ABSTRACT
This community health assessment was conducted to assess the social, economic, and health conditions in the City of Shaker Heights; and to assess the relevance and applicability of the Health Improvement Partnership Cuyahoga (HIP Cuyahoga) to the smaller jurisdiction of Shaker Heights.

Scott Frank, MD MS
Sahil Bharwani, MPH; Becky Gray, MPH; Aylin Drabousky, MS
Overview

The purpose of this project is to assess the social, economic, and health conditions in the City of Shaker Heights; and the relevance and applicability of the Health Improvement Partnership Cuyahoga (HIP Cuyahoga) cross-jurisdictional Community Health Improvement Plan (CHIP) to the smaller participating jurisdiction of Shaker Heights. While the strengths of large scale and cross-jurisdictional Community Health Assessment (CHA) and Community Health Improvement Plans (CHIP) are numerous, they also have the potential to homogenize health issues and under represent the needs of smaller communities and jurisdictions. Cross-jurisdictional CHIPs bring substantially more resources to bear, including broader community involvement, greater health department collaboration, and a broader range of expert resources than could be obtained in a small jurisdiction such as Shaker Heights. This CHA was conducted by the Shaker Heights Health Department in partnership with the Case Western Reserve University Master of Public Health Program (CWRU MPH), the Cuyahoga County Board of Health (CCBH), Northeast Ohio Community and Neighborhood Data for Organizing (NEOCANDO), and Health Data Matters (HDM). This project examined data available from publicly available health databases specific to Cuyahoga County. The data was analyzed at the census tract and compared to Cuyahoga County metrics and HIP Cuyahoga priorities.

Results indicate that the four HIP Cuyahoga priorities of—eliminating structural racism, healthy eating active living, managing chronic disease, and linking clinical and public health—are highly relevant to the City of Shaker Heights. Additional priorities including substance abuse prevention, mental health and improved pregnancy outcomes are suggested for consideration.
Findings suggest that while larger scale health improvement plans maybe relevant to smaller jurisdictions, additional considerations should be made to tailor the health improvement plan to the specific needs of the smaller communities in an effort to adequately represent the communities and their unique needs.

Objectives

I. Analyze the community health status of Shaker Heights, at the citywide (SPA) level and the census tract (neighborhood) level.

II. Assess the relevance of the four HIP Cuyahoga CHIP priority areas to the Shaker Heights health jurisdiction.
   a. eliminating structural racism
   b. healthy eating active living
   c. linking clinical and public health
   d. chronic disease management

III. Identify whether there are priorities specific for the City of Shaker Heights that are not outlined explicitly by HIP Cuyahoga.

IV. Examine the effectiveness a large-scale CHIP on a smaller jurisdictional level to determine whether health or community issues were homogenized, excluded, or simply not appropriate for the smaller community and local health department.

Background

Community Health Assessments and Community Health Improvement Plans
A Community Health Assessment is a systematic process that examines the health status for a given population and identifies key problems that face the community. CHAs are a key component of Community Health Improvement Planning to identify public health issues within a community, set community health goals, and offer strategies and solutions to improve the health of the community (NACCHO). For the purposes of this assessment, health is defined as, "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1948). Thus, CHAs assess not only health related outcomes, but the social and economic conditions that contribute to these outcomes.

In 1988, the Institute of Medicine outlined the importance of Community Health Assessments in the “The Future of Public Health”, which states, “An understanding of the determinants of health and of the nature and extent of community need is a fundamental prerequisite to sound decision-making about health... systematically collect, assemble, analyze, and make available information on the health of the community, including statistics on health status, community health needs, and epidemiologic and other studies of health problems.” (IOM, 1988).

Specifically, a community health assessment is a comprehensive analysis of existing epidemiological data that details comprehensive information about the community’s current health characteristics, needs, and issues. This information can help develop a CHIP by justifying how and where resources should be allocated to best meet community needs (CDC). Typically, a CHIP is a mixed-methods analysis that uses quantitative and qualitative methods to collect and analyze data (NACCHO). Ideally, this process should assess information on risk factors, quality of life, mortality, morbidity, community assets, forces of change, social determinants of
health and health inequity, and accessibility to essential services (NACCHO; CDC). Recent modifications to the process have shifted the focus of the process towards the development of strategies to address the community’s needs/issues, working collaboration with local community partners, and focusing on community engagement through the process (CDC). Ultimately, these efforts help inform community decision-making, the prioritization of health problems, and the development, implementation, and evaluation of community health improvement plans.

While CHAs are vital to the community improvement process, often they are insufficient to drive sustainable change alone. To maximize the effectiveness of the assessment, the efforts need to be expanded into a CHIP (CDC). A CHIP is a long-term, systematic effort undertaken by a community and its partners to address public health issues facing said community by listing priorities to address and the strategies needed to reach these goals. The CHA outlines the current community health profile while the CHIP identifies goals and strategies for community health improvement (NACCHO). These CHIPs are typically based on the results of the CHA, assessment of the local public health system, and analysis of community themes and strengths. The purpose of the CHIP is to guide decisions related to health and other governmental, education, and human service agencies (CDC; NACCHO). This process also has the additional purpose of streamlining collaboration between public health organizations and community partners through a set of shared priorities, opening lines of communications, and promoting the sharing of resources (CDC; NACCHO; ASTHO, 2014).
The CHA and the CHIP work in tandem with each other to outline the current health status of a community and identify strategies for community improvement (CDC). Typically, these processes are heavily focused on community engagement are critical for organizing community health improvement efforts, guiding future policies, defining the vision of health for the community, and promoting collaboration between different organizations towards mutual goals (ASTHO, 2014; CDC).

