



Community Health Assessment

Baltimore City

September 20, 2017



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Acknowledgements

The Baltimore City Health Department, in partnership with the Local Health Improvement Council, is the convening body for the Community Health Assessment (see Appendix A for full list of LHIC members). Many other individuals including community members and community-based organizations also contributed to the development of this assessment.

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Access

This report can be accessed online at: <http://health.baltimorecity.gov/>.

Introduction

In 2015, the Baltimore City Health Department (BCHD) launched an initiative to develop a strategic blueprint for health in Baltimore City. This process led to the development of this Community Health Assessment (CHA) - an assessment to understand the health needs of our community.

This document is the first step in creating a citywide health improvement plan. Within this document, you will find demographic data and data on the health issues facing Baltimoreans, including health outcomes, health behaviors, and the social and economic determinants of health. While it is critical that we look at data to drive our community health improvement process, it is also critical to engage the community in meaningful dialogue on an ongoing basis. Over the past year, BCHD has been engaging community members and other stakeholders in important conversations regarding some of the major health issues facing Baltimore today, including chronic disease, substance use, mental health, violence, and the importance of core public health services to the community.

This document is a combination of information from the BCHD Healthy Baltimore 2020, Community Health Survey, and Neighborhood Health Profile reports, local hospital Community Health Needs Assessments, and community/stakeholder conversations. It will be used to continue these conversations with the community and to guide us in determining which health issues will be prioritized in the 2017 Baltimore City Health Improvement Plan.

Methods

The following section describes the process used to develop the 2017 Baltimore City CHA and the methods used to compile and analyze the data.

Community Health Assessment Process

In January 2015, BCHD embarked on a 12-month community listening tour as a first step in developing its Community Health Assessment and strategic blueprint for health and wellness in Baltimore City.

Over the course of 12 months, Health Commissioner Dr. Leana Wen and members of the BCHD senior leadership team conducted a comprehensive community listening tour, meeting with community stakeholders including city hospitals and health centers, faith-based institutions, neighborhood associations, community nonprofits, local businesses, universities, residents, youth groups, and others. These conversations drove the initial priorities for Year 1 of the administration and helped lay the groundwork for subsequent conversations.

In 2016, BCHD convened a group of stakeholders from across the city to guide the community health assessment and improvement process. The Local Health Improvement Council (LHIC) meets quarterly to discuss citywide health priorities.

The LHIC is led by the health department and includes representatives from across the city, including hospitals, health systems, Federally Qualified Health Centers, community-based and faith-based organizations, businesses, and other stakeholders. The responsibilities of the LHIC are to develop and execute a joint agenda to improve health equity by addressing key health priorities for the city, improve collaboration and alignment on health priorities, identify systems and policy barriers, and contribute relevant data to drive effective action. This report serves as the assessment the LHIC will use to prioritize our key health focus areas for the next 3 years.

Data Collection Methods

Primary Data – Collection of New Data via Community Health Surveys

BCHD developed and conducted community surveys in Baltimore City in 2009 and 2014. These Community Health Surveys (CHSs) were modeled on national surveys like the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System (BRFSS). The sampling strategy involved targeting both cellphone and landline users in Baltimore City.

The goals of the 2014 CHS were to 1) assess the health status and needs of city residents, 2) identify gaps in access to health services, 3) assess the use and perception of the Affordable Care Act (ACA) and the Maryland Health Insurance Exchange, and 4) assess the use and perception of city health services. A total of 1,722 respondents completed the 2014 survey. A summary of the 2014 CHS findings and methods is available at <http://health.baltimorecity.gov/stats-and-data>.

Secondary Data – Review and Analysis of Existing Data

Every 3-5 years the Baltimore City Health Department does a thorough review and reporting of social, economic, physical, and health indicators for neighborhoods in the city, and for the city as a whole, in the Health Department's Neighborhood Health Profiles (NHPs). Originally compiled in 2008, with the most recent revision released in early 2017, the NHPs use a variety of data sources, including the Maryland Vital Statistics Administration at the Department of Health, the United States Decennial Census, the American Community Survey, the Baltimore Neighborhood Indicators Alliance, the OpenBaltimore Data Portal, and more. The profiles provide a variety of health-related outcome information including demographic information, factors related to the socioeconomic and built environments, and health outcomes. For this report, some NHP data has been aggregated at the city level. The technical notes in Appendix B give additional details on data points and how they were calculated.

Community Conversations

In 2016, BCHD began to hold a series of community conversations around high priority health issues for city residents and stakeholders. The topics for these conversations came about from the 12-month listening tour completed by BCHD leadership in 2015. During this time, the Health Commissioner and members of the

Community Health Assessment

senior leadership team conducted a comprehensive listening tour, meeting with representatives of healthcare institutions, local businesses, universities, and many others. BCHD will continue to meet with the community to discuss major health issues affecting our city including chronic disease, substance use, mental health, violence prevention, care for seniors, and the importance of the core public health services. The purpose of these conversations is to discuss with the community services offered around these areas, identify additional local services that tackle these issues, and generate meaningful dialogue with the community about these issues.

Photos of two Baltimore City Health Department Community Conversations



March 29, 2017



June 20, 2017

Community Health Needs Assessments Review

Between 2015 and 2016, seven hospitals within Baltimore City conducted extensive quantitative and qualitative data collection and analysis as a part of their Community Health Needs Assessment (CHNA) processes. In the summer of 2017, BCHD and the local hospitals began work to develop and conduct a joint assessment moving forward. These hospitals include Sinai Hospital, MedStar Harbor Hospital, St. Agnes Hospital, University of Maryland Medical Center, Mercy Medical Center, Johns Hopkins Hospital, and Bon Secours.

These hospitals used a variety of data collection methods including focus groups, paper and online surveys, stakeholder retreats, and key informant interviews. In total, these hospitals received valuable feedback from over 5,000 city residents and stakeholders. For the purposes of the present assessment and in an effort to reduce survey fatigue and overburdening of our city residents and stakeholders, BCHD synthesized the CHNA qualitative data collected by the seven hospitals. The results are included within the narrative of each section in this profile as appropriate.

Health Disparities and Systemic Discrimination

The health of Baltimore City residents cannot be understood without recognizing and understanding the impact of systemic discrimination on the community. Due to institutionalized discriminatory policies, like the Federal Housing Administration's "redlining", Baltimore City has significant racial and economic health disparities.

While the overall mortality rate in Baltimore City has declined over the past decade, the City has a crude mortality rate about 30% higher than the rest of Maryland ¹, and ranks last on key health outcomes compared to other jurisdictions ². We also see disparities between predominantly black and predominately white neighborhoods within Baltimore City. A comparison between the areas with the highest life expectancy and those with the lowest life expectancy in Baltimore City shows a staggering 20-year difference ³. Accordingly, throughout this assessment, we report many indicators by race, income level, and other factors to illustrate where large disparities exist.

Demographics

Baltimore City Demographics*

Total population (2016)[†]	614,664
Age group	
0-17 years	21.2%
18-24 years	11.3%
25-44 years	30.1%
45-64 years	25.3%
65+ years	12.1%
Sex	
Male	47.1%
Female	52.9%
Race/Ethnicity	
Black or African American	62.8%
White	30.3%
Asian	2.6%
Some other race [‡]	2.0%
Two or more races	2.3%
Hispanic or Latino of any race [§]	4.6%

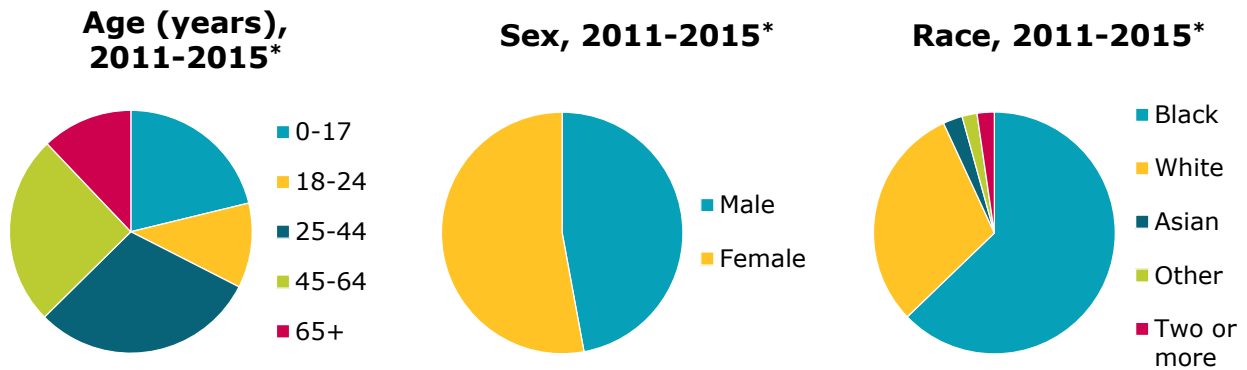
* Source unless otherwise noted: American Community Survey (2011-2015 5-year estimates).

[†] Source: US Census, Population Estimates Program, Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties, and Puerto Rico Commonwealth and Municipios: April 1, 2010 to July 1, 2016 (PEPAGESEX).

[‡] "Some other race" includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and choosing other races as an option on the census.

[§] Hispanic or Latino ethnicity overlaps with race categories.

Percentage of children in single-parent households*	64.8%
Percentage of population who report speaking English less than "very well"*	3.4%



The current estimated population of Baltimore City is 614,664. According to the American Community Survey 2016 ⁴, the city’s population is 63.3% Black/African American, 31.4% White, 2.8% Asian, 2.0% other, 2.3% two or more races, and 5.1% Hispanic/Latino. The population is 53.0% female. Twenty-one percent of Baltimore City’s population is under 18 years of age, 66.7% between 18-64 years, and 12.1% over 65 years. Since 2010, the population of children under five has increased slightly. The population of adults 25-34 also rose. The median age of Baltimore City residents was 34.5 in 2014 ⁴. Nearly 65% of children live in single-parent households and 3.4% of the population report speaking English less than “very well” ⁴.

Mapping of demographic characteristics in Baltimore reveal that racial and ethnic groups concentrate in different locations within the city. According to 2011-2015 ACS 5-Year Estimate data (Table DP05), only one census tract is more than 90% white, non-Hispanic, and is located in the South Baltimore Community Statistical Area (CSA). The same data indicate that all census tracts in the Edmondson Village and Greater Rosemont CSAs are over 95% black, non-Hispanic. The most diverse CSAs - based on these data and the following criteria: between 30% and 60% of the population white, non-Hispanic; between 30% and 60% of the population black, non-Hispanic; and over 10% of the population Hispanic or Latino - are Patterson Park North & East and Brooklyn/Curtis Bay/Hawkins Point ⁴.

The segregation reflected in these residential patterns is not unique to Baltimore. However, policies such as the city’s “West Ordinance,” passed by the Baltimore City Council in 1910 which prohibited black residents moving into white neighborhoods and white residents moving into majority black neighborhoods ⁵, are a major factor in the segregation still seen in Baltimore neighborhoods today. Additionally, in the 1930’s the federal Home Owners’ Loan Corporation produced a series of mortgage market risk appraisals for neighborhoods in U.S. cities where the population was

* Source: American Community Survey (2011-2015 5-year estimates).

greater than 40,000. These appraisals became the basis for residential security maps popularly known as “redlining” maps ⁶. In Baltimore, this resulted in areas that were predominantly black to be considered “high risk”, making it difficult for black residents to purchase homes and build wealth through home equity ⁷.

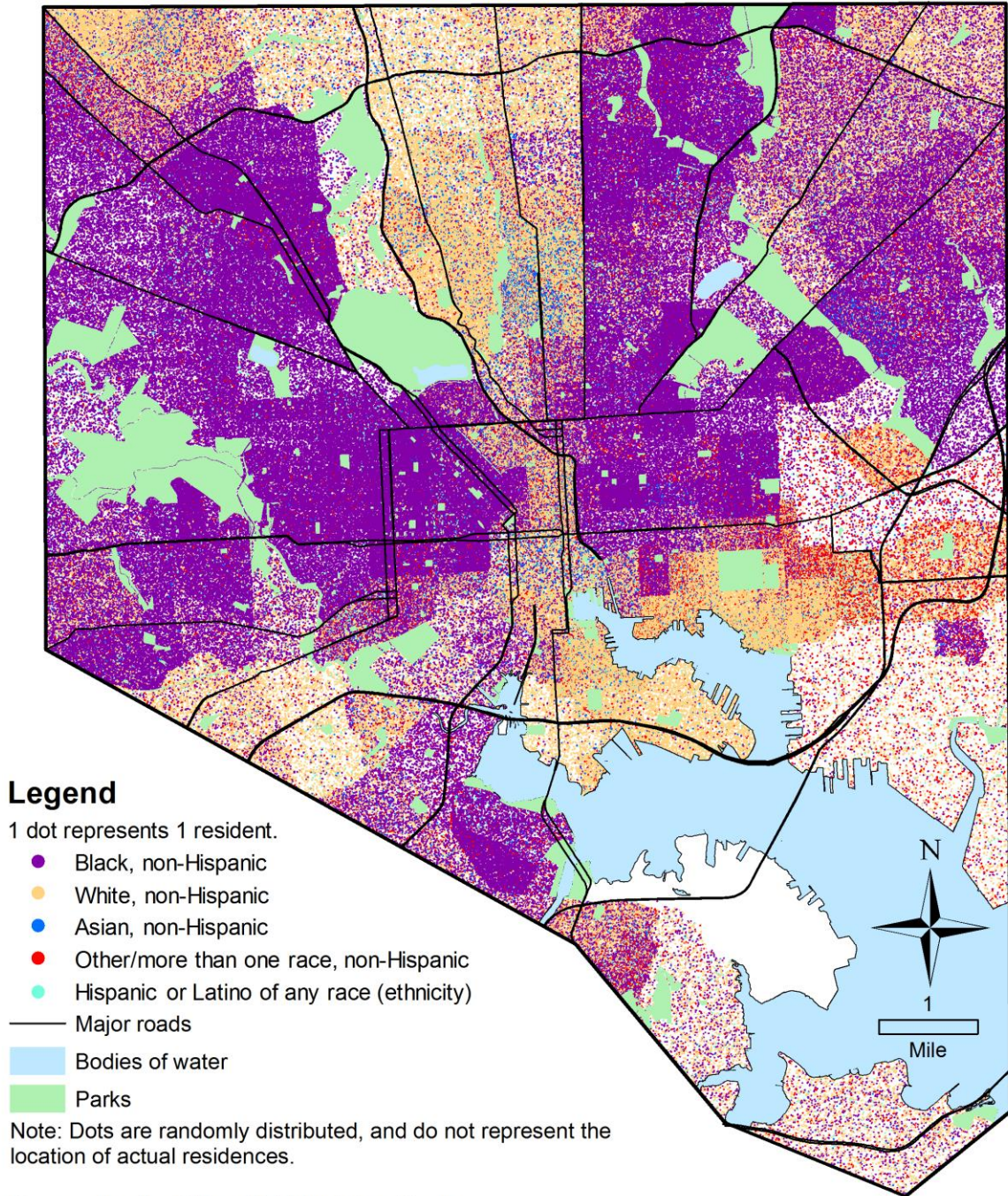
The Joint Center for Political and Economic Studies and the Baltimore Place Matters Team compiled a report on health inequities in Baltimore in 2014. This report found that residents living in minority and low-income neighborhoods face challenges in leading healthy lives due to the socioeconomic and environmental conditions in their neighborhoods ⁷. The figure on the next page depicts the racial and ethnic distribution of Baltimore City residents. Regions with a high density of purple dots are mostly black; regions with a high density of beige dots are mostly white ⁷.

