



FOR THE  
SAKE  
OF ALL

A report on the health and well-being  
of African Americans in St. Louis and  
why it matters for everyone

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For detailed information on corrections made in this revised edition,  
visit: [forthesakeofall.org/publications/report/errata-july2015](http://forthesakeofall.org/publications/report/errata-july2015)

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*“How does health influence school dropout?”*

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*“How can we improve mental health in St. Louis? Invest in our community and raise awareness”*

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*“Segregation: Divided cities lead to differences in health”*

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## Executive summary

Health is about more than what happens in a doctor's office or a hospital room. Health allows us to engage fully in the activities of our daily lives and to make meaningful contributions to our communities. It is fundamental to human well-being, but it is not equally distributed across our community.

Since March of 2013, scholars from Washington University in St. Louis and Saint Louis University have been exploring how this unequal distribution of health in the St. Louis region is related to what are called *social determinants of health* — factors like education, income, the quality and composition of neighborhoods, and access to community resources like healthy foods and safe public spaces.

**In one year alone, the loss of life associated with low levels of education and poverty among African Americans was estimated at \$4.0 billion.**

African American health and well-being has been at the center of this work because of the particular history and demographic make-up of the City of St. Louis and St. Louis County, which make up the project's targeted geographic area. Differences in social and economic factors by race play a significant role in explaining the differences in health.

There are very real ways in which these differences in health and life outcomes affect everyone in the St. Louis region. Of course, the most important and immediate impact is the loss of our neighbors, co-workers, family, friends — our fellow St. Louisans — to deaths that could have been prevented. The economic costs of that loss of life are staggering as well. In one year alone, the loss of life associated with low levels of education and poverty among African Americans was estimated at \$4.0 billion.

## Other economic impacts:

- 1 More than 2,000 African American students dropped out of high school in 2012. They are likely to earn about \$7,000 less per year than high school graduates. Their lifetime earnings loss (ranging from \$347,000 to \$739,410) reduces purchasing power at regional businesses, lowers tax receipts, and adds to the costs of social services and unemployment assistance. Using earnings alone, St. Louis leaves \$694 million to \$1.5 billion “on the table” when we let dropouts occur.
- 2 Eliminating racial and ethnic differences in mental health could save as much as \$27 million in inpatient hospital charges. Other economic impacts associated with poor mental health include crime, imprisonment, reduced earnings and employment, and family disruption.
- 3 If we reduced the disparity in chronic diseases like heart disease, cancer, and diabetes, St. Louis could save \$65 million a year in inpatient hospital charges, which would be a significant cut in the \$1.1 billion on just these three diseases.

These are just some of the costs and potential savings associated with the social and economic factors that are linked to health. We cannot afford to continue like this. Something has to change in order for everyone in the St. Louis region to be able to thrive and contribute to its growth and vitality. *For the Sake of All* is a project with just that purpose in mind.

## The four project goals were to:

1. Inform the general public about the social determinants of health as they impact African Americans, as one of the populations most impacted by health disparities.
2. Present the regional economic and health consequences of intervening (or failing to intervene) on social determinants of health.
3. Provide evidence of the impact of persistent disparities on all members of the region, regardless of race or socioeconomic status.
4. Influence the policy agenda on health disparities by broadening the conversation beyond personal responsibility and the delivery of medical care alone.

Accomplishing these goals involved a vital partnership with community stakeholders across multiple sectors in the St. Louis region. A Community Partner Group with representatives from public health and health care, education, business, community and economic development, media, and civic engagement offered guidance and input on the project. Five policy briefs were released between August and December of 2013, each describing a different aspect of health and well-being for African Americans in St. Louis. Also included with each brief was a set of policy and programmatic recommendations for addressing the social and economic factors driving differences in health. In March of 2014, members of the St. Louis community were asked to provide their feedback on these recommendations along with other elements of a final report, including new information not contained in the original five briefs. That feedback was incorporated as much as possible in this report.

### Key findings from the report:

- > Differences in health and life outcomes between African Americans and whites in St. Louis can be understood within the context of larger national trends in death and life expectancy.
- > Social and economic factors are strongly linked to health outcomes like disease, disability, and death. In fact, this set of relationships is so strong and consistent that there is a term for it: the *socioeconomic gradient in health*.
- > Addressing social and economic factors is the most powerful means of tackling differences in health outcomes. This will require regional effort from multiple sectors in our community.
- > There are historical trends that help to explain social, economic, and health differences, including long-standing gaps in educational attainment, poverty, and unemployment. Current demographic figures reflect this history and point to ongoing challenges in these areas.
- > Where you live in St. Louis has a powerful impact on your health. Residents of zip codes separated by only a few miles have up to an 18-year difference in life expectancy. Because of considerable residential segregation in St. Louis, many areas with high African American populations are also areas with concentrated poverty and poor health. These neighborhoods often lack resources like healthy foods, safe green spaces for recreation, and convenient access to medical care.

- > Education is one of the strongest and most consistent predictors of health, and gaps in life expectancy between those with low and high levels of education are widening. That makes differences in academic achievement and educational attainment for many African American students in St. Louis particularly troubling. One in 10 African Americans in grades 9 – 12 dropped out of school in 2012, and poor performance in key subjects at critical points in their education place many others at risk.
- > Poor health can also act as a barrier to education, particularly when chronic childhood illnesses like asthma and mental health challenges go untreated.
- > These social and economic patterns help provide necessary context for understanding differences in mental and physical health outcomes between African Americans and whites in the St. Louis region. African Americans are more likely to experience chronic disease, violence and injury, emergency mental health treatment and hospitalization, sexually transmitted disease, adverse pregnancy and birth-related outcomes, and risk factors for disease like obesity and high blood pressure. The lack of resources and amenities in neighborhoods where many African Americans live also makes it more difficult to engage in healthy lifestyle behaviors like physical activity and eating a healthy diet.

### Recommendations:

- 1 Invest in quality early childhood development for all children.
- 2 Help low-to-moderate income families create economic opportunities.
- 3 Invest in coordinated school health programs for all students.
- 4 Invest in mental health awareness, screening, treatment, and surveillance.
- 5 Invest in quality neighborhoods for all in St. Louis.
- 6 Coordinate and expand chronic and infectious disease prevention and management.

## Goals and process

With funding from the Missouri Foundation for Health, scholars from Washington University and Saint Louis University have collaborated with community partners and key stakeholders to produce a series of briefs on topics related to the health and well-being of African Americans in the City of St. Louis and St. Louis County. That same group of academic and community partners helped to inform this final report to the community, which we release in this year of several important anniversaries: the 50th anniversary of President



Lyndon Johnson's signing of the Civil Rights Act of 1964, the 60th anniversary of the landmark Supreme Court decision in *Brown v. Board of Education*, and the 250th anniversary of the

founding of St. Louis. Each of these anniversaries reminds us of the significant progress made over the past several decades, and indeed, several centuries. But they also force us to reflect on what more can be done to ensure the health and well-being of all residents in the St. Louis region.

### Four goals for the project:

- 1 To inform the general public about the social determinants of health as they impact African Americans, as one of the populations most impacted by health disparities.
- 2 To present the regional economic and health consequences of intervening (or failing to intervene) on social determinants of health.
- 3 To provide evidence of the impact of persistent disparities on all members of the region, regardless of race or socioeconomic status.
- 4 To influence the policy agenda on health disparities by broadening the conversation beyond personal responsibility and the delivery of medical care alone.

A: Attorneys George Hayes, Thurgood Marshall, and James Nabrit, Jr. celebrate *Brown* victory.

B: President Johnson hands Dr. Martin Luther King, Jr. ceremonial pen from Civil Rights Act signing.

Images Courtesy of the Library of Congress, NYWTS

## Overview of process

### Community Partner Group

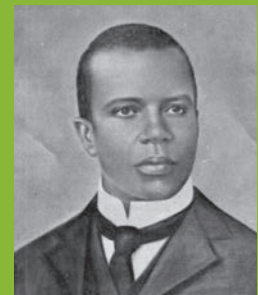
One of our first tasks was identifying a Community Partner Group (CPG) that was regional in its scope, represented key sectors in the community, and brought expertise relevant to the topics covered in the briefs and final report. It was important that the group include not only leaders in public health and health care, but also education, community and economic development, business, media, and civic engagement.

The CPG met 5 times between June of 2013 and May of 2014 and was available for consultation and feedback between scheduled meetings. Members offered invaluable guidance on the overall structure of the project and its goals; substantive feedback on each policy brief, including identifying key stakeholders to engage and vetting policy and programmatic recommendations; and input on this final report. The CPG also leveraged resources within their organizations to publicize *For the Sake of All* among their networks and in the broader community. This was especially true of our two media partners, the *St. Louis American* and the *St. Louis Beacon* (now merged with *St. Louis Public Radio*), who published news stories, editorials, and commentaries related to each of the briefs and the overall project. These stories added an essential human dimension to the data presented in the briefs.



### Origins of *For the Sake of All*

The origins of this project's title rest with one of St. Louis's most famous African American residents, the "King of Ragtime," Scott Joplin (pictured right). The 1915 composition, "For the Sake of All," was among the unpublished works that Joplin's widow shared with the public after his death in 1917. Though the title was jotted down by writers researching Joplin's life and music, no trace of the musical score remains. That is fitting. A composition thought to have been written nearly one hundred years ago in St. Louis with the title "For the Sake of All" seems a poignant reminder that our work to achieve the lofty goal that the title suggests is also unfinished.



Part of our unfinished work involves the stark differences in health and other life outcomes experienced by the African American population in St. Louis. *For the Sake of All* is a multi-disciplinary, multi-sector project to provide information on the social and economic factors that contribute to those disparities and to suggest policy and programmatic recommendations for improving community health and well-being.



## Policy Briefs

The first of five policy briefs was released on August 28, 2013, exactly 50 years after the historic March on Washington for Jobs and Freedom and Dr. Martin Luther King's iconic "I Have a Dream" speech. Entitled, "How can we save lives—and save money—in St. Louis? Invest in economic and educational opportunity," the first brief estimated the number of deaths attributable to low levels of education and poverty among African American adults in 2011 along with the economic impact of that loss of life. The second brief, "How does health influence school dropout?" was released in September and described how the health of children and youth can impact their educational outcomes. We released the third brief in October: "How can we improve mental health in St. Louis? Invest in our community and raise awareness." This brief detailed the social and economic impact of poor mental health and disparities in the use of hospitals for mental health treatment by African Americans in the region. "Segregation: Divided cities lead to differences in health" was the fourth brief released in November. It described the relationship between racial and economic residential segregation and health outcomes such as chronic disease mortality. The fifth and final brief was titled, "Chronic disease in St. Louis: Progress for better health." It explored the progress made by African Americans in reaching some of the national Healthy People 2010 goals for reductions in death rates for diabetes, cancer, and heart disease.

## Community Engagement

Along with our partners, we recognized the need for significant community engagement to ensure the success of the project. In addition to inviting comment on each of the briefs using the project's website ([forthesakeofall.org](http://forthesakeofall.org)), we also utilized social media such as Facebook and Twitter to share information. More than 50 community organizations and individual leaders were also engaged through meetings and presentations about *For the Sake of All*. Online engagement with the project has been considerable, with over 10,000 views of [forthesakeofall.org](http://forthesakeofall.org) by 3,600 visitors in the United States and 46 other countries.

On March 18, 2014, we hosted a Community Feedback Forum, where community members were invited to share their feedback on draft elements of this final report. Over 90 individuals representing a broad cross-section of the community joined us at the Forest Park Visitor & Education Center.

While we could not directly respond to every comment, the dominant themes from the Community Feedback Forum are summarized below along with our responses:

**Theme:** *Need to address social determinants of health for all racial and ethnic groups.*

**Response:** As the purpose of the *For the Sake of All* project is to report on the health and well-being of African Americans, this population was necessarily at the center of our analyses and discussion. Where appropriate, we do compare African American social, economic, and health status to the most populous racial group in the region other than African Americans, namely whites. We follow the conventions of our data sources in labeling and identifying these racial groups, without endorsing any particular classification scheme. We also address the health and economic impact of social and health disparities with reference to the entire region, regardless of race. Our policy recommendations are broadly applicable to all racial and ethnic groups in the region.

**Theme:** *Need for incorporation of issues related to lesbian, gay, bisexual, and transgender (LGBT) communities.*

**Response:** We certainly appreciate the specific health needs of individuals who are lesbian, gay, bisexual, and transgender and the special barriers to optimal health at the intersection of sexual and racial minority status. Unfortunately, the publicly available data upon which we relied for this project does not identify sexual orientation, and gender identity is assessed only in the binary male vs. female. Including information on sexual orientation and gender identity at the local level would have required original data collection beyond the scope of this project. However, we would recommend that those interested in LGBT health issues consult the August 2012 publication in the Missouri Foundation for Health's Health Equity Series entitled, "Responding to LGBT Health Disparities" available at <https://www.mffh.org/mm/files/LGBTHealthEquityReport.pdf>.

**Theme:** *Explain sources, limitations, and methodology for analyzing and reporting data.*

**Response:** Please see "Data Sources and Limitations" on pages 08-09.

**Theme:** *Focus on HIV/AIDS*

**Response:** HIV/AIDS was not presented in the Community Feedback Forum posters, but it was always our intent to include data and discussion on this topic in the final report. Because of the feedback we received, we have expanded our coverage. Please see the presentation of HIV/AIDS data on pages 65 – 67.

### **Theme: Clarity of data presentation and definitions**

**Response:** We have addressed specific concerns about the clarity of graphs, data tables, and other elements of the report on display at the Community Feedback Forum. The terms used to describe various factors and conditions have also been clarified and a Glossary of Terms is included.

### **Theme: Focus on youth violence**

**Response:** In response to feedback, we have expanded our coverage of violence prevention and intervention. Please see the presentation of violence and injury data on pages 62 – 65. We also refer interested readers to the Community Plan developed with extensive community input by the Regional Youth Violence Prevention Task Force (see Resources).

### **Theme: Highlight positive examples and sources of hope**

**Response:** Throughout this report, and in our previously released briefs, we have focused on local and national examples of promising and proven strategies, policies, and programs. We believe these exemplars offer many reasons to be optimistic about our ability to positively impact community health and well-being.

In addition to feedback on the presentation and content of the report, there were specific community comments on the recommendations. We respond to this feedback in the Recommendations section of the report.

## **Engagement of policy makers**

We have also had the opportunity to brief several regional and state policy makers on the initial findings. In March, representatives from the *For the Sake of All* project team briefed City of St. Louis Mayor Francis Slay and members of his Cabinet, including the leaders of several City departments; members of Governor Jay Nixon's staff; and the Missouri Legislative Black Caucus. In May, briefings were held for City of St. Louis Treasurer Tishaura Jones and the Health and Human Services Committee of the City of St. Louis Board of Aldermen. Efforts to engage additional policy makers are ongoing.

## **Final report**

This final report is the culmination of more than 14 months of intensive work to uncover the social, economic, and other factors that contribute to differences in health outcomes for African Americans in the St. Louis region—and the extent to which those differences impact everyone, regardless of race or socioeconomic status. This report contains the most current data available on the educational and economic status of African Americans in addition to

comprehensive health data. Where possible, we have drawn lines of connection between these social factors and health outcomes within the specific geographies of the City of St. Louis and St. Louis County. The examination of these issues is intentionally broad in both subject matter and geographic coverage. Issues of health and health disparities in the St. Louis region are complex, and a full understanding requires the perspectives of multiple disciplines and sectors as well as a regional scope.

## **Data sources**

This report uses data previously collected by other organizations and entities (i.e., secondary data sources). It aims to provide a comprehensive snapshot of these data and to provide the most current data available whenever possible. However, there were several instances where updated data was released after analysis.

Demographic, social, and economic data were primarily drawn from the U.S. Census Bureau's American Community Survey (ACS) and Decennial Census. Education data were drawn from the Missouri Department of Elementary and Secondary Education (DESE) and ACS. Health data were drawn from the Missouri Department of Health and Senior Services (MODHSS), Centers for Disease Control & Prevention (CDC), and previous St. Louis reports. Other sources include data from scientific studies published in journals, reports, and books. Education and health data were derived from various surveys and other data collection programs. Nearly all of the data in this report are publicly available.

Education data from DESE about student performance are derived from the Missouri Assessment Program (MAP). Health data from MODHSS were extracted from MICA (Missouri Information for Community Assessment) and Community Data Profiles (Profiles). MICA data are derived from vital statistics (e.g., death records, birth records) and the Patient Abstract System (e.g., inpatient hospitalizations, emergency room visits). Most of the health data from the Profiles used in this report are derived from the 2011 County-Level Study (CLS). Data drawn from all sources were extracted at the aggregate-level, meaning no individual or personally identifiable data were directly analyzed for this report.

Steps were taken to reduce errors in data extraction, analysis, and reporting. Some data extracted from secondary sources were recoded or categorized differently than in the original assessment. It is possible that errors could have occurred during these processes. The methods and descriptions for each of the main data sources can be accessed online (see Resources).

## Limitations

There are several limitations to using secondary data sources and analysis. Because we used data that had been previously collected, our report can only analyze variables that were available in these secondary sources. There were many instances where data were not available or limited in scope, particularly at the local level. This report is also primarily descriptive in nature rather than explaining or predicting trends using statistical tests. This would have been beyond the scope and intent of the project. We have relied on published scientific studies to support interpretation of the data presented, but chose to maintain accessibility for as broad an audience as possible.

## Previous reports

Several previous reports on the St. Louis region offer essential background and context for this report. We hope that the final report on *For the Sake of All* is a useful extension of this impressive body of work. For example, the *North St. Louis Health Care Access Study* provides a compelling case study of health care access in this predominantly African American area of the region, giving voice to its residents and the leaders of health care systems working to serve

them. Its focus on the links between economic resources, neighborhood conditions, and health also are taken up in this report. Another notable report, the St. Louis Regional Health Commission's *Decade Review of Health Status*, points to areas of progress in chronic disease mortality and other indicators of health in the region between 2000 and 2010, while also noting areas of continuing disparity. The City of St. Louis Department of Health has embarked on implementation of an ambitious Community Health Improvement Plan based on its *Understanding Our Needs — City Health Assessment*. It places a clear emphasis on factors like education, poverty, and public safety as key influences on the health of City residents. These themes and many others are also addressed in the *City of St. Louis Sustainability Plan*. In St. Louis County, similar work is being done through the Health Department's *Community Health Needs Assessment* as well as *Imagining Tomorrow for St. Louis County*, the County's recently released strategic plan. There have also been important regional reports that include health and well-being among their considerations, like the East-West Gateway Council of Governments' *OneSTL* regional plan. These reports are among the many that have informed our work and upon which *For the Sake of All* has built.

## Target Geography: St. Louis City and St. Louis County



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Introduction:

# WHY CONSIDER ECONOMICS, EDUCATION, AND HEALTH TOGETHER?

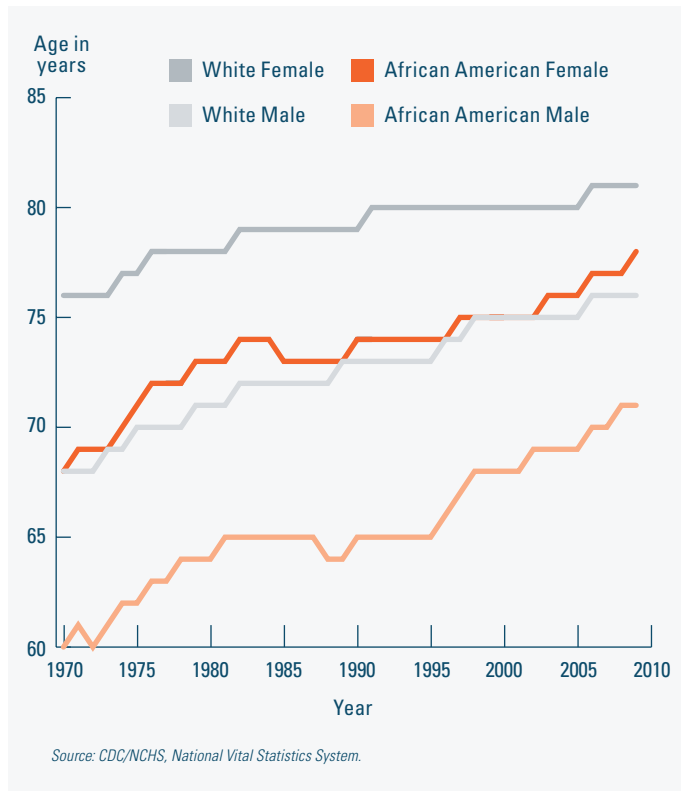
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Deaths due to limited economic and educational opportunity affect us all. In St. Louis, the estimated cost of this loss of life in one year is approximately \$4.0 billion.



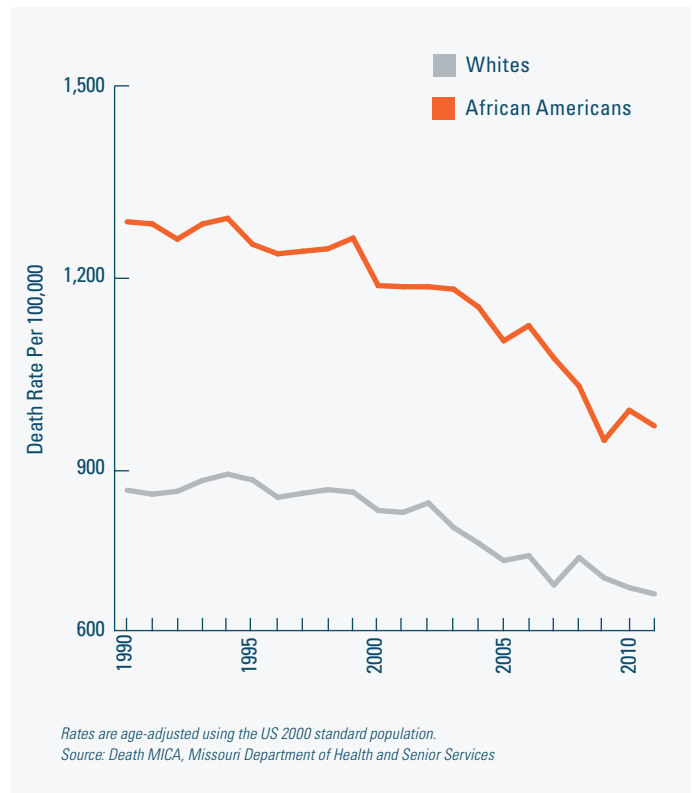
Health is fundamental to human well-being. Health makes it possible for us to engage fully in the activities of our daily lives and make contributions to our communities. Unfortunately, health is not equally distributed among groups in society. In fact, there are fairly consistent patterns of unequal health outcomes—like disease, disability, and death—between people of different genders, races, ethnicities, educational levels, and incomes.

**Figure 1.** Life expectancy at birth, by race and sex: United States, 1970 – 2009



In Figure 1, we can see that despite overall improvements in life expectancy at birth (i.e., how long we can project that a baby born at a particular time will live), the gap between races in the United States remains. Women in general live longer than men, but within gender groups, both white women and men live longer than African American women and men.