**Controversy**

While CHSA and CHIPS are powerful tools for community improvement, the process and its execution have been subject to controversy and modification since its inception in the early 1980’s, and have improved dramatically since then (CDC; NACCHO). Today, it is recognized that these processes, while guided by public health officials, should be heavily reliant on civic engagement, as well as hard statistical evidence when analyzing the issues and offering solutions (CDC). However, these processes are still subject to current controversy and can be further improved. One of the most contentious issues is one of jurisdiction and the relevance of large scale community efforts to smaller communities (ASTHO, 2014). There has been a push from the federal government to support CHAs and CHIPS, however, this campaign has been focused on larger jurisdictions such as the state and county levels rather than local jurisdictions such as the city or local health department level (Allen Cheadle, 2008). The strengths of this strategy include more available resources, its cost effectiveness, and higher potential for collaboration (ASTHO, 2014; CDC; Glen P. Mays, 2006). However, this strategy is not without its
weaknesses, such as homogenization of health issues across various diverse communities and
the potential for misrepresentation of smaller communities (Glen P. Mays, 2006; ASTHO, 2014).

Often times these large jurisdictions represent a large variety of smaller, diverse communities
with unique and distinct health needs and issues (Glen P. Mays, 2006). These communities can
have unique demographics, health issues, resources, and may even look drastically different
from each other with relatively little in common (ASTHO, 2014). For example, in Cuyahoga
County, there are 59 municipalities with diverse populations including all types of racial
backgrounds, education levels and socioeconomic status, living in communities just minutes
from each other. These municipalities are served by three health jurisdictions: the Cleveland
Department of Public Health (population served 396,815), the Shaker Heights Health
Department (population served 28,448), and the Cuyahoga County Board of Health (population
served 854,975; 57 municipalities). When taking into account the issues facing a large
population such as Cuyahoga County, one must ensure that all communities, regardless of
demographics, status, or size, are represented within otherwise the larger jurisdictional effort.

One potential solution to the homogenization of health issues is to conduct local level health
assessments and community health improvement plans that, while based and working in
collaboration with the larger cross jurisdictional efforts, are unique to the smaller jurisdiction
and considered to be “tailor fit” (Glen P. Mays, 2006; ASTHO, 2014; Allen Cheadle, 2008). This
process may reveal issues facing the local community that should be considered by the local
government and public health authorities. While these issues may not be applicable to the entire concerted effort, they can be vital for local communities to address. These type of assessments are not meant to replace or compete with the larger community health improvement plan, but should supplement or amend those efforts. Additionally, this affords local communities a chance to solve their own issues unique to their communities, while also affording the luxury of additional information and data related to the issue. This approach has the potential to not only empower local communities to self-solve their issues, but also allows analysis of the context of health issues in various jurisdictions and the effectiveness of implemented interventions and proposed solutions (Glen P. Mays, 2006; ASTHO, 2014; Allen Cheadle, 2008).

To study this effect, this project analyzed HIP Cuyahoga, a cross-jurisdictional CHIP that includes the Cuyahoga County Board of Health, the Cleveland Department of Public Health, and the City of Shaker Heights Health Department. HIP Cuyahoga is a consortium of over 100 local partners who have come together for community health improvement planning in Cuyahoga County in an effort to improve health for its residents (HIP-Cuyahoga). The Shaker Heights Health Director Dr. Scott Frank has participated on behalf of the Shaker Heights health jurisdiction on the leadership team in all phases of the HIP Cuyahoga CHA and CHIP. HIP Cuyahoga employs three key strategies to lead the community towards sustainable change. The first is collective impact, or the approach that coordinated collaboration can effectively solve issues in the community. The second is community engagement, or the philosophy that the community should be represented in the process and a part of the solution. The final strategy is to ensure that all
future policies consider their impact of health and make every effort to be equitable to the
diverse population of Cuyahoga County. This approach is referred to as "health and equity in all policy." HIP Cuyahoga has identified four priority areas for the community:

- Eliminating structural racism
- Healthy eating and active living
- Chronic disease management
- Linking clinical and public health services