Hispanic/Latino Population

Although the Hispanic/Latino population is currently only 4.6% of the overall Baltimore City population, it is the fastest growing ethnic group with predictions that its population will increase up to 50% by mid-century, warranting special mention in this report ³. According to 2011-2015 ACS 5-Year Estimates data (Table DP05), census tracts with high percentages of Hispanic/Latino residents are concentrated in East Baltimore - Patterson Park North and East, Highlandtown, Orangeville/East Highlandtown, and Southeastern, for example - but also exist in other parts of the City, such as Brooklyn/Curtis Bay/Hawkins Point, Claremont/Armistead, and Fells Point ⁴.

The Baltimore City Health Department Latino Health Report, published in 2011, highlighted some unique positive health features of the Hispanic/Latino population, among which were lower rates of smoking and a lower mortality rate. Unfortunately, this population also has an increased risk of being uninsured, and higher rates of binge alcohol consumption, and unintentional injury and death ^{8,9}.

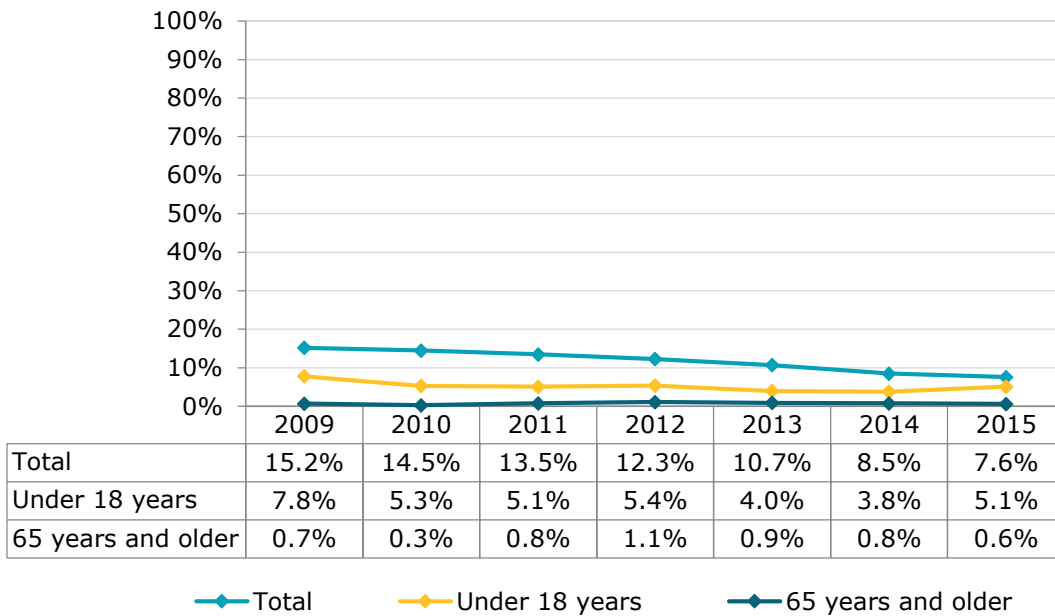
Geographic Distribution of Residents by Race and Ethnicity, Baltimore City, 2011-2015



Prepared by the Office of Epidemiology Services,
Baltimore City Health Department, August 2017.
Source: Table DP05: ACS DEMOGRAPHIC AND HOUSING ESTIMATES,
2011-2015 American Community Survey 5-Year Estimates, census tract-level data

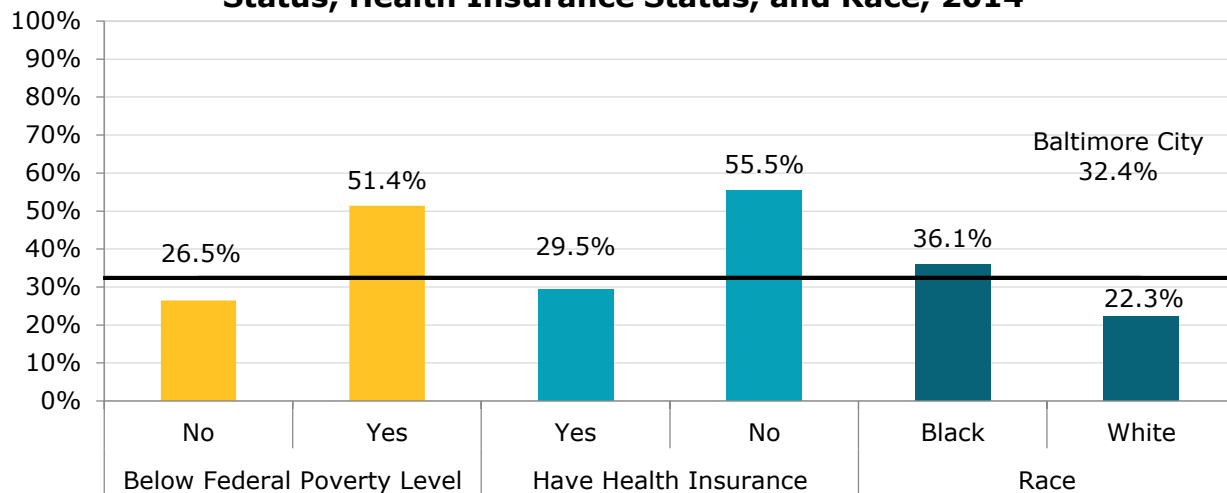
Health Insurance

Percentage of Residents That Do Not Have Health Insurance by Age Group, Baltimore City, 2009-2015



Source: American Community Survey (2011-2015 5-year estimates).

Percentage of Residents who Normally Seek Healthcare in an Urgent Clinic or Emergency Department by Poverty Status, Health Insurance Status, and Race, 2014



Source: Baltimore City Health Department 2014 Community Health Survey.

The overall numbers of Baltimore City residents without health insurance has been steadily decreasing since the implementation of the Affordable Care Act (ACA or “Obamacare”) in 2014. Data collected from the Baltimore Community Health Survey demonstrates that those who live below the Federal Poverty Level or do not have health insurance tend to use emergency/urgent health services more than those with income above the Federal Poverty Level or who have insurance ¹⁰. The

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data also shows that black residents are more likely to seek healthcare from these emergency/urgent services compared to residents of other races ¹⁰.

The ACA has extended Medicaid benefits as well as private insurance subsidies to those in the lowest income brackets. Previously, many low-wage jobs did not offer health insurance to their employees, and individual policies were oftentimes too expensive for people to afford. A couple of the most prominent effects of attaining health insurance are financial stability and some small improvement in mental health outcomes ¹¹. "Given the complexity of the impact of social determinants of health on health outcomes, it may take years to realize discernable health improvements at the population level" ⁹.

According to the 2014 Baltimore Community Health Survey, respondents reported the following with regard to health insurance:

- The disparity in health insurance coverage in 2014 between Black respondents and White respondents decreased compared to the 2009 survey. Blacks without health insurance have seen a decrease from 22% in 2009 to less than 10% in 2014. Among White respondents the decrease has been from 10% to approximately 7% without insurance.
- Fourteen percent of respondents reported obtaining health insurance through the ACA or the Maryland Health Insurance Exchange.
- In 2014, only 10% of respondents reported being unable to get the medical care they needed in the past 12 months, compared to 22% in 2009.

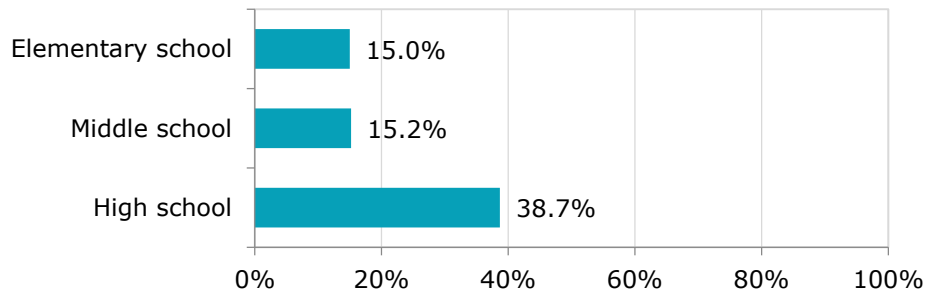
Qualitative analysis from the 2016 Johns Hopkins/Bayview CHNA indicated that while most community residents had health insurance, for those who were uninsured the most common reasons were cost (29.6%) and an assumption that they were unable to qualify for insurance (25.4%). Community leaders felt that fear and a lack of trust affected insurance status among community residents ¹².

Educational Environment

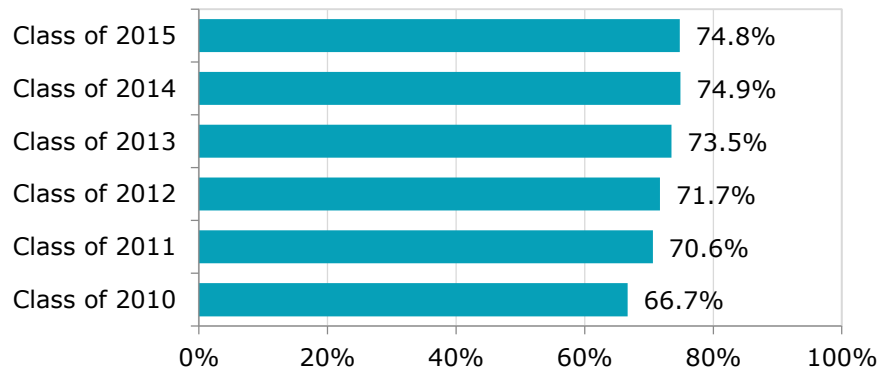
Baltimore City Educational Environment

Percentage of kindergartners “fully ready” to learn*	77.6%
Percentage of 3 rd graders at “proficient or advanced” reading level [†]	55.6%
Percentage of 8 th graders at “proficient or advanced” reading level [†]	54.9%

Percentage of Students who Missed 20 or More School Days in the Previous School Year by School Level, 2013-2014[‡]



Graduation Rate, Classes of 2010-2015[§]



Percentage of residents 25 years and older with a high school degree or less**	47.2%
Percentage of residents 25 years and older with a bachelor’s degree or more**	28.7%

* Source: Baltimore Neighborhood Indicators Alliance via the Baltimore City Public School System (2012-2013). The percentage of kindergartners rated as demonstrating readiness to learn in composite scoring.

[†] Source: Baltimore Neighborhood Indicators Alliance via the Baltimore City Public School System (2013-2014). The percentage of 3rd and 8th graders who are reading at “Proficient” or “Advanced” level in Baltimore City.

[‡] Source: Baltimore Neighborhood Indicators Alliance via the Baltimore City Public School System (2013-2014). The percentage of elementary, middle, and high school students who missed 20 or more days of school in Baltimore City.

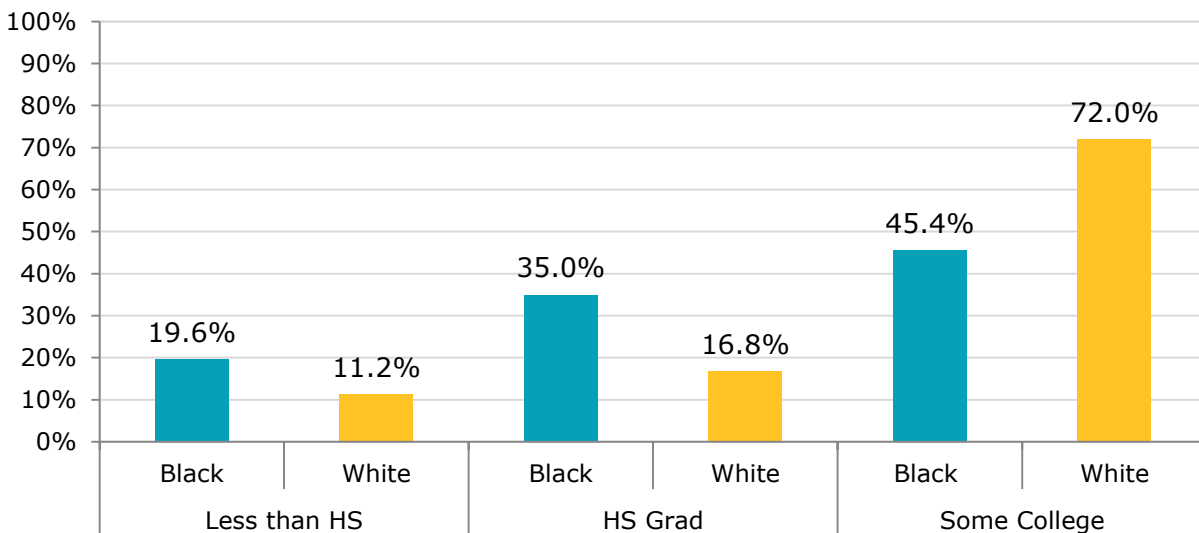
[§] Source: Maryland State Department of Education, 2016 Maryland Report Card.

** Source: American Community Survey (2011-2015 5-year estimates).

Education is a strong indicator of occupational status and income, which also affects health status. For example, Americans with higher education levels also report higher earnings and lower unemployment rates ^{7,13,14}.

In 2015, 17.5% of Baltimore City residents aged 25 years and older did not possess a high school diploma or equivalency ¹⁵. While 28.7% of residents aged 25 years and older held a bachelor's or graduate degree ¹⁵. Over 23% of residents live in poverty, including 34.2% of children under 18 years of age ¹⁶. The percentage of kindergartners "fully ready to learn" is 77.6%. The percentage of third graders at "proficient" or "advanced" reading level is 55.6% and the percentage of 8th graders at "proficient" or "advanced" reading level is 54.9%. According to the 2013 CDC Health Disparities and Inequalities Report, persons with low levels of education and income generally experience increased rates of mortality, morbidity, and risk-taking behaviors and decreased access to and quality of health care. In Baltimore City, the percentage of students missing 20+ days of school is 15% among elementary students, 15.2% among middle school students, and 38.7% among high school students. There is strong evidence that school absenteeism increases the likelihood of dropping out prior to graduation and also puts students at increased risk for substance abuse, gang involvement, and criminal activity ¹⁷. Despite the percentage of missed school days, the graduation rate in Baltimore City has been steadily increasing from 66.7% in 2010 to 74.8% in 2015.

Percentage of Educational Attainment by Race, Baltimore City, 2014



Source: Baltimore City Health Department Community Health Survey, 2014.

From the 2014 Baltimore Community Health Survey:

- Fifty-three percent of the survey respondents reported having some college level education, with White respondents being 27% more likely to have had some college education than Black respondents.
- White respondents were more than 3 times as likely to be in the highest income group as Black respondents.
- Sixteen percent of all respondents reported some history of incarceration.