**Figure 2.** Death rates among St. Louis County and St. Louis City residents of all ages



A similar gap between outcomes for African Americans and whites exists when we look at the St. Louis region. Figure 2 shows that overall death rates for St. Louis residents of both races have declined over the past few decades, but African American mortality rates continue to be higher.

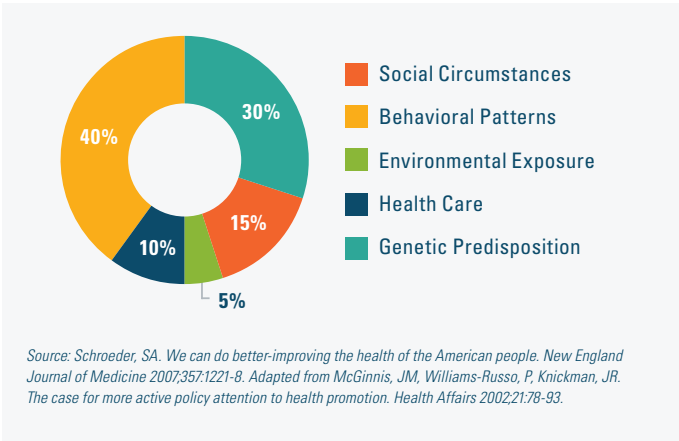
Health is fundamental to human well-being. Health makes it possible for us to engage fully in the activities of our daily lives and make contributions to our communities.

We call gaps like these *health disparities*. They are differences in health outcomes for specific groups within a population. Why do we observe such different health outcomes among racial groups both nationally and in the St. Louis region?



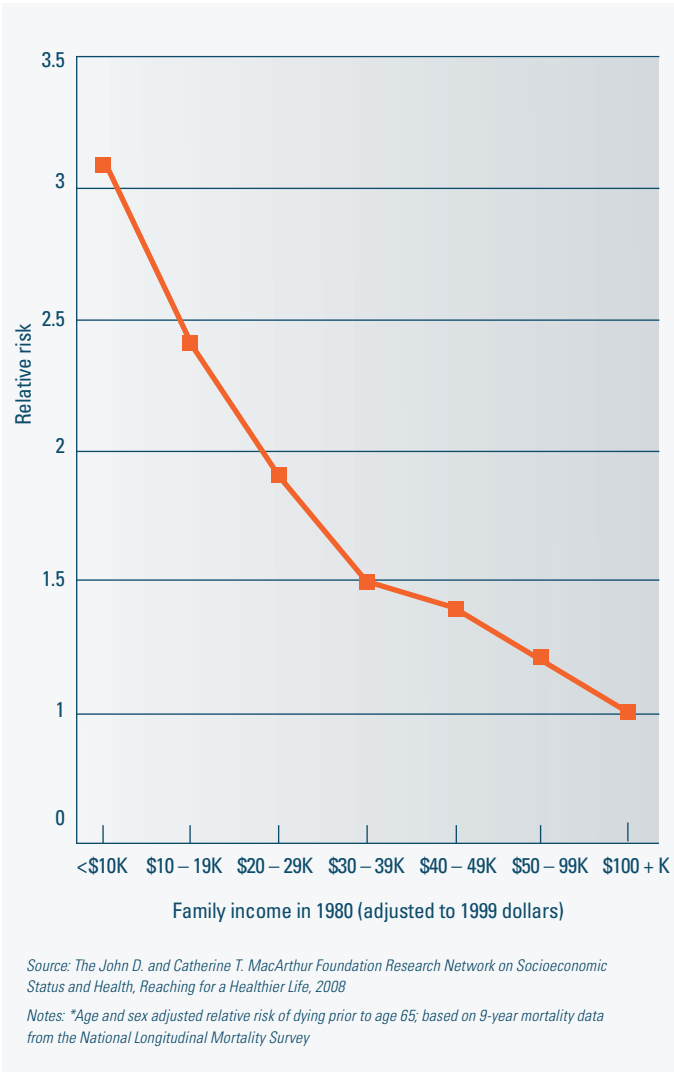
When most people think about health, their immediate thoughts turn to health care. But as Figure 3 shows, medical care only accounts for about 10% of premature deaths (i.e., dying before expected) in the U.S. After accounting for genetic differences between individuals (30%), most of the contribution to premature death is made by behaviors like diet, exercise, and smoking (40%), social factors like poverty, education, and housing (15%), and exposure to physical environments that are unhealthy because of toxins, disease carrying agents, or unsafe structures (5%).

**Figure 3. Factors Contributing to Premature Death**



What all of the factors outside of genetics have in common is that they are unevenly distributed in society along social and economic lines. Health differences are so consistently tied to these factors that we have a name for the relationship. It is called the *socioeconomic gradient in health*. Figure 4 illustrates the gradient by showing the relationship between household income and premature death. The reason it is called a gradient (which literally means something that goes up or down at a regular rate) is because health improves at every step up the socioeconomic ladder. In this case, the more income households have, the less likely the members of those households are to die early. Households with less than \$10,000 in income are more than 3 times more likely to die early compared to households with \$100,000 or more in income.

**Figure 4. Relative risk of premature death by family income (U.S. Population)**

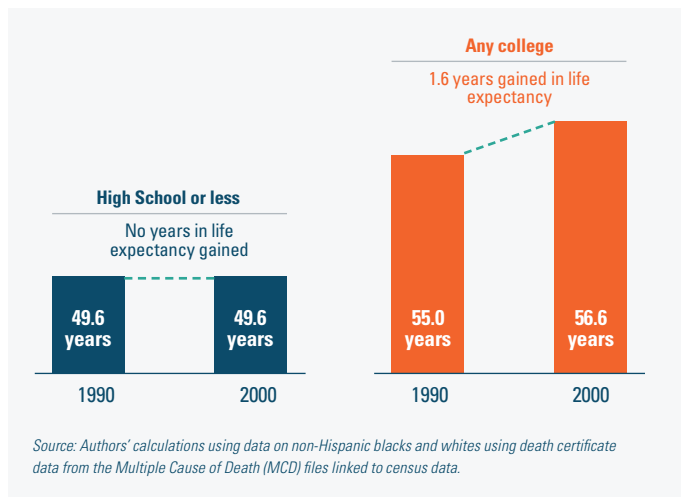


While differences in health outcomes by income are stark, an equally troubling trend is occurring when we look at gaps between groups who have different levels of education. Research has shown that the gap in expected years of life has been widening for those with high vs. low levels of education. Figure 5 shows that those with high school or less education gained no years of life between 1990 and 2000, while those with any college gained more than a year-and-a-half.

It turns out social and environmental contexts matter quite a bit for overall health.

So, we can see that a complex set of social and economic factors accounts for a significant proportion of our health outcomes. Even when we consider that behavior plays such an important part in explaining chronic diseases like cancer, heart disease, and diabetes, that behavior happens within a context. It turns out social and environmental contexts matter quite a bit for overall health. In our first brief, we were able to estimate the number of deaths among African American adults 25 and older in St. Louis City and County in 2011 that were attributable to poverty and low levels of education. Of the 3,101 deaths, 305 were due to poverty and 263 were due to obtaining less than high school education. The estimated cost of this loss of life (see Resources) was approximately \$4.0 billion. This is a clear, local example of the impact that social and economic factors have on health.


**Figure 5. Years of life remaining at age 25 by education level<sup>1</sup>**



**305 DEATHS**  
DUE TO POVERTY

**263 DEATHS**  
DUE TO LESS THAN HIGH SCHOOL EDUCATION

COMBINED THE NUMBER OF DEATHS COULD FILL OVER  
**7 METROLINK CARS**



THE ESTIMATED COST OF THIS LOSS OF LIFE IS APPROXIMATELY  
**\$4.0 BILLION**

To address these complex, population-wide relationships between social and economic factors and health in St. Louis, both policy and programmatic changes are necessary. In the sections that follow we will present several lines along which health and other aspects of well-being are unevenly distributed in our region, but we will also point to activities already taking place both locally and nationally that hold promise for better outcomes. We will suggest a set of policy and programmatic recommendations based on scientific evidence, community partner and stakeholder input, and comments gathered online and at the Community Feedback Forum.

Institutions, organizations, and individuals from across multiple sectors and segments of the region must come together to act.

Of course a report and list of recommendations by themselves will not result in progress. Institutions, organizations, and individuals from across multiple sectors and segments of the region must come together to act. Our hope is that the data and analysis provided in this report will be a helpful guide in focusing community-wide efforts to improve health and well-being *for the sake of all*.

# Two Lives of Jasmine

A simplified story of a girl told from the perspectives of two different starting points in life.

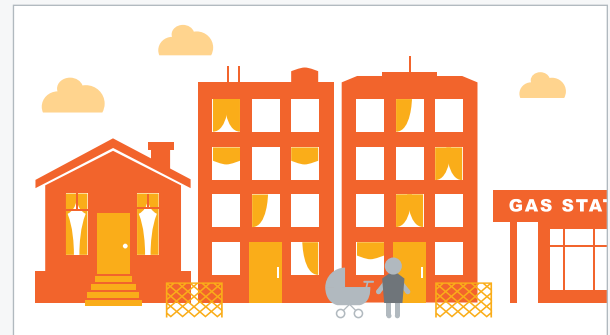
What follows is an attempt to describe how the life outcomes of a little girl we're calling "Jasmine" can be dramatically different based on the circumstances into which she is born. We have simplified the story to highlight crucial features of Jasmine's context that influence her health and well-being. At each stage in Jasmine's development, we also point to various opportunities to intervene. Obviously, there are also multiple opportunities for Jasmine to make individual choices about her life that will also impact her outcomes. The point is that those choices are shaped in important ways by both her starting point in life and the resources available to her.

- 1 Home and neighborhood:** The home and neighborhood environments affect health and shape current and future opportunities for children.



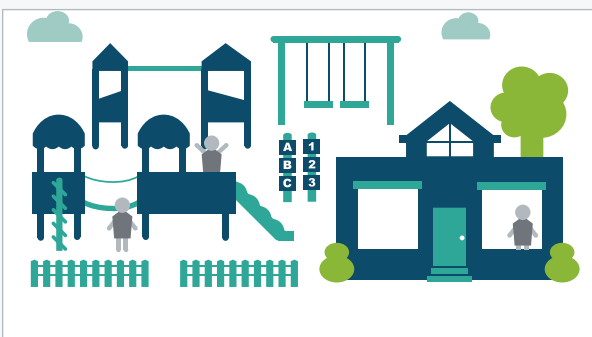
Jasmine is born to college-educated parents, who have stable jobs and income. When she is born, they start a college savings account to prepare for her future. Jasmine grows up in a neighborhood that provides healthy food options and safe places to play.

Home & Neighborhood



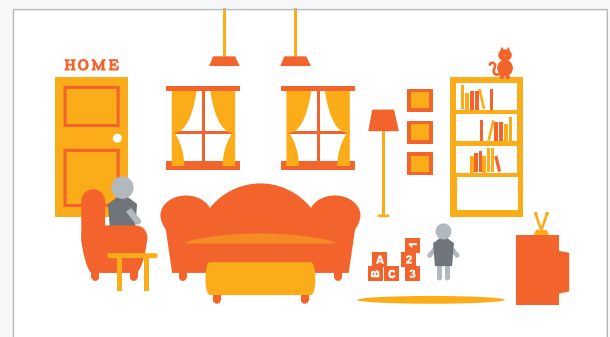
Jasmine is born to a single mother. Her mother works two jobs but struggles to make ends meet. She wishes she could spend more time reading to and interacting with Jasmine, but her work schedule makes it difficult. Jasmine's neighborhood doesn't have many places to buy fresh and healthy foods. **We could help Jasmine by making college savings accounts available for all children and investing in quality neighborhoods for all families.**

- 2 Early childhood:** High-quality early childhood programs allow children to grow and develop in a nurturing environment. This prepares them for future academic and job success and healthy adulthoods.



Jasmine's parents pay for her to attend a high-quality early childhood education center. She grows up in a nurturing environment, exposed to many fun learning activities and opportunities to explore her world.

Early Childhood

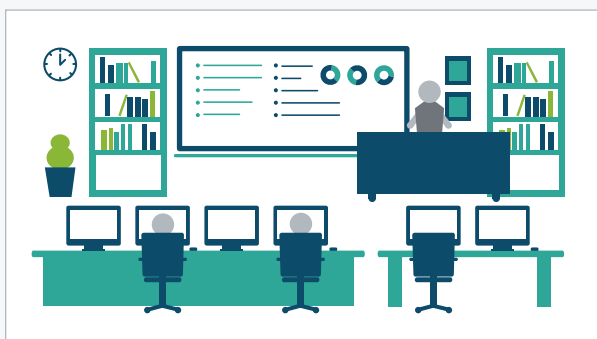


Jasmine stays with her grandmother during the day, and spends many hours inside because her family worries that it is not safe to play outside. Although her grandmother loves Jasmine very much, she also watches other grandchildren and doesn't have resources to do learning activities with Jasmine. She is also limited in what she can do by her own health problems. **We could help Jasmine by investing in quality early childhood education and development for all children.**



3

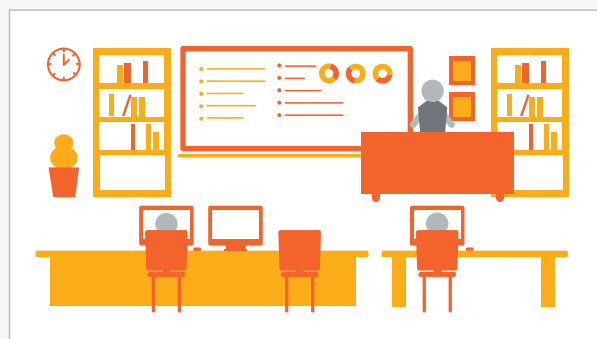
**School:** School is a setting where children spend a large part of their childhood and adolescence. The resources and quality of schools affect their learning and employment opportunities.



Jasmine's school district has many resources, like state-of-the-art technology, tutoring, and college counselors. Jasmine and her classmates expect to attend college and get information and financial support from their parents.



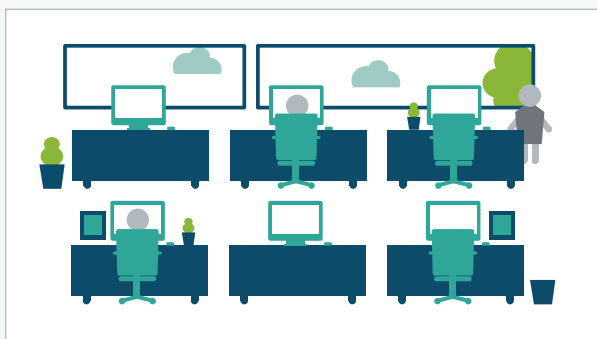
School



Jasmine is intellectually curious and wants to attend college but receives little guidance. There is also no savings account to help her pay for college and she has not been given basic financial education. She also has health problems that make it more difficult to learn in school. **We could help Jasmine by investing in coordinated school health programs.**

4

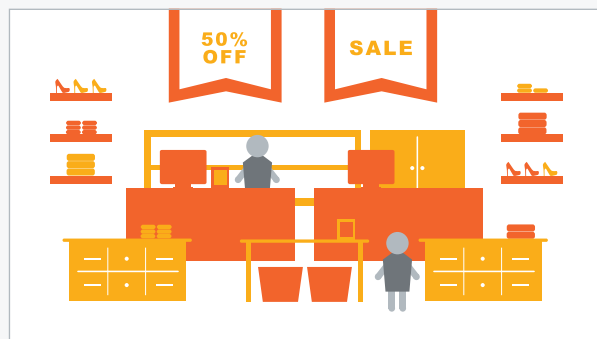
**Work:** Jobs are essential for bringing resources into households. They also offer many benefits beyond income that affect health and well-being.



After college, Jasmine finds a job working for an engineering firm. Jasmine's job provides benefits like health insurance, sick leave, and retirement savings.



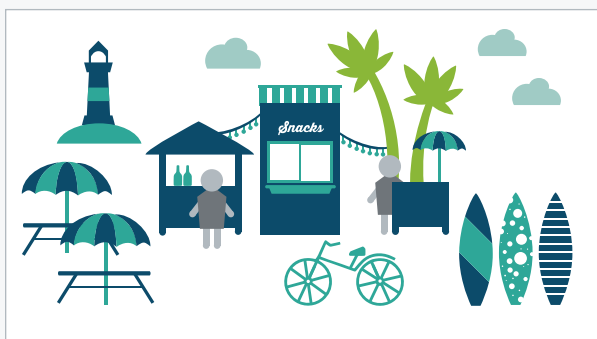
Work



Jasmine works in a mall as a sales associate. She works hard but is often worried about losing her job. Her work schedule changes often and makes it difficult for her to finish her degree at a local community college. Jasmine doesn't make enough money to save for retirement. **We could help Jasmine by creating economic opportunities like savings programs and easily accessible financial services.**

5

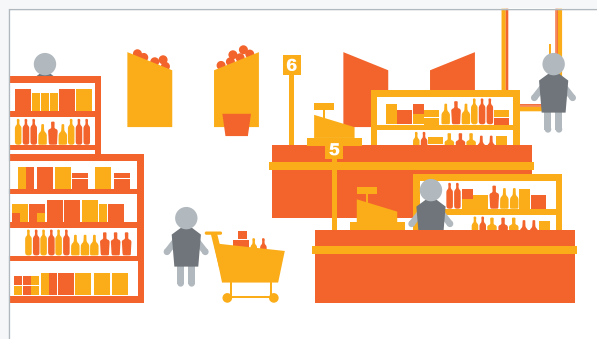
**Retirement Years:** As people age, many decide to retire. Some do not have that option. Others find that poor health forces them to leave work earlier than they expected.



Jasmine is able to retire at 67. She spends her time traveling and trying new activities. Jasmine also spends time with her family, who will benefit from the wealth she is able to leave behind.



Retirement Years



In her older age, Jasmine still needs to work. She works at a neighborhood grocery store as a clerk. Some days it is very difficult for Jasmine to work because she has health problems. Jasmine worries that she has very little to leave behind for her children. **We can help Jasmine by investing in chronic disease prevention and management.**



02

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Past and Present:

# **AFRICAN AMERICANS IN ST. LOUIS**

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By understanding a population's demographics, we are better able to identify and address areas of need with targeted intervention and investment.



## Historical perspective on African Americans in St. Louis

As we look back on milestones like the Civil Rights Act of 1964 and the 1954 *Brown v. Board of Education* decision, it is entirely appropriate to ask what progress has been made in the St. Louis region. The picture that emerges is mixed. Some measures of health and well-being have improved, while others are worse than they were 50 or 60 years ago. One important caveat to consider is that certain factors were measured or understood in different ways several decades ago. We have only reported trends where we believed the data collection methods and definitions were similar enough to warrant it.

### African American population in the 1950s and 1960s

In 1950, there were a total of 170,350 African Americans in St. Louis County and the City of St. Louis.<sup>2</sup> The total African American population grew to 233,384 (37% increase) by 1960.<sup>3</sup> It is important to note that most African Americans (92%) during this time period lived in the City. As will be noted later, a much larger proportion of the African American population now resides in St. Louis County.

### Educational attainment

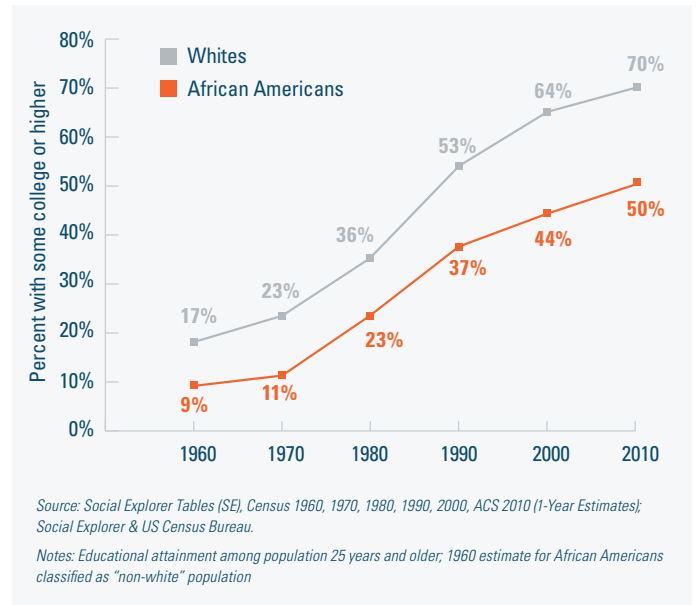
One area of considerable progress is educational attainment, particularly the percentage of African Americans in the region who have completed at least some college.

Figure 6 shows that in the 50-year period between 1960 and 2010, the percentage of African Americans with some college or higher education increased by over 5 times (9% in 1960 vs. 50% in 2010). A sharp increase began in the 1970s. Opportunities opened up by the gains of the Civil Rights Movement no doubt contributed to this marked improvement in educational outcomes. However, even these impressive gains did not close the gap with whites in St. Louis. By 2010, the gap in attaining some college or higher education was 20 percentage points (50% vs. 70%).

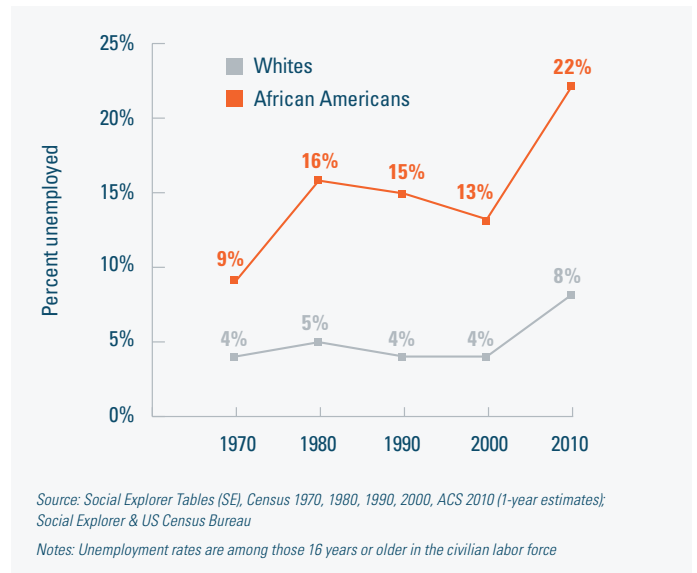
### Unemployment

African American unemployment rates have been roughly twice that of whites in the United States for several decades. Figure 7 shows the unemployment data for the St. Louis region, where African American unemployment rates have ranged from 2 to nearly 4 times higher than whites.