Structural racism occurs when institutions have policies that discriminate based on race, such as historic policies of “Red Lining” or equating a neighborhood’s economic values to racial demographics. These policies harm communities by limiting opportunity and creating poorer health outcomes, especially for these vulnerable minorities, and special efforts are needed to eliminate such practices. The priority of Health Eating and Active Living (HEAL) for HIP Cuyahoga focuses on increasing the opportunities available in the community for individuals to engage in healthy behaviors such as eating healthy or exercise safely. By increasing the opportunity, individuals can effectively balance their nutritional and exercise needs to reduce or manage a large variety of health outcomes associated with high BMI, poor nutrition, or a lack of exercise. By focusing on lifestyle and other risk factors, HIP Cuyahoga seeks to prevent and reduce a variety of chronic diseases such as diabetes, hypertension, heart disease and more. However, preventing the disease from developing does not apply to the entire population, particularly those who have already developed chronic diseases also need special consideration. HIP Cuyahoga has recognized this by prioritizing chronic disease management in an effort to reduce
the societal burden of such diseases, particularly by reducing the impact of these diseases on
the individual and community. The final priority is the linking of clinical and public health
resources and efforts. Cuyahoga County has one of the strongest medical care systems in the
United States, however, these institutions largely focus on health issues within the healthcare
system rather that functioning in close collaboration with local public health authorities. The
communication and collaboration between these partners needs to be strengthen and HIP
Cuyahoga has recognized that and strives to improve the connections between local healthcare
organizations, particularly those focused on the clinical side and those focused on the public
health side.

This report utilizes the County Health Rankings model for
understanding the complex relationships between health
determinants, health policy and programs, and health outcomes.
This model describes those determinants that can be influenced
through community action to improve health and their relative
contribution. These categories are health behaviors (30%),
clinical care (20%), social and economic factors (40%), and
physical environment (10%). Influencing programs, policy, and
health factors represent opportunities to improve community
health.
Methods

Design

This project was a secondary data analysis using publicly available data accessed through HDM online health resources, NEOCANDO, CCBH, and the Shaker Heights School District Youth Risk Behavior Survey (YRBS). The data was stored, analyzed and visualized through HDM. The results were analyzed in the context of the four HIP Cuyahoga Priorities (Eliminating Structural Racism, Healthy Eating Active Living, Managing Chronic Diseases, and Linking Clinical and Public Health) and compared to equivalent metrics for Cuyahoga County.

Setting

There is a distinct social and health geography to Shaker Heights. For the purpose of this assessment, the City of Shaker Heights was classified into 3 regions: North Shaker, Mid Shaker, and South Shaker. These regions differ from each other significantly in terms of racial compositions, socioeconomic status, and health outcomes. Generally, North Shaker, consisting of Malvern and Mercer, is predominately White, affluent, highly educated, and have comparatively better health outcomes. Mid Shaker, consisting of Boulevard, Onaway, Fernway and Thornton Park, has a more diverse composition by race, socioeconomic status, education levels, and health outcomes. South Shaker, consisting of Ludlow, Moreland, East and West Lomond and Sussex, is predominately Black, with lower socioeconomic status, education rates, and poorer health outcomes. It is important to note that Ludlow and Moreland neighborhoods share a border with the City of Cleveland.
Participants/Partners

This project was conducted by the Shaker Heights Health Department, in partnership with Health Data Matters, Cuyahoga County Board of Health, and Case Western Reserve University Master of Public Health Program.

Outcomes/Measures

This project used a variety of metrics to analyze the community health status of Shaker Heights, which are explicitly outlined in the “Variables Section”. To analyze the applicability of HIP Cuyahoga Priorities to Shaker Heights, the statistics considered were either representative of the priorities (Eliminating Structural Racism, Healthy Eating Active Living, Managing Chronic Diseases, and Linking Clinical and Public Health) or deemed to be prudent practice for a thorough community health status assessment, such as youth risk behaviors.

Eliminating Structural Racism was assessed using life expectancy, racial demographics, birth statistics, and socioeconomic statistics. Healthy Eating Active Living was examined using trend data from YRBS report on nutrition and exercise. Chronic Disease Management was analyzed by examining age adjusted mortality rates across Cancer, Heart Disease, and Stroke. Clinical and Public Health, considered within the context of the larger framework of Shaker Heights and its health profile. Additionally, the Youth Risk Behavior Report for Middle School and High School (2011-2012) was analyzed for youth risk behavior trend data.
Data was obtained through Health Data Matters, an open health data resource for Cuyahoga County, NEOCANDO, another local public health database, and Cuyahoga County Board of Health’s public health surveillance. Data was examined by neighborhood and census tract and compared the relevant statistics for the county. Youth risk behavior was assessed using the published Youth Risk Behavior Survey 2011 and 2012 Reports on the Shaker Heights School District.

**Variables available at neighborhood level (within city and between city and county analysis)**

- **Contextual conditions** (NEOCANDO: 2012 American Community Survey [ACS] 5 Year)
  - Population total (ACS)
  - Population by race/ethnicity (ACS)
  - Population by broad age category (under 18, 65+) (ACS)
  - Median household income (ACS)
  - Percent of total residents below poverty level (ACS)
  - High school graduation rate (ACS)
  - Professional or advanced education rate (ACS)
  - Redlining within Shaker Heights
  - Juvenile delinquency offenses, rater per 1,000 youths (Crime)
  - Food Stamps (Supplemental Nutrition Assistance Program [SNAP])

- **Health outcomes** (CCBH: 2008-2012)
  - Average life expectancy
  - Age-adjusted cancer mortality
  - Age-adjusted cardiovascular mortality
  - Age-adjusted stroke mortality
  - Infant Mortality
  - Premature Birth rate
  - Percent mothers receiving prenatal care
  - Lead Levels

**Youth Risk Behavior Survey (2002-2012)**
- Substance Abuse
- Unintentional injuries
- Mental Health
- Healthy eating, active living
RESULTS

CONTEXTUAL CONDITIONS

Median Household Income

Consistent with the historical and planned nature of the Shaker Heights community the median household income (Figure 1) for Shaker Heights is unequally distributed across the three regions of Shaker, South Shaker, Mid Shaker and North Shaker (ACS 2012 5 Year Survey). Specifically, North Shaker has the highest median household incomes, while South Shaker has the lowest. This mirrors historical patterns of redlining practices, planned integration, and intentional variation of the housing values in the community. It is also noteworthy that some of the lowest income neighborhoods in Shaker (Ludlow, Moreland and, Boulevard share a border with Cleveland.