Socioeconomic Environment

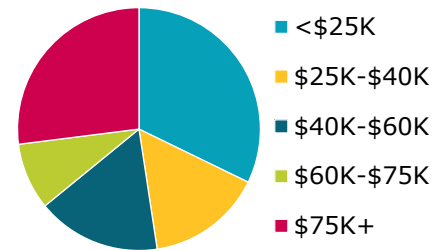
Baltimore City Socioeconomic Environment

Median Household Income* \$41,819

Percentage of all households in Baltimore City whose annual household income is in the following range:*

Up to \$24,999	32.2%
\$25,000-\$39,999	15.4%
\$40,000-\$59,999	16.5%
\$60,000-\$74,999	8.9%
\$75,000 and over	27.0%

Household Income, 2011-2015

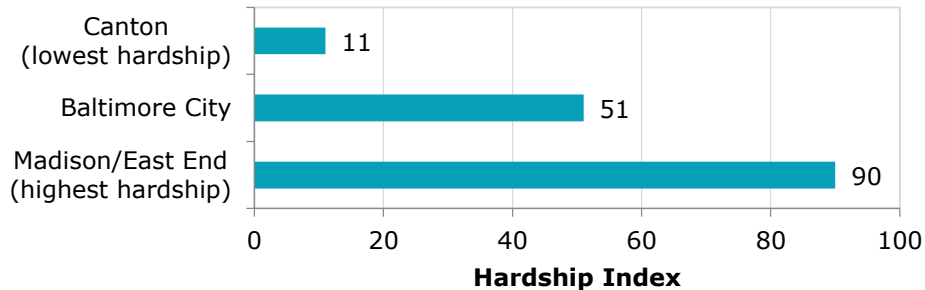


Percentage of work force 16 years and older unemployed 13.1%

Percentage of families with children under 18 years old in poverty 28.8%

Hardship Index† 51

Hardship Index, Two Neighborhoods vs. Baltimore City Overall, 2011-2015



The median household income in Baltimore City was \$41,819 in 2014¹⁶. The per capita income was \$25,290¹⁶. The percentage of workforce 16 years and older that

* Source: American Community Survey (2011-2015 5-year estimates).

† The Hardship Index combines information from six socioeconomic indicators - housing, poverty, unemployment, education, income, and dependency. Please see Technical Notes for details on the Index and how it was calculated. Estimates are presented for Baltimore City. (The Index ranges from 100 = most hardship to 1 = least hardship). See Technical Notes for details.

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are unemployed is 13.1%, and the percentage of families with children under 18 years old that live in poverty is 28.8%.

Income plays a significant role in the health of Baltimore City residents ¹⁵. About one-third of Baltimore households earn less than \$25,000; these households are more likely to be uninsured and have unmet medical needs. There are also areas of enormous health disparities comparing the lowest income earners (less than \$15,000) and the highest income earners (greater than \$75,000). According to the Behavioral Risk Factor Surveillance System (BRFSS) survey ²⁰, there are disparity ratios of 35.8 to 1 for no health insurance coverage, 25.3 to 1 for unmet healthcare needs, and 6.8 to 1 for 'poor' or 'fair' health status. It is well documented that level of income directly affects overall health. Disparities among the lowest income earners and the highest income earners were also found to be persistent in childhood asthma (ratio 2.8:1), mental health (ratio 3.2:1), diabetes (ratio 6.8:1), and smoking (ratio 2.3:1) ⁹.

Baltimore City registers a Hardship Index of 51%. The Hardship Index measures the social and economic conditions of communities on a block group level using six indicators including:

- Crowded housing (percent of housing units with more than 1 person per room)
- Poverty (percent of households living below the federal poverty level)
- Unemployment (percent of persons over the age of 16 years that are unemployed)
- Education (percent of persons over the age of 25 years without a high school education)
- Dependency (percent of population that is under age 18 or over age 64 years)
- Income level (median per capita)

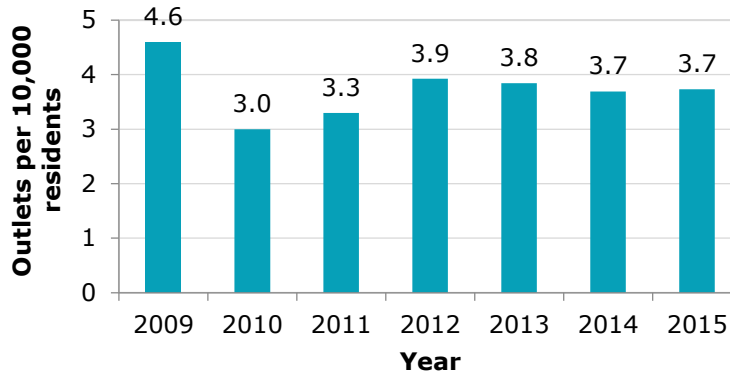
High indices represent higher neighborhood-level economic hardship and scores range from 1-100 with higher scores representing higher relative hardship.

Built & Housing Environments

Baltimore City Built Environment

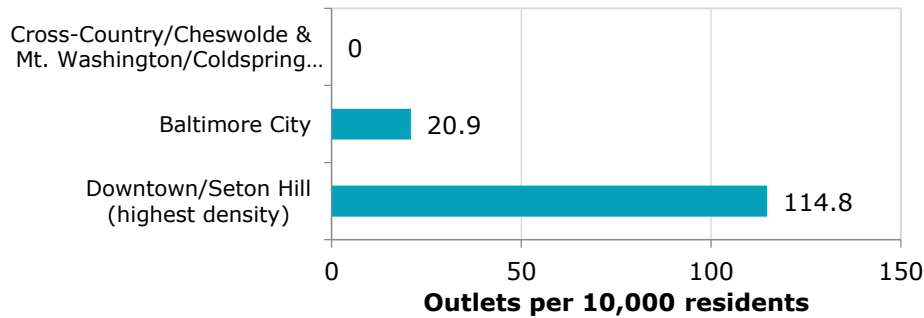
Number of liquor stores per 10,000 residents* 3.8

Liquor Store Density, 2009-2015



Number of tobacco stores per 10,000 residents† 20.9

Tobacco Store Density, Two Neighborhoods vs. Baltimore City Overall, 2016



Percentage land covered by green space‡ 33.1%

Percentage land covered by pavement§ 25.5%

Percentage land zoned industrial** 23.4%

Rate of rat complaints per 10,000 households†† 408.8

* Source: Baltimore City Liquor Board via OpenBaltimore Data Portal (2015).

† Source: Maryland Office of the Comptroller (2016).

‡ Source: Baltimore City Department of Planning (2007 canopy map file, 2008 vegetation map file), Baltimore City Department of Recreation and Parks (2016 park area map file).

§ Source: Baltimore City Department of Planning (2009 street area map file).

** Source: Baltimore City Department of Planning (2008).

†† Source: Mayor's Office of Information Technology via OpenBaltimore data portal (2016). The number of citizen-generated service requests to 311 regarding rats per 10,000 households for Baltimore City. Includes requests submitted by any method (e.g., phone, internet, mobile app).

It is well known that the quality of the built environment and housing stock has an effect on the health and wellbeing of its residents ⁷. Previous studies have suggested that neighborhood conditions and characteristics can predict crime rate. For example, a high density of vacant buildings and liquor stores in a neighborhood typically coincide with higher crime rates in that neighborhood ²¹. Community characteristics that can signify risks to health and wellbeing include liquor stores, the numbers of vacant buildings, the rate of pest complaints, the rate of lead violations, and the percentage of those that do not own their own home ⁷. The average annual lead paint violation rate per 10,000 households in Baltimore City is 9.8, the vacant lot density per 1,000 housing units is 677.3, and vacant building density per 10,000 housing units is 562.4. Areas with higher lead exposure in children often have higher arrest rates. Research done by Place Matters demonstrated a correlation between communities with high levels of liquor stores, lead paint exposure, vacant lots and vacant houses, violent crime, non-fatal shootings, and homicides ⁷.

Analysis from the 2011 Transform Baltimore Health Impact Survey²¹ showed:

- Liquor stores in Baltimore are disproportionately located in majority black neighborhoods.
- Areas that are predominantly black and low income have more liquor stores per capita than other neighborhoods, have the worse health outcomes, and have a higher homicide mortality rate.

According to BCHD’s Healthy Baltimore 2015 Interim Status Report May, 2016 ²³:

- Between 2009 and 2015, the number of liquor outlets per 10,000 residents has decreased by almost 15%.
- However, there has not been a significant decline in vacant building density during that same time period.

Baltimore City Housing Environment

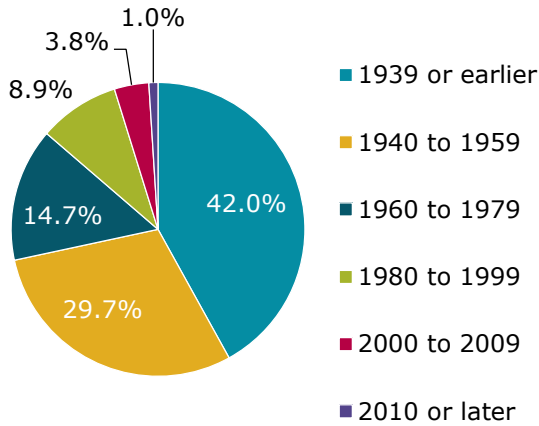
Average annual lead paint violation rate per 10,000 households*	9.8
Vacant lot density per 10,000 housing units [†]	677.3
Vacant building density per 10,000 housing units [‡]	562.4

* Source: Baltimore City Health Department Lead Program (2006-2015). The number of lead paint violations per 10,000 households per year in Baltimore City.

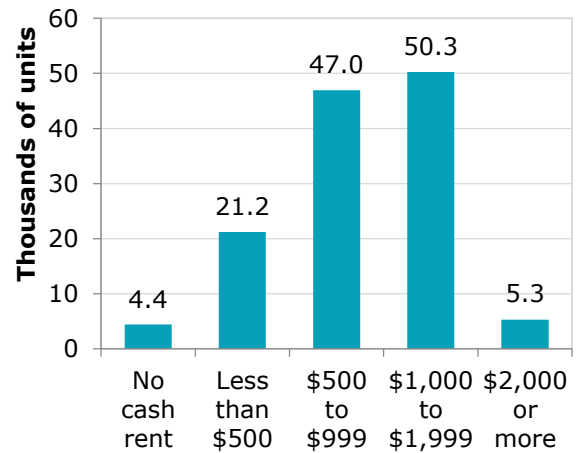
† Source: Mayor’s Office of Information Technology via Baltimore Department of Housing and Maryland State Department of Assessments and Taxation (2016). The number of vacant lots per 10,000 housing units in Baltimore City.

‡ Source: Housing Authority of Baltimore City via OpenBaltimore Data Portal (2016). The number of vacant buildings per 10,000 housing units in Baltimore City.

Year of Construction of Housing Units, 2011-2015*



Gross Rent for Renter-Occupied Units, 2011-2015*



Homelessness

Point-in-Time Count, Baltimore City, 1/22/2017[†]

Total Households and Persons

	Sheltered			Unsheltered	Total
	Emergency	Transitional	Safe Haven		
Total Number of Households	923	848	15	536	2,322
Total Number of Persons	1,124	984	15	546	2,669
Number of Children under 18 Years	190	137	0	2	329
Number of Persons 18 to 24 Years	45	38	0	27	110
Number of Persons over 24 Years	889	809	15	517	2,230

According to the most recent Baltimore City Point-in-Time Count, as of January 22, 2017, there were 2,699 people estimated to be homeless in Baltimore City²⁴. Seventy-two percent are male, 28% female, and 83% are African American. Forty-four percent have a substance abuse disorder, 22% suffer from mental illness, and

* Source: American Community Survey (2011-2015 5-year estimates).

[†] Source: Baltimore Point in Time Count, January 22, 2017 Preliminary Report; Baltimore Mayor’s Office of Human Services.

Community Health Assessment

4% have HIV/AIDS ²⁴. The percentage of people experiencing homelessness has decreased by 5% since 2015, and the number of homeless veterans has decreased by 26% ²⁴. However, the unsheltered count has increased by 62% ²⁴. Reasons for this may include the warmer temperatures, earlier street count time, increased number of volunteers conducting the count, better incentives provided to the volunteers (a \$10 gift card) that increased their willingness to work and changes in survey methodology ²⁴. There has been an increase in the availability of all forms of beds dedicated to homelessness (permanent supportive housing, emergency shelter beds, transitional housing beds, and rapid rehousing). The most significant increase has been in permanent supportive housing beds ²⁴.

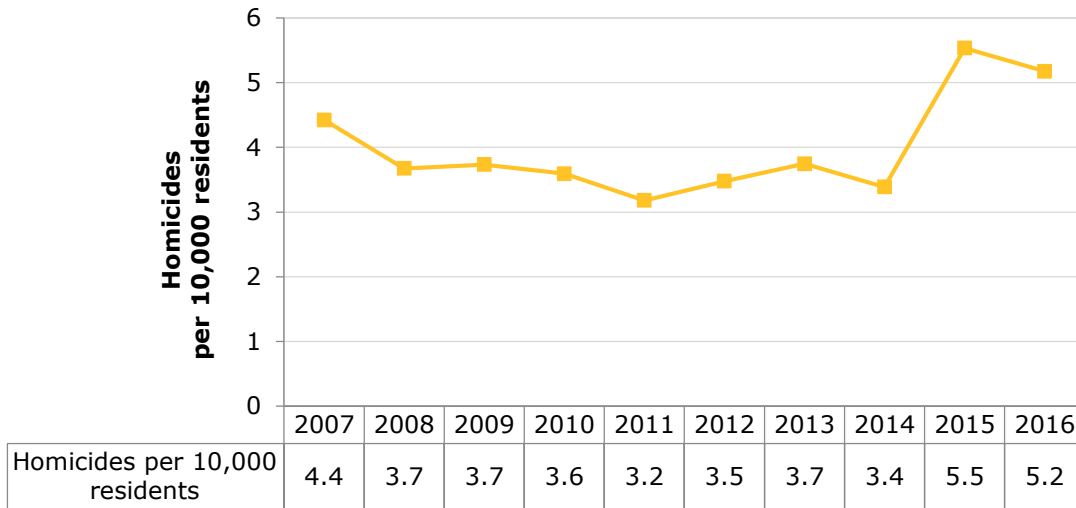
CHNA focus group attendees believed that inexpensive housing in their neighborhoods tends to be in poor condition and that there are insufficient resources for those seeking safe homes. Additionally, they felt that minorities and those with low incomes have difficulty accessing affordable housing that is also clean and safe. The participants also mentioned that companies further limit the availability of affordable housing by purchasing and renovating properties, and then increasing the rent. Participants felt that the limited supply of affordable housing contributes to homelessness ¹².

Safety Environment

Baltimore City Safety Environment

Rate of animal abuse complaints per 10,000 households*	177.4
Non-fatal shooting rate per 10,000 residents†	6.9
Homicide rate per 10,000 residents‡	5.2

Homicide Rate, 2007-2016



Youth homicide mortality rate per 10,000 youth§	31.3
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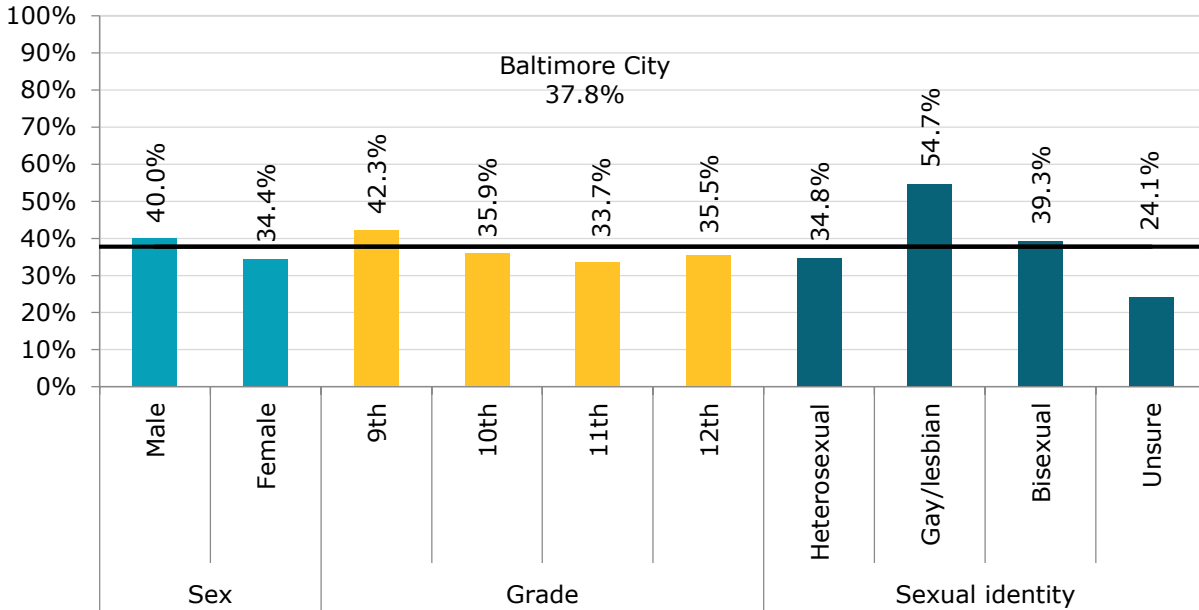
* Source: Mayor’s Office of Information Technology via OpenBaltimore Data Portal (2016). The number of service requests to 311 regarding animal abuse per 10,000 households for Baltimore City. Includes requests submitted by any method (e.g., phone, internet, mobile app).