**Figure 6.** Educational attainment in St. Louis County and St. Louis City, 1960 – 2010



**Figure 7.** Unemployment rates in St. Louis County and St. Louis City, 1970 – 2010

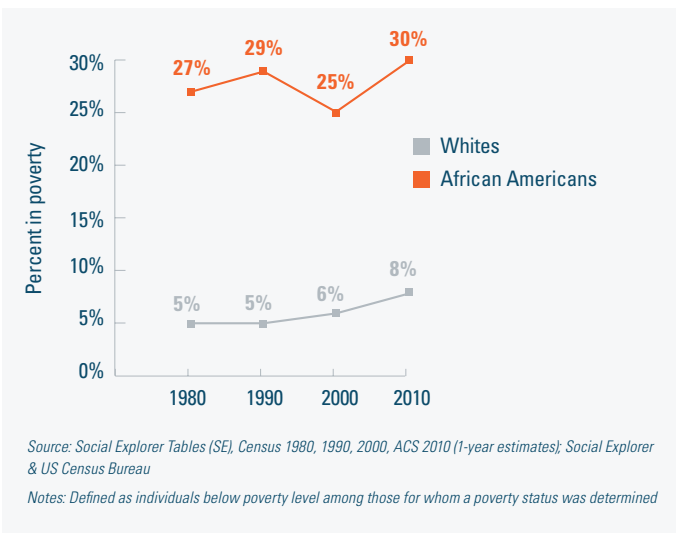




### Poverty

There is a notably persistent gap in the rate of poverty in the past 30 years as well. Figure 8 shows that rates of poverty range from 4 – 6 times higher for African Americans compared with whites in St. Louis. Concentrated areas of poverty that are the result of persistent racial and economic segregation in the St. Louis region continue to have serious health and other social consequences. We will address the impact of poverty on the health of African Americans in the following sections.

**Figure 8. Poverty in St. Louis County and St. Louis City, 1980 – 2010**

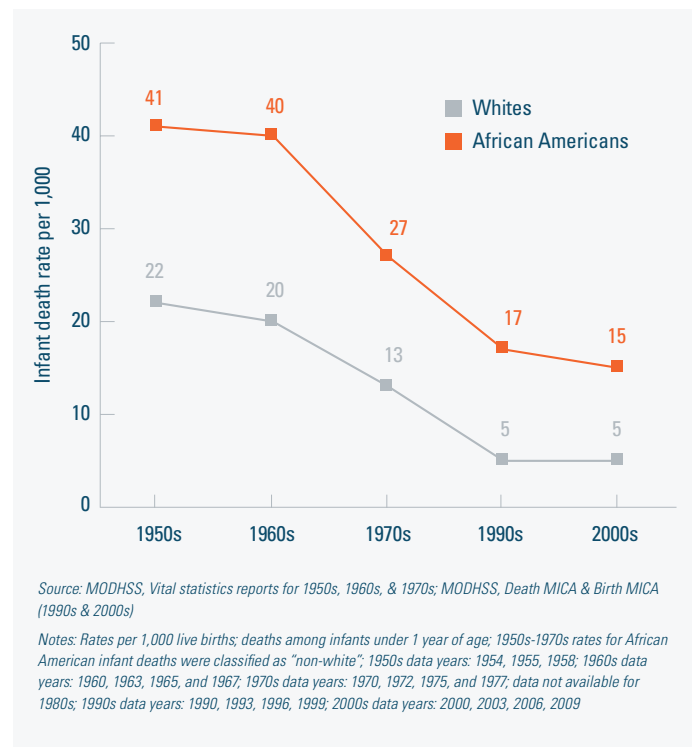


### Historical health outcomes

Next, we provide a snapshot of health data contained in historical vital statistics reports from the 1950s, 1960s, and 1970s. It is important to note that very different disease classifications were used to record deaths in these time periods. We do not report on chronic diseases like cancer and heart disease because only crude mortality rates are available. This means that they are not adjusted for the age composition of the population, and rates likely underestimate the true risk of death due to chronic disease for African Americans during this time period.

What is clear from these data, though, is a consistently higher rate of death among infants (see figure 9). As we will see in data on the present day, this is a disparity that continues to characterize the St. Louis region. Also of note were the extremely high disparities in death by homicide. For example, African Americans had a homicide death rate (38 deaths per 100,000) that was 10 times higher than whites (4 deaths per 100,000) in the 1960s.<sup>4</sup> Present-day disparities present a similar challenge.

**Figure 9. Infant death rate in St. Louis County and St. Louis City, 1950s – 2000s**





## Present-day perspective on African Americans in St. Louis

We turn now to a present-day overview of the demographic and economic characteristics of the African American population in the region. By understanding a population's demographics, we are better able to identify and address areas of need with targeted intervention and investment. As we have seen, examining social and economic factors also helps us to understand their relationship with health outcomes.

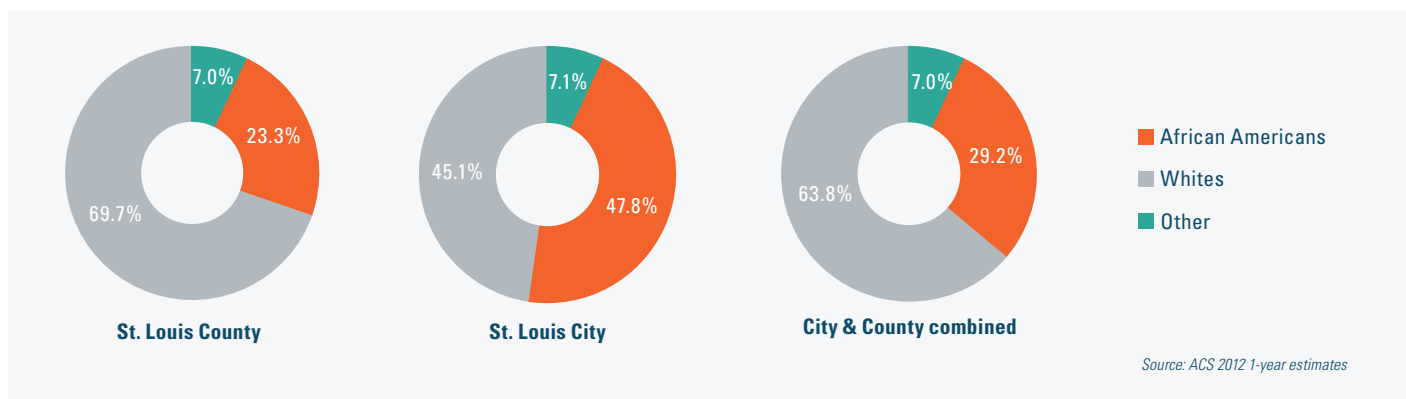
### Demographic trends in St. Louis

The demographics of St. Louis have changed over the previous decade. One notable trend is the change in population from 2000 to 2010. Census data show that during this period there was an overall increase of 5% in the African American population in St. Louis County and St. Louis City combined.<sup>5</sup> Looking at the two areas separately, however, reveals a 12% decrease in African American population in the City compared to a 21% increase in the County.<sup>6</sup>

As part of the growing diversity in the region, the youngest generation of African Americans will make up a significant proportion of workers and taxpayers in the next 20 to 30 years.

The St. Louis region also became more diverse between 2000 and 2010. This was due to a decreasing population of whites (10% decrease) coupled with a 10% increase in the population of all other racial groups, including African Americans.<sup>7</sup> These data reflect a national trend in which the majority of U.S. residents are expected to be people of color by 2043.<sup>8</sup> These demographic changes are already becoming evident among the youngest children, with non-Hispanic

**Figure 10.** St. Louis population by race



white children under the age of 1 now in the minority.<sup>9</sup> Nationally, it is expected that the majority of youth will be people of color by 2020.<sup>10</sup> It is important to keep these changing demographics in mind when discussing the health and well-being of African Americans in St. Louis. As part of the growing diversity in the region, the youngest generation of African Americans will make up a significant proportion of workers and taxpayers in the next 20 to 30 years.

### Population of African Americans in St. Louis

Figure 10 shows the percentage of all St. Louis residents who are African American. In total, about 30% of the St. Louis regional population of 1.32 million people is African American (385,116). Almost half (48%; 152,068) of City residents are African American. In St. Louis County, more than 1 in 5 residents is African American (23%; 233,048).

**Table 1.** Population estimates of African Americans

	St. Louis County	St. Louis City	City & County Combined
<b>African Americans</b>	233,048	152,068	385,116
<b>Total Population</b>	1,000,438	318,172	1,318,610

Source: ACS 2012 1-year estimates

It is important to note that these estimates of population include individuals who are within institutions like correctional facilities and nursing homes, among others. There are an estimated 16,857 residents of St. Louis County and St. Louis City who are institutionalized.<sup>11</sup> This makes up 1.3% of the 1.32 million people in the County and City according to the 2010 Census.<sup>12</sup> About 1 in 3 (31%) of the institutionalized are in correctional facilities like prisons and jails. While making up a little less than 30% of the regional population, 61% of St. Louis adult residents in correctional facilities are African Americans (see table 2). Several authors and commentators have noted the negative impact of mass incarceration on African American communities, including poor mental and physical health outcomes for the incarcerated and their families.<sup>13-16</sup>

**Table 2. Incarceration estimates by race**

	St. Louis County	St. Louis City	City & County combined
<b>Adult residents in correctional facilities</b>	2,344	1,300	3,644
<b>African Americans</b>	1,264 (54%)	956 (74%)	2,220 (61%)
<b>Whites</b>	1,029 (44%)	336 (26%)	1,365 (37%)

Source: Census 2010

Notes: Correctional facilities include federal detention centers, federal and state prisons, local jails and other municipal confinement facilities, and correctional residential facilities

### Gender and age

Among African Americans in St. Louis, there is a higher percentage of females (55%) compared to males (45%) (see table 3). The patterns are roughly the same in the County and the City.

**Table 3. Percent of males and females among African Americans**

	St. Louis County	St. Louis City	TOTAL
<b>Males</b>	104,079 (45%)	69,965 (46%)	174,035 (45%)
<b>Females</b>	128,969 (55%)	82,112 (54%)	211,081 (55%)

Source: ACS 2012 1-year estimates

**Figure 11. African American age and gender distribution in St. Louis County and St. Louis City**

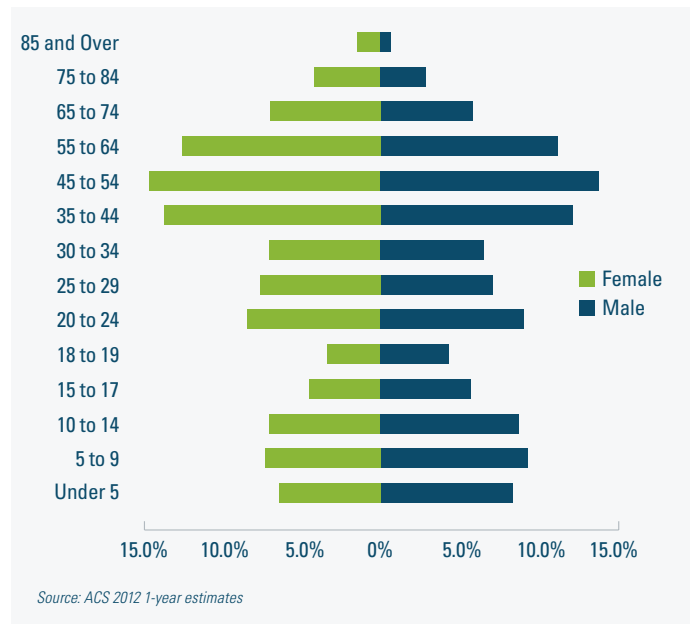


Figure 11 shows the gender breakdown by age category. The different shapes and patterns between males and females illustrate differences in age structures among African Americans. Some differences can be due to life expectancy at birth. On average, women tend to live longer than men. There are also troubling differences in the ability of African American men in particular to complete education and obtain employment that may further contribute to premature death.<sup>17</sup>

### Employment, income, and poverty

Unemployment is strongly linked to poor health and higher rates of death.<sup>18</sup> Jobs are essential for bringing resources into households, but they also offer many other benefits beyond income. Both the income and benefits associated with employment can affect health. For example, being employed may provide access to workplace wellness programs. These programs may support lifestyle choices like getting enough physical activity or quitting smoking, which can affect health and well-being.<sup>19</sup>

Employment status also influences the well-being of families. For example, unemployment can reduce a parent's resources to provide proper child care.<sup>20</sup> The quality and type of care young children receive can have a lasting effect on their development and ability to succeed in school. Employment also provides many families health insurance in a largely employer-based system.



**Table 4.** Unemployment status for the population 16 years and over in the civilian labor force

	St. Louis County	St. Louis City	City & County combined	National Rates*
<b>Total unemployment rate (%)</b>	9%	14%	10%	7%
<b>African Americans</b>	18%	26%	21%	13%
<b>Whites</b>	6%	6%	6%	7%

Source: ACS 2012 1-year estimates; \*Current Population Survey, 2013

Employment may also offer other benefits like paid leave, schedule flexibility, resources for elder care, and retirement benefits. Jobs that pay well also contribute to household financial security and give families the resources to live in health-promoting neighborhoods.<sup>21</sup> It is also important to note that being in poor health can lead to unemployment and loss of income. This is especially true as people age and start to develop chronic diseases. However, studies suggest that income loss due to poor health does not fully explain the differences in health between those with lower and higher incomes.<sup>22, 23</sup>

Dealing with the realities of having limited resources is often stressful.<sup>24,25</sup> Long-term stress can contribute to a variety of health problems.<sup>26,27</sup> Studies have suggested that this long-term stress releases a substance in the body called cortisol that can damage the immune system and vital organs.<sup>28,29</sup> Over time this wear-and-tear on the body can lead to more rapid development of chronic illnesses like heart disease<sup>30</sup> and to rapid aging.<sup>31-33</sup>

Dealing with the realities of having limited resources is often stressful. Long-term stress can contribute to a variety of health problems.

With this set of facts as background, the following data offer a snapshot of the employment, income, and poverty status of African Americans in St. Louis.

### Unemployment

As was shown in the section on historical patterns, there has been a persistent gap in the unemployment rate for African Americans compared to whites in St. Louis. African Americans currently have an unemployment rate that is more than 3.5 times higher than the rate for whites (see table 4). The pattern is similar in the County and the City. However, the problem is more pronounced in the City, where roughly 1 in 4 African Americans (26%) is unemployed. By comparison, the national, annual estimate in 2013 for unemployment stood at 7%, and the national African American unemployment rate was 13%.<sup>34</sup>

Unemployment rates are higher among African American males compared to females, with 1 in 4 males 16 years and over unemployed (see table 5). Considering the City alone, almost a third of African American males are unemployed. These local unemployment rates are considerably higher than the national rates for African American men and women. The national unemployment rate in 2013 for African American men was 14% and 12% for women.<sup>35</sup>

**Table 5.** Unemployment status among African Americans by gender for the population 16 years and over in the civilian labor force

	St. Louis County	St. Louis City	City & County combined
<b>Males</b>	23%	29%	25%
<b>Females</b>	14%	24%	17%

Source: ACS 2012 1-year estimates



## Earned Income Tax Credits

Earned income tax credits (EITCs) are refundable tax credits for low- and middle-income working families. A recent study found that EITCs provide significant income and employment increases for participating families.<sup>37</sup> EITCs are also associated with improvements in maternal and child health and elementary school performance.<sup>38</sup> The EITC was temporarily expanded under the 2009

American Recovery and Reinvestment Act, which lifted 500,000 people out of poverty.<sup>39</sup> EITCs have a consistent record of improving employment and income for working families, but the 2009 expansion is set to expire in 2017.

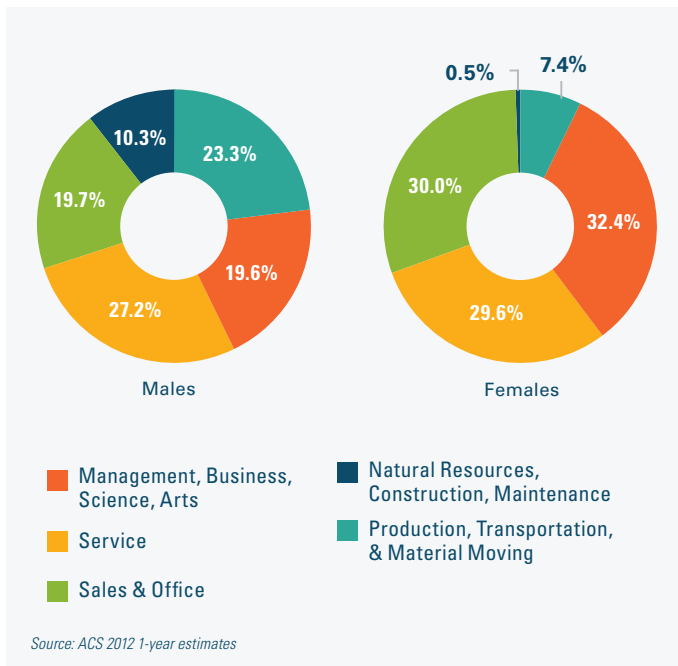
Earned income tax credits are only available to families who file an income tax return with the IRS. The Gateway

Earned Income Tax Credit Coalition (GECC) is one example of a private-public partnership in St. Louis that provides free tax preparation and other financial services to families with low-to-moderate incomes. GECC has several partner organizations throughout the region.

### Jobs by sector

Figure 12 shows the job sectors in which African American males and females are employed in St. Louis County and St. Louis City. Compared to females, a higher percentage of African American males in St. Louis have jobs in natural resources, construction, maintenance, production, transportation, and material moving. Whereas, compared to males, a higher percentage of females have jobs in management, business, science and arts.

**Figure 12.** African American employment by job sector among males and females



### Income

Though employment is an important indicator of household well-being, having a job does not fully capture the actual resources gained from paid work and other sources of income. Therefore, it is necessary to also describe household income, where there are significant gaps. In St. Louis County and St. Louis City, African Americans have a median income that is less than half that of whites (see table 6). This figure includes all household income from all sources in the past 12 months (e.g., investments, rental income, and government transfers). The differences in income are about the same for the County and the City, though income is higher for both populations in St. Louis County.

**Table 6.** Median household income by race

	St. Louis County	St. Louis City	City and County combined
African Americans	\$35,757	\$21,931	\$28,951
Whites	\$65,500	\$49,192	\$62,010

Source: ACS 2012 1-year estimates

Notes: In 2012 inflation adjusted dollars; income within the past 12 months

**Table 7.** Household income in the past 12 months among African Americans

	Total African American Households		
	St. Louis County 91,304	St. Louis City 63,108	City and County combined 154,412
Less Than \$10,000	8,933 (9.8%)	15,891 (25.2%)	24,824 (16.1%)
\$10,000 To \$14,999	10,371 (11.4%)	7,842 (12.4%)	18,213 (11.8%)
\$15,000 To \$24,999	13,345 (14.6%)	11,037 (17.5%)	24,382 (15.8%)
\$25,000 To \$34,999	12,299 (13.5%)	9,905 (15.7%)	22,204 (14.4%)
\$35,000 To \$49,999	14,486 (15.9%)	6,771 (10.7%)	21,257 (13.8%)
\$50,000 To \$74,999	15,122 (16.6%)	5,921 (9.4%)	21,043 (13.6%)
\$75,000 To \$99,999	8,865 (9.7%)	2,861 (4.5%)	11,726 (7.6%)
\$100,000 To \$149,999	6,011 (6.6%)	1,897 (3.0%)	7,908 (5.1%)
\$150,000 To \$199,999	1,405 (1.5%)	507 (0.8%)	1,912 (1.2%)
\$200,000 Or More	467 (0.5%)	476 (0.8%)	943 (0.6%)

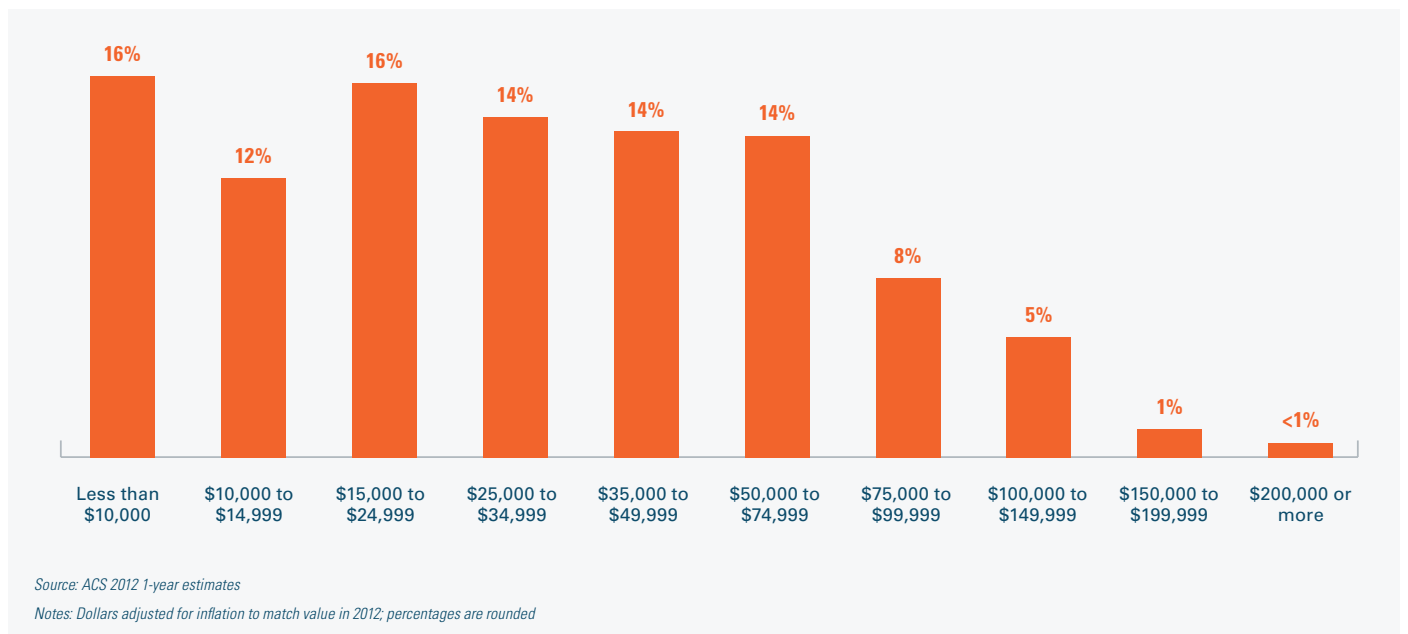
Source: ACS 2012 1-year estimates

Notes: Dollars adjusted for inflation to match value in 2012

Median incomes describe a type of average income. It is important to note that while African Americans as a whole have lower average income, a substantial proportion of African American households have high earnings. When the full range is examined (figure 13), many African Americans in St. Louis have incomes that are above the median income for the total population (\$50,263).<sup>36</sup> In fact, 28% of African American households in the St. Louis County and St. Louis

City have incomes above \$50,000. In the County, more than a third (35%) of African American households have income of \$50,000 or more, and about 1 in 10 African American households (9%) in the County has income of \$100,000 or more. In the City, 19% of African American households have an income \$50,000 or higher, and 5% have an income of \$100,000 or higher.

