational landscape of the Northeast was by comparing Northeast adults aged 25+ (beyond usual age of school completion) to those living across Marion County in terms of the highest level of education they have received.

- As Figure 17 demonstrates, the percentage of Northeast adults without a high school diploma is 1.4 times higher than Marion County (20.2% compared to 14.3%).
- Conversely, the percentage of Marion County adults aged 25+ with a college degree is almost 3 times the rate among adults of the Northeast (30.4% compared to 10.9%).

These data indicate that the lower educational attainment of Northeast adults compared to those across Marion County is likely an important root cause of the poorer health and shorter lives of residents. Education cut short often means lives cut short.

Figure 17. Northeast Adults by Highest Level of Education 2018
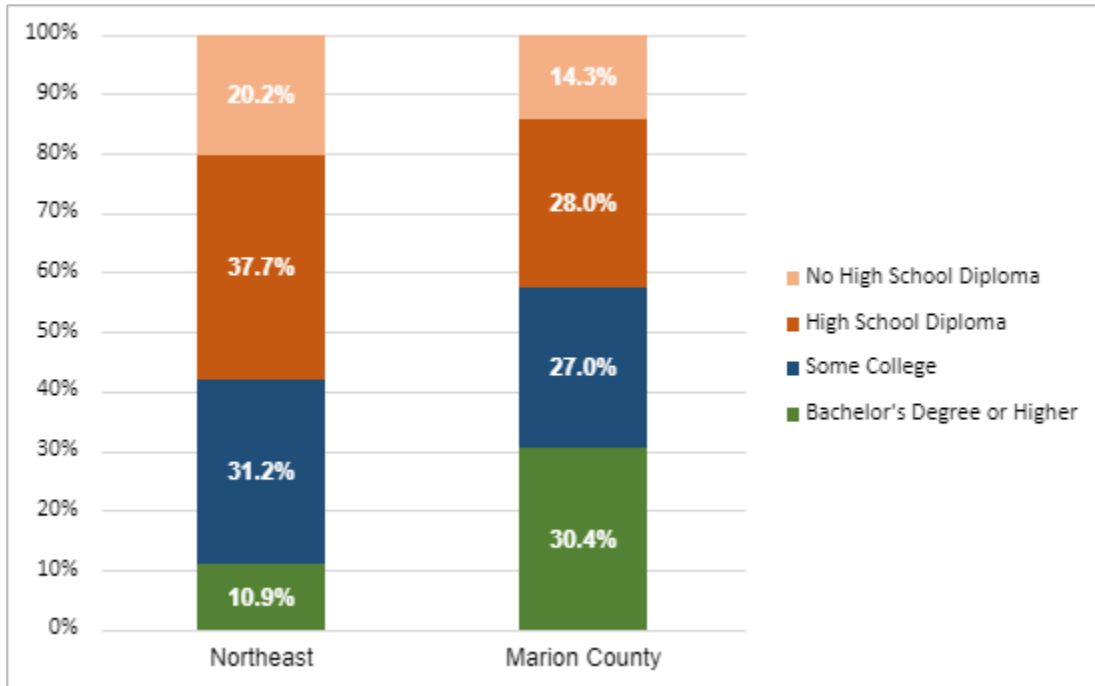
Data source: The Polis Center at IU Indianapolis, SAVI Community Information System, The Polis Center (https://www.savi.org/), using American Community Survey data, retreived 08/15/2023.

In Table 11, we summarize the state and federal school ratings for public schools located within the geographic boundaries of the Northeast, as an indication of the quality of education available to students in this area, relative to schools across the state or nation. Federal rankings are meant to reflect a school's overall achievement with respect to performance, while state rankings are calculated by performance, growth, and multiple other measures, like actions taken to prepare students for their next steps (McCormick, n.d.).

Among the youngest learners, the Northeast has five public elementary schools (Table 11). One of these elementary schools was A-graded in both the state and national ratings, one was C-graded, and the other three schools were D-graded in both the state and national ratings. Additionally, Avondale Meadows Middle School, a public charter, holds a state grade of B and a federal grade of C, while Tindley Collegiate Academy, another public charter, received an A from the state and a B from the federal ratings, reflecting a stronger academic performance at the junior high level.

Charles A. Tindley Accelerated School is the only public high school located inside the Northeast boundary operating in 2018. It is an open enrollment public charter school and was the first accelerated school to open in Indiana [35]. In 2010, Charles A. Tindley Accelerated School earned the National Blue-Ribbon Schools Award for its reputation as "the most

successful charter school" in Indianapolis [35]. It has been assessed federally and by the state as an A-rated school in 2018 (Table 11). Between 2014-2018, the 4-year graduation rate for students of Charles A. Tindley Accelerated School was consistent with the county, metro, and state rate with an average graduation rate of 87.4% compared to an average of 86.3% for Marion County, 90.8% for the Indy metro, and 90.6% for Indiana.

It is important to note that these Northeast rates are are _based on all students who attend a school that is physically located within the Northeast,_ but it can include students who live elsewhere. Likewise students who live in the Near Northwest but attend a school outside the area are _not_ reflected in these rates. For example, there are students living in the Northeast who attend Cathedral High School; however, that school's graduation rate is not shown here because it is not physically located within the Northeast. Even so, the public high school performance metrics for school(s) located within the community boundaries is informative, as this reflects the quality of high school opportunities available to residents locally.

Table 11. Public Elementary, Junior High, and High Schools Located in the Northeast, 2018

Public Schools	School Type	State Grade 2017-2018	Federal Grade 2018-2019
Elementary Schools			
Floro Torrence School 83	Traditional	D	D
Joyce Kilmer School 69	Traditional	D	D
Avondale Meadows Academy	Charter	D	D
Tindley Renaissance Academy	Charter	C	C
Tindley Genesis Academy	Charter	A	A
Junior High/High Schools			
Avondale Meadows Middle School	Charter	B	C
Tindley Collegiate Academy	Charter	A	B
Charles A. Tindley Accelerated School	Charter	A	A

Data sources:
[1] The Polis Center at IU Indianapolis, SAVI Community Information System, The Polis Center (https://www.savi.org/), retreived 09/13/2023.
[2] Indiana Department of Education

The educational landscape is mixed in the Northeast, and is situated within evolving educational environments city-wide. The quality of public schools varies widely from A to D ratings, with inconsistent influence on long-term health. On a positive note, Charles A. Tindley Accelerated School is a highly ranked junior high and high school that has created a stable presence in the community amidst evolving educational environments city-wide.