† Source: Baltimore City Police Department via OpenBaltimore Data Portal (2015). The number of non-fatal shootings per 10,000 residents (all ages) per year in Baltimore City. Data are based on the location of the incident, not the residence of the victim(s).

‡ Source: Baltimore City Police Department via OpenBaltimore Data Portal (2015). The number of homicides that occurred per 10,000 residents (all ages) per year in Baltimore City. Data are based on the location of the incident, not the residence of the victim(s).

§ Source: BCHD calculations of data provided by Maryland Department of Health and Mental Hygiene Vital Statistics Administration (2010-2014). The rate of death due to homicide that occurred per 100,000 youth under 25 years old in Baltimore City. Data are based on the residence of the victim(s), not the location of the incident.

Percentage of High School Students who Were in a Physical Fight at Least Once in the Past 12 Months by Sex, Grade, and Sexual Identity, Baltimore City, 2015



Source: CDC Youth Risk Behavior Surveillance System: Youth Online.

Data shows that there has been a considerable increase in the homicide rate, with the rate increasing from 3.4 homicides per 10,000 residents in 2014 to 5.2 in 2016. The youth homicide mortality rate is 31.3 per 10,000. As with the rest of the United States, homicides and non-fatal shootings are the leading cause of morbidity and mortality in youth aged 15-24 years ²⁵.

Among high school students in Baltimore City, over one-third report having been in a physical fight at least once in the last year. Males are slightly more likely to have been in a fight than females. The data also demonstrates a notable disparity between gay/lesbian students vs. heterosexual students (55% vs. 35%, respectively) for having been in a physical fight at least once in the last 12 months.

Community concerns about the level of violence, crime, and safety were strongly expressed by respondents in the Sinai Hospital and Bon Secours CHNA focus groups and surveys ^{26,27}, with 30% of respondents reporting that it is unsafe to exercise outdoors in their neighborhoods ^{26,27}. As a result, these hospitals have included violence and crime prevention, as well as addressing violence-related trauma, in their implementation plans. The increase in homicides and the violence after the 2015 unrest, following the death of Freddie Gray, were reflected in the survey responses.

Neighborhood leaders recognized that safety is a major concern for Baltimore City parents. They discussed how children are frequently prohibited from going outdoors to avoid unsafe environments and that urban decay is rampant in the city, often attracting illegal and undesirable activities. Focus group attendees mentioned that there is frequent exposure to violence, alcohol abuse, and drugs in their

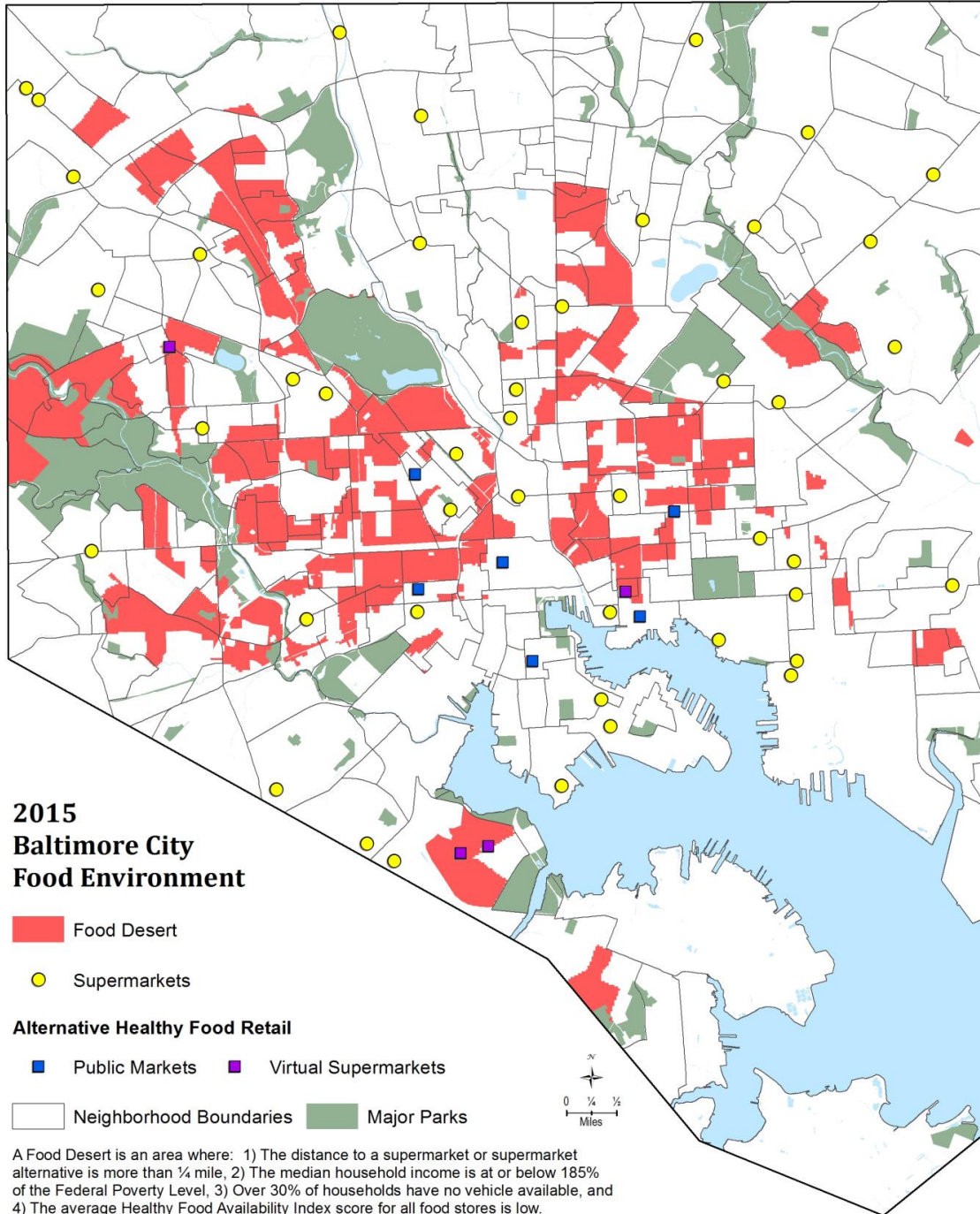
neighborhoods and that community members also regularly face exposure to domestic violence and other assaults ^{12,18,19}.

Food Environment

Baltimore City Food Environment

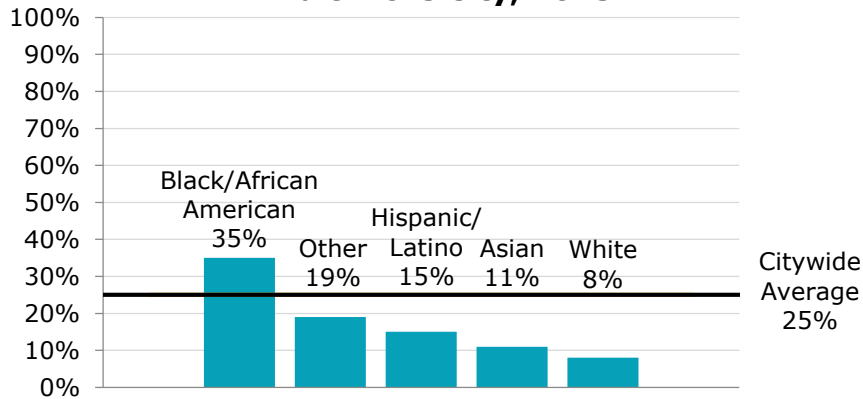
Percentage of land covered by food desert*

12.5%



* Source: Johns Hopkins Center for a Livable Future (2015). The percentage of land area that is covered by a food desert in Baltimore City. Please see Technical Notes for the definition of a food desert.

Percentage of Residents Living in Food Deserts by Race/Ethnicity, Baltimore City, 2015*



Number of carry-out restaurants per 10,000 residents [†]	11.4
Number of corner stores per 10,000 residents [‡]	14.1
Number of fast food restaurants per 10,000 residents [§]	2.5

Data in Baltimore City shows that the percentage of land covered by a food desert is 12.5%²⁸. A food desert is an area where the distance to a supermarket is more than ¼ mile; the median household income is at or below 185% of the Federal Poverty Level; over 30% of households have no vehicle available; and the average Healthy Food Availability Index score for all food stores is low. As the above figure indicates, areas that qualify as a food desert are also predominantly African American neighborhoods. The percentage of African Americans who live in a food desert is 35% compared to a city average of 25%. For Hispanic/Latino residents, it is 15%, Asians 11%, and Whites 8%. The number of carryout restaurants per 10,000 residents is 11.4, the number of corner stores per 10,000 residents is 14.1 and the number of fast food restaurants per 10,000 residents is 2.5.

According to the 2014 Community Health Survey¹⁰:

- Respondents in the lowest two income categories were five times as likely as respondents in the highest two income categories to live more than 15 minutes from the nearest grocery store.
- Those that reported having diabetes were more than twice as likely to live 15 minutes or more from the nearest grocery store than respondents who did not report diabetes.

* Source: Johns Hopkins Center for a Livable Future: Mapping Baltimore City’s Food Environment: 2015 Report.

[†] Source: BCHD Open Food Facilities Permit/License Database (2016). The number of carry-out restaurants per 10,000 residents in Baltimore City.

[‡] Source: Johns Hopkins University, Center for a Livable Future Food Stores list (2016). The number of corner stores per 10,000 residents in Baltimore City.

[§] Source: BCHD Open Food Facilities Permit/License Database (2016). The number of fast food restaurants per 10,000 residents in Baltimore City.

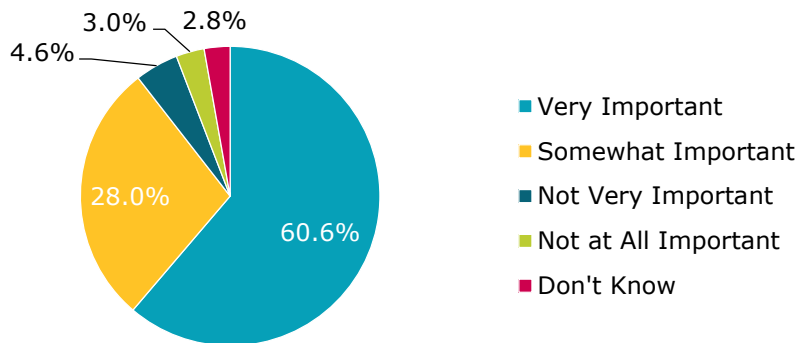
- Respondents that reported having high blood pressure were three times as likely to live 15 minutes or more from the nearest grocery store as respondents who did not report having high blood pressure.

Health Outcomes and Health Behaviors

Baltimore City Maternal and Child Health*

Birth Rate (live births per 1,000 females)	14.3
Teen Birth Rate (live births to females ages 15-19 years per 1,000 females 15-19 years)	42.3
Percentage of Women Receiving Prenatal Care in the 1st Trimester	54.7%
Percentage of Women Who Reported Smoking While Pregnant	10.7%
Percentage of Live Births Occurring Preterm (less than 37 weeks gestation)	12.4%
Percentage of Births Classified as Low Birthweight (LBW, <5lbs, 8oz.)	11.5%

Importance of Breastfeeding for First 6 Months as Reported by Individuals with Children Under 5 Living with Them, 2014[†]

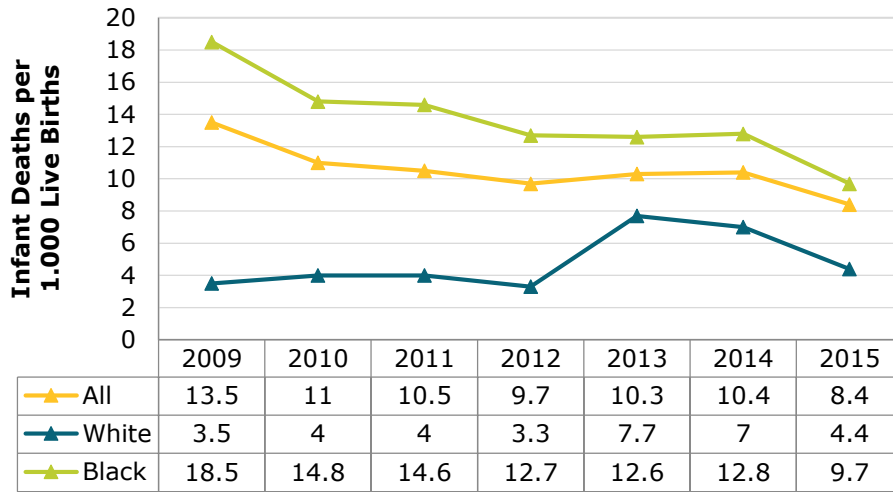


Infant Mortality Rate (IMR) per 1,000 live births (2015)	8.4
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* Source unless otherwise noted: BCHD calculations of data provided by Maryland Department of Health Vital Statistics Administration (years 2010-2014, unless otherwise noted).

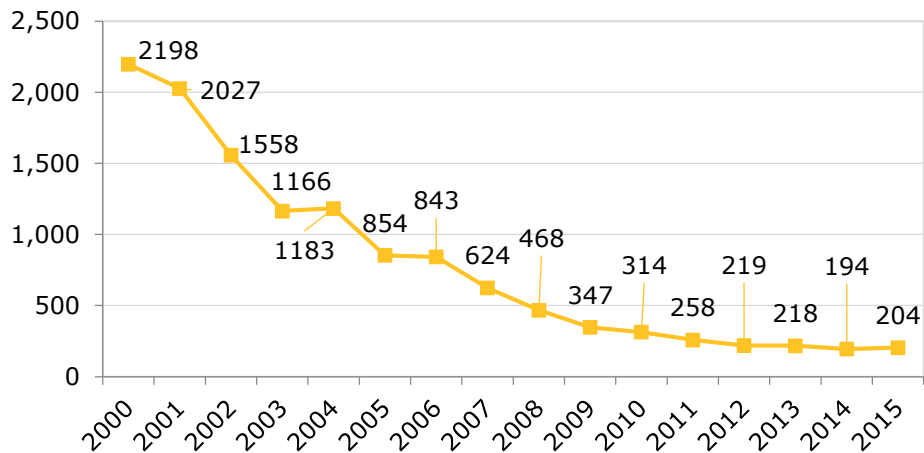
[†] Source: Baltimore City Health Department 2014 Community Health Survey.