Child Poverty Rate

The Childhood Poverty Rate (ACS 2012 5 Year Survey) for Shaker Heights (Figure 2) mirrors the income distribution observed in Figure 1. Specifically, the areas
with the highest childhood poverty rate were the Moreland, West Lomond, and Ludlow neighborhoods. The poverty rate for Cuyahoga County in 2010 was 13% and for Cleveland was 26%.

Racial Demographics

The racial distribution of Shaker Heights of the African American population in Shaker is described in Figure 3. North Shaker was observed to be predominantly White, with an estimated percentage of African American ranging between 9-22%. Mid Shaker was observed with ranges varying from 30-60% for both groups across the different neighborhoods. The neighborhoods of South Shaker were observed to be predominantly African American, with an estimated White percentage of 5-18 in most of South Shaker, and 18-32 in the neighborhood of Sussex. Overall, 28% of Cuyahoga County and 51% of Cleveland residents were African American in 2010.

Poverty Distribution of Shaker Seniors

The specific age groups of 65+ (Figure 4) living in poverty were examined as this population is particularly vulnerable (Tanner, 2007). Poverty in the 65+ population was highest
in the Moreland Neighborhood, and considerably lower throughout the rest of Shaker Heights.

**Educational Level**

Given the strong link between education level, vulnerable status, and health outcome, (Tanner, 2007) educational attainment was analyzed. The percentage of people with High School as their terminal degree (Figure 5) was used to examine the educational level and its distribution throughout Shaker Heights. The South Shaker neighborhoods had the highest percentage, with Moreland and Ludlow having more than 25% of its adult population with high school as its highest educational level. Mid and North Shaker had lower rates of High School degrees only, with a range of 3-11%. Educational was also examined using percentage of the population with a Bachelor’s degree or more (Figure 6). These results mirrored the high school degree results with North Shaker showing the highest rates of college educated individuals, while South Shaker had the lowest percentage, with as few as 14-26% of the population having a college degree. Together, these maps show that there are gaps in
education between north and South Shaker and this could potentially be a contributing factor to health outcomes. For Cuyahoga County in 2012, 12.9% had only a high school degree, while 17.4% had received a Bachelor's degree or more.

Youth Violence

Youth violence (Figures 7, 8, and 9) was assessed across multiple metrics such as child maltreatment (NEOCANDO), public order offenses, delinquency offenses, and violent offenses (2013 Youth Crime data). Overall the youth crime was mostly concentrated in southern neighborhoods, however, the distribution of crimes varied dramatically by neighborhood. Violent offenses were highest in southern neighborhoods, with the highest rates being observed in Ludlow and West Lomond. Violent offenses were highest in southern neighborhoods, with the highest rates being observed in Ludlow and West Lomond. Public Order Offenses occurred most often in Ludlow, with the rest of Shaker having a pretty similar distribution, although southern
Shaker had marginally higher rates compared to the northern neighborhoods. Delinquency offences were the highest in southern neighborhoods, with the highest rates being observed in Ludlow and West Lomond. East Lomond and Sussex had relatively lower rates compared to the rest of the southern neighborhoods. Childhood maltreatment rates were the highest in the southern neighborhoods, with West Lomond having the highest rates, however, East Lomond and Sussex had rates similar to the rest of Shaker Heights. Overall, the crime is concentrated in the Southern Neighborhoods, with the more impacted (across various measures) neighborhoods being Ludlow and West Lomond.

HEALTH OUTCOMES

Age Adjusted Mortality (Vital Statistics, Cuyahoga County Board of Health 2008-2012)

The age adjusted mortality rates for heart disease, cancer, and stroke (Figure 9 and 10) were examined. Consistent with national patterns heart disease is the leading cause of mortality in Shaker, followed by cancer, with stroke a much less common cause of death.

The neighborhoods with the lowest rates or mortality rates, or the best health outcomes, tended to be located in Northern Shaker, while, areas with the highest rates or worst outcomes tended to be located in South Shaker.

Barring a few exceptions, the rates were fairly similar across the different geographic regions of
Shaker Heights. For heart disease, the neighborhood with the highest rate was Moreland, followed by Ludlow. East and West Lomond and Sussex had similar rates as Mid Shaker, while North Shaker had the lowest rates. For stroke, the Ludlow neighborhood had the worst rate, followed by Boulevard and West Lomond. East Lomond and Sussex had similar rates to that of Mid and North Shaker respectively. Mid Shaker had a lower age adjusted stroke mortality than North Shaker. Cancer had the highest rates in the Moreland Neighborhood, followed by East Lomond and Boulevard. West Lomond had similar rates to Mid Shaker while Sussex had similar rates to North Shaker. North Shaker was found to have the lowest rates of cancer adjusted mortality.