Employment

Employment provides people and families with the pay required to provide for their needs in life. It also conveys meaning and identity as we contribute our skills and effort to society. On the other hand, unemployment is not good for health. Not only does it leave one without income and other benefits like health insurance, the stress of unemployment has also been linked to poor physical and mental health outcomes [36].

According to 2018 estimates, **unemployment was significantly higher overall in the Northeast than across Marion County**. In the Northeast, black persons have the highest unemployment rate at 21.3%; in line with Marion County. Northeast residents without a high school diploma are unemployed at 3.8 times the rate of those with a college degree. Generally, unemployment rates tend to fall with increasing levels of education throughout the county. However, in the Northeast, the number of unemployed individuals with a high school diploma exceeds that of those without one. Conversely, unemployment rates drop sharply for residents with a college degree, aligning with patterns seen in Marion County.

Table 12. Unemployment Rate within Demographic Groups, 2018

Demographics, 2018	Northeast Percent of Total	Marion County Percent of Total
Total Unemployed	19%	7.0%
Sex		
Male	21%	7.0%
Female	17%	7.0%
Education		
No High School Diploma	22.7%	12.0%
High School Diploma	23.2%	8.9%
Some College/Associates Degree	7.3%	5.2%
Bachelor's Degree or Higher	6.0%	2.7%
Race/Ethnicity		
White, non-Hispanic	7.0%	5.0%
Black, non-Hispanic	21.3%	12.6%
Hispanic	1.3%	5.3%
Asian	0.0%	3.9%

Data source: The Polis Center at IU Indianapolis, SAVI Community Information System, The Polis Center (https://www.savi.org/), using American Community Survey data, retreived 09/14/2023.

Income

Money is a fundamental resource needed to provide for basic needs and to sustain health [37]. For most, money comes through wages earned on the job as income. Multiple studies show a strong and consistent relationship with income and health: as income increases, the likelihood of disease and premature death decreases [38].

The Northeast has a much lower median income than Marion County, and it varies widely by census tract (Figure 18). Individually, lower income is easily linked with an inability to afford healthcare/insurance or the basic necessities required to maintain a healthy lifestyle [39]. These effects, however, are not just important to individuals. Area-wide low income can lead to "economic segregation", where a lower tax base results in worse public resources [40]. This cascades into having limited access to high quality, health-promoting resources in the neighborhood, such as access to nutritious food, housing, transportation, quality school systems and employment opportunities, and clean air and water [39].
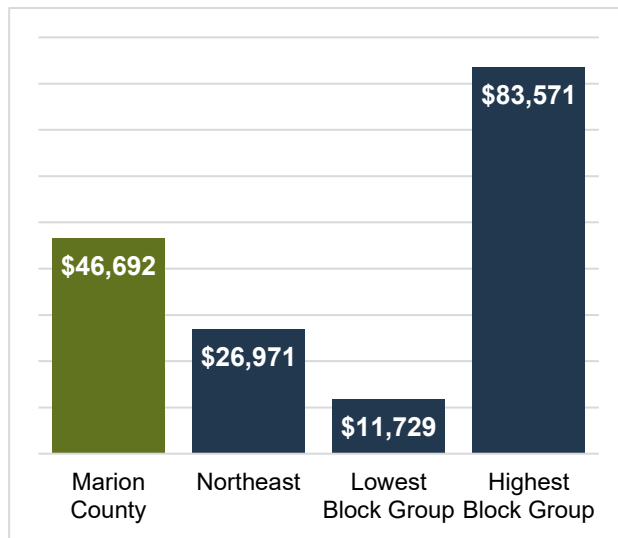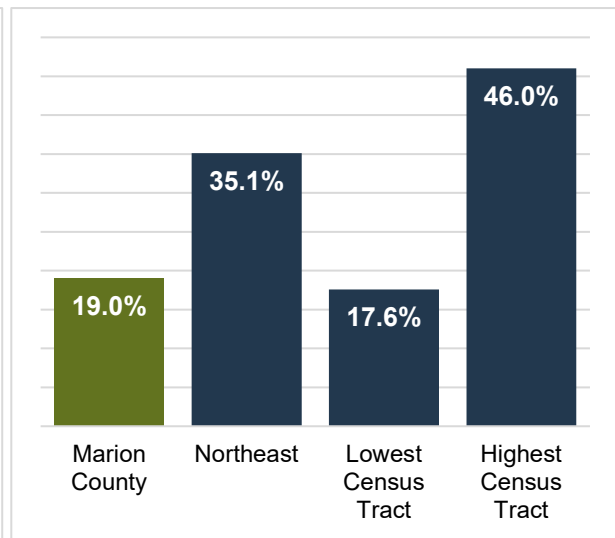
Figure 18. Median Household Income, 2018

Figure 19. Poverty Rates, 2018

Data sources:
[1] The Polis Center at IU Indianapolis, SAVI Community Information System, The Polis Center (https://www.savi.org/), using American Community Survery data, retreived 09/14/2023.
[2] Source for lowest and highest block group data is The Polis Center at IU Indianapolis, SAVI (Classic) Community Information System, The Polis Center (https://classic.savi.org/savi/), using American Community Survery data, retrieved 09/14/2023.

The poverty rate in the Northeast trended upward from 2010 to 2017, rising from 23.6% in 2010 to 38.7% in 2017, and then slightly decreased in 2018 to 35.1%. This trend of rising poverty in the Northeast is consistent with the median household income decreasing in the same time period. The poverty rate in the Northeast is significantly higher than that of Marion County as a whole (Figure 19). **These comparative data reveal that income is lower and poverty is higher in the Northeast, which can contribute to community-level disinvestment and increased health risks.**

Housing

Housing is a fundamental building block to health. Stability and security are interrupted when affordable housing is inaccessible [41]. When a household spends more than 30% of the

income on housing, they become housing cost-burdened. Housing insecurity affects all individuals living in the household, and housing cost-burden has been linked to poor mental and physical health and financial stress, as well as requiring individuals to often share already small spaces [42]. Yet, there is a far greater demand for affordable housing than is met across the country [43].