**Figure 13.** Household income for African Americans in St. Louis County and St. Louis City

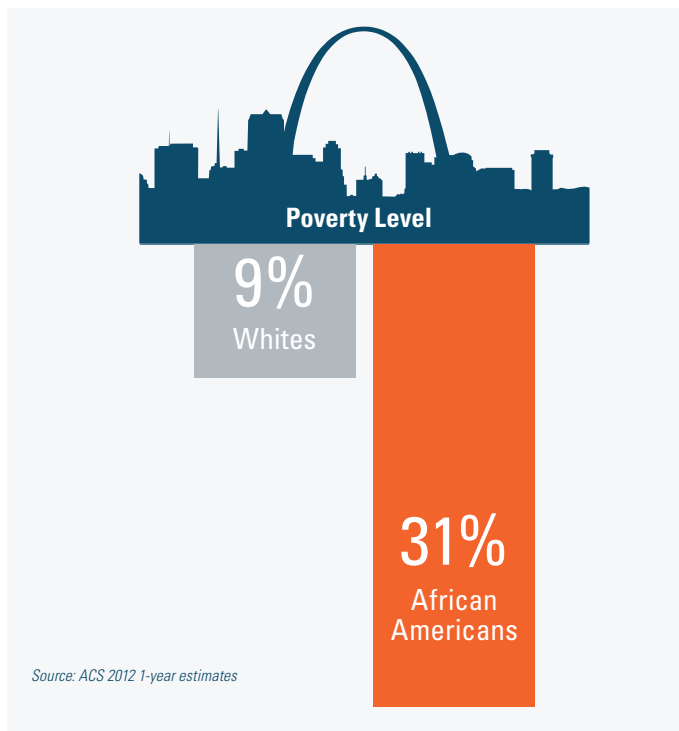




## Poverty

Poverty affects close to 1 in 3 African Americans vs. less than 1 in 10 whites in St. Louis County and St. Louis City.<sup>40</sup> We discussed above the link between poverty and health in St. Louis. Research suggests that the impact of poverty on children is especially troubling. Starting life in poverty has negative consequences for health well into adulthood.<sup>41</sup> Almost half (46%) of African American children under 18 live in poverty in St. Louis County and St. Louis City.<sup>42</sup> This places African American children in St. Louis at greater risk for adverse health outcomes.

**Figure 14:** Percent of St. Louis County and St. Louis City residents with income below poverty level



## Wealth

There are important differences between income and wealth. Where income is the amount of financial resources coming into (and often back out of) a household, wealth is accumulated, or saved, resources. Building up wealth is one way to ensure economic well-being, and wealth has also been linked to health.<sup>43</sup> In some studies using national data, accounting for wealth in addition to factors like education, income, and occupation helped to explain the gap in mortality between African Americans and whites.<sup>44</sup> Several national studies also have noted a wide and persistent gap in wealth between African Americans and whites even with comparable levels of income.<sup>45</sup>

Unfortunately, there are very few sources of information on household wealth at the local level. We use homeownership and home values as indicators of wealth because a significant proportion of overall wealth is held in the value of homes. Homeownership also has some direct relationships with health, especially in older individuals.<sup>46</sup> Figure 15 shows differences in homeownership between African Americans and whites in St. Louis County and St. Louis City. Approximately 3 out of 4 white householders (74%) own their homes. Among African American householders, less than half (42%) are homeowners. Thus, a smaller proportion of African Americans have access to the crucial wealth-building asset of homeownership.



## Individual Development Accounts and Child Development Accounts

We can encourage families to save money by providing incentives and supports. Programs like Child Development Accounts (CDAs) and Individual Development Accounts (IDAs) can help reduce poverty and give families hope for the future. IDAs use matched savings, financial education, and other supports such as employment training, crisis management, and mentoring to increase financial literacy and asset management for low-income and low-wealth individuals and families. Research shows that IDA programs

significantly improve credit scores and financial literacy for participants, but more outreach is needed to reach low-resource populations.<sup>47-49</sup>

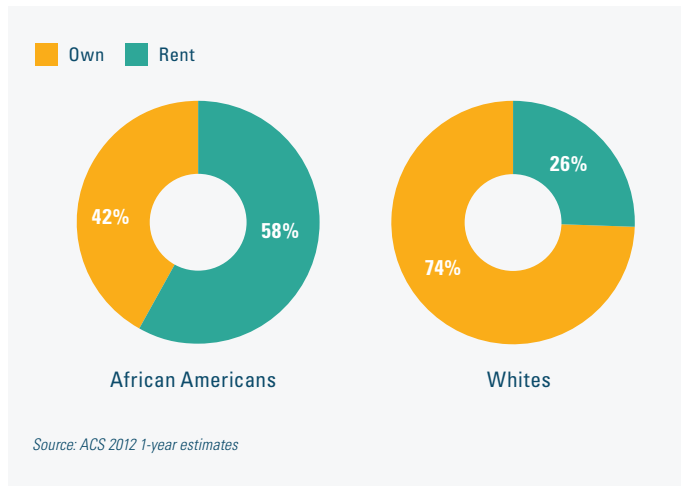
There is also growing evidence that CDAs may have positive effects on health and well-being, including social and emotional development in children<sup>50</sup> and depression symptoms in mothers.<sup>51</sup>

Maine recently became the first state in the U.S. to make college savings universally available to newborns. The Harold Alfond Foundation believes in giving every child

in Maine the opportunity to succeed. Harold Alfond made available \$500 for each newborn to start a NextGen account for education beyond high school.<sup>52</sup>

A powerful St. Louis example is the Promise Account program that is part of Beyond Housing, Inc.'s 24:1 initiative in the Normandy School District. Through the generosity of a private donor, every kindergartner in the Normandy School District receives \$500 in a college savings account.

**Figure 15.** Homeownership among African American and white households in St. Louis County and St. Louis City



The dollar (\$) value of homes provides one way to describe the amount of wealth held in housing. Even when African Americans do own their homes, home values differ considerably from those of whites. In both St. Louis County and St. Louis City, the median home value for African Americans is a little over half the median home value for whites (see table 8).

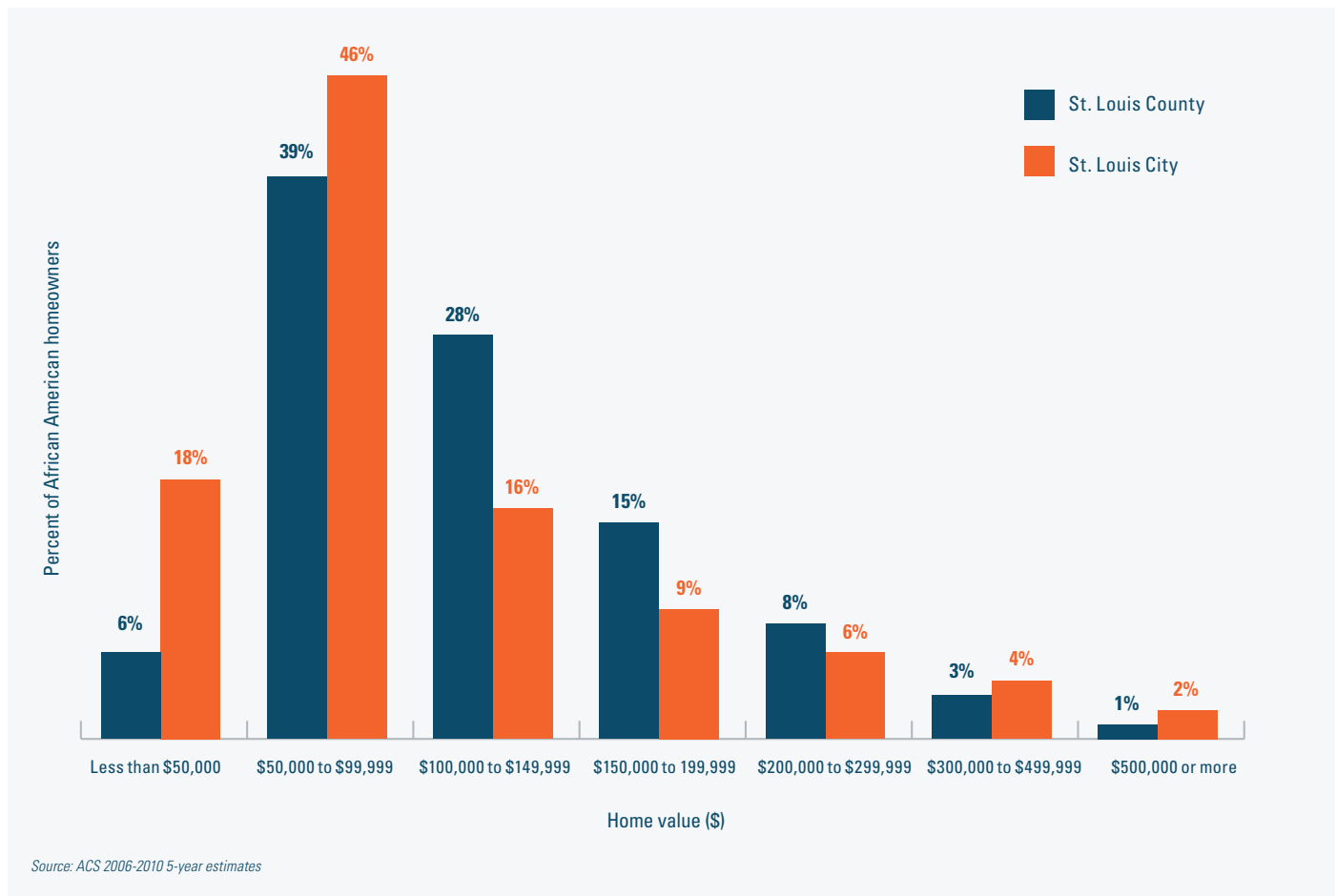
**Table 8.** Median home values in dollars (\$)

	St. Louis County	St. Louis City
African Americans	\$108,600	\$82,900
Whites	\$195,600	\$145,700

Source: ACS 2006-2010 5-year estimates

A higher percentage of African American homeowners in St. Louis City have a home value less than \$100,000 compared to those in St. Louis County. On the other hand, a higher percentage of African Americans in St. Louis County have a home value of \$100,000 or more. This pattern changes again at the very highest home values, with African Americans in the City more likely to own homes valued at \$300,000 or more. Of course, home values only give a limited picture of overall wealth, which also includes the value of bank accounts, retirement savings, businesses, and other investments. The total debt that a household owes also contributes to the determination of household wealth.

**Figure 16.** Home values among African American homeowners



03

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Place matters:

# NEIGHBORHOOD RESOURCES AND HEALTH

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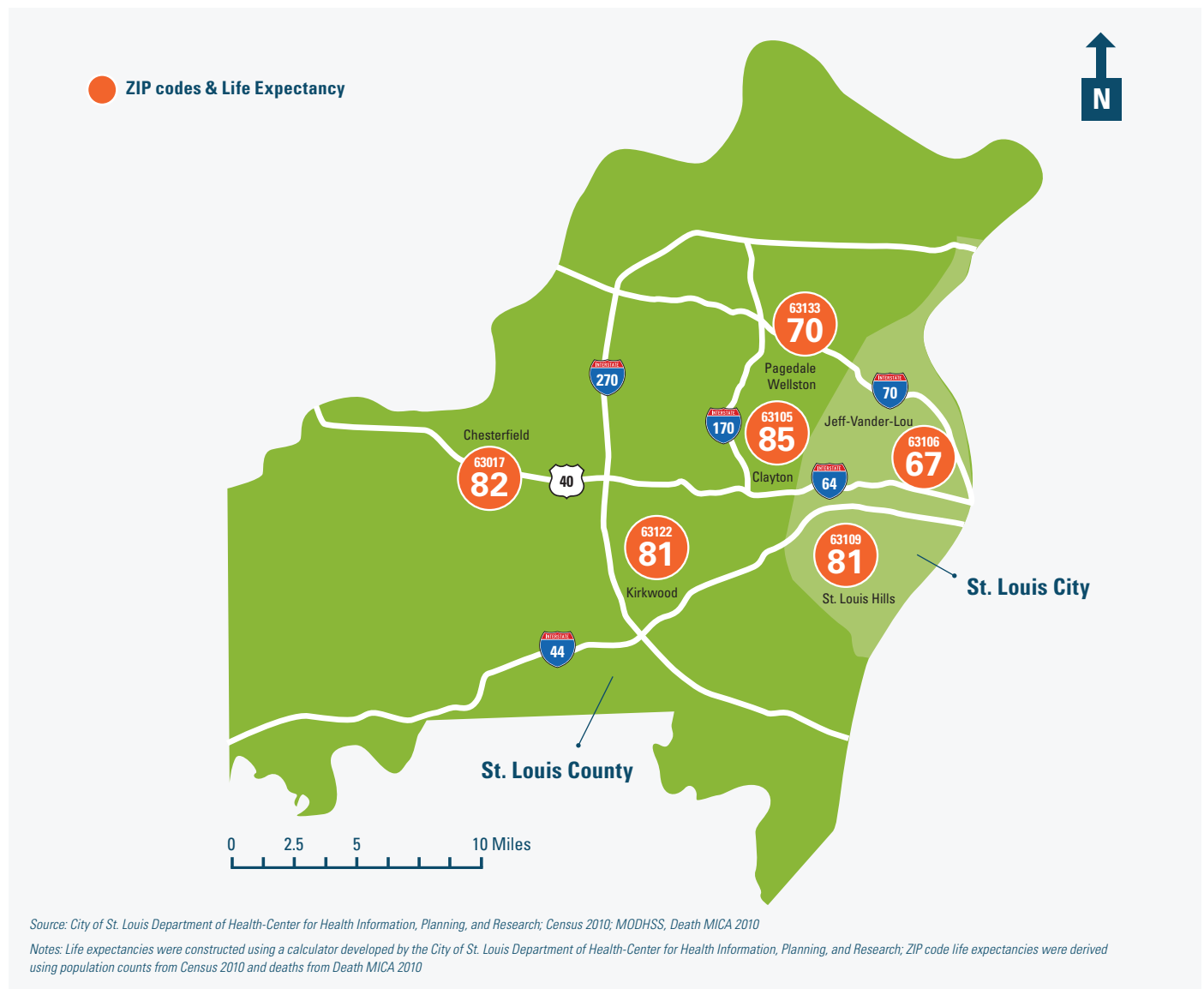
There is growing awareness that the conditions in which people live, learn, work, and play have a strong impact on their health.

Braveman P., Egerter S., & Williams D.R. 2011. The social determinants of health: coming of age. *Annu. Rev. Public Health*. 32:381-98

Where we live can either support a healthy life, or it can make health more difficult to maintain. There is growing awareness that the conditions in which people live, learn, work, and play have a significant impact on their health.<sup>53</sup> Perhaps nowhere is this more evident than the communities in which we live. Figure 17 shows that babies born in certain neighborhoods can have stark differences in life expectancy. A child born in 63106 near the Jeff-Vander-Lou neighborhood can expect to live 18 fewer years than a child born in 63105 (Clayton), 15 fewer years than a child born in 63017 (Chesterfield), 14 fewer years than children born in 63122 (Kirkwood) and 63109 (St. Louis Hills), and 3 years fewer than a child born in 63133 (Pagedale/Wellston).

Of course, ZIP codes are relatively meaningless without the context provided by the composition of the population in them. Map A in figure 20 shows the percentage of the population composed of African Americans at the ZIP code-level. The areas that are orange on the map represent ZIP codes with a high population of African Americans (45% of higher), the light blue shows moderate African American population (6 – 44%), and the dark blue shows the lowest African American population (1 – 5%). There is a fairly clear pattern that emerges. In general, there is a higher concentration of African Americans in areas of north St. Louis County, north St. Louis City, and parts of central and south St. Louis City, with lower concentrations particularly in the southern and western portions of St. Louis County. The lowest life expectancies from figure 17 are also in areas with the highest concentration of African American population.

**Figure 17.** Life expectancy at birth by ZIP code



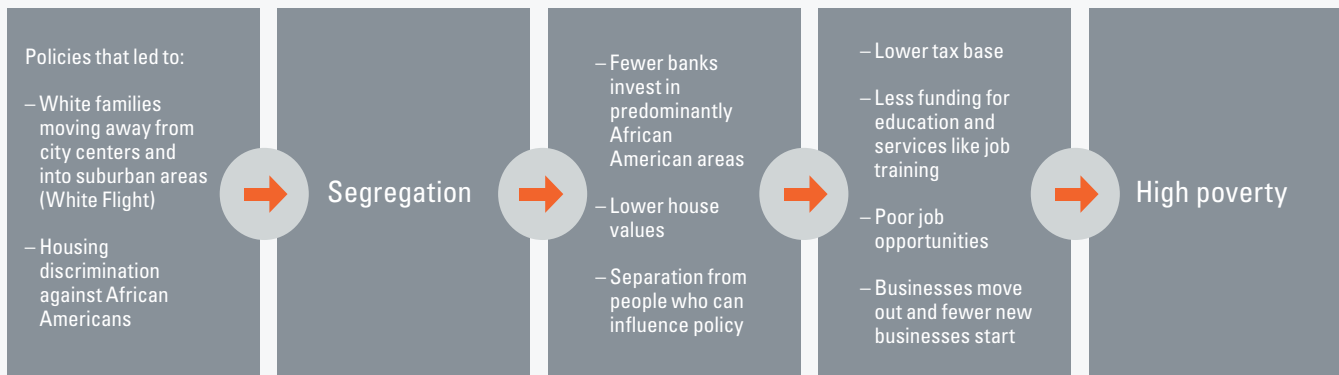
## Segregation in St. Louis

The patterns within neighborhoods noted above must be understood in the context of residential segregation, by both race and social class, and its history in St. Louis. Despite progress in terms of anti-discrimination laws over the past half-century, St. Louis is still confronting the legacy of past policies and practices. It remains one of the most segregated metropolitan areas in the U.S.<sup>54</sup> These divisions not only affect the social fabric of the region, but also contribute to negative health outcomes for families living in socially disadvantaged neighborhoods.

Communities like St. Louis became segregated, in part, because of policies that supported the movement of white families from city centers into suburban areas (a phenomenon known as “white flight”) coupled with housing discrimination against African Americans. For example, preferential lending occurred under the Federal Housing Administration, and restrictive deed covenants made it illegal for African Americans to buy homes in some neighborhoods in St. Louis.<sup>55</sup> Over time, these factors resulted in racially segregated areas in St. Louis. The effects of segregated neighborhoods are widespread and often result in neighborhoods with high concentrations of poverty (see figure 18). For this reason segregation must be added to the many factors we have highlighted that contribute to differences in health.<sup>56</sup>



**Figure 18:** Process by which segregation leads to poverty



Source: Adapted from University of Michigan's *The Geography of Race in the US, Economic Consequences of Segregation*





## The Delmar Divide

An example of modern-day segregation in St. Louis is the Delmar Divide recently highlighted by a British Broadcasting Corporation report. The figure below shows two areas in St. Louis separated by Delmar Blvd. The area directly to the north of Delmar Blvd. is 99% African American. The median home value north of Delmar is \$78,000, which is a quarter of the value for homes in the area south of Delmar (\$310,000). There are also differences in income and educational attainment. Only 5% of residents 25 years or older in the area north of Delmar have a bachelor's degree or higher, compared to 67% south of Delmar. This means the percentage of residents with a bachelor's degree or higher is 13 times higher for residents in the area south of Delmar. Of course, the broader region is much more complex in its racial and economic composition than the area highlighted in the BBC report, but this remains a compelling illustration of the very different experiences of communities in relatively close proximity to one another.

Source: ACS 2007-2011 5-year estimates

Notes: The figure above represents median home values and median household income; shaded areas represent census tracts; north of Delmar: census tract ID 1123; south of Delmar: census tract ID 1124.

Figure 19: The Delmar Divide in St. Louis

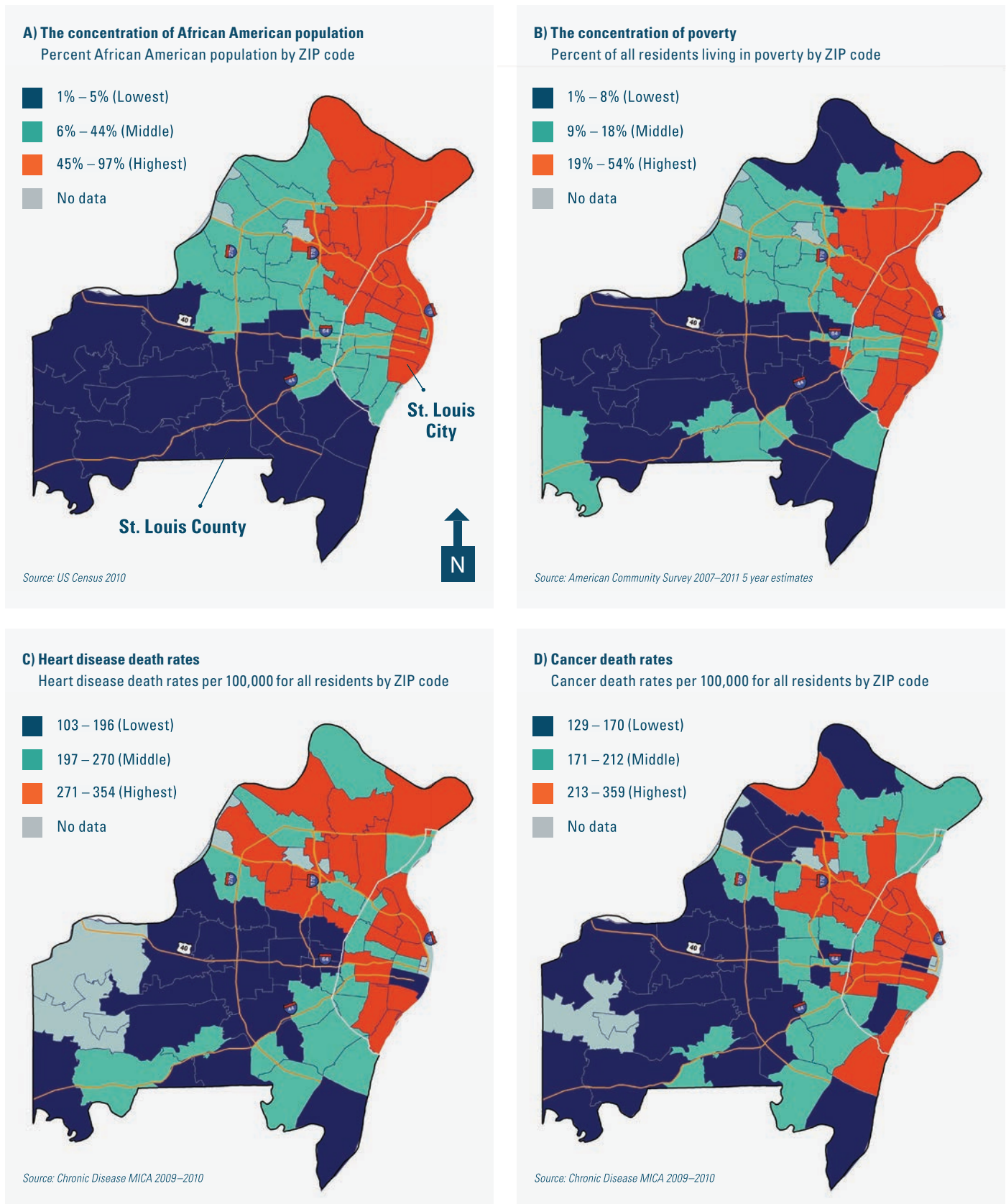


### Mixed Income Incentives

Research has found that several types of mixed income incentives promote neighborhood diversity and help improve quality of life for low income families. Housing Choice Vouchers (Section 8) are among the most effective. A 2011 cost-benefit analysis found evidence of positive net social benefits from Section

8 subsidies in terms of increased services to recipients (welfare, EITC, food stamps, public health care, child care), improvements in child health and education, and reduced crime and substance abuse.<sup>57</sup>

**Figure 20:** Areas with higher concentrations of African American residents often have higher rates of poverty and higher rates of death from chronic diseases. Notice that roughly the same areas are orange or light blue in each of the maps, which present the concentration of African American population (A), the concentration of poverty (B), heart disease death rates (C), and cancer death rates (D) in the St. Louis region.