Infant Mortality Rate by Race*, 2009-2015



Percentage of Mothers with a Body Mass Index => 30 at Child's Birth*	30.5%
Percentage of children with elevated blood lead levels (> 10µg/dL) among those tested†	1.1%

Number of Cases of Child Elevated Blood Lead Levels (≥10mg/dl), 2000-2015*



In 2014, the number of live births per 1,000 females in Baltimore City was 14.3. The number of live births to females ages 15-19 years per 1,000 females 15-19 years is 42.3. Among all races and ages, teen birth rates have decreased, with a 23.1% overall decrease between 2010 and 2014²³. The infant mortality rate in 2014 was 8.4 per 1,000 live births.

* Source: BCHD calculations of data provided by Maryland Department of Health Vital Statistics Administration (years 2010-2014, unless otherwise noted).

† Source: Maryland Department of Environment Lead Poisoning Prevention Program (2015, unless otherwise noted).

Community Health Assessment

- Between 2009 and 2014, there has been a decrease in the overall infant mortality rate by 23%.
- During that same time period, infant mortality rates among black infants have decreased by 30.8%, but are still double that of white infants.

In 2014, the percentage of women receiving prenatal care in the first trimester was 54.7%. The percentage of women who reported smoking while pregnant was 10.7% ²³.

According to Healthy Baltimore, 2015 ²³:

- Between 2010 and 2014, smoking rates during pregnancy among white women decreased 39%, while increasing by 7.3% in pregnant black women during this same time period.
- Smoking during pregnancy has decreased in women with a high school education or less. However, their rates of smoking during pregnancy are still higher than women with a high school education or higher (176.9 per 1,000 live births vs. 43.3 per 1,000 live births, respectively in 2014).

Lead poisoning

In Baltimore City in 2015, the percentage of children with elevated blood lead levels (EBLLs) among those tested is 1.1%. Childhood lead poisoning can substantially affect the intellectual and emotional development of children, placing them at risk for poor school performance and difficulties throughout adulthood ²². This lead poisoning indicator is the percentage of children ages 0-6 years with EBLLs among all children tested. An EBLL is a level exceeding 10 micrograms (μg) of lead per deciliter (dL) of blood.

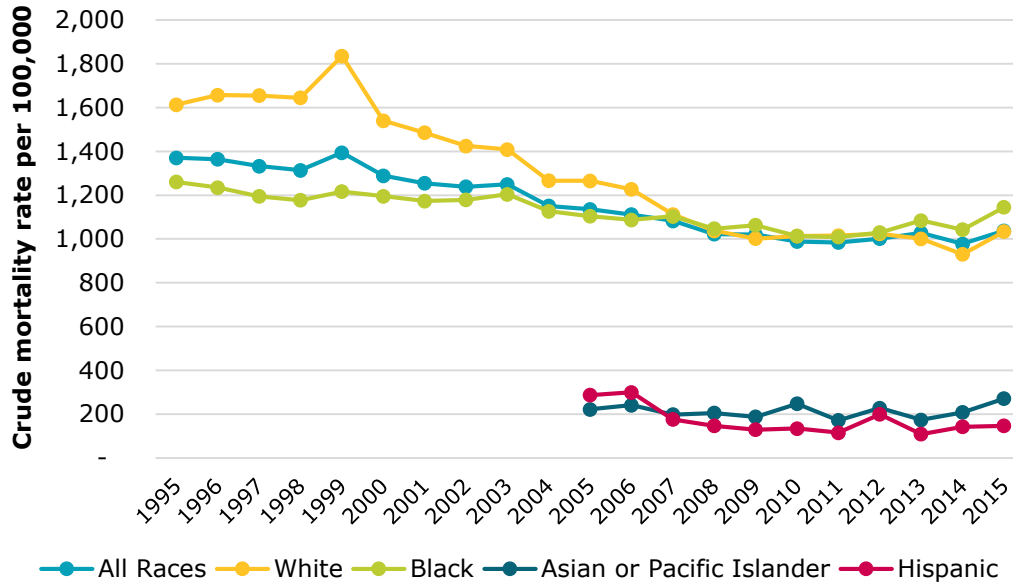
The graph on the prior page shows a consistent decrease in the number of cases of child EBLLs in Baltimore City from 2000-2015.

Baltimore City Mortality and Illnesses

Crude All-cause Mortality Rate (deaths per 100,000 residents)*

1,037.7

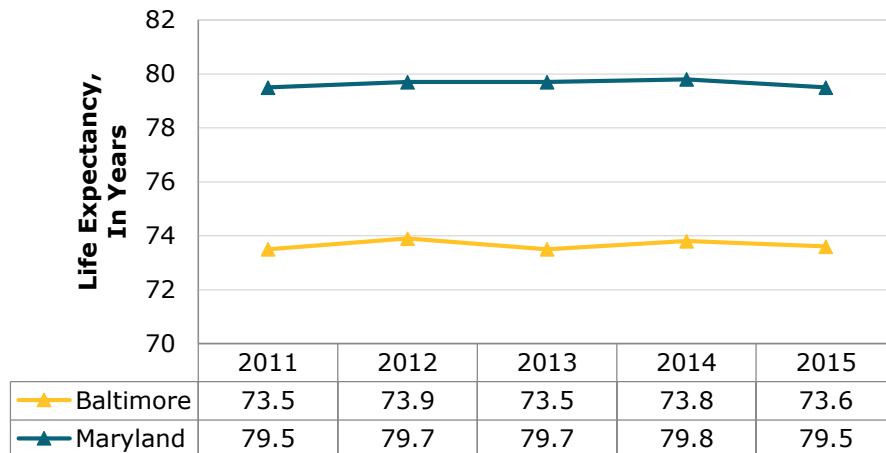
Crude All-Cause Mortality Rate by Race/Ethnicity, 1995-2015*



Life Expectancy at Birth (in years)[†]

73.6

Life Expectancy at Birth, Baltimore City vs. Maryland, 2011-2015*

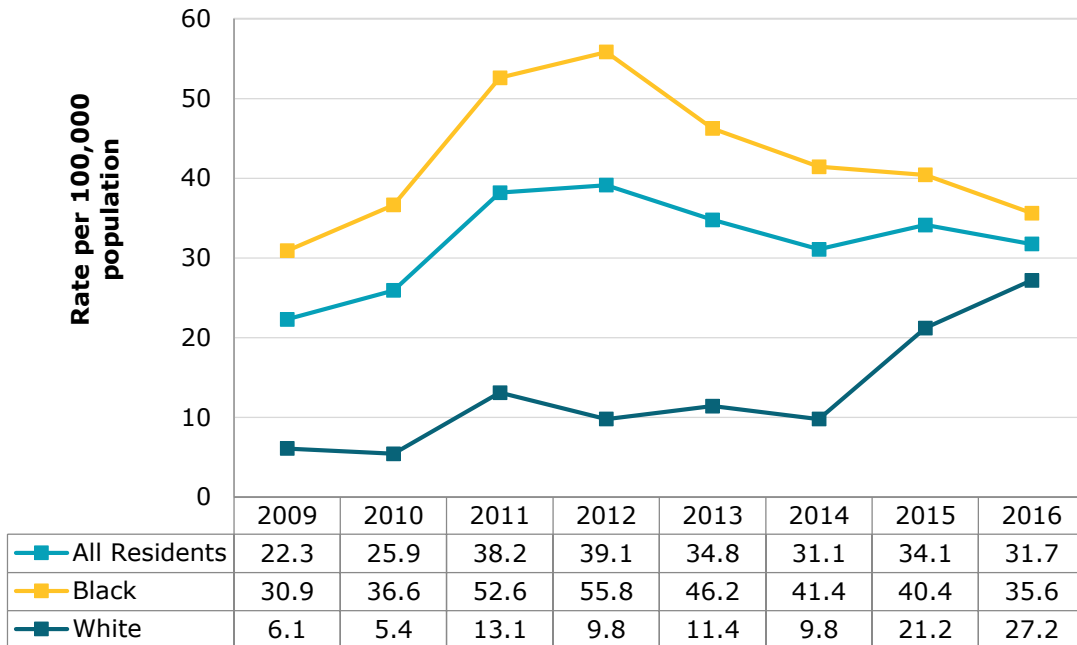


* Source: Maryland Department of Health Vital Statistics Administration Annual Reports (1995-2015). See reports for specific values for each year and group.

† Source: BCHD calculations of data provided by Maryland Department of Health Vital Statistics Administration (2011-2015).

Age-adjusted All-cause Mortality Rate (deaths per 10,000 residents)*	100.3
Rate of Reported Foodborne Illness (cases per 10,000 residents per year)†	4.7
Rate of Hepatitis C (cases per 10,000 residents per year)†	35.0

Primary and Secondary Syphilis Incidence Rates by Race, 2009-2016‡



Life Expectancy

The life expectancy at birth in Baltimore City is 73.6 years but can vary by 20 years between neighborhoods. Life expectancy for the United States in 2014 was 78.8 years. When comparing Baltimore to Maryland, we also see a six-year life expectancy difference with the average life expectancy in the state being 79.5 years²⁹.

While Baltimore City generally has worse health outcomes than the rest of the state, there is also wide internal variability. Clifton-Berea has a life expectancy of 66.9 years (94.9% Black or African American, median income \$25,738) while

* Source: BCHD calculations of data provided by Maryland Department of Health Vital Statistics Administration (2011-2015). Number of deaths per 10,000 residents.

† Source: BCHD calculations of data obtained from Maryland National Electronic Disease Surveillance System (NEDSS) (2011-2015). Number of cases per 10,000 residents per year, based on residence of case.

‡ Source: Baltimore City Health Department Bureau of HIV/STD Services (2009-2016).

Cross-Country/Cheswolde has a life expectancy of 87.1 years (72.9% White, median income \$54,868) ²⁹.

Sexually Transmitted Infections

Syphilis

- In Baltimore between 2009 and 2016, syphilis rates have increased by more than 42% ⁴⁹.
- Rates are much higher comparing males to females and comparing black residents to white residents ²³.
- A similar pattern of increasing syphilis rates is being seen in Maryland and the United States. The Maryland Department of Health noted a 55% increase in syphilis cases across the state between 2009 and 2016 ³¹. Additionally, according to the CDC, syphilis cases across the United States have increased by 58% between 2011 and 2015 ³⁰.

HIV Infections

- New HIV diagnoses in Baltimore have declined by nearly half between 2009 and 2015. This decline was driven by fewer HIV diagnoses in white residents and females. Black residents and males experienced higher HIV diagnoses.
- As of 2015, there are an estimated 12,690 people living with HIV in Baltimore City ³¹.
- In 2016, the Baltimore Metropolitan Statistical Area (MSA), which includes Baltimore, Towson, and Columbia, had the 10th highest estimated HIV diagnosis rate per capita of any major metropolitan area in the United States ³¹.

Gonorrhea and Chlamydia

- Both chlamydia and gonorrhea rates among adolescents have decreased considerably between 2009 and 2015.
 - Rates of chlamydia among youth 10 to 19 years old decreased from 4,779 per 100,000 youth in 2009 to 3,016 per 100,000 in 2015, a reduction of 37% ⁴⁹.
 - Rates of gonorrhea among youth 10 to 19 years old decreased from 1,234 per 100,000 youth in 2009 to 889 per 100,000 in 2015, a reduction of 28% ⁴⁹.
- In 2015, about 1 in 33 adolescents in Baltimore City were infected with chlamydia.

Chronic Disease

Chronic diseases like heart disease, stroke, cancer, type 2 diabetes, obesity, and arthritis are some of the most common, costly, and preventable health problems^{9,32}. Chronic diseases have taken over acute diseases as the leading causes of mortality and illness in the US³² and in Baltimore City. Life expectancy has increased throughout the nation but many of those living a longer life are struggling with poor health. Many individuals suffer from two or more chronic conditions, decreasing quality of life and increasing the burden on the health system³².

- Diabetes and hypertension contribute to heart disease, the leading cause of death in Baltimore City.
- In 2014, the cardiovascular premature death rate (deaths before 75 years of age) among black residents was about 1.6 times that of white residents²³.

Obesity

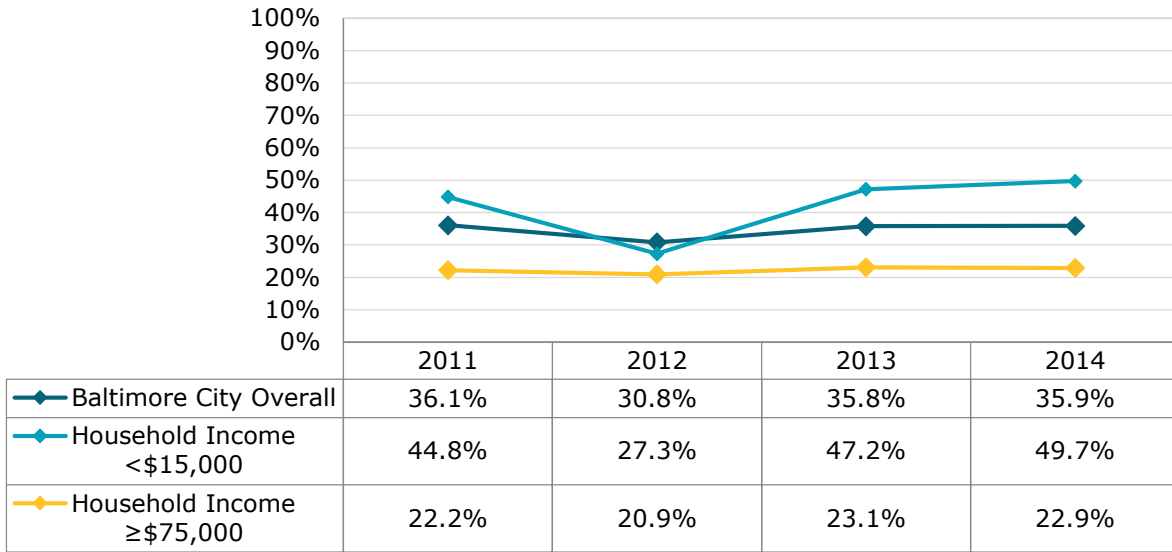
Obesity is linked to many serious health conditions such as high blood pressure, diabetes, and cardiovascular disease and continues to be a major public health issue in Baltimore. As of 2014, approximately one in three Baltimore City residents was obese. While the overall rate of obesity hasn't changed significantly in Baltimore since 2011, there has been a slight increase in obesity in those with a household income of under \$15,000²³.

Obesity can be reduced and prevented by addressing these key social determinants, like:

- Increasing access to healthy foods.
- Increasing physical activity through redesigning communities in a way that promotes numerous safe physical activity opportunities³³.

CHNA focus group participants discussed concerns about obesity in their neighborhoods. They believed that obesity influences both physical and mental health. The participants felt that the limited availability of reasonably priced healthy foods leads to increased obesity. They also believed that crime and unsafe environments hindered residents' ability to exercise, which also contributes to obesity in their communities. Focus group participants recognized the link between diabetes and obesity and knew that healthy habits can help manage the disease. Yet, they felt that lack of access to primary care can make it difficult to diagnosis and treat chronic diseases^{12,18,19,26,27,34}.

Percentage of Population that is Obese (BMI ≥ 30.0) by Household Income, Baltimore City, 2011-2014



Source: Maryland Behavioral Risk Factor Surveillance System, 2011-2014.