Life Expectancy

Life expectancy (Figure 12) was analyzed across the available neighborhoods; however, data was not available for all census tracts. Data was suppressed for the Ludlow, Moreland and East Lomond Neighborhood as it did not meet the population requirements for reporting. Of the available data, the lowest life expectancy was observed in the Southern Neighborhoods of West Lomond and Sussex. The middle neighborhoods of Fernway and Boulevard had slightly better Life Expectancies, while the Northern Neighborhoods of Malvern and Mercer had the highest
life expectancy. Overall, the range of life expectancy was 80.2 in West Lomond to 86.5 in Malvern, and even the neighborhoods with the lowest life expectancy have better statistics than the Cuyahoga County Average of 77.9.

Birth statistics

In 2010, the percent of premature births (Figure 20) for Shaker Heights was examined. The neighborhoods with the highest rates were Ludlow and Onaway, while the rest of Shaker was comparatively similar. Additionally, most of Southern Shaker, had a rate of about 10% births being premature, with 17.7% being born premature in the East Lomond.
Neighborhood. The premature birth rate for Cuyahoga County was 14.6% and for Cleveland was 17.6%. Additionally, low birthweight (Figure 19) by percentage was also used to assess the birth statistics of Shaker Heights. In North and Mid Shaker, the percentages were similar, while Southern Shaker had the poorer outcomes. Specifically, the neighborhood of Ludlow had the lowest outcomes in Shaker Heights.

**Lead**

Because of the older housing stock in Shaker Heights, all Shaker parents should have an increased awareness of the possibility of lead poisoning. Elevated Blood Lead (EBL) levels can result in decreased intelligence; impaired memory, sound processing, visual-motor integration, language development; hyperactivity (ADHD); school failure; aggression (poor control of emotions); and anti-social behaviors. Boys appear to be more affected than girls and severity dependent on blood levels. Figures in this community assessment divide lead levels into 5 to 9 and ≥10 µg/dL. Despite this risk, lead levels in Shaker children have steadily decreased from 2004 until 2012 with more recent small increases in since 2013. Screening rates have remained consistent throughout. Lead levels generally reflect the housing stock in Shaker and other locations, with the
neighborhoods with housing stock that is in better repair less likely to result in lead poisoning. Figure 15 demonstrates the decrease in total lead levels, in lead levels 5 to 9, and in lead levels greater than 10. These levels have consistently decreased in Shaker until 2013 when there was a slight increase in lead levels greater than 10 in both 2013 and 2014. Figure 16 shows that Shaker lead levels during this same time-period were lower than levels in Cuyahoga County as a whole and to first ring suburbs. Figures 17 and 18 map this same information for 2015 across Cuyahoga County. Elevated lead levels within Shaker Neighborhoods are shown in Figure 19 for 2004, 2010 and 2014, with an additional map demonstrating distribution of housing burden within the city. Housing burden is defined by expenditure of 30% or more of income on housing. As expected, high lead levels tend to reflect higher housing burden. Figure 20 shows trends in neighborhood distribution of elevated lead levels is depicted in 2 year increments in Shaker between 2004 and 2015. While numbers are down overall in all neighborhoods, increases have been observed since 2013 in the Lomond and Ludlow neighborhoods, and unexpectedly in Malvern. Though levels remain comparatively high in Moreland, they have continued to decrease. Primary contributors to elevated lead levels can be either deteriorating housing stock or renovations without appropriate safety precautions taken.
Figure 17: Cuyahoga County Elevated Lead Levels (≥10 µg/dL) 2015
Figure 18: Cuyahoga County Elevated Lead Levels (≥5 µg/dL) 2015
Figure 19: Shaker Heights Elevated Blood Lead Levels (≥5 µg/dL) 2004, 2010, 2014. With Housing Burden (>30% of income spent on housing). Note variation in range of EBLs in each legend.
The YRBS was conducted since 2001 in the Shaker Heights School District, with the most recent available data from 2011 for high school and 2012 for middle school students. Health of was assessed across multiple domains that include Healthy Eating Active Living (HEAL), substance use, mental health, violence, sexual behavior, and youth assets.