A safe and stable home is health promoting, and lack of one is health damaging. The data below demonstrate that affordable housing is further limited for residents of the Northeast, which can be due to lower incomes and higher rental costs. Lower rates of home ownership, higher rates of housing-cost burden, and slightly higher rates of eviction are all threats to health and wellbeing among residents.

- In 2018, fewer residents of the Northeast were homeowners (49.4%) compared to Marion County (54.0%) [44].
- In 2018, more residents of the Northeast were housing cost-burdened (42.3%) - paying >30% of their income toward housing costs - than residents of Marion County (33.4%) [44].
- According to the Eviction Lab at Princeton University, the eviction judgment rate in the Northeast was higher than across Marion County or Indiana in 2018. The average eviction judgement rate among Northeast block groups was 6.3% of renters compared to 5.8% for Marion County and 3.8% for Indiana [45].

Home ownership is positively correlated with health and upward mobility, but these effects are diminished when foreclosures occur [46–48]. Foreclosure, eviction, and housing cost burden can all affect health negatively, which each substantially impact the Northeast area. This makes it harder for residents of the Northeast to reap the health benefits that housing affords, and they instead face the individual and community consequences of destabilized housing across generations.

Food Access

Both low access to healthy food and food swamps are challenges to healthy nutrition. Food swamps are places where there is an overabundance of unhealthy food, like fast food or gas stations/convenience stores, while healthy options are harder to come by. Low access to healthy food is defined as a low-income census tract where "a significant number or share of individuals in the tract is far from a supermarket" [49]. These areas are commonly referred to as food deserts [50]. In neighborhoods with low healthy food access, residents may rely upon small markets – even gas stations – in their neighborhood for food, and these stores often charge higher prices for much fewer healthy options [51].

The percentage of the Northeast population with low access to healthy food (per SAVI, live more than 1 road mile from a grocery store) was 39.6% in 2015, much higher than reported for Marion County on the whole (27.1%) [52]. This represents almost 6,500 people in the Northeast with low food access, and those most likely to be affected are those without transportation or in poverty [52].

A chronic lack of access to food will contribute to poorer nutrition and poorer health for those with limited food access. There was only one full service grocery store, a Save-A-Lot, located in the Northeast in 2018 (Figure 20), which opened the previous year. Figure 20 layers access to food establishments with the percent of the population in poverty. Within the Northeast (outlined in black in Figure 20), the two block groups with at least 47% of their population living in poverty are far from the full-service grocery store, with only convenience stores nearby. Low-income and minority populations who have easy access to fast food and convenience stores have been related to a higher prevalence of diabetes [53].

Figure 20: Retail Food Establishments by Percent of the Population Below 100% of the Federal Poverty Guideline, 2018
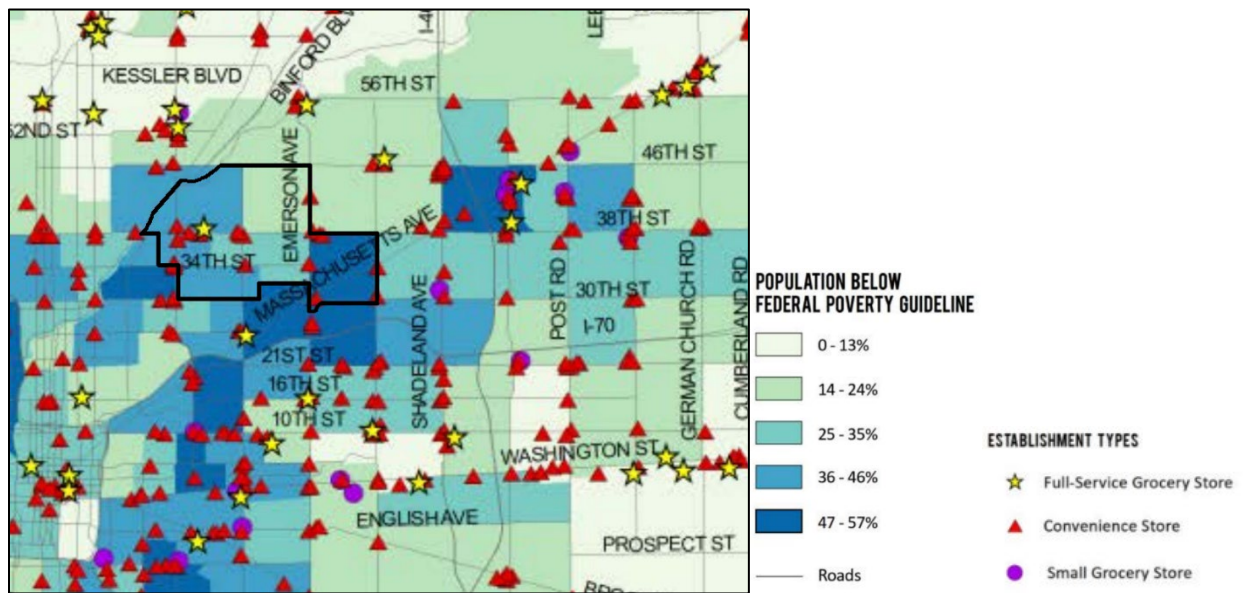

Image source: 2018 Health Equity Report: Census Bureau, 2012-2016 American, DR3428 and MCPHD, 2017 Food and Consumer Safety & Chronic Disease, DR3576
Note: Near West boundary outlined in black by M. Altman.

Even if people have a grocery nearby, being able to provide enough food in one's household is a challenge for many. A proxy for measuring food insecurity is the proportion of people enrolled in the Supplemental Nutrition Assistance Program (SNAP), often referred to as SNAP benefits. **In the Northeast 29.9% are enrolled in this program compared to 14.6% in Marion County.** This ranges throughout the census tracts in the Northeast, where it reaches as high as 61.1% [54].