Diabetes

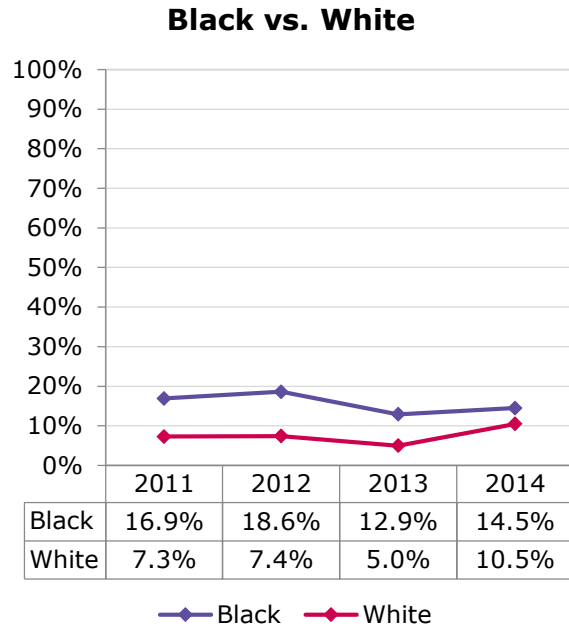
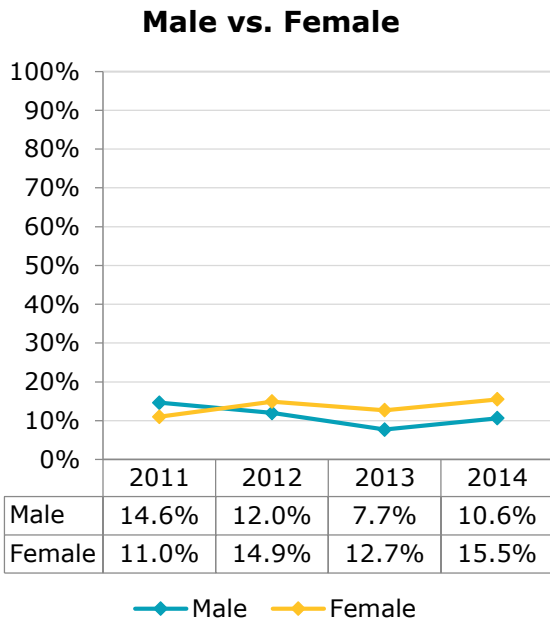
Diabetes and pre-diabetes are serious conditions that can lead to complications including heart disease, stroke, vision loss, amputations, and kidney disease. In Maryland, 10.2%, or 467,041, adults have diabetes ³⁵. Among those without diabetes, 10.5% have been told they have pre-diabetes. According to the CDC, 9 of 10 people don't know they have pre-diabetes ³².

According to the 2014 Community Health Survey

- The percent of respondents that reported having diabetes was 12% in the 2014 survey compared to 14% in the 2009 survey in Baltimore City.
- The rates of hospitalization for diabetes type II and hypertension have decreased by more than 20% between 2010 and 2014 ²³.
- There was a slight increase (5%) in the rate of hospitalization for diabetes type I between 2010 and 2014 ²³.

CHNA focus group participants were knowledgeable about the elevated prevalence of diabetes among African Americans. Many of the participants attributed the high diabetes rates in their communities to dietary habits, limited access to high-quality grocery stores, and the high cost of healthy foods ¹⁸.

Percentage of Residents Reporting that They Had Been Told by a Doctor that They Had Diabetes by Sex and by Race, Baltimore City, 2011-2014



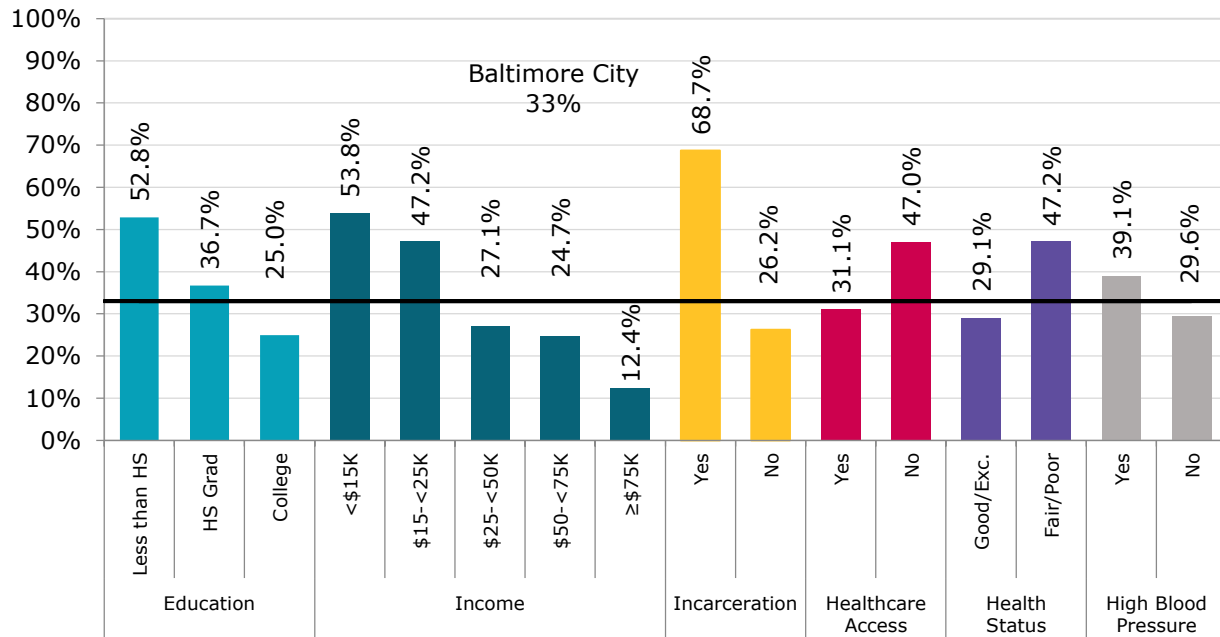
Source: Maryland Behavioral Risk Factor Surveillance System, 2011-2014.

Health Behaviors

Smoking

- Thirty-three percent of respondents reported being current smokers ¹⁰.
- Education has strong links to smoking and there are notable disparities by educational attainment: respondents that have less than a high school education are twice as likely to be smokers as respondents that have some college education ¹⁰.
- Income is also linked with smoking status and there are significant disparities by income level, with respondents in the lowest income group being four times as likely to smoke as individuals in the highest income group.
- There is a large disparity in smoking status by history of incarceration: 69% of individuals that have a history of incarceration are current smokers vs. 26% of individuals with no history of incarceration (more than a 2-fold difference) ¹⁰.
- The percent of Baltimore City high school students who reported smoking in the past month has not changed significantly between 2007 and 2013. It remains slightly under 12% ^{23,36}.

Percentage of Residents who Currently Smoke by Various Factors, Baltimore City, 2014



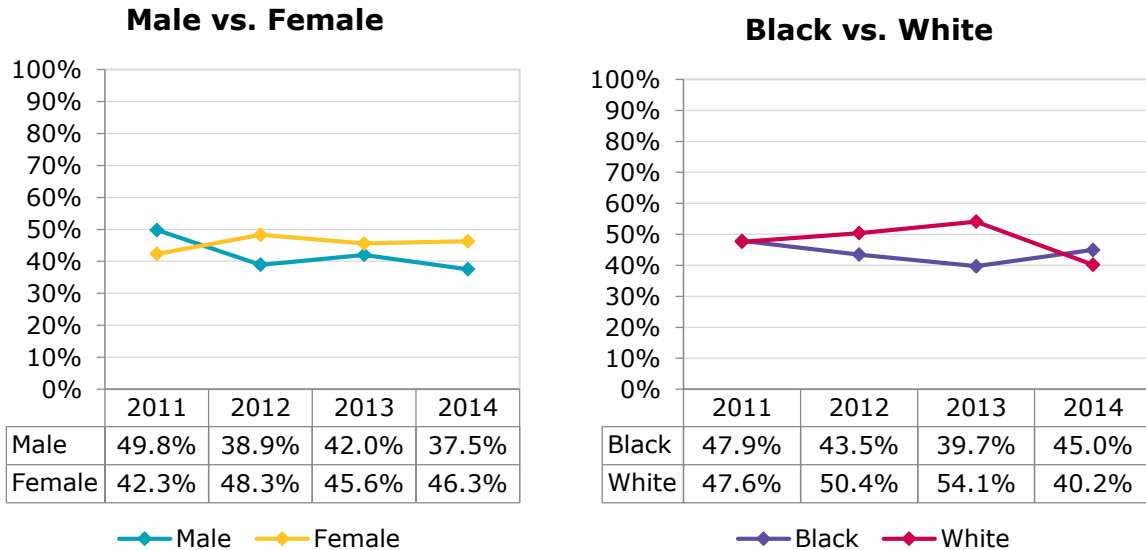
Source: Baltimore City 2014 Community Health Survey.

Vaccinations

Baltimore City has a 44% success rate in people reporting that they received the flu vaccine in 2014 ¹⁰. Among whites, the percentage of those reporting that they received the flu vaccine increased between 2011 and 2013 before decreasing in

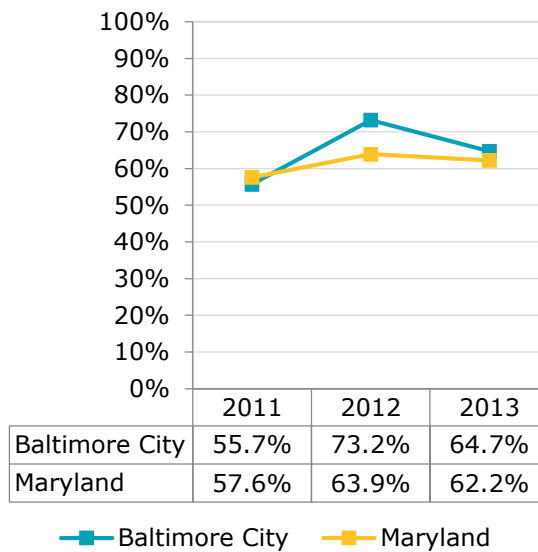
2014. Among blacks, the percentage decreased between 2011 and 2013 before increasing in 2014 ¹⁰.

Percentage of Residents Reporting that They Had Received a Flu Shot or Intranasal Flu Vaccination in the Past Year by Sex and by Race, Baltimore City, 2011-2014



Source: Maryland Behavioral Risk Factor Surveillance System, 2011-2014.

Percentage of Residents Reporting that Their Child(ren) Had Received a Flu Vaccination in the Past Year, Baltimore City vs. Maryland, 2011-2013



Source: Maryland Behavioral Risk Factor Surveillance System, 2011-2013.

Cause-specific Age-adjusted Mortality Rate (deaths per 10,000 residents)*

Heart Disease	24.4
Cancer (all kinds)	21.2
Lung Cancer	5.9
Colorectal Cancer	2.0
Breast Cancer (females only)	2.6
Prostate Cancer (males only)	3.0
Stroke	5.0
Drug- and/or Alcohol-Induced	4.4
Chronic Lower Respiratory Disease [†]	3.6
Accident/Injury	3.5
Homicide	3.3
Diabetes	3.0
Septicemia (blood poisoning)	2.7
HIV/AIDS	1.8
Falls-related	1.0

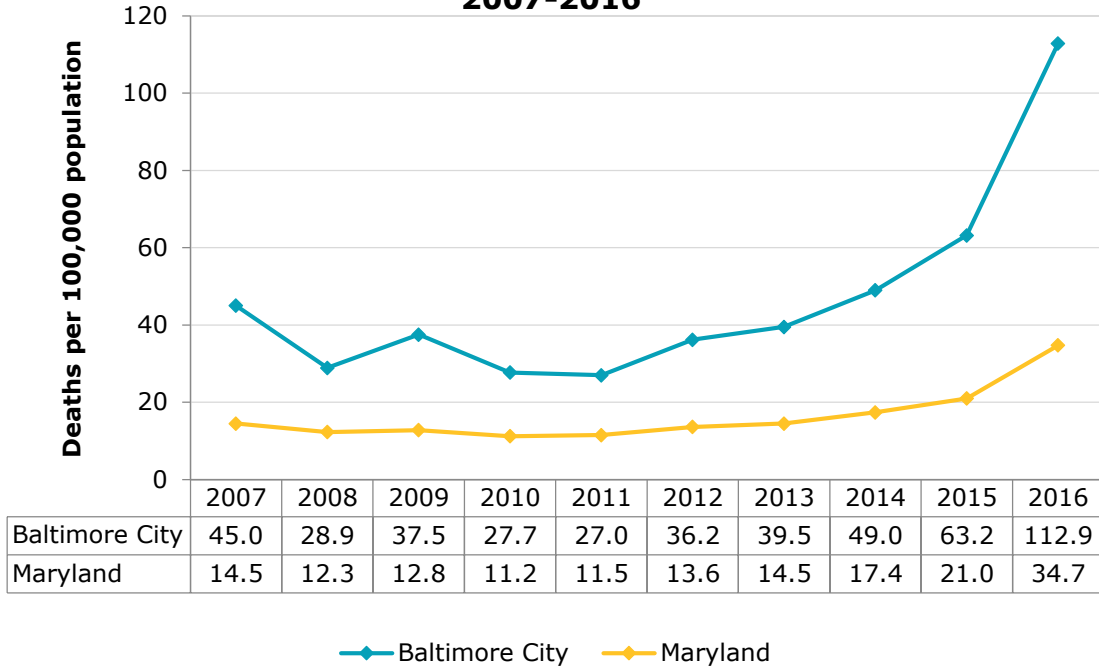
For the period 2011-2015, the leading cause of death (per 10,000 residents) in Baltimore City was heart disease (24.4) followed by cancer (21.2), then stroke (5.0). In the US, the top three causes of death in 2015 were heart disease, cancer, and chronic lower respiratory disease (CDC National Vital Statistics Reports, Vol. 65 No. 5, 2016).²⁰

* Source: BCHD calculations of data provided by the Maryland Department of Health Vital Statistics Administration (2011-2015).

[†] Includes Chronic Obstructive Pulmonary Disease (COPD), emphysema, chronic bronchitis, and asthma

Substance Abuse

Overdose Death Rate, Baltimore City vs. Maryland, 2007-2016



Source: Drug- and Alcohol-Related Intoxication Deaths in Maryland, 2016; Maryland Department of Health.

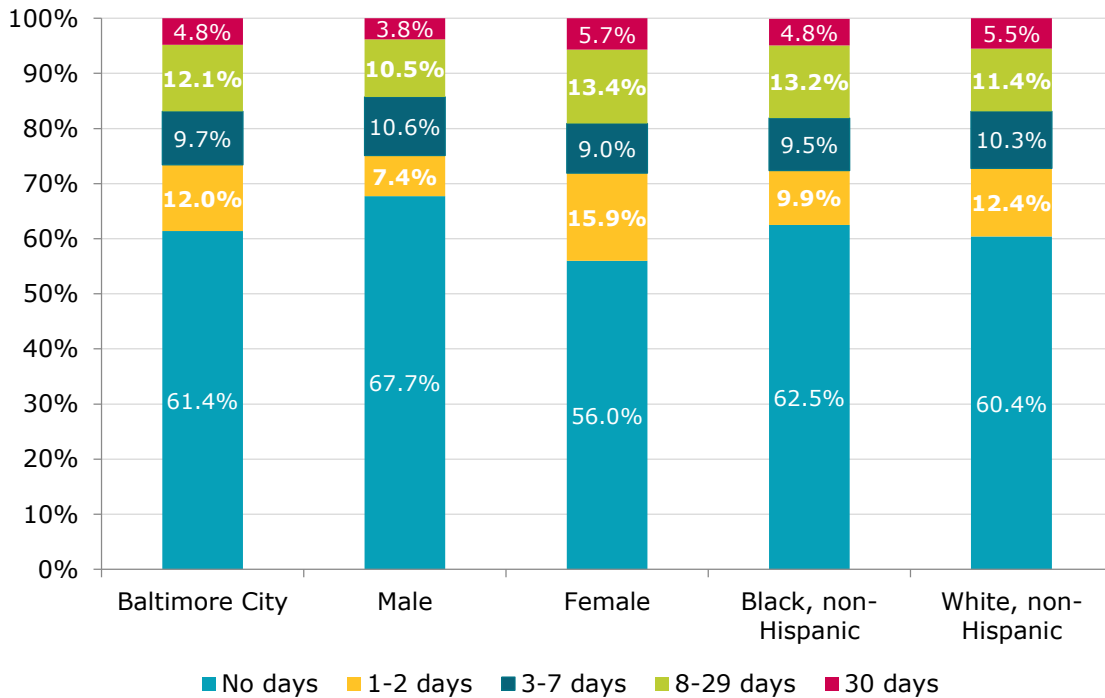
Opioid overdose deaths continue to be on the increase in many communities across America, and Baltimore City is no exception. There is a large disparity in overdose death rates between Baltimore City and the state of Maryland, and the gap appears to be widening over time ³⁷. In 2016, 694 people died of drug and alcohol overdoses in Baltimore City, a 56.6% increase from 2015. Of those who died of overdose in 2016, 454 people died as a result of heroin intoxication ^{37,38}. This is more than the number of people who died of homicide in Baltimore City in the same year ³⁷. Estimates by the Baltimore Mayor’s Heroin Treatment & Prevention Task Force calculated that 18,916 people were using heroin in Baltimore City in 2013 ³⁹. The Baltimore City 2013 Homeless Point in Time count documents drug use among 2,638 people experiencing homelessness with 36% of these individuals identified as having a history of chronic misuse and addiction. Additionally, between 47 and 56% of treatment admissions to publicly funded treatment programs are for heroin use ⁴⁰.