Death rates were age-adjusted using the US 2000 Standard population. Rates were not included for ZIP codes with less than 20 deaths due to heart disease or cancer.

## Poverty in neighborhoods

Neighborhoods with high poverty can be very challenging places to live a healthy life. One of these challenges is the limited availability of high-quality services and amenities. For example, studies suggest high-poverty neighborhoods are more likely to have fast food chains, liquor stores and convenience stores as well as greater exposure to pollution and violent crime.<sup>58-60</sup> Moreover, these neighborhoods are also less likely to have supermarkets, safe places for recreation, banks, or other anchor institutions to support economic stability. Figure 20 helps to illustrate the health consequences of poverty and racial segregation in St. Louis County and St. Louis City.

Neighborhoods with high poverty can be very challenging places to live a healthy life.

## Financial services in neighborhoods

Among the resources often missing in neighborhoods with high levels of poverty are financial services like traditional banks. A 2012 report called the *St. Louis Neighborhood Market DrillDown* (hereafter referred to as the “DrillDown”) provides important information about access to financial services. Though race was not reported directly, the area that was studied in the DrillDown report included northern St. Louis County and St. Louis City, where a substantial proportion of the region’s African American population resides.

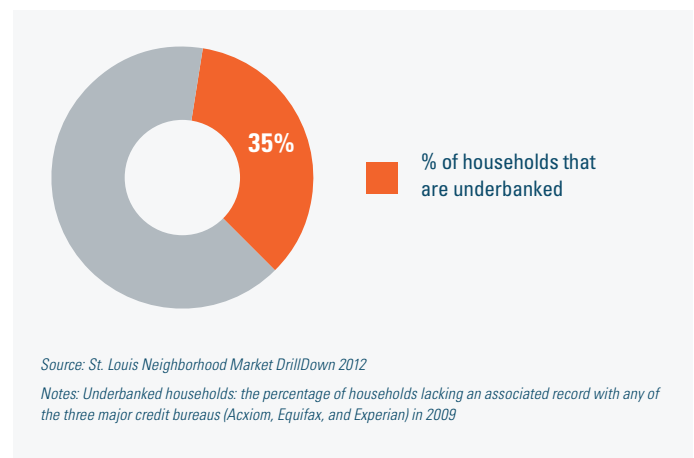
The report found that almost half (47%) of residents in the DrillDown study area live closer to a nontraditional lender (e.g., check cashing, payday lenders, title loans) than a bank. Another key finding was that more than 1 in 3 households in this area lacked a credit record (figure 21). This is a sign that the area is underbanked and lacks financial services for many residents. Without a credit history and access to financial services it can be more difficult to rent or own a home, purchase insurance, and in some cases, find employment.



## Local progress to address residential segregation and neighborhood revitalization in St. Louis

- The Metropolitan St. Louis Equal Housing Opportunity Council (EHOCC) is the only private, not-for-profit fair housing enforcement agency working to end housing discrimination in the St. Louis region.
- OneSTL is a movement that advances a prosperous, healthy and vibrant St. Louis region. One STL is being funded by a grant received by the East-West Gateway Council of Governments.
- Hank Webber of Washington University in St. Louis and Todd Swanstrom of the University of Missouri-St. Louis are working together to examine disparities and why some neighborhoods in St. Louis have been successful in revitalization. Being close to the economic “corridor” that runs west from downtown and having an economically and racially diverse population were among the noted factors.

**Figure 21.** Percent of all households in North St. Louis County and St. Louis City with no credit record (underbanked) in 2009







**B Beacon story summary: Segregation**

June Green lives in a neighborhood near Union Boulevard in North St. Louis. She spoke to the St. Louis Beacon about the impact that segregation has had on her health. Green has a long walk to the bus she takes every day for basic services that she can no longer access in her neighborhood, like healthy food and visits to her doctor. “The closest Schnucks is 2.2 miles from my front door. That’s not a long way — if you have a car.” Green has to travel for treatment and medication to manage her diabetes and hypertension. Beyond a lack of nearby resources, Green says that information is lacking on how to find support elsewhere. Green points out that there are good things about her neighborhood, such as social support and access to transportation. But feeling isolated from basic services and information adds stress to her daily life.

*Story by the St. Louis Beacon*


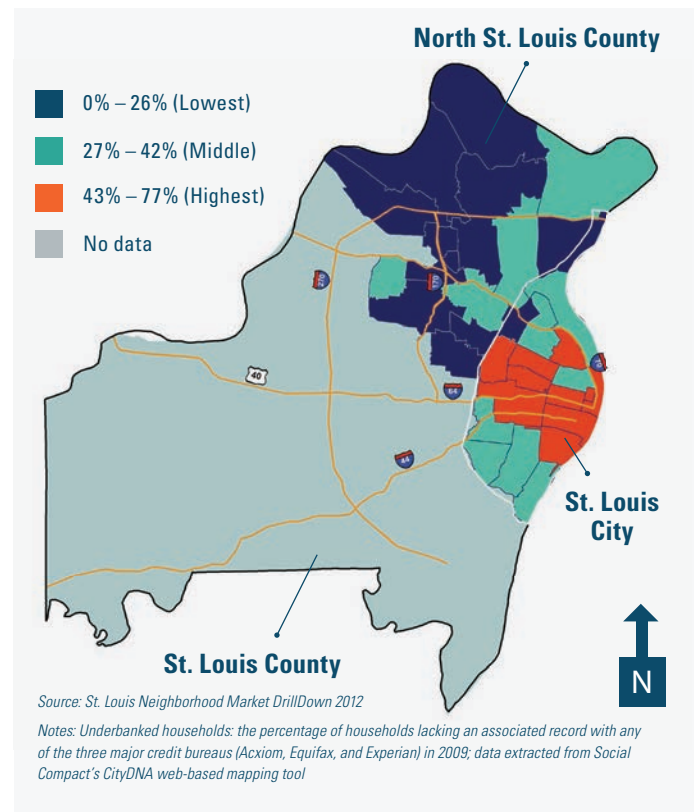


Figure 22 shows the percentage of households that are underbanked in neighborhoods covered by the DrillDown study. The map shows limited availability of financial services in neighborhoods located in northern, central, and southern parts of St. Louis City. Many of these are neighborhoods with a high concentration of African Americans.

**Figure 22.** Percent of households with no credit record (underbanked) by ZIP code in 2009



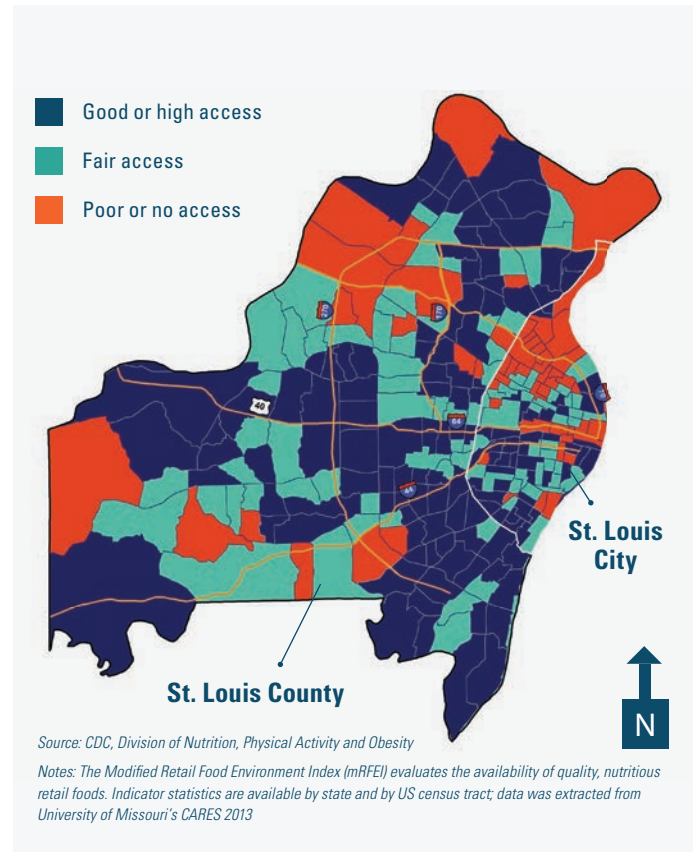
## Availability of healthy food in neighborhoods

A much lower percentage of African Americans (66%) in St. Louis City report that it is easy to buy healthy food in their neighborhood compared to whites (86%).<sup>61</sup> Though fewer people report limited access in St. Louis County, there are still differences in perceptions of healthy food access between African Americans (73%) and whites (91%).<sup>62</sup> Having healthy foods available in a neighborhood is one way to help residents eat a nutritious diet. A healthy diet includes foods like fruits, vegetables, whole grains, low-fat/non-fat milk or dairy alternatives, lean meats, and other foods rich in essential nutrients. Eating habits can affect the development of diabetes, heart disease, and certain cancers.

The Centers for Disease Control and Prevention (CDC) developed a way to measure the number of healthy and less healthy food stores or retailers in neighborhoods using a score. The score applies to areas called census tracts that are smaller than ZIP codes and it is a ratio, which makes it possible to compare across neighborhoods. Out of the total number of food retailers in each census tract, the score represents the percentages of healthy retailers. In other words, low scores mean that neighborhoods contain many convenience stores and/or fast food restaurants compared to the number of healthy food retailers (e.g., supermarkets, large grocery stores, produce stores or supercenters). Scores in figure 23 were grouped together into 3 categories: poor or no access to healthy food (orange); fair access to healthy food (light blue); good or high access to healthy food (dark blue).

The map shows a concentration of neighborhoods in northwestern St. Louis City that have poor or no access to nutritious retail foods. There are also poor or no access neighborhoods in the central corridor of St. Louis City and northern and southwestern portions of St. Louis County.

**Figure 23.** Availability of quality nutritious retail foods by census tract in 2011



## Healthy Food Financing

The Healthy Food Financing Initiative (HFFI) provides loans and grants for fresh food retailers in low-income communities. It helps overcome financial barriers for new retailers, and provides essential funds to renovate and expand existing stores to accommodate fresh food. HFFI was officially adopted

as a federal program in the 2014 Farm Bill, helping to provide low-access communities with healthy food and economic development.<sup>63,64</sup>

Locally, the St. Louis Healthy Corner Store Project takes a community-based approach to healthy food promotion.

A partnership of the University of Missouri Extension and the City of St. Louis Health Department, the project works with local corner stores and markets to provide affordable, healthy foods, classes on nutrition, and cooking demonstrations to raise awareness about healthy choices.



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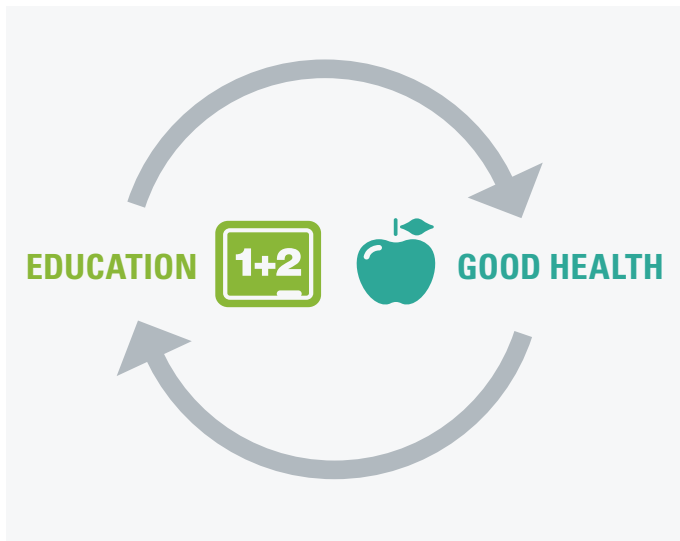
Education and health:

# A FOUNDATION FOR WELL-BEING

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Policies that address factors like education could have a bigger influence on health than all medical advances combined.

Woolf SH, Johnson RE, Phillips RL, Phillipsen M. Giving everyone the health of the educated: An examination of whether social change would save more lives than medical advances. *Am J Public Health*. 2007; 97(4):679-683.



Health and education are closely related and this relationship moves in two directions: higher levels of education are associated with good health, and children and families in good health tend to have better education-related outcomes.

## How does education affect health?



Educational attainment is defined as the years or level of schooling completed. People with less education face disadvantages in health, such as more risk factors for poor health, higher rates of disease, and shorter lifespans. For example, compared to those with higher levels of education, Americans with less education are more likely to have health problems, to smoke, and to be obese.<sup>65,66</sup> Research shows that compared with college graduates, U.S. adults without a high school diploma are likely to die 9 years sooner.<sup>67</sup> This means that education is actually a very powerful health intervention. One analysis suggests that giving everyone the education of those who complete college would save more lives than all of the medical advances of the last 20 years combined.<sup>68</sup> As was noted in the Introduction, however, the gap in death rates among those with lower and higher education has been widening for several decades.

There are multiple ways in which educational attainment may affect health. Educational attainment is thought to improve health by increasing knowledge, literacy, and healthy behaviors.<sup>69</sup> An increase in knowledge, for example, may help people make better decisions regarding their lifestyle and medical care. Another way in which educational attainment may affect health is through employment opportunities. People with higher levels of education generally have access to better working conditions, more work-related resources, and higher incomes. As we have already seen, a good job can translate into health-related benefits such as health insurance, sick leave, retirement savings, and childcare. Individuals with higher levels of education also have higher incomes, which can provide greater access to safe housing, schools with more resources, and health-promoting lifestyles such as eating healthy foods and exercising. Higher levels of education may also influence social and psychological aspects of people's lives. For example, education has been linked to greater social support, higher social standing, and having a greater sense of control. These factors influence people's ability to access social and economic resources, to engage in healthy behaviors, and to manage stress levels, all of which are linked to health outcomes like disease, disability, and death.<sup>70</sup>

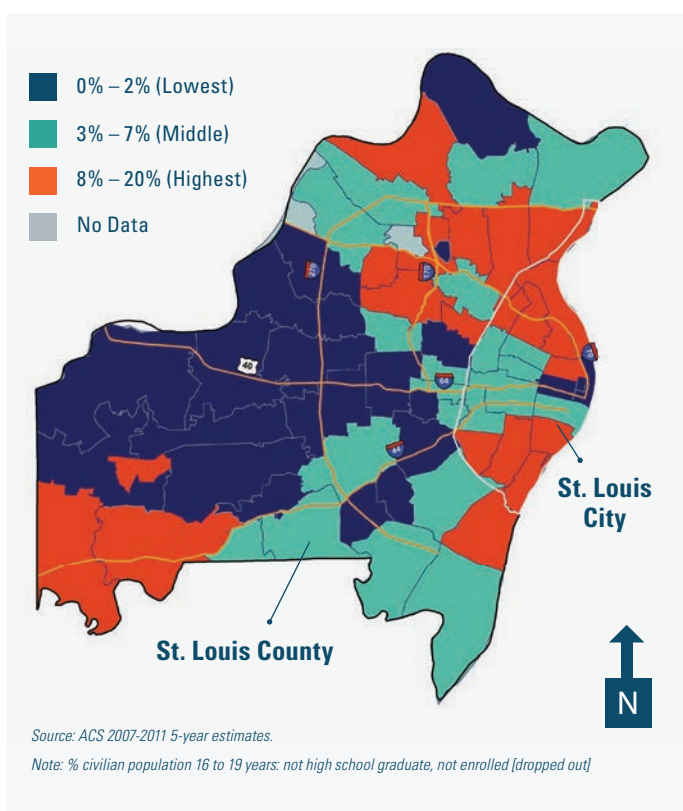
### High school completion

Because the relationship between education and health is so strong, educational attainment is of particular concern for African Americans in St. Louis. As we noted above, in 2012, over 2,000 African American 9 – 12 graders were classified as high school dropouts.<sup>71</sup> This means that about 1 in 10 African American high school students dropped out of school. Unless they resume their education, this places them at high risk for both lower incomes and poorer health.

These students are likely to earn about \$7,000 less per year than high school graduates. Their lifetime earnings loss (ranging from \$347,000 to \$739,410) reduces purchasing power at regional businesses, lowers tax receipts, and adds to the costs of social services and unemployment assistance. Using earnings alone, St. Louis leaves \$694 million to \$1.5 billion “on the table” when we let dropouts occur.

Education data from the past 50 years show that college attendance has increased among African Americans in St. Louis (see page 17). This improvement is important to supporting better health. However, there is still much room for improvement. High school completion is a prerequisite for college attendance. The map of high school dropout (figure 24) indicates there are still areas in both St. Louis City and St. Louis County where high school dropout is a concern. This suggests that we need further investment in educational programs that are designed to improve school completion. Intervening to improve high school completion is also one important way to support health and well-being.

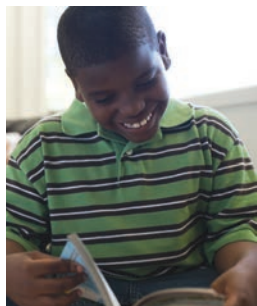
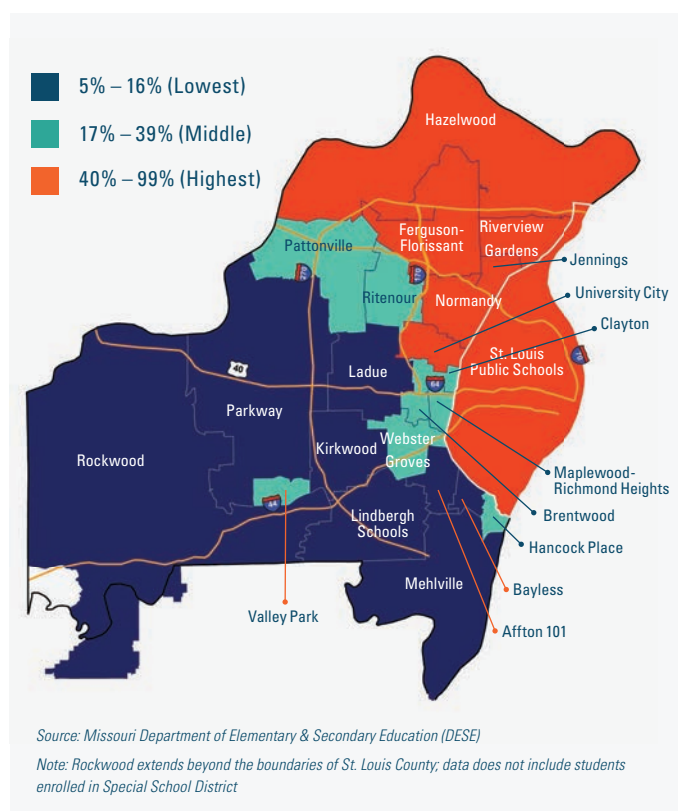
**Figure 24.** Percent high school dropout by ZIP code



### School performance and college readiness

Monitoring school performance and college readiness in children and adolescents is one way to identify risk of school dropout. The Missouri Assessment Program (MAP) is a statewide school testing program. On the next few pages, we present data on MAP performance for school districts in St. Louis City and St. Louis County. Figure 25 shows the percentage of African American students enrolled in school districts in St. Louis City and St. Louis County. Note that the school districts with the highest percentage of African American students (40 – 99%) are Hazelwood, Ferguson-Florissant, Riverview Gardens, Jennings, Normandy, University City, and St. Louis Public Schools.

**Figure 25.** Percent African American enrollment by school district in St. Louis City and St. Louis County

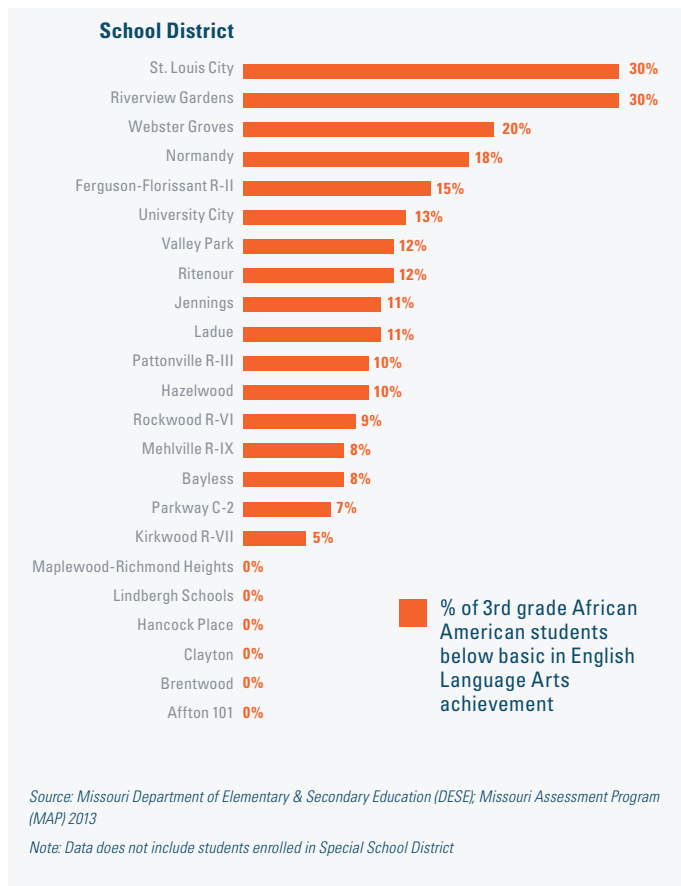


The American Graduate initiative is addressing high school dropout in St. Louis. The Nine Network of Public Media has partnered with education leaders, youth-serving non-profits, and others to develop strategies for highlighting the importance of the dropout crisis. There has also been a conscious effort to include the voices of youth in this effort.

## Performance in 3rd grade English Language Arts

English Language Arts performance in 3rd grade is a measure of college readiness and health literacy. Students who do not read well by third grade have four times higher risk of not earning a high school diploma compared to proficient readers.<sup>72</sup> Additionally, students who perform below basic on the state’s English Language Arts examination are likely to need extra classes before taking college-level courses.<sup>73</sup> Because performance in 3rd grade English Language Arts is linked to high school completion and college readiness, it is important that we monitor how students are performing on this test in the St. Louis region. Figure 26 shows that the percentage of African American students below basic in 3rd grade English Language Arts ranges from 0 to 30%. Supporting school districts with a high percentage of students who perform below basic is one way to help prevent high school dropout and increase the number of high school graduates who are ready for college.