The HEAL items were related the students dietary and exercise behaviors and specifically asked the amount of fruit and vegetables eaten, the amount of milk consumed, how many students watched more than 3 hours of TV daily, the BMI status of students and how many met the daily

<table>
<thead>
<tr>
<th>YRBS HEAL Questions</th>
<th>Shaker High School 2011</th>
<th>Cuyahoga Co High School 2011</th>
<th>Shaker Middle School 2012</th>
<th>Cuyahoga Co Middle School 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent DID NOT Eat Rec. Fruits/Vegetables</td>
<td>70.05</td>
<td>77.4</td>
<td>64.1</td>
<td>71.9</td>
</tr>
<tr>
<td>Recommended amount of milk per day</td>
<td>13.1</td>
<td>13.2</td>
<td>26.2</td>
<td>24.3</td>
</tr>
<tr>
<td>3+ Hours spent Watching TV</td>
<td>33.9</td>
<td>34.3</td>
<td>28.8</td>
<td>34.9</td>
</tr>
<tr>
<td>Overweight or Obese BMI</td>
<td>26.4</td>
<td>29.9</td>
<td>25.4</td>
<td>29.0</td>
</tr>
<tr>
<td>Recommended levels of Physical Activity</td>
<td>51.8</td>
<td>43.8</td>
<td>62.7</td>
<td>54.7</td>
</tr>
</tbody>
</table>
recommendation for exercise. Figure 21 shows that in 2011 and 2012, 70.05% of high school and 64.1% of middle school students did not meet recommendations for daily fruits and vegetables. Only 13.1% of high school and 26.2% of middle school students consumed the suggest amount of milk. Among high school students, 33.9% of spent 3+ hours watching TV on school nights with 28.8% of middle school students reporting the same. Overweight and obesity was noted among 26.4% of high school students and 25.4% of middle school students. Recommended exercise activity was attained in 51.8% of high school students and 62.7% of middle school students.

Substance use (Figure 22 and 23) was assessed by measuring lifetime (ever) and current (past 30 days) alcohol, marijuana, and tobacco. For high school alcohol use, the overall prevalence dropped by 11.8% and 12.2% for lifetime and current use. For tobacco use, cigarettes dropped 33.9% and 11.3% for lifetime and current use. Current cigar use dropped 6.6% from its highest use level in 2004. For marijuana use, the lifetime use had dropped by 4.9% while current use increased by 1.8%. Measures of Shaker high school substance use were comparable to, but mostly lower than Cuyahoga county levels in 2012. Current alcohol and current marijuana were significantly higher for Shaker High School students. For Cuyahoga County in 2011, lifetime cigarette use was 30.6%, with current use 11.4%; lifetime alcohol use was 61.9% with current

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>77.5</td>
<td>43.7</td>
<td>77.9</td>
<td>48.4</td>
<td>70.8</td>
<td>39.3</td>
<td>66.1</td>
<td>36.2</td>
<td>-11.8</td>
<td>-12.2</td>
</tr>
<tr>
<td>Cigarettes</td>
<td>54</td>
<td>19</td>
<td>50</td>
<td>16.9</td>
<td>38.7</td>
<td>10.7</td>
<td>20.1</td>
<td>7.7</td>
<td>-33.9</td>
<td>-11.3</td>
</tr>
<tr>
<td>Cigars</td>
<td>n/a</td>
<td>12.9</td>
<td>n/a</td>
<td>22.1</td>
<td>n/a</td>
<td>19.1</td>
<td>29.3</td>
<td>15.5</td>
<td>n/a</td>
<td>-6.6</td>
</tr>
<tr>
<td>Marijuana</td>
<td>43.6</td>
<td>24</td>
<td>43</td>
<td>22</td>
<td>40</td>
<td>23</td>
<td>38.7</td>
<td>25.8</td>
<td>-4.9</td>
<td>1.8</td>
</tr>
</tbody>
</table>
use 31.8%; lifetime cigarette use was 35.3%, with current cigar use was 16.9%; and lifetime marijuana use was 38.1% with current use 22.0%.

For middle school students lifetime alcohol use dropped 5.9% while current use dropped 2.7%.

For middle school students lifetime cigarette use dropped 13.6%, while current use dropped 1.5%. Middle school current cigar use dropped 0.6%. Middle school lifetime increased 1.2% while current use increased 3.1%. All measures of Shaker middle school substance use were comparable to, but lower than Cuyahoga county levels in 2012. For Cuyahoga County in 2012 lifetime cigarette use was 8.8%, with current use 3.7%; lifetime alcohol use was 27.7% with current use 9.5%; current cigar use was 6.7%; and lifetime marijuana use was 10.9% with current use 6.5%.

For high school, mental health (Figure 24), was considered using data from 2011 to 2002. “Felt so sad that have stopped doing usual activities” had dropped 4.5%, “seriously considered suicide” had dropped 3.0%, while “have attempted suicide” had decreased 3.8%. Intentional self-harm data was only available for 2011 and 2009, and had dropped by 4.2% in that time.

For middle school, the only mental health variable examined was “have seriously considered suicide”, which had dropped by 8.5% (to 8.3%) since its peak in 2008 (16.8%). For Cuyahoga

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>29.3</td>
<td>31.9</td>
<td>34.3</td>
<td>26</td>
<td>9.8</td>
<td>11.1</td>
<td>10.3</td>
<td>8.4</td>
<td>-5.9</td>
<td>-2.7</td>
</tr>
<tr>
<td>Cigarettes</td>
<td>19.5</td>
<td>16</td>
<td>8.2</td>
<td>5.9</td>
<td>2.2</td>
<td>2.6</td>
<td>3.6</td>
<td>2.1</td>
<td>-13.6</td>
<td>-1.5</td>
</tr>
<tr>
<td>Cigars</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>6.6</td>
<td>n/a</td>
<td>6.9</td>
<td>n/a</td>
<td>-0.6</td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td>8.6</td>
<td>7.1</td>
<td>8.3</td>
<td>9.8</td>
<td>3.6</td>
<td>3.7</td>
<td>4.9</td>
<td>6.7</td>
<td>1.2</td>
<td>3.1</td>
</tr>
</tbody>
</table>
County among high school students in 2011, 12.4% seriously considered suicide and 7.5% attempted suicide; while 10% engaged in self-harm.