Whereas 15.3% of Marion County residents are defined as food insecure [55], higher SNAP enrollment in the Northeast indicates a higher level of food insecurity overall. A wide variety of studies have linked such food insecurity to poor physical and mental health outcomes [56]. Without steady access to nutritious food, maintaining good health is challenging.

Eating nutritious foods is an important factor when managing blood sugar levels and can contribute to prevention of type 2 diabetes [57]. Unfortunately, healthy eating can be expensive.

For people who already suffer from diabetes, buying nutritious food can compete with their health care costs of buying medicines and supplies [57]. People with diabetes spend twice as much on health care expenses than those who do not have diabetes [57]. These extra costs can lead to people with diabetes experiencing food insecurity, which can adversely affect how well they are able to manage their disease [57]. Having diabetes while food insecure can lead to diabetes-related complications, higher A1c levels, poor mental health, and hospitalizations [57]. Without steady access to nutritious food, maintaining good health is challenging.

Transportation

Everyone needs a way to get from place to place - to get to work, to buy groceries, to visit the doctor. For those who may not have the resources to own a car, public transportation or "active" transportation (walking and biking) are necessary to go about life. Therefore, this leads to three necessary measures for understanding transportation options which affect health in the Northeast: car use, public transportation access, and walkability. Communities that can offer residents easy access to reliable public transportation and walkable or bikeable streets boost their ability to participate fully in life through increased physical activity and mobility.

In 2018, 10.5% of Northeast workers got to work without using a car [44]. Overall, this is a higher percentage than across Marion County (5.2%) [44]. Figure 21 displays the variation between Northeast tracts when accounting for non-car work commuters. In one tract, this percentage reached as high as 18.9%. Therefore these residents of the Northeast require greater access to public or active transportation.

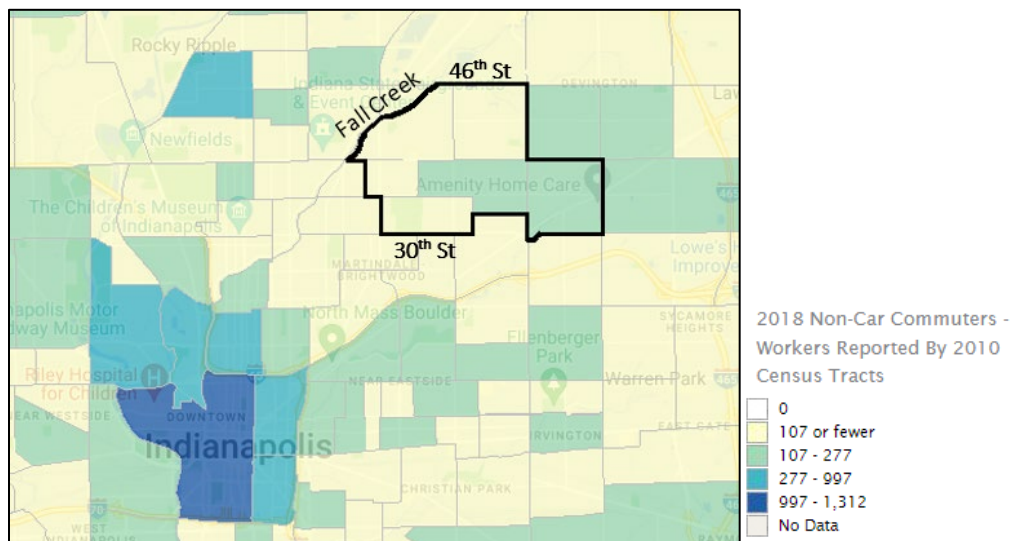*Figure 21. Non-Car Work Commuters by Census Tracts, 2018*

Image source: The Polis Center at IU Indianapolis, SAVI (Classic) Community Information System, The Polis Center (https://classic.savi.org/savi/), retreived 09/17/2023.
Note: Near Northwest streets labeled and boundary outlined in black by M. Altman.

Easy access to public transit is especially helpful to low-income workers living in urban areas, where getting around by car involves additional expenses, such as parking fees and increased insurance rates. In the map below (Figure 22), the Transit Access Score is shown for census tracts in Marion County, where the darker shades indicate better access to public transportation in the area. This score represents the total miles of bus service in a week per square mile in each tract. **The map shows that no tract of the Northeast has a high level of transit access.**

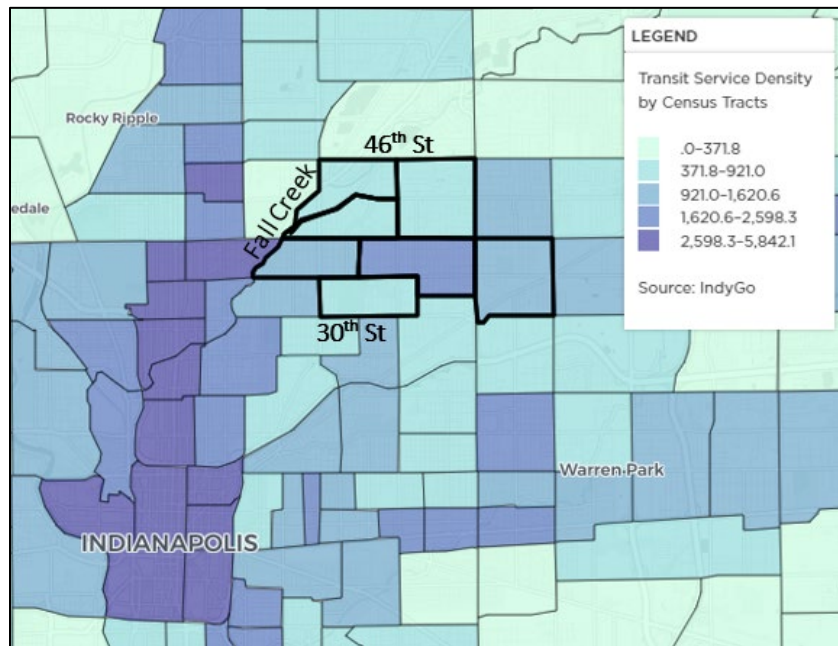*Figure 22. Transit Service Density by Census Tracts, 2019*

Image source: The Polis Center at IU Indianapolis, SAVI Community Information System, The Polis Center (https://www.savi.org/), using IndyGo data, retrieved 09/17/2023.
Near Northwest streets labeled in black by M. Altman.