Mental Health

In 2014 in Baltimore City, 39% of residents experienced one or more days in the last month when their mental health was not good ²⁰. There was a notable disparity by sex: females were more likely to experience these days compared to males (44% vs 32%, respectively). Between 2007 and 2013, there was a slight increase in the percent of high school students feeling sad or hopeless on a near daily basis for two more consecutive weeks (27.7% in 2007 and 29.4% in 2013) ²³. Female

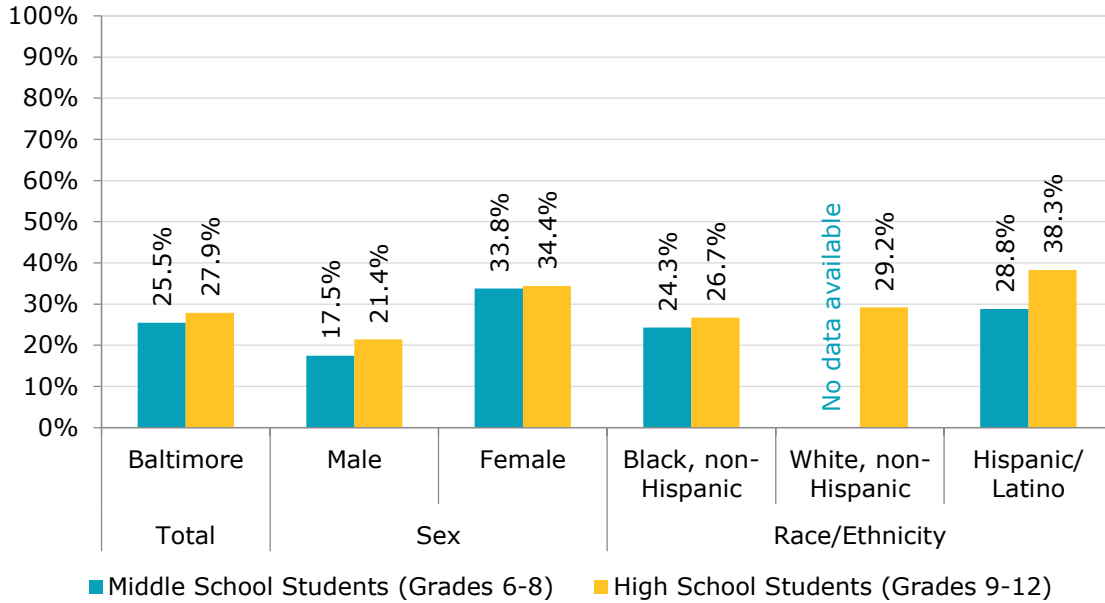
students were more likely to report feeling sad or hopeless than male students, as were Latino students compared to non-Hispanic black or white students. Among Latino students, there was a disparity: 38% of Latino high school students reported feeling sad or hopeless compared to 29% among Latino middle school students ³⁶.

Percentage of Residents Reporting Days in the Past 30 Days in Which Mental Health Status Was Not Good by Sex and by Race/Ethnicity, Baltimore City, 2014



Source: Maryland Behavioral Risk Factor Surveillance System, 2014.

Percentage of Students who Felt Sad or Hopeless by Sex, Race/Ethnicity, and School Level, Baltimore City, 2014



Source: 2014 Maryland Youth Risk Behavior Survey; Maryland Department of Health.

Social Isolation

According to the 2014 Community Health Survey:

- Eleven percent of respondents reported feeling socially isolated.
- There was a significant disparity by income status: respondents living below the poverty level were three times as likely to report feeling socially isolated as respondents living above the Federal Poverty Level.
- More respondents reported feeling socially isolated in 2014 (12%) than they did in 2009 (7%). This increase was greatest in White respondents and those making less than \$25,000 a year.

During the CHNA process with community members, there was an overwhelming need expressed for behavioral and mental health support. This was evident in surveys, interviews, and focus groups. Mental health was found to be a major concern affecting all community members. The participants felt that many families experience stress and anxiety when they cannot meet their children’s basic needs. They also believed that middle school students are overwhelmed by matters pertaining to violence, depression, peer pressure, sexually transmitted diseases, and pregnancy. Community leaders and focus group attendees were knowledgeable about their communities’ mental health issues, but cited limited access to treatment as a barrier to receiving adequate care.

Community Assets and Resources

Though Baltimore faces many health challenges, it's also a city with extremely committed civic and faith leaders, engaged community organizations, and nearly 1,000 employees in its health department who are dedicated to serving Baltimore City residents. It's a city where we understand that every issue is connected to health, whether it's economics, job opportunities, educational advancement, housing, homelessness, addiction, and mental health. We can do the most to prevent disease and ensure wellness through policy decisions that influence the environment in which people live, learn, work, and play.

Consistently in CHNA focus groups and community stakeholder meetings, the strength and commitment of community residents and the high level of civic activism and engagement was mentioned. Notes from one stakeholder meeting described the following:

*"Having a strong, economically healthy community contributes to a healthier environment for residents and for neighborhoods overall. Community organizations and area agencies work diligently trying to connect residents to services and programs. Community leaders and community participants reported that area residents are loyal and faithful; many have great pride in their neighborhoods, and many hope to obtain the education and employment opportunities in order to be better citizens."*¹²

Culture

For many, Baltimore conjures up scenes from the TV show "The Wire," but for those who spend time or live here, the rich and complex history has created a city of neighborhoods, each with its own identity and unique features. Mt Vernon is the cultural center, the Inner Harbor has been transformed from a shipbuilding site to a major tourist destination and harbor for cruise ships, and Historic Fells Point is a waterfront community with its 18-19th century homes and storefronts that boasts the best blue shell crab and crabcakes in Maryland⁴¹.

The Baltimore Symphony Orchestra, festivals such as the African American Festival, Artscape - the biggest outdoor art festival in America - and the Light City Festival, along with the National Aquarium and Maryland Zoo, contribute to Baltimore's growth as a cultural and arts center. Against a backdrop of monuments, murals, and historic architecture, Baltimore's art scene is rapidly growing, providing a vibrant landscape that attracts more and more visitors⁴¹.

Education

Baltimore is home to some of the highest ranked universities in the country. Johns Hopkins University was the first private research university in America and is the biggest employer in Baltimore City⁴². The Johns Hopkins Bloomberg School of Public Health is the oldest and largest public health school in the world and is

consistently ranked as first in the world. Additionally, the Johns Hopkins School of Nursing is ranked as first in the nation.

Baltimore is also known for the Peabody School of Music, the oldest active music conservatory in the United States ⁴³. Numerous other fine educational institutions such as University of Maryland, Morgan State University, University of Baltimore, Coppin State University, Goucher College, and Loyola University call Baltimore their home.

Parks and Recreation

Baltimore City has more than 4,000 acres of parkland and public space. Within the city borders, there are over 300,000 trees that line the streets and also a large amount of park trees. For more than 100 years, Baltimore City Recreation and Parks has offered residents diverse recreational activities, including camps, sports, aquatics, one of the nation's best boxing programs and adapted sports for people with disabilities ⁴⁴. Baltimore is also the home to the Orioles and Ravens sports teams.

Nutrition

Baltimore has a number of innovative programs to increase opportunities for people to make healthy choices and to ameliorate the effects of food deserts. The weekly BCHD B'more Fit for Healthy Babies program is a Weight Watchers counseling and group exercise program for eligible women and men. Movable Feast prepares and delivers nutritional meals and groceries, and provides nutrition counseling and other services to those living with HIV/AIDS, cancer, and other life-threatening illnesses.

The American Heart Association's Simple Cooking with Heart Kitchen teaches Baltimore residents how to prepare simple, delicious, and inexpensive meals at home. The Expanded Food and Nutrition Education Program (EFNEP) provides free nutrition education workshops to low-income families living in Baltimore City ⁴⁵⁻⁴⁷.

From spring to late fall there are numerous farmers markets throughout Baltimore City. All of the markets accept food stamps and Maryland Market Money, a statewide currency that is distributed to participants in federal nutrition benefits programs to spend on fruits and vegetables. *Produce in a SNAP* is a partnership between Hungry Harvest and Baltimore City Public Schools that fights hunger and promotes healthy eating by bringing fresh produce to neighborhoods that are food deserts.

Public Health and Health Care System

Baltimore is also home to numerous hospitals, public health and medical schools, health care providers, Federally Qualified Health Centers, non-profit organizations, philanthropic organizations, faith-based institutions, and various coalitions all working towards empowering and providing residents opportunities to live healthier lives. Each of these types of organizations are represented on the Baltimore City

Local Health Improvement Council and contribute to collectively impacting the health and wellbeing of Baltimore City residents.

Directories of Community Resources

There are numerous services and resources for Baltimore City residents to access for assistance on a wide variety of issues. Up-to-date information on these resources is available in various formats:

- Call 2-1-1 or visit the 211 Maryland website <http://www.211md.org/>
- Visit the website of the Maryland Community Services Locator <http://www.mdcsi.org/search.html>
- Call Baltimore City Maryland Access Point at 410-396-2273 to request a copy of the most recent Community Resources Directory.

Appendix A: LHIC Steering Committee Members

- Dr. Leana Wen, Baltimore City Health Commissioner, Co-Chair
- Reverend Debra Hickman, STAR, Co-Chair
- Sister Helen Amos, Mercy Health Services
- Vince Ancona, AmeriGroup
- Dr. Richard Bennett, Johns Hopkins Bayview
- Chet Burrell, CareFirst Blue Cross BlueShield
- Bradley Chambers, Medstar Good Samaritan
- Bob Chrencik, University of Maryland Medical System
- Michael Cryor, One Baltimore
- Bishop Douglas Miles, Catholic Charities
- Bob Embry, Abell Foundation
- Dr. Ali Fatemi, Kennedy Krieger Institute
- Dr. Michael Franklin, University of Maryland Pediatrics
- Don Fry, Greater Baltimore Committee
- Peter Hammen, City of Baltimore
- Reverend Al Hathaway, Union Baptist Church
- Judge Ellen Heller, Circuit Court Administrative Judge, Retired
- J. Howard Henderson, Greater Baltimore Urban League
- Julia Baez, Baltimore's Promise
- Joe Jones, Center for Urban Families
- Traci Kodeck, HealthCare Access Maryland
- Lainy Lebow-Sachs, Kennedy Krieger Institute
- Kevin Lindamood, Healthcare for the Homeless
- Annette March-Grier, Roberta's House
- Patrick McCarthy, Annie E. Casey Foundation
- Bill McCarthy, Catholic Charities
- Neil Meltzer, LifeBridge Health
- Joseph Meyers, Saint Agnes Hospital
- Amy Perry, LifeBridge Health
- Ron Peterson, Johns Hopkins Hospital
- Dennis Pullin, Medstar Harbor Hospital
- Adam Robinson, Veterans Administration
- Samuel Ross, Bon Secours
- Betsy Simon, Zeta Center for Healthy and Active Aging
- Sheldon Stein, Mount Washington Pediatric Hospital
- Shirley Sutton, Baltimore Medical Systems
- Keith Vander Holk, Saint Agnes Hospital
- Crista Taylor, Behavioral Health System Baltimore

Appendix B: Technical Notes

Explanation of the Community Statistical Area (CSA) Geography

Baltimore is a city of neighborhoods, with over 270 currently recognized by the City. Over time, the nature of numerous neighborhoods – boundaries, personalities, even names – have changed. In order to analyze data at a community level, we use a geography known as the Community Statistical Area (CSA). There are 55 CSAs in Baltimore City, each representing areas of the city with similar social and economic characteristics, and defined as groupings of census tracts. These groupings allow for the collection, aggregation, and presentation of a wide range of data for a stable geography over time. From the Baltimore Neighborhood Indicators Alliance’s Vital Signs report:

“CSAs were initially designed by the Baltimore Data Collaborative with the Baltimore City Department of Planning. Four guidelines were established for constructing the CSAs:

- CSA boundaries had to align with Census Tracts;
- CSAs would consist of 1-8 tracts, preferably with total populations in the range of 5,000 to 20,000;
- CSAs would define relatively demographically homogenous areas;

CSAs should reflect the City planners’ understanding of residents’ and institutions’ perceptions of the boundaries of the community.”*

Geospatial Analysis

Esri’s ArcGIS 10.1 was used to carry out all geocoding, geoprocessing, and geospatial analysis.

Community Health Surveys

Summaries of the methods and findings of the Baltimore City Community Health Surveys (2014 and 2009) are available at <http://health.baltimorecity.gov/stats-and-data>.

Denominators

Unless otherwise noted, denominators for indicators based on rates per demographic unit - i.e. residents, households, or housing units - were provided by the United States Census; for the purposes of these profiles, we are using data from the 2010 decennial census. Denominators for indicators based on density per square mile or percent of land coverage were calculated using land area only.

* Frequently Asked Questions (FAQs); Baltimore Neighborhoods Indicators Alliance - Jacob France Institute. Accessed July 2016. <http://bniajfi.org/faqs/>

Demographics and Socioeconomic Environment

Unless otherwise noted, demographic and socioeconomic data were provided by the U.S. Census' American Community Survey; for the purposes of these profiles, we are using 2011-2015 5-year estimate data.

Percentage of Children in Single-Parent Households

Data come from American Community Survey table B09005: HOUSEHOLD TYPE FOR CHILDREN UNDER 18 YEARS IN HOUSEHOLDS (EXCLUDING HOUSEHOLDERS, SPOUSES, AND UNMARRIED PARTNERS), 2011-2015 American Community Survey 5-Year Estimates.

Percentage of Adults and Percentage of Children with No Health Insurance

Data come from American Community Survey table B27001: HEALTH INSURANCE COVERAGE STATUS BY SEX BY AGE, 2011-2015 American Community Survey 5-Year Estimates.

Percentage of Limited English Speaking Proficiency

Data come from American Community Survey table DP02: SELECTED SOCIAL CHARACTERISTICS IN THE UNITED STATES, 2011-2015 American Community Survey 5-Year Estimates.

Unemployment Rate

Data come from American Community Survey table B23025: EMPLOYMENT STATUS FOR THE POPULATION 16 YEARS AND OLDER, 2011-2015 American Community Survey 5-Year Estimates.