Figure 24. High School Mental Health 2002 to 2011

<table>
<thead>
<tr>
<th>High School Mental Health</th>
<th>2002</th>
<th>2004</th>
<th>2009</th>
<th>2011</th>
<th>Change from highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever so sad that have stopped doing usual activities</td>
<td>25.1</td>
<td>25.7</td>
<td>28.9</td>
<td>24.4</td>
<td>-4.5</td>
</tr>
<tr>
<td>Have seriously considered suicide</td>
<td>15.6</td>
<td>15.7</td>
<td>15.3</td>
<td>12.7</td>
<td>-3.0</td>
</tr>
<tr>
<td>Have attempted suicide</td>
<td>6.3</td>
<td>4.5</td>
<td>10.7</td>
<td>6.9</td>
<td>-3.8</td>
</tr>
<tr>
<td>Have intentionally self-harmed</td>
<td>n/a</td>
<td>n/a</td>
<td>15.2</td>
<td>11</td>
<td>-4.2</td>
</tr>
</tbody>
</table>

To assess the levels of violence encountered by high school students (Figure 25), metrics were considered across from 2002 to 2011. “Have you ever carried a weapon” decreased slightly from its high point by 0.4%, while being “in a physical fight” had decreased by 2.0%. The number of children who “did not go to school because they felt unsafe” dropped by 3.4%. The number of students who have been “Ever been physically hurt on purpose by a boyfriend or girlfriend” dropped by 15%. The percentage of high school students “forced to have sexual intercourse” had decreased by 0.5% from its highest level in 2009, but is increased 0.8% overall from the low reported in 2002. Among middle school students, the experience of "being

Figure 25. Shaker High School Violence 2002 to 2011

<table>
<thead>
<tr>
<th>High School YRBS Violence Questions</th>
<th>2002</th>
<th>2004</th>
<th>2009</th>
<th>2011</th>
<th>Change from highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever carry a weapon</td>
<td>10.3</td>
<td>11.6</td>
<td>10.1</td>
<td>11.2</td>
<td>-0.4</td>
</tr>
<tr>
<td>Ever been in a physical fight</td>
<td>27.5</td>
<td>31</td>
<td>29.9</td>
<td>29</td>
<td>-2.0</td>
</tr>
<tr>
<td>Felt unsafe at or on the way to/from school</td>
<td>5.2</td>
<td>3.3</td>
<td>8</td>
<td>4.6</td>
<td>-3.4</td>
</tr>
<tr>
<td>Ever been physically hurt on purpose by bf/gf</td>
<td>25.1</td>
<td>11.9</td>
<td>12.3</td>
<td>10.1</td>
<td>-15</td>
</tr>
<tr>
<td>Ever been physically forced to have sexual intercourse</td>
<td>6.5</td>
<td>7.1</td>
<td>7.8</td>
<td>7.3</td>
<td>-0.5</td>
</tr>
</tbody>
</table>
harassed or picked on (bullied) reached its highest level in 2008 at 39.8%, and dropped to 36.8% in 2012 (-3.0%). Middle school bullying for Cuyahoga County was 33.8% in 2012. For Cuyahoga County in 2011 among high school students, 18.1% report being bullied at school; 29.1% reported having been in a physical fight; 10% carried a weapon; 5.4% felt unsafe going to or from school; 9% reported being hurt by boyfriend or girlfriend; and 6.8% report forced sexual intercourse.

Discussion

This report suggests that the priorities outlines in HIP Cuyahoga are relevant to the needs of Shaker Heights, but there is also a need for a tailored health improvement plan that prioritizes youth substance abuse, mental health, and violence based on community priorities and goals outlined by Healthy People 2020. The larger jurisdictional priorities of HIP Cuyahoga were deemed to be relevant to the smaller health jurisdiction of Shaker Heights as the statistics observed showed clear issues and areas to improve upon. Given the need for additional considerations at the local level, this report also illustrated a need for more research into the homogenization of health issues in large scale community health improvement plans and how small and large jurisdictions can collaborate better to improve community health, and the effect of large community health improvement plans on the smaller jurisdiction’s health issues and representations. The results also contribute to what the public health community knows about the various issues it analyzed and their importance to public prioritization.
This project also identified topics that require further attention. Specifically, the social and health geography of Shaker Heights is dramatically illustrated in a manner that can allow targeted interventions to occur in the neighborhoods with greatest need. This process has already begun throughout the government of the City of Shaker Heights. In addition variations between the South Shaker neighborhoods were observed. While the neighborhoods of east Lomond and Sussex share similar demographics to the rest of the South Shaker neighborhoods, they have much lower rate of childhood poverty. This matches the general phenomenon that reflects proximity to the Cleveland border as an indicator of more challenging social, economic and health patterns. Furthermore, the racial distributions observed in North, Mid, and South Shaker, mirror the redlining practices, planned integrated, and intentional variations in housing values policies enacted over half a century ago. While, the demographics share a relationship with income, with the most affluent areas of Shaker being predominately White, the lowest income areas are predominately Black, and the Mid Shaker, in the middle of the socioeconomic status is well integrated with near even distributions of Whites and Blacks in the various neighborhoods. Additionally, when analyzing the Age Adjusted Mortality for Cancer, Stroke, and Heart Disease, differences were observed between the various southern neighborhoods of Shaker, indicating that while these areas share similar demographics, they have different health outcomes that vary by location. Furthermore, while the Moreland Neighborhood tended to have the worst health outcomes, the rest of South Shaker varied in terms of rates and mortality.
This project also helps by potentially guiding efforts of HIP Cuyahoga, in understanding the relationship between the larger cross-jurisdictional CHA/CHIP and the needs of individual municipalities in the county. The technology utilized through the Health Data Matters open data platform, along with its data visualization tools can be applied to any Cuyahoga County municipality or City of Cleveland neighborhood. Specifically, this information can be used to assess the areas in high need for intervention, analyze the characteristics of a given neighborhood or census tract, and would allow HIP Cuyahoga to assess the community health and standing for the municipalities within the HIP Cuyahoga CHIP.