There is a moderate to low level of walkability in the Northeast. The map in Figure 23 shows walkability in 2022[1], with lighter shades reflecting greater walkability. This metric by the City Health Dashboard (Figure 23) scores walkability for over 750 U.S. cities considering neighborhood amenities that are accessible by walking [22]. The walkability metric was calculated by the Walk Score® Index giving a score between 0 and 100 [58]. A score of 90-100 represents a "walker's paradise" where daily errands do not require a car, a score of 70-89 means most errands can be accomplished by foot, a score of 50-69 indicates that some errands can be completed by foot, 25-49 is when a car is required for most errands, and a score of 0-24 means almost all errands require a car [58]. Compared to other cities, Indianapolis on the whole has a below-average walkability score of 33.5.
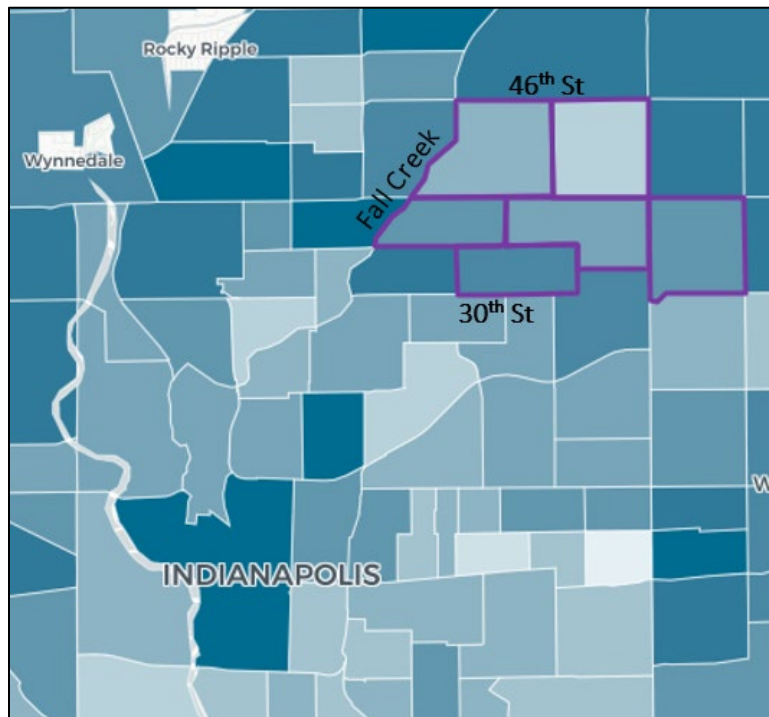
The purple outline in Figure 23 approximates the geographic boundaries that enclose the Northeast. Four out of the six Northeast tracts scored between 24.4 and 45.3, suggesting that these areas are car-dependent areas, since a car is necessary to complete most errands. The

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[1] Walkability data for tracts during the baseline year of 2018 are not available.

other two tracts had scores of 52.3 and 66.5, which means they are somewhat walkable. The average weighted walk score for the Northeast as a whole was 44.5, indicating that it is a car-dependent community.

Walkability is also important for promoting health and social engagement across communities. It not only provides residents with another option to reach desired destinations, while also encouraging physical activity across the community [59].
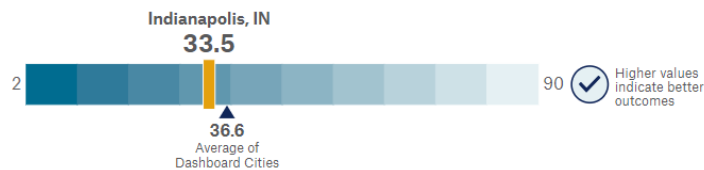
Figure 23. Walkability, 2022

Image Source: City Health Dashboard using Census Tract Maps Data
Note: Northeast boundary outlined in purple. Northeast streets labeled in black by M. Altman.

Pollution

The physical environment has a significant impact on one's health. Many homes within the Northeast are regularly exposed to vehicle exhaust due to their close proximity with major highways like I-70 and I-465, as well as other busy roads such as Binford Boulevard. Exposure

to air pollutants from vehicle exhaust has been linked with asthma and heart disease [60,61]. Before lead was removed from gasoline, exhaust also contributed to lead settling into the soil near these roadways [62]. These lead deposits remain today and continue to pose a risk for lead poisoning [62].

The following map (Figure 24) was developed by researchers with the IU Fairbanks School of Public Health to summarize an area's pollution burden [63]. Following the rough outlines of the Northeast (outlined in black), only one Northeast tract falls into a relatively high score of pollution burden (71-80%), three tracts had a pollution burden score of 11-20%, and two more tracts fell into the bottom 10% of pollution burden scores. These data suggests that exposure to various environmental pollutants presents potential health risks to certain residents of the Northeast.