Family Poverty Rate

Data come from American Community Survey table B17010: POVERTY STATUS IN THE PAST 12 MONTHS OF FAMILIES BY FAMILY TYPE BY PRESENCE OF RELATED CHILDREN UNDER 18 YEARS BY AGE OF CHILDREN, 2011-2015 American Community Survey 5-Year Estimates.

Hardship Index

The Hardship Index combines six indicators of public health significance: percentage of occupied housing units with more than one person per room (i.e. crowded housing); percentage of households living below the federal poverty level; percentage of persons aged 16 years or older in the labor force that are unemployed; percentage of persons aged 25 years or older without a high school diploma; percentage of the population under 18 or over 64 years of age (i.e., dependency); and per capita income. Scores can range from 1 to 100, with higher scores representing higher relative hardship. This index is based on work done by the City of Chicago, which first calculated its Hardship Index scores in November 2011.*

Built Environment

* Selected socioeconomic indicators in Chicago, 2006-2010; Chicago Department of Public Health. November 2011. <https://data.cityofchicago.org/api/assets/A02C1C5F-8D89-466C-8492-B1FED3DA4C87>.

Liquor Store Density

Liquor stores are defined as establishments that sell beer, wine, and/or liquor under a Class A or A-2 license issued by the Baltimore City Liquor License Board. These licenses cover establishments that provide “Off Sale package goods - no on-premises consumption”^{*} six days a week. Data were pulled from the OpenBaltimore data portal June 2016.

Tobacco Store Density

Tobacco stores are defined as establishments that sell cigarettes or other tobacco products such as cigars, pipe tobacco, chewing tobacco, roll-your-own tobacco, snuff, snus, or other smokeless tobacco products. Data were provided June 2016.

Percentage of Land Covered by Green Space

A “green space” shapefile was created from separate shapefiles for tree canopy, vegetated area, and park land, using the union geoprocessing tool. This shapefile was split along city boundaries, and an amount of green space area was calculated citywide; this was then divided by land area to provide a percentage of coverage. The tree canopy shapefile was created through analysis of satellite imagery by the University of Vermont Spatial Analysis Lab in 2007. The vegetated area shapefile represents photogrammetrically captured vegetation features such as wooded/brush areas and tree rows of 50 feet or greater in length, and was last updated in 2008. The park land shapefile is based on a 2016 inventory of parks by the Baltimore City Department of Recreation and Parks. This coverage is not mutually exclusive of coverage of pavement and coverage of industrial zoning; therefore, percentages may add up to more than 100%.

Percentage of Land Covered by Pavement

In order to obtain an amount of area covered by pavement, the dissolve geoprocessing tool was applied to the street area shapefile, thereby creating a simplified shapefile containing eight features: paved alleys, paved driveways, paved medians, unpaved medians, parking lots, paved roads, unpaved roads, and intersections. This shapefile was split along city boundaries, and an amount of pavement area was calculated citywide by summing the amount of area of paved alleys, paved driveways, paved medians, parking lots, paved roads, and intersections. This sum was then divided by land area to provide a percentage of coverage. This coverage is not mutually exclusive of coverage of green space and coverage of industrial zoning; therefore, percentages may add up to more than 100%.

Percentage of Land Zoned Industrial

In order to obtain an amount of area zoned for industrial purposes, features from the Baltimore Department of Planning’s zoning polygon shapefile were selected by attribute, using the query “CATEGORY” = “M”. The results were exported to a separate shapefile, and split along city boundaries. An amount of area zoned industrial was calculated citywide; this was then divided by land area to provide a

^{*} License Types; Baltimore City Liquor License Board. Accessed July 2016.
<http://llb.baltimorecity.gov/license-types>.

percentage of coverage. This coverage is not mutually exclusive of coverage of pavement and coverage of green space; therefore, percentages may add up to more than 100%.

Rate of Rat Service Requests to 311

Rat Service Requests to 311 are defined as those citizen-generated requests categorized as service request type "HCD-Rodents", "SW-Rat Rubout", and "SW-Rat Rubout Follow-up"; this definition does not include those categorized as "SW-Rat Rubout (Proactive)", as those are generated by the Bureau of Solid Waste directly. Service requests are geocoded to address or street intersection when available; where specific location data are not available, requests are assigned by neighborhood. Rates may include multiple requests to the same location. Data were pulled from OpenBaltimore January 2017.

Educational Environment

School Readiness and 3rd and 8th Grade Reading Proficiency

Data were provided by the Baltimore Neighborhood Indicators Alliance via the Baltimore City Public School System. School readiness represents the percentage of children whose composite score indicates full school readiness out of all kindergarten school children tested within an area in a school year. The Maryland Model for School Readiness (MMSR) is an assessment and instructional system that was designed to provide parents, teachers, and early childhood providers with a common understanding of what children know and are able to do upon entering school. Under the MMSR system, all children entering kindergarten are assessed for level of mastery across several learning domains. These domains include: social and personal development; language and literacy; mathematical thinking; scientific thinking; social studies; the arts; and physical development and health. Kindergarten teachers must evaluate students during the first few months of the kindergarten year using selected Work Sampling System (WSS) indicators and report their ratings by the end of November of each year to the state. Maryland's Kindergarten Readiness Assessment (KRA) is part of Maryland's new Ready 4 Kindergarten (R4K): Early Childhood Comprehensive Assessment System, and was first administered in the 2014-15 school year to measure the skills and behaviors that children should learn prior to entering kindergarten. Future profiles will reference this assessment.

Reading proficiency represents the percentages of students passing Maryland School Assessment (MSA) exams in reading in 3rd and 8th grades. MSA scores measure the number of students scoring in one of three classifications out of all students enrolled in that grade. Students can either be rated as advanced, proficient, or having basic knowledge of a subject. This indicator includes only those students who have tested as advanced or proficient. Future versions of the Neighborhood Health Profiles will present PARCC data on ELA for 3rd and 8th grades.

School Absenteeism

Community Health Assessment

Data were provided by the Baltimore Neighborhood Indicators Alliance via the Baltimore City Public School System. School absenteeism data represents the percentages of students in elementary (1st – 5th grades), middle (6th – 8th grades), and high (9th – 12th grades) school that missed at least 20 school days in the previous school year.

Adult Educational Attainment

Data come from American Community Survey table B15003: EDUCATIONAL ATTAINMENT FOR THE POPULATION 25 YEARS AND OVER, 2011-2015 American Community Survey 5-year estimates.

Safety Environment

Rate of Animal Abuse Service Requests to 311

Animal Abuse Service Requests to 311 are defined as those categorized as service request type “HLTH-Animal in Danger/Injured/Abused/Neglected”. Service requests are geocoded to address or street intersection when available; where specific location data are not available, requests are assigned by neighborhood. Rates may include multiple calls to the same location. Data were pulled from OpenBaltimore January 2017.

Non-Fatal Shooting Rate

Non-fatal shooting data represent a subset of the Baltimore Police Department’s Part 1 Victim Based Crime Data set, available publicly at Baltimore City’s OpenBaltimore data portal. Data were filtered by crime date and description; those crimes that occurred between January 1, 2011 and December 31, 2015 and matched “shooting” in the description column were pulled. All data are geocoded to the approximate latitude/longitude location of the incident; those records for which an address could not be geocoded are excluded. Data were pulled July 2016. Due to a change in methodology, data are not comparable to previous versions of the Neighborhood Health Profiles.

Homicide Rate

Homicide data represent a subset of the Baltimore Police Department’s Part 1 Victim Based Crime Data set, available publicly at Baltimore City’s OpenBaltimore data portal. Data were filtered by crime date and description; those crimes that occurred between January 1, 2011 and December 31, 2015 and matched “homicide” in the description column were pulled. All data are geocoded to the approximate latitude/longitude location of the incident (not victim’s home address); those records for which an address could not be geocoded are excluded. Data were pulled July 2016. Due to a change in methodology, data are not comparable to previous versions of the Neighborhood Health Profiles.

Youth Homicide Mortality Rate

This represents the number of deaths due to homicide per 100,000 youths under 25 years old. Death data are provided by the Maryland Department of Health and Mental Hygiene’s Vital Statistic Administration, filtered by ICD-10 code to categorize cause of death; for assault/homicide, these codes are X85-Y09 and Y87.1. Mortality rates are based on the home addresses of the deceased; this differentiates this rate

from the other rates in this category, which are based on the location of the incident. This should not be considered a subset of Homicide Rate.

Housing Environment

Average Annual Lead Paint Violation Rate

Lead paint violations in Baltimore City are tracked by address by the Baltimore City Health Department's Lead Program. Violations were assigned by geolocation of their physical address in ArcGIS 10.1. Some addresses have received multiple violations during the time period examined (2006-2015). For the purposes of this indicator, all violations were included in the numerator. This indicator is calculated differently than in previous versions of the Neighborhood Health Profiles; data are not comparable.

Vacant Lot Density

Vacant lot data are maintained in a shapefile by the Mayor's Office of Information Technology, Enterprise Geographic Information Services office. The data are automatically updated via the real property database managed by the Maryland State Department of Assessments and Taxation. Raw data on real property is collected by the Baltimore Department of Housing. This document includes data from the July 2016 shapefile update.

Vacant Building Density

The Housing Authority of Baltimore City provides vacant building data by address on the OpenBaltimore Data Portal; data were accessed July 2016.

Food Environment

Percent of Land Covered by Food Desert

The 2015 Baltimore City Food Desert shapefile, available for download on the Maryland Food System Map website at <http://mdfoodsystemmap.org/glossary/baltimore-city-food-deserts-2/>, was split along city boundaries, and an amount of food desert area was calculated citywide; this was then divided by land area to provide a percentage of coverage. A food desert in Baltimore City is defined as "an area where the distance to a supermarket or supermarket alternative is more than 1/4 mile, the median household income is at or below 185% of the Federal Poverty Level, over 30% of households have no vehicle available, and the average Healthy Food Availability Index score for all food stores is low."*

Carryout Density

Carryout data are from the BCHD open food facilities permit/license database, updated November 2016. These data were geocoded and used to calculate density. Carryout data in this report reflect establishments coded as a "carryout" in the establishment type and/or business code fields in the database, as well as establishments that were not coded as a carryout but had "carryout" in their

* Mapping Baltimore City's Food Environment: 2015 Report; Johns Hopkins Center for a Livable Future. June 2015. <http://mdfoodsystemmap.org/2015-baltimore-city-food-access-map/>.

restaurant name. Fast food restaurants are excluded from this count, as they have their own indicator. Please see Limitations below for information on data scrubbing.

Corner Store Density

Corner store data are from the Center for a Livable Future and include stores identified as corner stores, convenience stores, discount stores, and gas stations with minimarts in the Type field. These data were updated 2016 and used as provided.

Fast Food Density

Fast food data are from the BCHD open food facilities permit/license database, updated November 2016. These data were geocoded. Fast food restaurants were categorized as the following: Baja Fresh, Blimpie, Burger King, California Tortilla, Checkers, Chik-Fil-A, Chipotle, Dunkin' Donuts, Five Guys, Jimmy Johns, KFC, Long John Silver, McDonalds, Popeyes, Potbelly, Qdoba, Quiznos, Subway, Taco Bell, and Wendy's.

Health Outcomes

Life Expectancy at Birth

Estimated life expectancy at birth is defined as the average number of years a person born today would live if he/she experienced the mortality rates observed in this report over the course of his/her life. The life expectancy estimate in this report reflects the mortality rates among people living in Baltimore City from 2011 to 2015. Babies born today in Baltimore City would experience this life expectancy only if the current age-specific mortality rates remained constant over the course of their lives. Life expectancy was calculated using a life table calculator for small area estimates developed by the South East Public Health Observatory in England.*

Sexually Transmitted Infections

All morbidity for reportable STIs for Baltimore residents is reported to the Baltimore City STD HIV prevention program. This dataset can be queried by age and race, and provides the numerator for rates of gonorrhea and chlamydia among Baltimore City youths ages 10-19 years. The denominator is derived from 2010 decennial United States Census data.

Age-adjusted All-cause Mortality Rate

Age-adjusted mortality represents the number of deaths per 10,000 people per year assuming that each neighborhood had the same age structure (similar numbers of people in each age group). Age adjustment is done so that a neighborhood with a proportionally large number of elderly people (who are more likely to die because of their age) does not show a higher mortality rate simply because of the older age of its inhabitants. Direct age-adjustment was conducted using the 2000 US standard population and the following age groups, consistent with the Baltimore

* Life expectancy calculator: LA and ward level; Public Health England. September 2004.
<http://www.sepho.org.uk/viewResource.aspx?id=8943>.

Neighborhood Indicators Alliance: < 1 year, 1-14 years, 15-24 years, 25-44 years, 45-64 years, 65-84 years, 85+ years.*

Rate of Reported Foodborne Illness

The CDC describes more than 250 types of foodborne illness; for the purposes of this report, foodborne illnesses include campylobacteriosis, salmonella, and shigellosis. These represent the three most commonly reported foodborne illnesses in Baltimore City. Data represent the incidence rate per year of said illnesses within Baltimore City for the years 2011-2015.

Rate of Hepatitis C

Laboratories and medical providers report confirmed cases of Hepatitis C to the Maryland National Electronic Disease Surveillance System. Data represent the incidence rate per year within Baltimore City for the years 2011-2015.

Selected Causes of Death

Selected causes of death are those that either accounted for the largest number of deaths in Baltimore in 2011-2015, as determined by the Maryland Vital Statistics Administration, or are of particular relevance to the Health Department's priorities, such as deaths that are drug- and/or alcohol-induced. Specific ICD-10 codes for each cause of death can be found in the Maryland Department of Health and Mental Hygiene's Maryland Vital Statistics Annual Report. Direct age-adjustment was conducted using the 2000 US standard population and 10-year age groups.

Maternal and Child Health

Birth rate is defined as the number of live births per 1,000 females. Teen birth rate is defined as the number of live births to females between 15-19 years of age per 1,000 females in the population in that age range.

Prenatal care, smoking during pregnancy, and maternal body mass index (BMI) are reported on the birth certificate. Preterm births are live births occurring before 37 weeks gestation. Low birth weight is defined as live births weighing less than 2500 grams (5 pounds 8 ounces) at delivery.

Infant mortality rate (IMR) is defined as the number of infant deaths (babies less than 1 year of age) per 1,000 live births in a given year. IMR is considered one of the most sensitive, accurate measures of mortality in the population, as it relies on vital statistics reporting, not census estimates or sampling. Birth outcomes were computed from vital records provided by the Vital Statistics Administration of the Maryland Department of Health.

Lead Poisoning

Lead poisoning data are calculated by the Baltimore Neighborhood Indicators Alliance from data from the Lead Poisoning Prevention Program at the Maryland Department of the Environment, and represent the percentage of children tested

* Klein RJ, Schoenborn CA. Age-adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20, Hyattsville, Maryland: National Center for Health Statistics. January 2001.

with elevated blood lead levels of 10 micrograms/deciliter or higher. Not all children ages 0 to 6 years of age are tested annually, so this measure should not be used to indicate prevalence of lead poisoning in Baltimore City.

Limitations

Data Scrubbing

Some datasets, particularly those pertaining to licenses and permits, were provided “as-is”. Data were scrubbed of duplicate, invalid, and inaccurate entries to the best of our ability prior to analysis; however, some such entries may have inadvertently been included in the calculation of density rates.

Citizen Service Requests (CSRs) to 311

CSRs are citizen-generated contacts to Baltimore City’s 311 service requesting City services; as such, they are reliant on a citizen’s level of trust with City services. Rates may be under-representative of the true burden if residents are less willing to engage with City services or they pay for services directly themselves.

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