Strengths and Limitations

This project had a number of strengths that contributed to the robustness of the results and the quality of the analysis. Specifically, the team was led by Dr. Scott Frank, the Shaker Heights Health Commissioner and included various public health officials with a plethora of experience, that were already involved in HIP Cuyahoga. Additionally, there is a large variety of high quality, public health data available for Cuyahoga County and Shaker Heights. The large amount of data available at the census tract allowed this project to effectively analyze the community health issues of Shaker Heights and the individual neighborhoods that comprised it. Furthermore, this project produced a number of compelling visuals such as charts, graphs, and maps which allow for a better understanding of the issue and easier communication of the findings, particularly to the community as a result of the uniquely available Health Data Matters data portal and visualization tools. This project has the added benefit of supporting the HIP Cuyahoga effort and allowing Shaker Heights to supplement HIP Cuyahoga with their own specific community
needs. Finally, this analysis and investigation can serve as a framework in similar projects that evaluate the local health issues in larger cross-jurisdictional health improvement plans. It is the hope of this team that this framework will be used to analyze the effectiveness of large community wide health improvement efforts and address potential short comings at the smaller local level.

Limitations include lack of adult behavioral data (such as obesity, substance use, mental health) or data that was not available at the census tract level. Additionally, some of the data was suppressed as they did not meet the sample size requirements for reporting. The final limitation is the fact only one small jurisdiction was analyzed. While HIP Cuyahoga priorities were consonant with Shaker needs evaluated in this report, that does not indicate that all other Cuyahoga County municipalities benefit equally from these efforts. While evaluation this thorough of each of the 59 municipalities in Cuyahoga County is not realistic, this process demonstrates that technology would allow municipality specific Community Health Status assessment with census tract level evaluation if HIP Cuyahoga should choose to do so.

Conclusion

Conclusions supported by evidence

Based upon the evidence, in Shaker Heights, there is a need for all of the priorities outlined by HIP Cuyahoga (Eliminating Structural Racism, Healthy Eating Active Living, Managing Chronic Diseases, and Linking Clinical and Public Health) and the consideration of additional priorities
that address community priorities such as lead poisoning, youth mental health, substance abuse, and violence. The data collected was the result of local public health surveillance efforts in the community and representative of the health status of the community. While there were minor data quality issues, overall the data was robust and highly applicable to the community and HIP Cuyahoga Priorities. Eliminating Structural Racism was affirmed as a priority because the life expectancy, racial demographics, birth statistics, and socioeconomic statistics showed clear differences between the different neighborhoods of Shaker Heights and are seemingly correlated with race. Healthy Eating Active Living was affirmed because the trend data from YRBS report indicated that Shaker youth do not meet national benchmarks. Chronic Disease Management was deemed important because the mortality statistics illustrated that the community is susceptible to the end stage result of unmanaged chronic disease. Clinical and Public Health was also relevant to Shaker Heights based on the importance of clinical and public health working closer together to best improve the health of the community. Finally, the Youth Risk Behavior Reports from 2011 and 2012 provide compelling evidence of improving trends in substance use among Shaker youth. In order to continue these trends, effort to address substance abuse, mental health, and violence in Shaker Schools may be topics for prioritization specifically for Shaker Heights and potential future prioritization in HIP Cuyahoga in an effort to meet the national goals set by Healthy People 2020. To maximize the effectiveness of community based intervention and public improvement plans, it is the recommendation of this report that community health improvement plans and community health assessments be conducted at both the larger cross jurisdictional level as well as the smaller local level. This
approach would allow for the most robust improvement plans and community engagement,
and ultimately the highest level of community impact.

References

ASTHO. (2014). *Successes and Challenges in Community Health Improvement:* Association of State and Territorial Health Officials.


NACCHO. (2011). *Definitions of Community Health Assessments (CHA) and Community Health Improvement Plans (CHIPs).* National Association of County and City Health Officials.