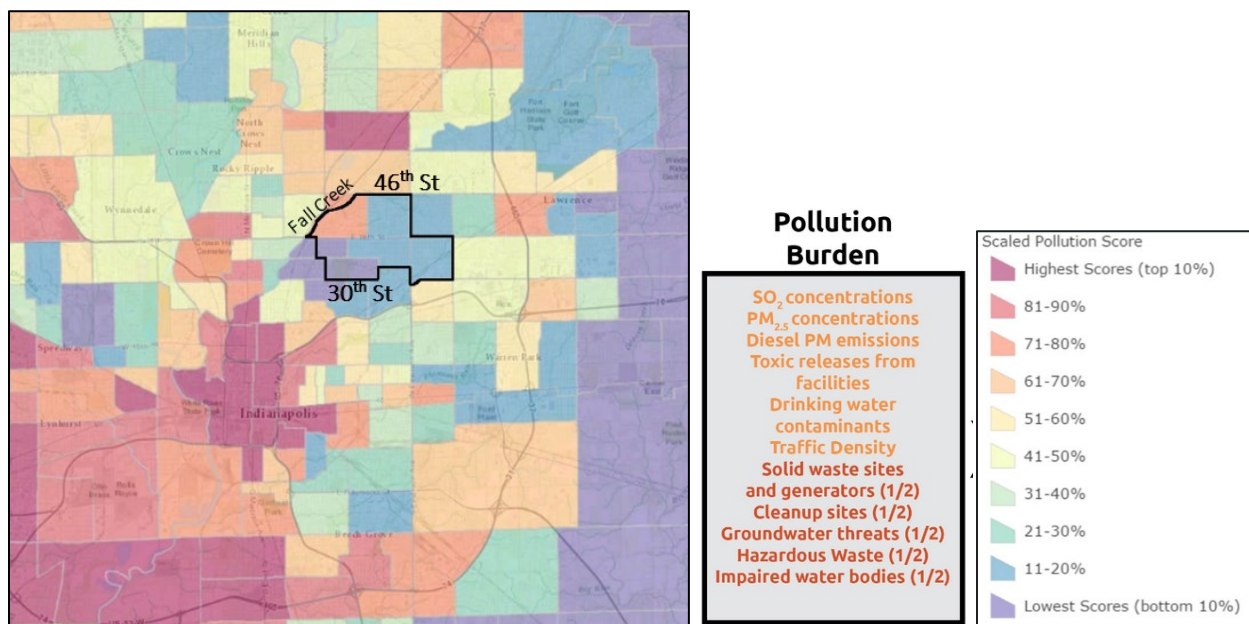*Figure 24. Pollution Burden in Marion County, 2016*

Image & data source: Healthy Environment and Community Assessment Partnership (HECAP), Multi-Layer Data Community Action Tool (MDCAT) Version 2, 2016. Note: Near West streets labeled and boundary outlined in black by M. Altman.

Finally, because elemental lead (Pb) exposure is a potent toxin to young children causing lifelong and irreversible damage; finally, we review the degree of lead exposure risk within the Northeast. Though lead was removed from new paint production in 1971 and in gasoline in 1996, it never goes away from the environment, neither do its effects on children's health [62]. Children can be exposed through old paint chips or dust, soil, and even water (through the leeching of lead from old pipes). As was seen in the Flint Michigan disaster, the effects on developing children are devastating and can alter lifelong health trajectories [64].

The map below (Figure 25) highlights five levels of lead exposure risk where tracts were ranked to show where lead exposure is potentially greatest for children [9]. These levels were calculated by considering five metrics: the percent of children under the age of 5; the number of children that have been lead poisoned in the past five years; percent of housing built before 1980; people employed in industries with lead exposure risk; and the percent of families living in

poverty [9]. Following the rough outlines of the Northeast (outlined in black) in Figure 25, there is one tract with below average risk for lead exposure, one tract with an average risk, two tracts with an above average risk, and one tract where there is a high risk of childhood lead exposure. With half of the Northeast tracts deemed as above average or high risk for lead exposure, this presents potential negative health impacts for children residing in these areas.

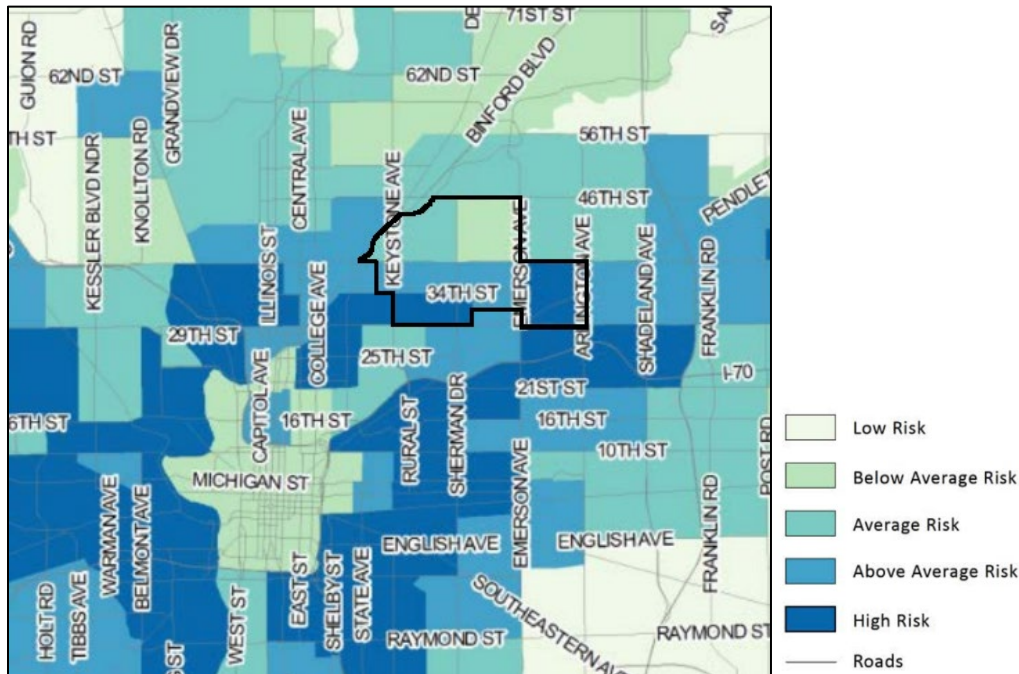*Figure 25. Marion County Lead Risk Index by Census Tract, 2011-2015*

Image source: 2018 Health Equity Report: Census Bureau, 2011-2015 American Community Survey and Marion Co. Lead Statistics, DR3235. Note: Near West boundary outlined in black by M. Altman.

Community Safety

Prevalent crime in the community can affect the physical and mental wellbeing of victims, witnesses, and perpetrators [65]. Crime is both a symptom and a cause of poor community health. Safety concerns, even among those who have not been directly involved in a crime, can keep people from freely getting outside for exercise or connecting socially with friends and neighbors. Victims and witnesses of a crime often experience trauma, especially among children. This experience has been shown to affect health into adulthood, and safety concerns can loosen the important ties between neighbors and the community to look out for one another and keep violence in check.