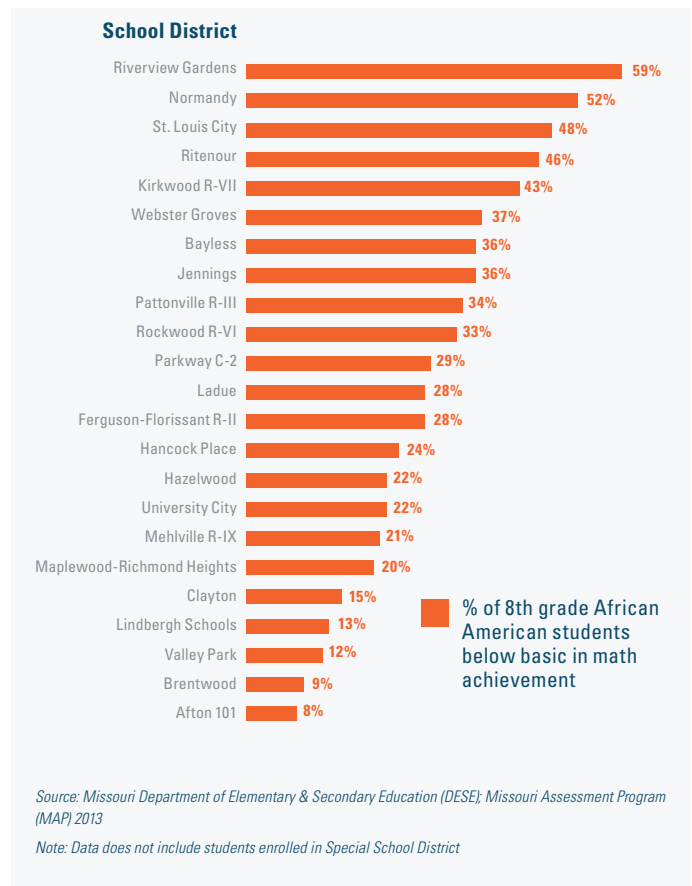
**Figure 26.** Percent of 3rd grade African American students below basic in English Language Arts achievement by school district in 2013



## Performance in 8th grade math

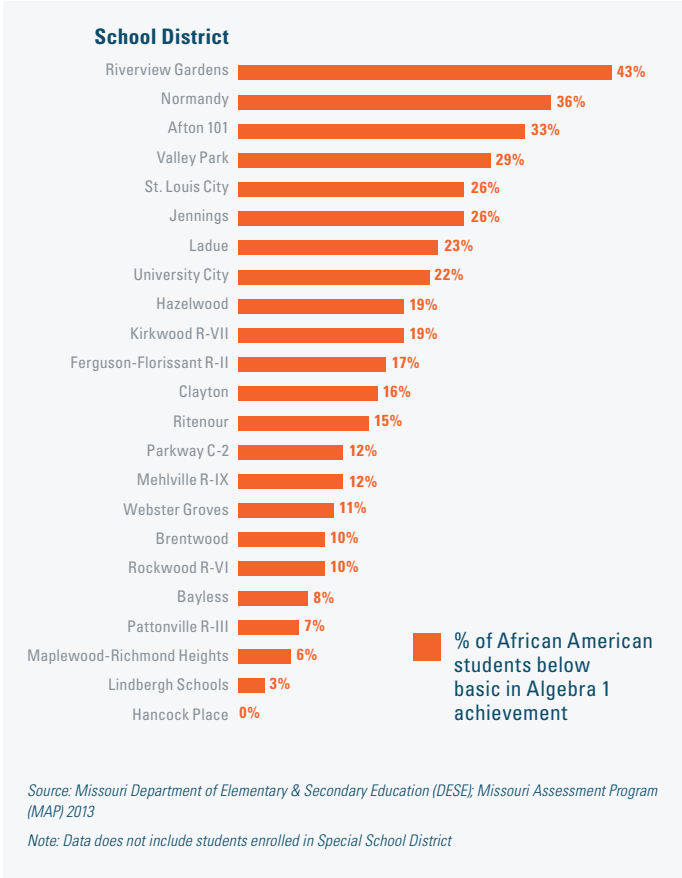
Performance in eighth grade math indicates learning that has taken place in earlier grades and during the final year of middle school. Similar to 3rd grade English Language Arts, students who struggle in eighth grade math are at greater risk of dropping out of school compared to students who are proficient.<sup>74</sup> In St. Louis, a high percentage of African American students are performing at the below basic level on the MAP eighth grade math test, ranging from almost 1 in 10 in the best performing district to nearly 6 in 10 in the lowest performing district (see figure 27). This level of performance indicates a significant need to intervene in early grades and suggests troubling educational and health outcomes if left unaddressed.

**Figure 27.** Percent of 8th grade African American students below basic in math achievement by school district in 2013





**Figure 28.** Percentage of African American students below basic in Algebra 1 achievement by school district



**Performance in Algebra I**

Another indicator of college readiness is Algebra I performance.<sup>75</sup> Achievement in math predicts college success in two-year and four-year colleges. In many districts, performance among African American students on the state’s algebra test suggests students are doing well enough to attend college (see table 9). Other districts have very high rates of students classified by the state as below basic (see figure 28). These students are at risk of not being prepared for college-level work or technical and vocational training, and this may limit their future employment opportunities.

While it is important to make note of students who are unprepared for college, it is also important to highlight students who have the necessary skills for higher education. Compared to those with below basic proficiency, students who are proficient or advanced are more likely to complete high school and attend college. Table 9 shows the percentage of African American students with proficient or advanced achievement on the three portions of the MAP exam that we have discussed (English Language Arts, Mathematics, and Algebra 1). Proficiency or advanced status above 50% for African American students in each subject is shown in bold.



**Table 9.** Percent of African American students with Proficient or Advanced academic achievement

School district	English Language Arts	Mathematics	Algebra 1
Afton 101	44%	15%	42%
Bayless	23%	14%	33%
Brentwood	47%	<b>73%</b>	<b>90%</b>
Clayton	46%	44%	<b>56%</b>
Ferguson-Florissant R-II	30%	28%	26%
Hancock Place	<b>76%</b>	10%	45%
Hazelwood	36%	36%	25%
Jennings	35%	24%	39%
Kirkwood R-VII	29%	13%	48%
Ladue	40%	5%	31%
Lindbergh Schools	<b>62%</b>	33%	<b>63%</b>
Maplewood-Richmond Heights	<b>62%</b>	12%	42%
Mehlville R-IX	27%	21%	28%
Normandy	25%	9%	14%
Parkway C-2	38%	25%	43%
Pattonville R-III	31%	21%	<b>54%</b>
Ritenour	34%	12%	25%
Riverview Gardens	14%	4%	11%
Rockwood R-VI	38%	11%	38%
St. Louis City	19%	14%	27%
University City	26%	32%	32%
Valley Park	35%	35%	43%
Webster Groves	36%	23%	41%

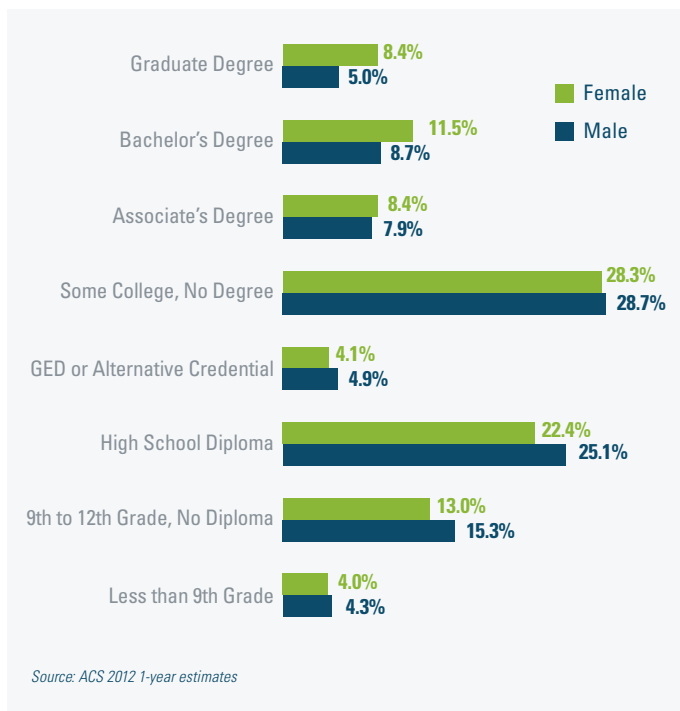
Source: Missouri Department of Elementary & Secondary Education (DESE); Missouri Assessment Program (MAP) 2013

Notes: English Language Arts achievement among grade 3 non-Hispanic African Americans; Mathematics achievement among grade 8 non-Hispanic African American students; Algebra 1 achievement among non-Hispanic African American students

## Highest level of education

It is not only the academic performance of students currently in school that is important for health. So too is the level of educational attainment in the adult population. Figure 29 shows the highest level of education for African Americans 25 years or older in St. Louis. A majority of African Americans in this age range have attended college, and about one in four have earned at least an associate's degree. Notice that a higher percentage of African American women have associate's, bachelor's or graduate degrees as their highest level of education compared with men.

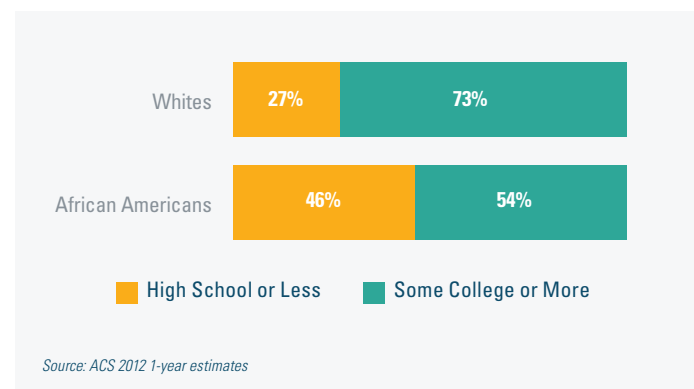
**Figure 29.** Highest level of education among African Americans 25 and older in St. Louis City and St. Louis County



## What are the differences in education by race?

Among white residents 25 years and older in St. Louis, 73% have some college or more as their highest level of education. That percentage drops to 54% among African Americans.

**Figure 30.** Highest level of education among those 25 and older in St. Louis City and St. Louis County





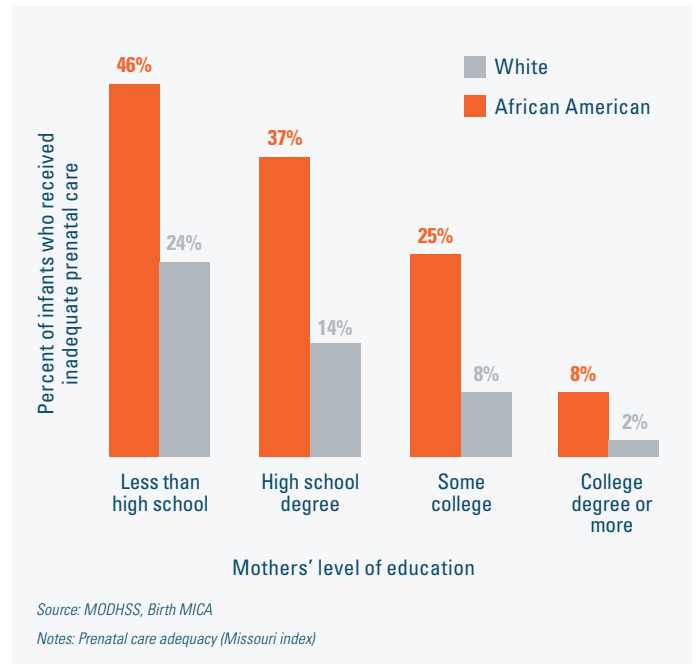
## Mother's education and health

One example of the considerable impact that education can have on health is the relationship between a mother's education and her child's health. Higher levels of education for parents, especially for mothers, are associated with better health and well-being for their children.<sup>76</sup> We noted that one way education affects health is through an increase in knowledge, which may help people to make healthier decisions. Mothers with higher levels of education also have the resources that come with better jobs and higher incomes.

Higher levels of education for parents, especially for mothers, are associated with better health and well-being for their children.

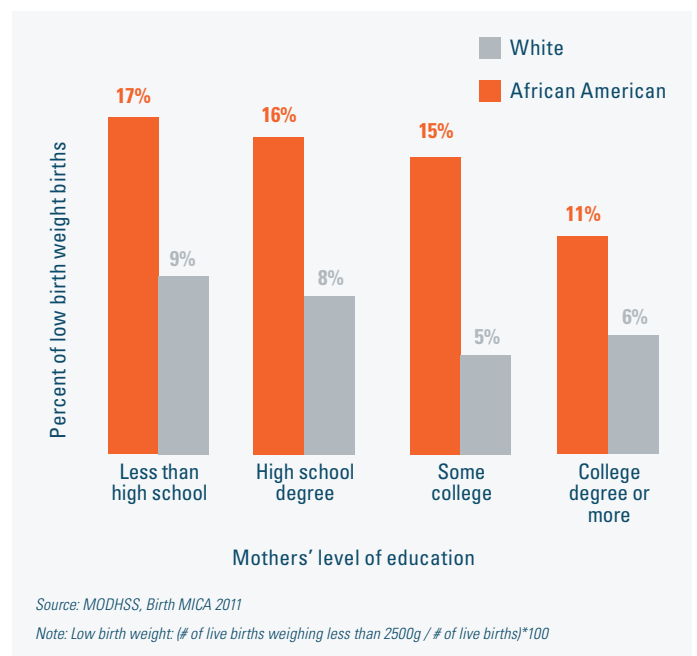
Although education is important to health, it is not the only explanation for health disparities. Figures 31 and 32 show that at every level of education, there is still a considerable difference between African Americans and whites in receipt of adequate prenatal care and low birth weight. Of particular note is that African American women with a college degree or more education are more likely to have a low birth weight baby than white women with less than high school

**Figure 31.** Percent of infants born in 2011 who received inadequate prenatal care by mothers' level of education, St. Louis County and St. Louis City



education. Low-birth-weight and preterm infants are at an increased risk for many health and academic problems that last through adolescence.<sup>77,78</sup> Some have argued that the stress associated with racism and discrimination helps to explain the difference between birth outcomes in the most educated African American women compared with the least educated white women.<sup>79,80</sup>

**Figure 32.** Percent of low birth weight births in 2011 by mothers' level of education, St. Louis County and St. Louis City



## How does health affect education?

Having explored how education affects health, we turn now to the effect of health on education and learning. Specifically, we will discuss patterns related to health that lead to a greater risk for school dropout.



There are at least three ways in which health challenges may lead to high school dropout:<sup>81</sup>

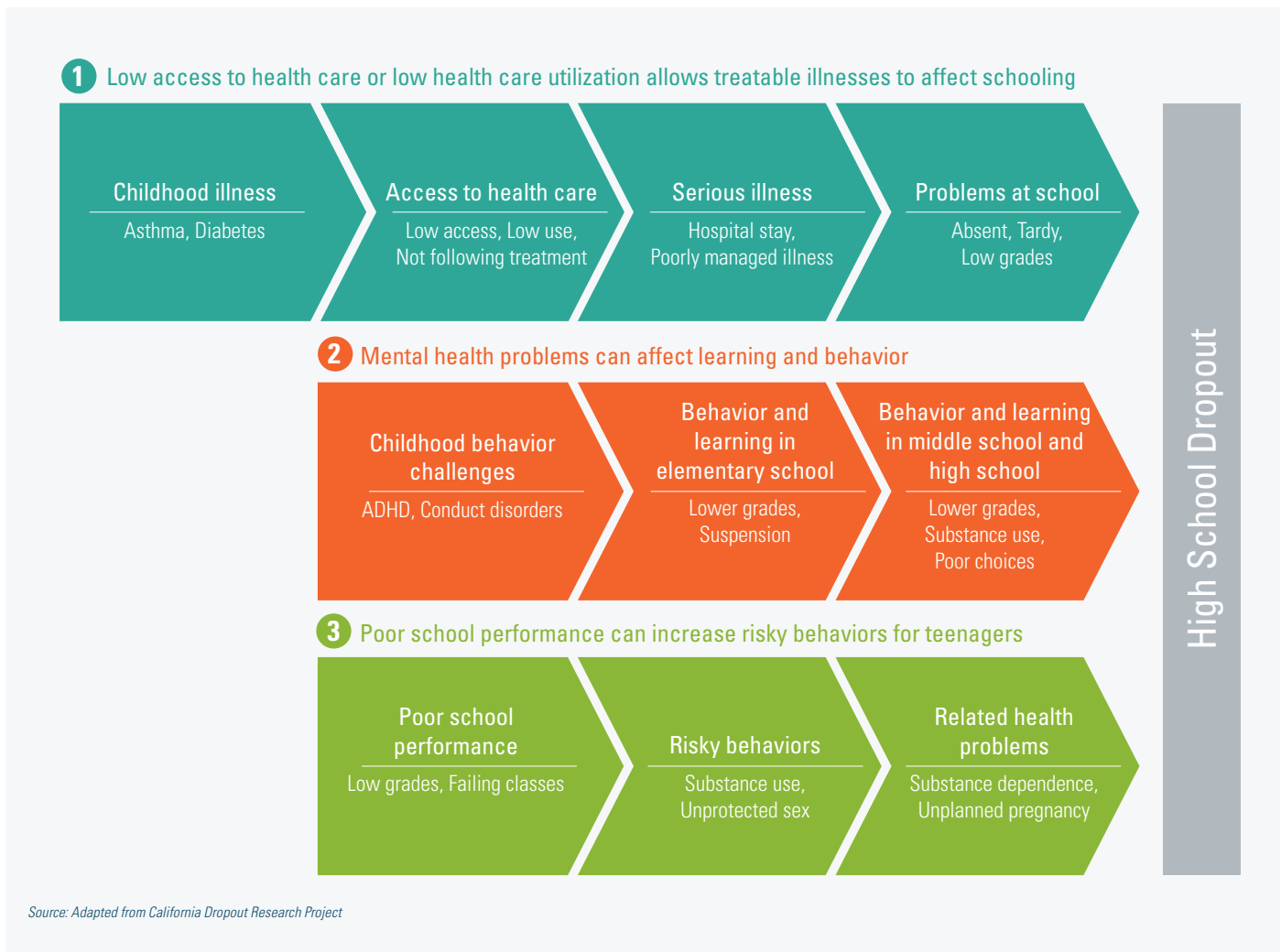
- 1) Childhood illness
- 2) Mental health problems
- 3) Poor school performance and risky behaviors

All three patterns increase the risk for leaving school before high school completion.



The Center on Society and Health at Virginia Commonwealth University is raising awareness about the association between education and health through their "Education and Health Initiative." Visit their website to learn more (see Resources).

**Figure 33.** Three patterns related to health that can increase high school dropout



### Pattern 1: Childhood illness

Illnesses that begin early and continue throughout life limit students' ability to complete school. The effects of childhood illness on education are often influenced by access to medical care and utilization of medical services. Asthma is the most common chronic childhood illness nationally. Asthma disproportionately affects low-income and racial and ethnic minority children in urban areas.<sup>82-84</sup> Poorly controlled asthma is a serious problem for high school-age African Americans in St. Louis. In 2011, the rate of emergency room visits for asthma was 7 times higher for African Americans ages 15 to 19 compared with white youth in the same age group.<sup>85</sup> Research shows that asthma negatively affects academic achievement through<sup>86</sup>

- > missed days of school
- > negative impacts on learning, behavior, and motivation
- > limitations to “school connectedness” (school connectedness is the belief by students that adults in the school care about their learning as well as about them as individuals<sup>87</sup>)

A study conducted in St. Louis Public Schools found that children who miss more days of school do less well on the Missouri Assessment Program (MAP) test.<sup>88</sup> Ultimately, repeated school absences interrupt learning and are a strong predictor of school dropout.<sup>89</sup>

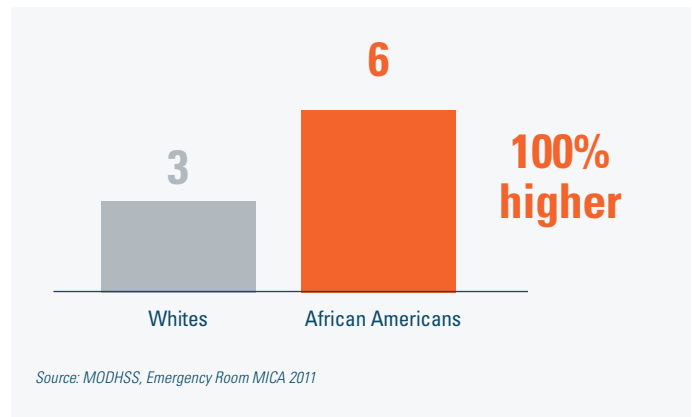


#### Missouri State Asthma Plan

A joint effort of the Missouri Asthma Coalition and the Missouri Department of Health and Senior Services, the Missouri State Asthma Plan for 2010 – 2014 lays out a strategy to reduce asthma hospitalizations and missed

days of school and work due to asthma, reduce disparities in asthma, and increase access to formal asthma prevention and management. The plan takes a comprehensive, systems-based approach to asthma in Missouri, involving needs assessment and surveillance, workforce development, partnership engagement, and developing and implementing effective community-based interventions.

**Figure 34.** Emergency room visits per 1,000 for mental health conditions among youth under 15 years in St. Louis County and St. Louis City in 2011

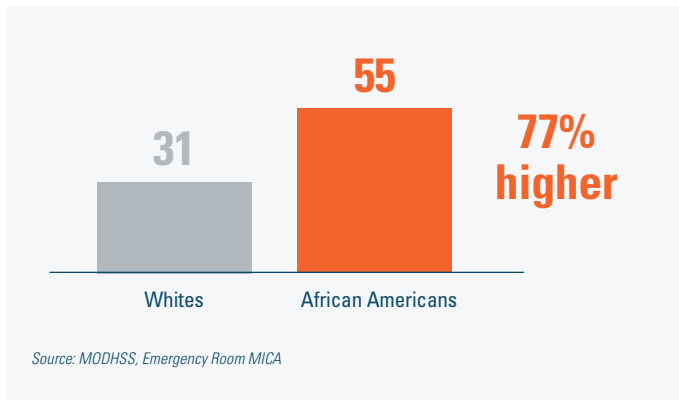


### Pattern 2: Mental health problems

Nationally, one in five students experiences mental health problems.<sup>90</sup> Locally, 12.3% (St. Louis County) and 12.7% (St. Louis City) of 6 – 12 graders say they have considered suicide in the last year.<sup>91</sup> Based on a small sample of 6 – 12 graders in St. Louis County, 28% of African Americans said they had a diagnosed mental health problem. This is more than two times the rate for whites (12%).<sup>92</sup> Emergency room visits and hospitalizations for mental health problems may be signs that children are not being screened and treated properly in community or outpatient settings. In 2011, the rate of emergency room visits for mental health conditions in St. Louis among African American youth was double the rate among white youth (see figure 34). The rate of hospitalizations for mental health conditions was also much higher among African American youth compared with white youth (see figure 35). Over time, mental health problems increase the risk of school dropout. For example, Attention Deficit Hyperactivity Disorder (ADHD) and behavioral disorders can lead to poor performance at school. The stigma associated with mental health conditions also can influence some parents' willingness to seek mental health care for their children, with potentially negative effects on their education.<sup>93</sup>



**Figure 35.** Inpatient hospitalizations per 10,000 for mental health conditions among youth under 15 years in St. Louis County and St. Louis City in 2011



**Pattern 3: Poor school performance and risky behaviors**

The first two patterns describe how chronic illness and mental health problems affect education. The relationship between education and risky behaviors for teenagers, however, moves in both directions. This means that African American students who earn low grades are more likely to take part in behaviors that expose them to more health risks.<sup>94</sup> These new health risks can lead to a higher dropout risk. For example, a student who earns low grades may be more likely to use drugs, become sexually active early in life, or become involved in violence. This student may be on the path to failing in school and dropping out.

Violence not only disrupts the learning process, but also leads to absences that increase a student’s risk of poor school performance and dropout.

Injuries that result from violence and fighting have become more common in children and youth, and disproportionately affect children from racial and ethnic minority groups in urban areas.<sup>95</sup> A national study by the CDC revealed that nearly 6% of students miss at least one day of school following physical fighting due to feeling unsafe.<sup>96</sup> Violence not only disrupts the learning process, but also leads to absences that increase a student’s risk of poor school performance and dropout. According to the CDC, youth violence (including youth homicides and assault related injuries) result in approximately \$16 billion in medical and lost work costs annually.<sup>97</sup> In St. Louis, injuries resulting from fighting increase more than four-fold among African Americans in the high-school years. Though a comparable increase is seen for white youth in high school, there is a very large disparity in overall rates of injuries due to fighting (see table 10). African American youth are injured at a rate that is over 6 times higher than whites.

**Table 10.** Injury rate per 100,000 due to fighting by race and age in St. Louis City and St. Louis County in 2011

	Under 15 years	15 – 19 years
African Americans	211	990
Whites	24	156

Source: MODHSS, Injury MICA

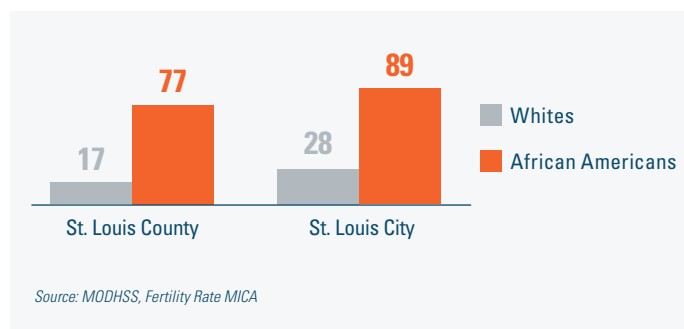
**B Beacon story summary: Mental health and school dropout**

Bullied at school, Malik Avery struggled with physical and emotional stress and suicidal thoughts, which led him to drop out. Avery has since sought help, and earned his high school diploma through the St. Louis Public School System’s high school graduation initiative. In an interview with the *St. Louis Beacon*, Avery’s counselor, Charlie E. Bean, discusses the impact of mental health on education. Avery was bullied and school became mentally and emotionally exhausting for him. Counseling and mental health services are essential to keeping young people like Avery enrolled in high school, says Bean, who counsels 350 St. Louis youth at high risk for dropout.

*Story by the St. Louis Beacon*

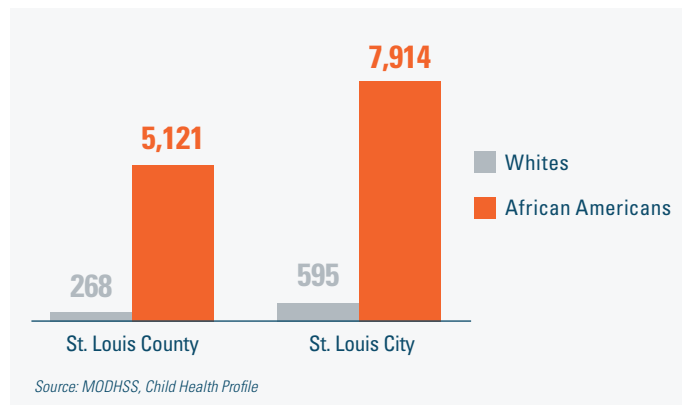
Although teenagers' sexual activity alone is not considered an unhealthy behavior, consequences of sexual activity may lead to poor academic and health outcomes.<sup>98</sup> For example, having unprotected sex at younger ages may lead to teen pregnancies and sexually transmitted diseases. Teen pregnancies and births may distract students from focusing on school work and eventually lead to high school dropout.<sup>99</sup> Figure 36 shows that teen pregnancy rates are more than four times higher in African American teens compared with white teens in St. Louis County. In St. Louis City, African American teen girls are more than three times more likely to become pregnant compared with white teen girls. Although teen pregnancy rates are higher in St. Louis City compared to St. Louis County, the difference in teen pregnancy rates between African Americans and whites is larger in St. Louis County.

**Figure 36.** Pregnancy rates per 1,000 among females age 15 – 19 by race in 2010

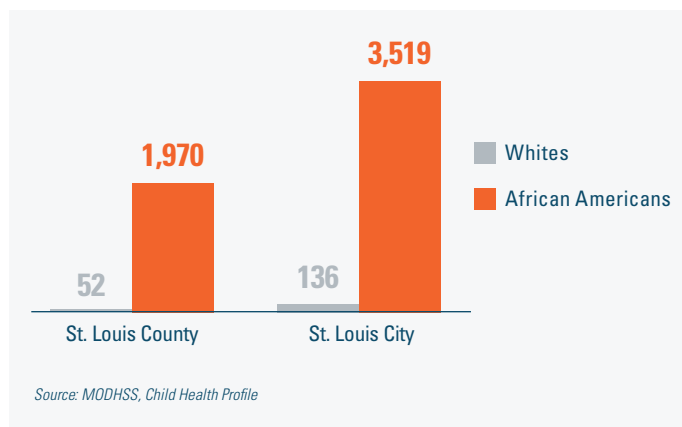


Figures 37 and 38 show that the pattern in rates of sexually transmitted diseases, like chlamydia and gonorrhea, is similar to that in teen pregnancy rates. Rates of chlamydia and gonorrhea among teens are higher in St. Louis City compared with St. Louis County among both African Americans and whites. And there is a large disparity between African American teens and white teens. In St. Louis County, African American teens are 19 times more likely to become infected with chlamydia compared with white teens. In St. Louis City, African American teens are 13 times more likely to become infected with chlamydia compared with white teens. The disparity by race is even larger for gonorrhea infections. In St. Louis County, African American teens are 38 times more likely to become infected with gonorrhea compared with white teens. And in St. Louis City, African American teens are 26 times more likely to become infected with gonorrhea compared with white teens. It should be noted that these disparities are not the result of more risky sexual behaviors among African American teens. Rather, they are the result of closed networks of sexual partners in which infected individuals are active.

**Figure 37.** Chlamydia rates per 100,000 among youth age 15 – 19 by race from 2005 – 2009



**Figure 38.** Gonorrhea rates per 100,000 among youth age 15 – 19 by race from 2005 – 2009



Coordinated school health programs can help address some of the educational barriers that children and adolescents face. In August 2012, Mercy Children's Hospital and the St. Louis Public Schools opened a school-based clinic at Roosevelt High School. The Boeing Company supported this program with grant funding. The goal of the clinic is to decrease time lost from school due to health problems.

05

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Health Profile:

# **AFRICAN AMERICANS IN ST. LOUIS**

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Health is fundamental to human well-being. Health makes it possible for us to engage fully in the activities of our daily lives and make contributions to our communities.



## 5.1 Chronic diseases

Chronic diseases are long-lasting conditions that impact health and well-being. Although these diseases cannot be cured, they can be prevented and managed.<sup>100</sup> Social and economic factors like education, income, and neighborhood conditions can contribute to chronic diseases like heart disease, cancer, and diabetes in many ways. Some of the pathways that have already been identified include:

- > Education can increase income, which can provide access to safe housing
- > Income and wealth can provide the opportunity to live in health-promoting neighborhoods
- > Education can increase knowledge, literacy, and healthy behaviors
- > Education can provide social support, higher social standing, and sense of control
- > Living in poverty and having few resources can be a source of long-term stress
- > High poverty neighborhoods can often have limited services and amenities
- > Employment can offer access to health insurance and workplace wellness programs

Chronic diseases affect many of us. Nearly half of all adults in the U.S. had at least one chronic disease in 2008.<sup>101</sup> African Americans have higher rates of many chronic diseases and the complications that follow than other groups. These differences in health have been highlighted in recent Missouri and St. Louis reports.<sup>102,103</sup>

Chronic disease also has a significant impact on our economy, accounting for nearly one-third of all health spending in the U.S., or about \$350 billion each year.<sup>104</sup> Local hospital charges for chronic disease are also incredibly high. In 2011 alone, charges for hospital care for diabetes, heart disease, and cancer among all St. Louis residents was \$1.1 billion.<sup>105</sup> Among African Americans, charges for hospital care for diabetes, heart disease, and cancer was \$395 million.<sup>106</sup> These amounts would be even higher if they included other types of chronic diseases.

Social and economic factors like education, income, and neighborhood conditions can contribute to chronic diseases like heart disease, cancer, and diabetes in many ways.

Chronic diseases also weaken businesses and our local and state economies in the form of missed school and work days, lost productivity, and high health care costs. A healthier workforce in the St. Louis region would mean a decrease in health care spending and a more productive local economy.

If we reduced the disparity in chronic diseases like heart disease, cancer, and diabetes, St. Louis could save \$65 million a year in inpatient hospital charges.

**\$1.1 BILLION**

HOSPITAL CHARGES FOR HEART DISEASE, CANCER, AND DIABETES IN ST. LOUIS

WHICH IS EQUIVALENT TO BUYING 3 EDWARD JONES DOMES EVERY YEAR!



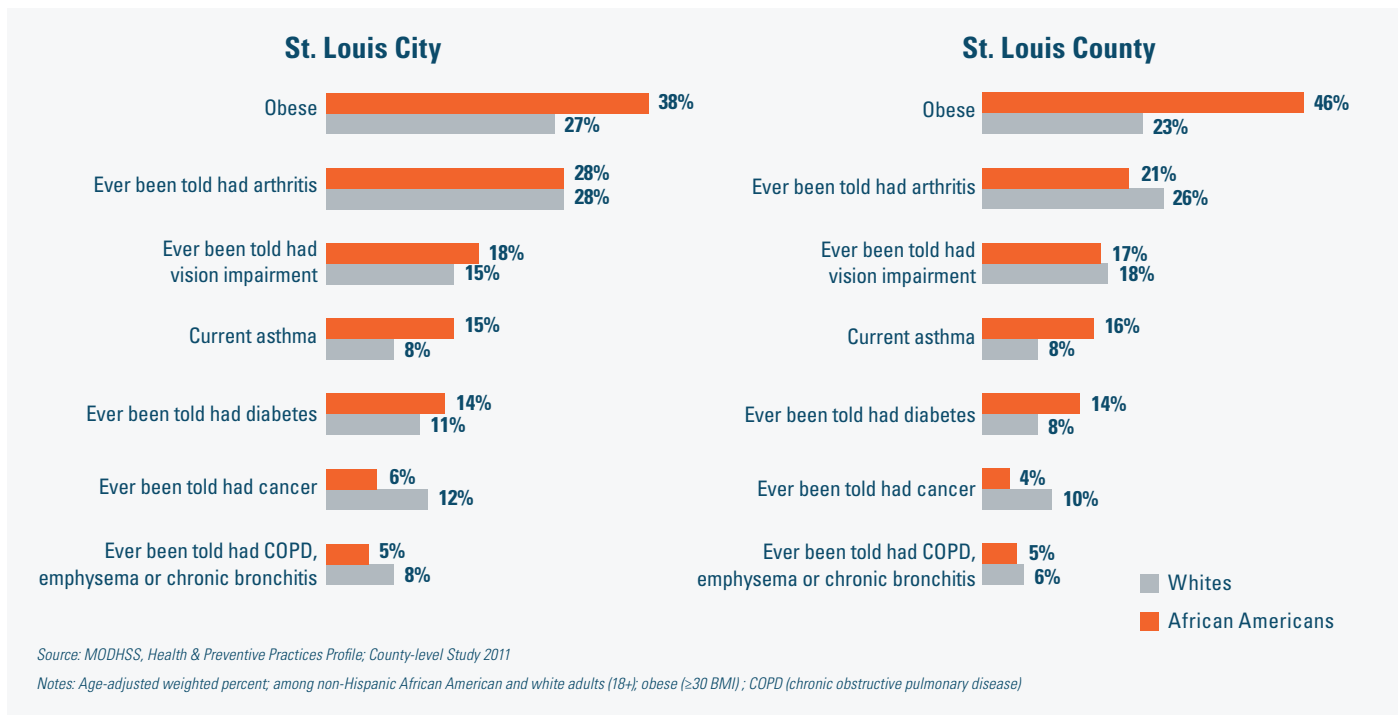
Figure 39 shows the percentage (i.e., prevalence) of adults in the St. Louis region who had certain chronic diseases or conditions in 2011. These data are based on survey responses from the 2011 County-Level Study (see Resources). There are differences between African Americans and whites for several chronic diseases and conditions. In general, the largest differences are in obesity, asthma, and diabetes, with African Americans more likely to have these diseases compared with whites in St. Louis County and St. Louis City.

Obesity is of particular concern because it plays a significant role in the development of chronic diseases such as heart disease, diabetes, and certain cancers.<sup>107</sup> Almost half of African American adults (46%) in St. Louis County are obese. In St. Louis City, 38% of African American adults are obese. In St. Louis County, the percentage of African Americans who have asthma is double that of whites (16% vs. 8%). This difference is roughly the same in St. Louis City (15% vs. 8%). In St. Louis County, 14% of African Americans have diabetes compared to 8% of whites. The disparity is smaller in St. Louis City, where 14% of African Americans have diabetes compared with 11% of whites.

Figure 39 also shows that for some diseases whites have a higher prevalence compared with African Americans. One example is cancer. In St. Louis County, a higher percentage of whites have cancer (10%) compared with African Americans (4%). In St. Louis City, a higher percentage of whites also have cancer (12%) compared with African Americans (6%). The prevalence of disease is only one way to look at how chronic illness affects health and well-being, though. Despite having lower cancer prevalence, African Americans have higher rates of hospitalization and death due to cancer compared with whites. Previous maps also suggest that many neighborhoods with a high percentage of African Americans also have high rates of cancer deaths (see page 30).

Figure 40 shows that for each chronic disease type, African Americans have a higher rate of death compared with whites. Similar differences also exist for four major types of cancer (figure 41).

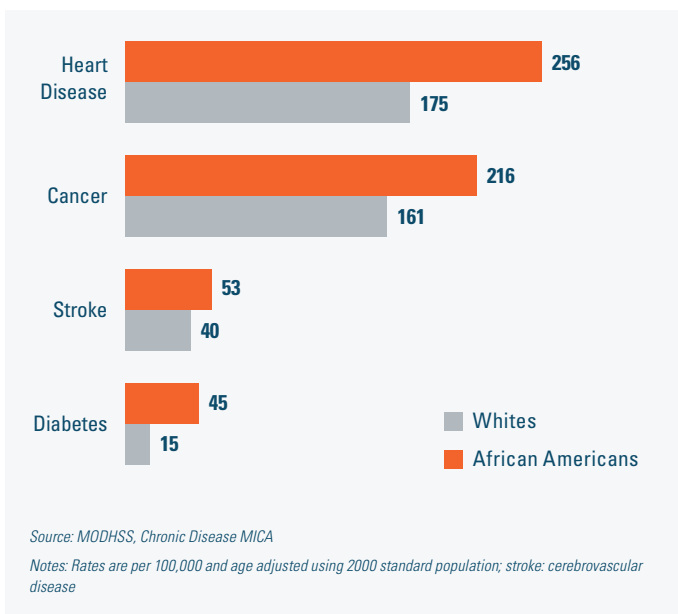
**Figure 39.** Chronic disease outcomes among adults by race in 2011



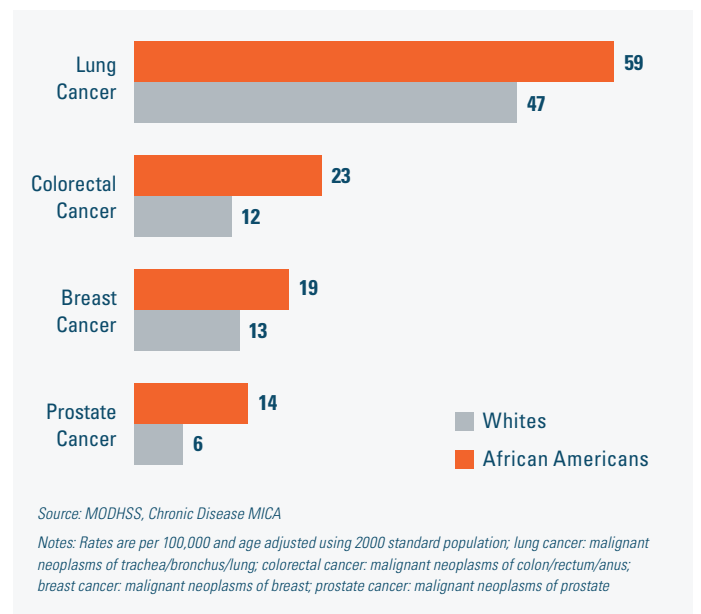




**Figure 40.** Chronic disease death rates by race in St. Louis County and St. Louis City in 2011

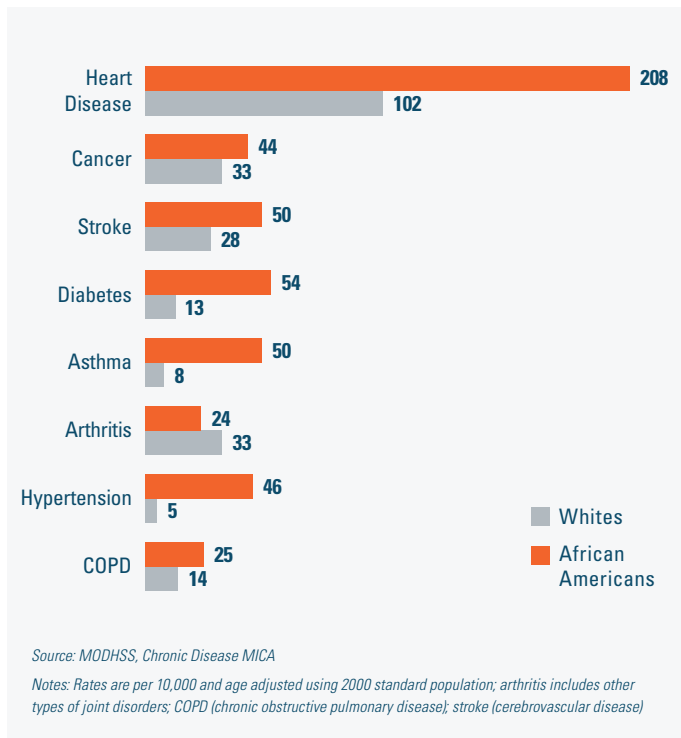


**Figure 41.** Cancer death rates by race in St. Louis County and St. Louis City in 2011



In St. Louis County and St. Louis City, African Americans have higher hospitalization rates for almost all diseases and conditions considered (figure 42). A similar pattern exists for rates of emergency room (ER) visits (figure 44). Figure 43 highlights the difference in diabetes hospitalization rates between African Americans and whites. Figure 45 is similar but it highlights the difference in asthma ER rates between African Americans and whites.

**Figure 42.** Inpatient hospitalization rates due to chronic diseases and conditions by race in St. Louis County and St. Louis City in 2011



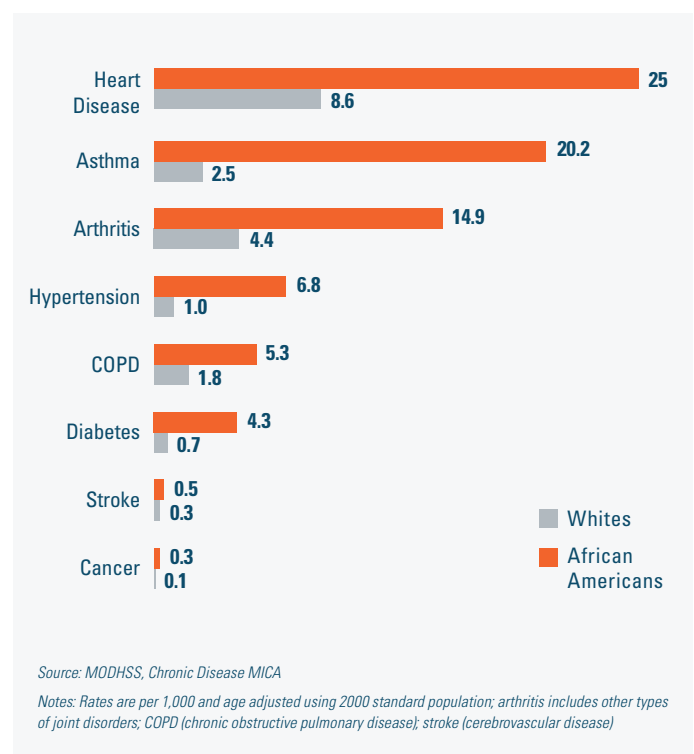
**Figure 43.** Diabetes inpatient hospitalization rates by race in St. Louis County and St. Louis City in 2011



Adapted from Visualizing Health (see resources)  
Source: MODHSS, Chronic Disease MICA

Notes: Rates are per 10,000 and age adjusted using 2000 standard population

**Figure 44.** ER rates due to chronic diseases and conditions by race in St. Louis County and St. Louis City in 2011



**Figure 45.** Asthma ER rates by race in St. Louis County and St. Louis City in 2011



Adapted from Visualizing Health (see resources)  
Source: MODHSS, Chronic Disease MICA

Notes: Rates are per 1,000 and age adjusted using 2000 standard population; rates are rounded

**B****Beacon story summary: Chronic Disease**

There is hope for those affected by chronic disease. A story in the *St. Louis Beacon* highlights several individuals and organizations in St. Louis helping people to cope with and manage chronic illnesses. Sherrill Jackson is a 21-year breast cancer survivor and founder of an organization called the Breakfast Club. This organization educates the public about breast cancer and support services. The Breakfast Club has educated more than 12,000 people about breast health. Jackson thinks there is still a great need to support people and raise awareness. “But even in 2013, there is still a lack of education. There are still women who are afraid to talk

about breast cancer.” Another active voice in the community is Shermane Winters-Wofford, a two-time stroke survivor. She has spoken in front of audiences and empowers people to make healthier choices. “All we have to start doing now is taking little bitty steps to make lifestyle changes.” The Empowerment Network is another organization but focuses on combating prostate cancer among African American men in St. Louis. Walter Prichard, who works for the network, talks about some of the challenges. “We take our health for granted, and don’t take our medications. But the Empowerment Network is spreading



Sherrill Jackson



Shermaine Winters-Wofford

the message that knowledge can save your life. We are raising awareness through programs and resources.”