Individuals who have themselves been victimized, or who lack support in life, are more likely to have difficulty planning for the future and finding work, leaving them vulnerable to the underground economy and the criminal justice system. This not only affects the incarcerated individual, but the security of their family and the likelihood that their children, in turn, will have a healthy and productive life [66].

Table 13. Crime Rates of Northeast and Marion County, 2018

Crime	Northeast [1] Rate per 1,000 residents	Marion County [2] Rate per 1,000 residents
Juvenile Charges (Charges ages 5-17)	48.64	18.59
Property Crime	53.3	41.3
Violent Crime	31.0	12.7

Data sources:

[1] The Polis Center at IU Indianapolis, SAVI (Classic) Community Information System (https://classic.savi.org/savi/), retrieved 03/10/2023.

[2] Federal Bureau of Investigation, 2018

In comparison to Marion county, the Northeast has a higher rate of juvenile charges per 1,000 residents (2018). As a positive note, juvenile charges among Black children slightly dropped each year in the Northeast between 2010 and 2017, with a slight increase in 2018 [44]. Trends in juvenile charges for White and Hispanic children fluctuated significantly between 2010 and 2018 [44]. Figure 26 displays the violent crime rates by census blocks for all tracts in the Northeast (outlined in black) in relation to Marion County [67]. As shown, the blockgroups of the Northeast vary widely in the violent crime rate. There are 4 blockgroups that are represented by the darkest shade in the legend below in Figure 26, indicating they fall within the highest bracket for violent crime rates relative to other blockgroups of the city.

Figure 26. Violent Crime Rate by Blockgroups, 2018
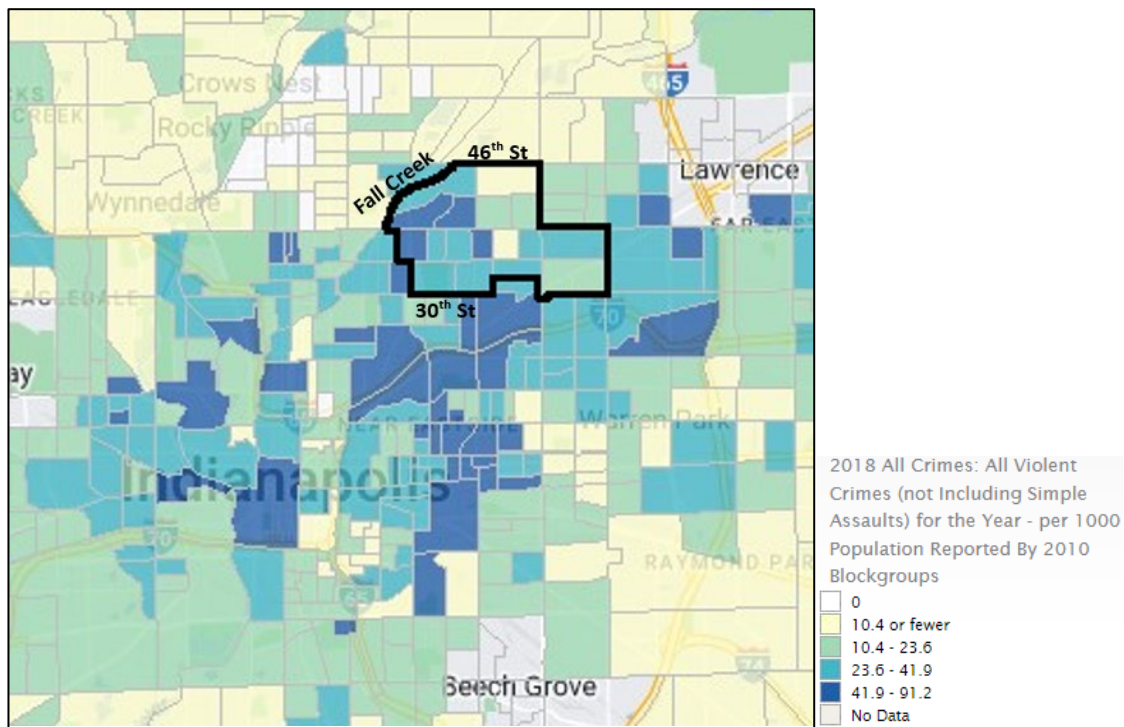
Image Source: The Polis Center at IU Indianapolis, SAVI (Classic) Community Information System (https://classic.savi.org/savi/), using data from Indianapolis Metropolitan Police Department / National Archive of Criminal Justice Data, retrieved 09/20/2023.

Note: Near Northwest streets labeled and boundary outlined in black by M. Altman.

Other Community Resources

Places within community where all people can access shared resources and interact with neighbors are essential to a community's vibrancy. The social ties within a community are themselves a strong influence on health. Often referred to as "social cohesion," these ties are reflected in the level of trust neighbors have for one another: their sense of belonging, willingness to help each other, engaging in community activities, and holding shared values/norms. A community's level of social cohesion has been associated with many health outcomes among residents, including diabetes, heart disease, and all-cause mortality [68].

The Northeast has been described as a "highly desirable place to live, work, and play in Indianapolis" [30]. It was a destination for shopping, the arts, and businesses such as doctors, lawyers, and civic leaders. However, over time, these ties were disrupted by urban blight and the departure of long-time residents.

While there are no community centers within the Northeast's boundaries, the Brightwood Community Center, located just outside the area, serves many families from the Northeast. Brightwood has been active for over 85 years, with a mission to provide outstanding programs and bring hope to families across Indianapolis [69]. It offers a variety of services, including a food pantry, summer camps, parent retreats, work force development, legal assistance, and a basketball league. Additionally, it provides resources such as crisis hotlines, clothing needs, mental health and addiction services, and support for victims of domestic violence and sexual assault.

The Northeast has more places of worship (36) and slightly more parks and greenways (5) than Marion County when adjusting for population size. Overall, the Northeast has 28.0 community assets per 10,000 people compared to 13.3 per 10,000 in Marion County (Table 14).

Table 14. Community Resources of Northeast and Marion County

Community Resources	Northeast		Marion County	
	Number	Assets per 10,000 Persons	Number	Assets per 10,000 Persons
Libraries[a]	0	0	24	0.3
Community centers[b]	0	0	24	0.3
Places of worship[c]	36	24.0	948	10.0
Parks and greenways[d]	5	3.3	255	2.7
Total:	41	27.7	1,251	13.3

Data source: The Polis Center at IU Indianapolis, SAVI Community Information System (https://www.savi.org/), using data from: Indiana State Library[a]; Indiana 2-1-1[b]; Center for Congregations, Inc[c]; Indiana Department of Natural Resources[d]; Marion County Department of Public Health[3], 2023.

Aside from the considerable health benefits community resources can bring through social ties, there are often additional health benefits. For example, parks/greenspaces provide space for physical activity, reduce stress, and mitigate air pollution and urban heat islands through a concentration of trees [70].

The Northeast community is home to a few parks/recreation areas. The largest of these parks is George Washington Park (128 acres), which holds a family recreation center, playground, outdoor basketball complex, boxing center, nature walking trails, outdoor water play station, and a disk golf course [71].

Generally, areas with higher levels of green space and walkability have a lower risk of developing diabetes [72]. Throughout the Northeast, there are a little over 180 acres of dedicated green space [73]. In 2018, 53% of the Northeast population by tract had park access compared to 35% of the population residing in Indianapolis [22] [52]. Here, park access is defined as residents living within a 10 minute walk of a park [74]. With more park access for Northeast residents compared to Indianapolis as a whole, this conveys a positive influence on health and well-being. Still, three tracts have a relatively low percentage of the population with park access (36.9%, 37% and 39.7%) compared to the City Health Dashboard's 950 cities across the United States (59.9%) [22].

Key Takeaways: The Community Context for Health

The major influences on our health occur throughout our everyday living experiences. We refer to these as "social determinants of health" – defined as "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks" [75]. In the tree analogy, these everyday conditions are akin to sunlight, water, soil, and the root system of the tree necessary to thrive.

In this report, we describe many different aspects of the Northeast community environment that influence the health of its members in order to identify what is supporting good community health (strengths) and what is hindering it (opportunities). In this section, we summarize the key takeaways. Details, context, and discussion of the impact on health are provided in prior sections of the report.

Community-Wide Social Context

- Five of the six census tracts experience moderate-to-high or high rates of social vulnerability, with no Northeast tracts classified as low social vulnerability, which raises the risks for poor health and lost years of potential life in times of both crisis and normalcy.
- All tracts within the Northeast area experience factors that contribute to reduced opportunities for children such as high unemployment and poverty.
- The socioeconomic composition of the Northeast has remained stable overall comparing 2020 to 2015.

Education
- In the Northeast, a greater proportion of adults do not have a high school diploma or a college degree compared to Marion County as a whole.
- The quality of public schools varies widely from A to D ratings, with inconsistent influence on long-term health.

- Charles A. Tindley Accelerated School is a highly ranked junior high and high school that has created a stable presence in the community amidst evolving educational environments city-wide. Between 2014-2018, the graduation rate among the Northeast Charles A. Tindley Accelerated School was consistent with the county, metro, or state rate.

Employment

- In 2018, unemployment was higher overall in the Northeast than across Marion County. Northeast residents without a high school diploma are unemployed at 3.8 times the rate of those with a college degree.

Income

- Compared to Marion County, residents of the Northeast have a much lower median income and a higher rate of poverty which results in a lower tax base and impacts availability and access to health-promoting resources in the neighborhood.

Housing

- Compared to Marion County, lower rates of home ownership, higher rates of housing-cost burden (cost >30% of income), and higher rates of eviction – all of which are threats to health and wellbeing.

Food Access

- In 2015, Northeast residents had less access to healthy food than was reported across Marion County. The percentage of the Northeast population who live more than 1 road mile from a grocery was higher than reported for Marion County.
- In 2018, there was one full-service grocery store located in the Northeast. Two block groups within the Northeast, with half of their population living in poverty that are the farthest away from a full-service grocery, with only convenience stores nearby.
- In the Northeast, a higher percentage of the population are enrolled in the Supplemental Nutrition Assistance Program (SNAP), often referred to as SNAP benefits, compared to Marion County, indicating a higher level of food insecurity.

Transportation

- There is a moderate to low level of walkability in the Northeast. The area is a car-dependent community although a higher percentage of Northeast workers travel to work without using a car compared to Marion County as a whole.
- There are no tracts of the Northeast has a high level of transit access.

Pollution

- Only one Northeast tract falls into a relatively high score of pollution burden (71-80%), three tracts had a pollution burden score of 11-20%, and two more tracts fell into the bottom 10% of pollution burden scores. These data suggests that exposure to various

environmental pollutants presents potential health risks to certain residents of the Northeast.

Community Safety
- The Northeast has a higher rate of juvenile charges per 1,000 residents (2018) compared to the rest of the county.
- Four block groups of the Northeast are in the highest grouping for violent crime relative to all blockgroups of Indianapolis

Other Community Resources
- While the area does not have a community center within its boundaries, they have a rich variety of places of worship (36). Overall, the Northeast has 27.7 community assets per 10,000 people compared to 13.3 community assets per 10,000 people in Marion County.

The considerable strengths of the community can be leveraged, with a committed group of residents, to address challenges together and build healthier futures for Northeast residents of all ages.

Tending the Tree: Next Steps

This report shares what was learned when we analyzed the causes of diabetes and early death in the Northeast area and the characteristics of the community that are known to influence health. Through this process we have gained a better understanding of both the challenges and strengths to consider as we build a bridge to a healthier Northeast community. Our next steps will be to reassess the Northeast in 2024 to see how the context of health has changed over the course of the DIP-IN work.

Improving a community's health and life expectancy can be done, though it takes time and diligence. The people of the Northeast deserve nothing less.

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