*Story by the St. Louis Beacon*

## 5.2 Lifestyle risk and protective factors

As noted in the Introduction to this report, 40% of the premature deaths in the United States can be attributed to behavioral patterns. In fact, many of the chronic diseases we have discussed are closely linked to behaviors that can be changed, like diet, physical activity, and smoking and risk factors for disease like obesity, high blood pressure, and high cholesterol. So, it is important to examine these and other behaviors and risk factors for African Americans in St. Louis.

### HEALTHY LIFESTYLES HELP PREVENT CHRONIC DISEASE



LOSING WEIGHT

+



HEALTHY EATING

+



PHYSICAL ACTIVITY

+



NO SMOKING

While personal responsibility for making healthy lifestyle choices is important, the context in which choices are made matters a great deal. Table 11 shows that even though African Americans and whites in St. Louis report relatively equal access to sidewalks and bike lanes for physical activity, there are differences in the perceptions of safety in neighborhoods where African Americans live. This may help to explain the higher percentages of African Americans reporting no leisure time physical activity in both the City and the County. African Americans in St. Louis are also less likely to report that it is “easy to purchase healthy food” in their neighborhoods. Though eating fruits and vegetables at recommended levels seems to be a problem for both whites and African Americans, the lack of convenient access to healthy foods may pose an additional barrier for African Americans. (See page 33 for map of access to healthy foods in the region.)

While personal responsibility for making healthy lifestyle choices is important, the context in which choices are made matters a great deal.

**Table 11.** Lifestyle risk and protective factors among adults by race in 2011

	St. Louis County		St. Louis City	
	Whites	African Americans	Whites	African Americans
<b>No leisure time physical activity</b>	16%	31%	22%	28%
<b>Use walking trails, parks, playgrounds or sports fields for physical activity</b>	53%	56%	45%	47%
<b>Have sidewalks in their neighborhood</b>	78%	77%	90%	96%
<b>Have roads and streets with shoulders or marked lanes for bicycling in their community</b>	45%	47%	63%	65%
<b>Consider their neighborhood to be extremely or quite safe</b>	87%	62%	65%	39%
<b>Strongly agree or agree that it is easy to purchase healthy food in their neighborhood</b>	91%	73%	86%	66%
<b>Ate fruits and vegetables less than 5 times per day</b>	87%	88%	89%	88%

Source: MODHSS, Health & Preventive Practices Profile; County - level Study 2011

Notes: Age-adjusted weighted percents; among non-Hispanic African American and white adults (18+)

We are somewhat limited in our ability to examine certain risk factors for chronic disease because existing data only tell us about the percentage of people who have ever been told they have conditions like high blood pressure or high cholesterol. We don't know whether these conditions are being treated with medications to manage them. However, in both the City and County, African Americans are more likely to report high blood pressure compared with whites,

while levels of high cholesterol are comparable or lower. For an important, additional risk factor, obesity, African Americans have rates that are 23 percentage points higher in St. Louis County and 11 percentage points higher in the City of St. Louis. Obesity is so important because it is associated with the other risk factors (i.e., high blood pressure and cholesterol) and with chronic diseases, as noted above.<sup>108-110</sup>

**Table 12.** Chronic disease risk factors among adults in 2011

	St. Louis County		St. Louis City	
	Whites	African Americans	Whites	African Americans
<b>Ever been told had high blood pressure</b>	30%	37%	31%	42%
<b>Ever been told had high cholesterol</b>	40%	39%	41%	40%
<b>Obese (≥30 BMI)</b>	23%	46%	27%	38%

Source: MODHSS, Health & Preventive Practices Profile; County - level Study 2011

Notes: Age-adjusted weighted percents; among non-Hispanic African American and white adults (18+); high cholesterol (among those age 35 and older who have had cholesterol checked)

Cigarette smoking is the leading preventable cause of early death and disease.<sup>111</sup> Smoking causes damage to nearly every organ system in the body, and even secondhand exposure to smoking can have serious health consequences. In the U.S., more than 400,000 lives are lost each year because of smoking. More than 20 million people have died due to smoking-related illnesses since the U.S. Surgeon General released the landmark report citing the dangers of cigarettes in 1964. Both nationally and in the St. Louis region, African

American adults smoke at comparable or lower levels compared with whites (see table 13). African Americans in both the City and County are also more likely to have made a quit attempt in the past year or to want to quit in the next 6 months, but are less likely to be aware of the available resources to support quitting, like telephone-based quitlines and other counseling services for smoking cessation.<sup>112</sup>

**Table 13.** Tobacco use among adults by race in 2011

	St. Louis County		St. Louis City	
	Whites	African Americans	Whites	African Americans
<b>Current cigarette smoking</b>	20%	18%	28%	28%
<b>Former cigarette smoking</b>	25%	17%	27%	16%

Source: MODHSS, Tobacco Use Profile; County-level Study 2011

Notes: Age-adjusted weighted percent; among non-Hispanic African American and white adults (18+)

**Table 14.** Tobacco cessation among adults by race in 2011

	St. Louis County		St. Louis City	
	Whites	African Americans	Whites	African Americans
<b>Current smokers who made a quit attempt in past year</b>	57%	66%	29%	67%
<b>Current smokers who intend to quit in next 6 months</b>	71%	78%	53%	79%
<b>Current smokers who are aware of telephone quitline services</b>	46%	31%	43%	38%
<b>Current smokers who are aware of cessation counseling services other than quitlines</b>	49%	31%	39%	33%

Source: MODHSS, Tobacco Cessation Profile; County-level Study 2011

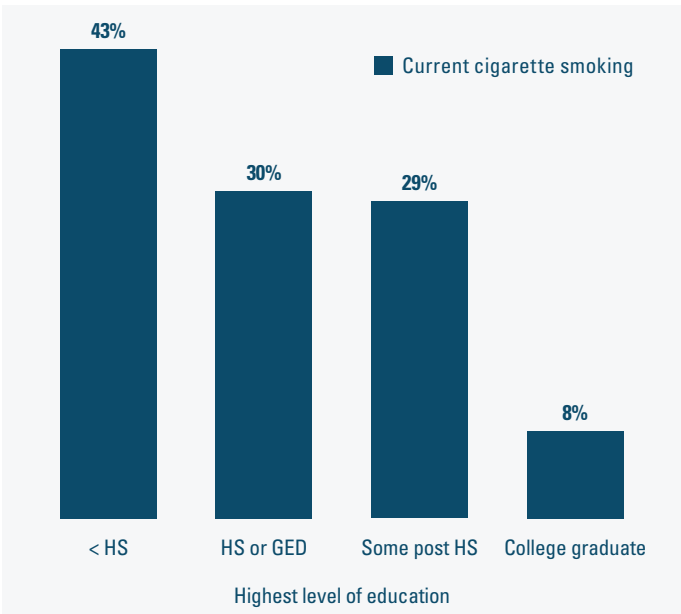
Notes: Age-adjusted weighted percent; among non-Hispanic African American and white adults (18+)





Cigarette smoking is another health factor that has a socioeconomic gradient. Individuals with lower levels of education and income are more likely to smoke than those with higher education and income. In the St. Louis metropolitan area, individuals with less than high school education smoke at 5 times the rate of those with college education, and figure 46 shows that smoking decreases as education level increases, consistent with the gradient. A similar relationship can be seen for smoking and income. Because, as we have seen, African Americans are disproportionately represented among those with lower educational attainment and lower income, there is a greater risk of smoking for individuals in those subgroups.

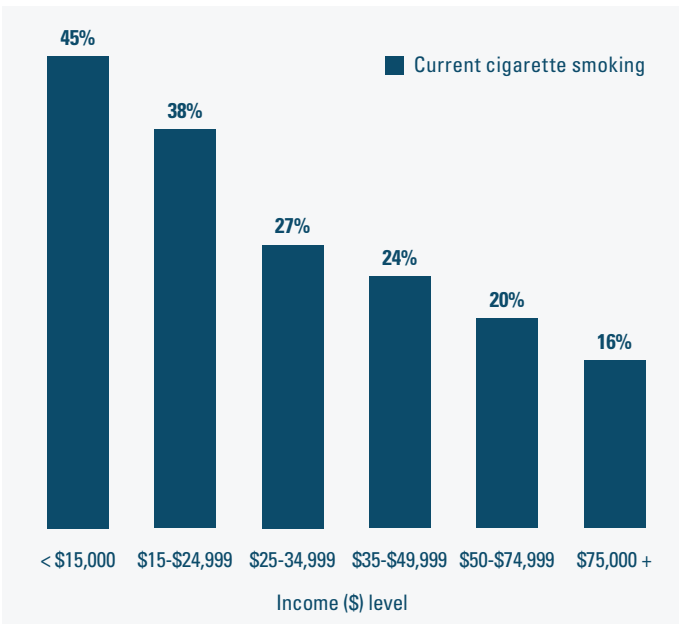
**Figure 46.** Cigarette smoking by highest level of education in the St. Louis metro area\* in 2011



Source: MODHSS, Health and Preventive Practices Profiles; County-level Study 2011  
 Notes: Age-adjusted weighted percent; among all adults (18+); HS (high school); GED (general educational development); \*St. Louis metro area includes the following Missouri counties: Franklin, Jefferson, Lincoln, St. Charles, St. Louis City, St. Louis County, Warren, and Washington

For African Americans in St. Louis, there remain challenges to leading a healthy lifestyle that go beyond personal choice.

**Figure 47.** Cigarette smoking by income level in the St. Louis metro area\* in 2011



Source: MODHSS, Health and Preventive Practices Profiles; County-level Study 2011  
 Notes: Age-adjusted weighted percent; among all adults (18+); HS (high school); GED (general educational development); \*St. Louis metro area includes the following Missouri counties: Franklin, Jefferson, Lincoln, St. Charles, St. Louis City, St. Louis County, Warren, and Washington

As important as all of these behaviors are to health, the social context in which they take place is equally important. For African Americans in St. Louis, there remain challenges to leading a healthy lifestyle that go beyond personal choice.

### 5.3 Health insurance and access to primary care

Having health insurance is essential for appropriate medical care. One report found that 25% of uninsured adults said that cost concerns prevented them from going to the doctor when they needed.<sup>113</sup> In comparison, only 4% of those with employer-provided health insurance and 9% with Medicaid reported that cost concerns prevented them from seeing the doctor. People without health insurance are less likely to have a primary care physician or provider (PCP).<sup>114</sup> The uninsured also receive fewer health services like dental care and often get treatment for health problems when it is too late.<sup>115</sup> These and other barriers help to explain why the uninsured tend to have worse health outcomes.

Figure 48 shows the percentage of the population with health insurance coverage in St. Louis City and St. Louis County combined. It shows insurance status for children and youth (under 18), adults (18-64), and older adults (65+) among African Americans and whites. Though the proportion of uninsured children and youth (under 18) is relatively small, it is twice as large for African Americans compared with whites. The insured status for adults ages 18 to 64 is considerably lower, and African American adults in this age

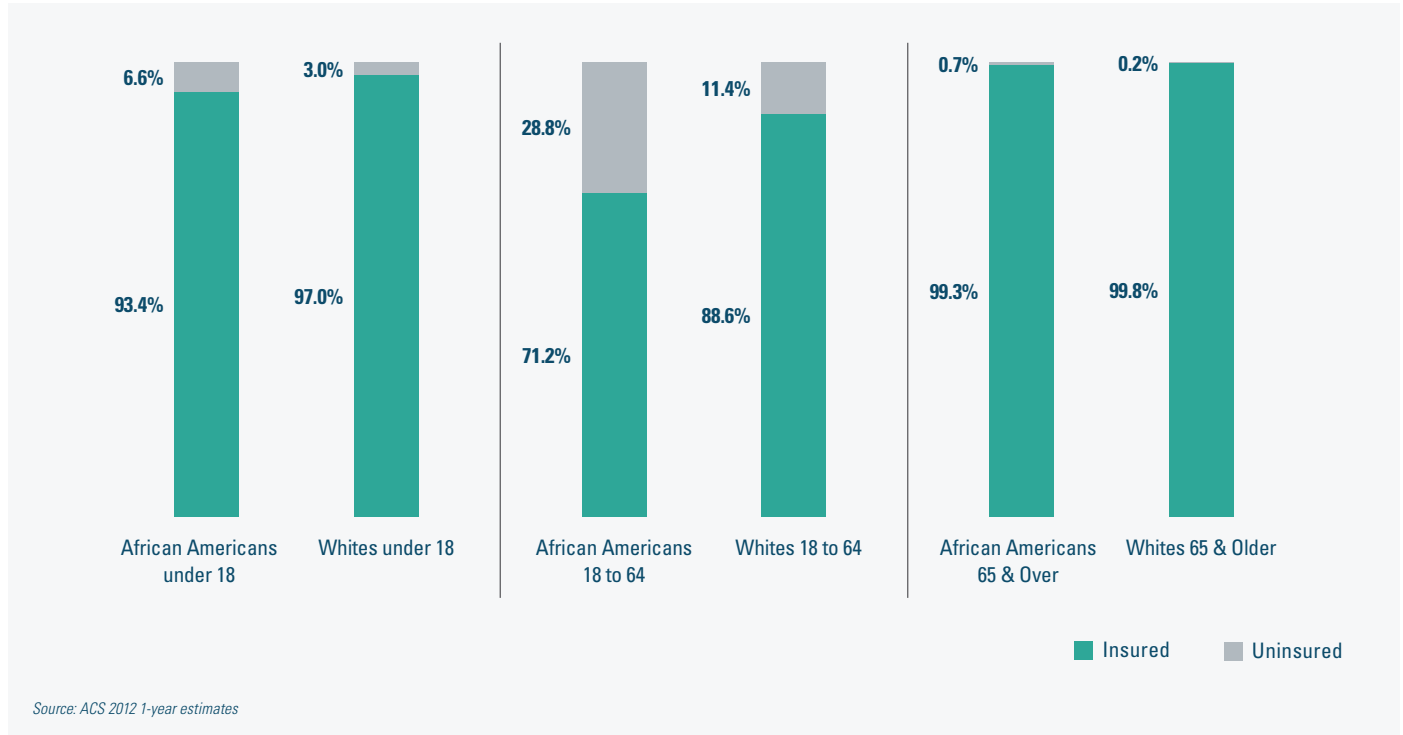
category are more than 2.5 times as likely to be uninsured compared with whites (28.8% vs. 11.4%). Almost all older adults, regardless of race, have health insurance.

Primary care is important for preventing disease and promoting well-being throughout the life span. PCPs are also necessary in order to direct people to necessary specialty care (e.g., providers who care for very specific conditions).<sup>116,117</sup>

### Primary care is important for preventing disease and promoting well-being throughout the life span.

There are a total of 1,273 practicing health care providers in all specialties in St. Louis County and 441 in St. Louis City according to a 2014 report.<sup>118</sup> These numbers include physicians (doctors of medicine — MDs and doctors of osteopathic medicine — DOs), nurse practitioners, and physician assistants. In St. Louis County, 765 (60.1%) of all providers are practicing in primary care. There are 226 (51.2%) practicing PCPs in St. Louis City. Primary care includes family medicine, internal medicine, pediatrics, and general practice.

**Figure 48.** Health insurance coverage by race in St. Louis County and St. Louis City





Previous reports have highlighted many concerns about PCP access for African Americans. The *North St. Louis Health Care Access Study* and the *Understanding Our Needs* report by the City of St. Louis Department of Health help show the barriers to health care access faced by many African Americans in St. Louis City. For example, *Understanding Our Needs* found that most of the City's PCPs are concentrated around the major teaching hospitals (e.g., Barnes-Jewish Hospital, St. Louis University Hospital) but there are relatively few PCPs practicing in neighborhoods where there is a high African American population.<sup>119</sup>

St. Louis County's *Community Health Needs Assessment* reported that 28% of African Americans lacked a usual source of health care.<sup>120</sup> By comparison, only 12% of whites in St. Louis County lacked a usual source of care.<sup>121</sup> In North County, where 45% of the population is African American, 20% of all adults report no regular source of care.<sup>122</sup> Rates for emergency room (ER) visits and hospital admissions are also higher in North County compared to the County overall.<sup>123</sup> Those who lack a usual source of care often use ERs at higher rates, which is much more costly compared with primary care.

The St. Louis health care safety net provides care for our most vulnerable residents, who often lack health insurance. The safety net served 26% of all residents in St. Louis County and St. Louis City in 2011.<sup>124</sup> This system has played an integral role in improving primary care access for low-income and uninsured people in St. Louis, but lack of health insurance and limited access to PCPs remain challenges for many African Americans in St. Louis.

## 5.4 Maternal and child health

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A woman's behavior, environment, and social circumstances (e.g., education, employment, and social support) affect her health and the health of her children. Maternal and child health is recognized as a key indicator of population health in the United States and around the world.<sup>125,126</sup> Pregnancy and childbirth can provide the opportunity to identify health risks and prevent future health complications in women and their children.<sup>127</sup> Improving the health and well-being of mothers, infants, and children is important because their health shapes the health of our next generation.

Maternal and child health covers a broad range of topics like infant and maternal mortality, prenatal care, breastfeeding, child abuse, and access to care. This subsection provides a snapshot of maternal and child health with a focus on prenatal care, maternal and infant health, and social determinants of health as they relate to maternal and child health among African Americans in St. Louis.

### Prenatal care and maternal health

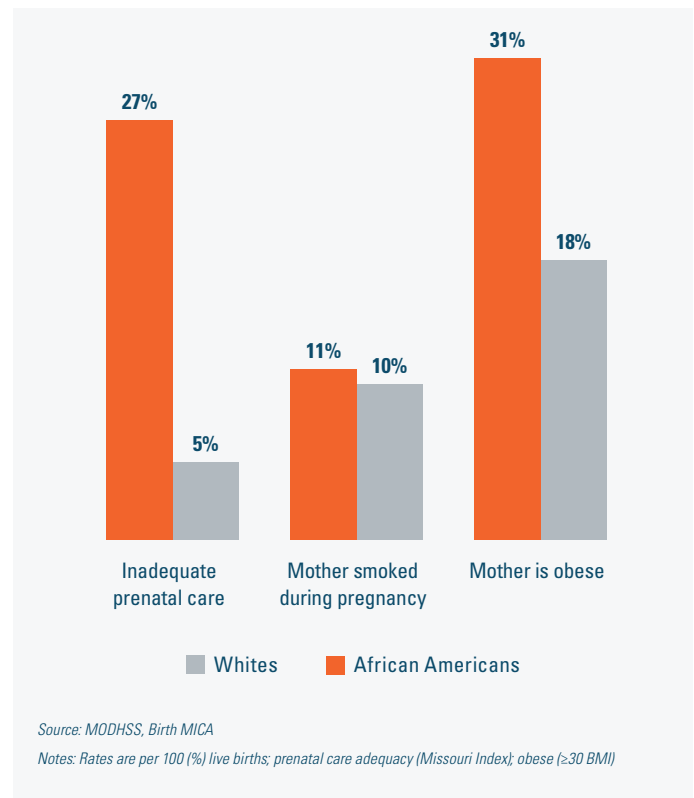
Prenatal care is the health care received during pregnancy, and is an essential component of a healthy pregnancy and childbirth. Babies of mothers who do not receive prenatal care are at an increased risk of low birth weight and death.<sup>128</sup> Prenatal care allows doctors to diagnose and treat health problems early, and to discuss behaviors that can improve the health of mothers and their families.

Figure 49 shows that in 27% of African American births, the mother received inadequate prenatal care in St. Louis County. In St. Louis City, 38% of African American births were to mothers who received inadequate prenatal care (see figure 50). The percentage of white births to mothers who received inadequate prenatal care is much lower (5% in St. Louis County and 8% in St. Louis City). Interventions are needed to close these gaps and to ensure that every mother and every baby has access to adequate prenatal care.

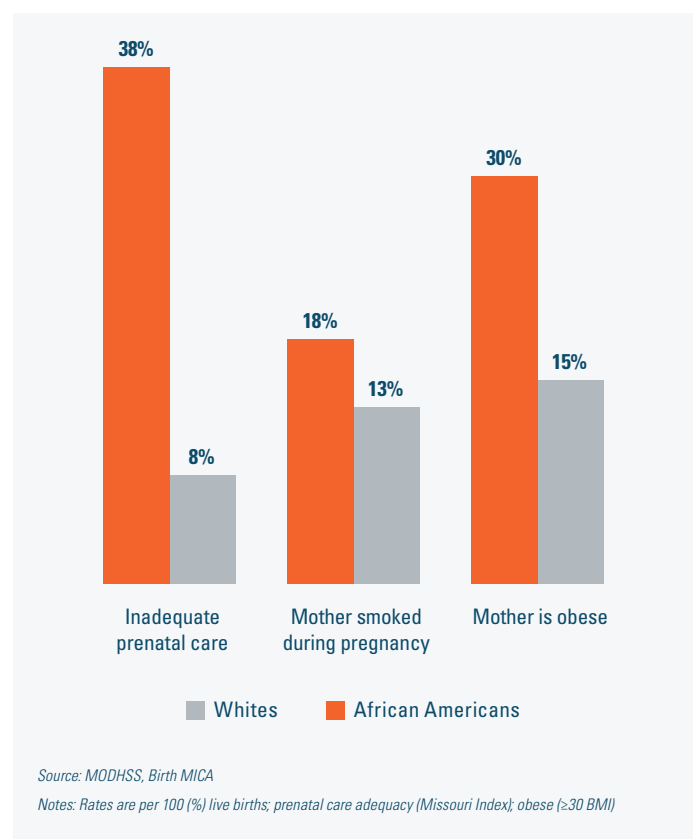
The health status of a mother during pregnancy also affects the well-being of both mother and child. For example, obese women are at an increased risk of health complications during pregnancy, such as high blood pressure and gestational diabetes.<sup>129</sup> Maternal obesity is also associated with an increased risk of fetal developmental complications and childhood obesity.<sup>130</sup> Rates of births to mothers who are obese are about two times greater among African Americans compared with whites in both St. Louis County and St. Louis City (see figures 49 and 50). Smoking during pregnancy is an example of a behavior that is known to cause health complications for mothers and babies, including increased risk of miscarriage, problems that lead to dangerous bleeding, increased risk for preterm birth, and increased risk of birth defects.<sup>131–133</sup> Figures 49 and 50 show that rates of births to mothers who smoked during pregnancy in St. Louis County are similar among whites and African Americans (10% and 11%, respectively). In St. Louis City, 18% of African American births were to women who smoked during pregnancy, compared with 13% for whites.

As mentioned throughout this report, social and economic factors and the surrounding environment influence behaviors and health outcomes, and this holds true for behaviors and diseases that affect maternal and child health. Smoking and obesity are not only a result of personal choices. Research shows that compared with African American women who do not smoke, African American women smokers were more likely to have lower levels of education, to enroll in prenatal care late (in the second or third trimester), and to believe that smoking did not harm them or their babies “a lot.” Another study found that household food insecurity (i.e., lack of access to enough food for an active, healthy life for all household members<sup>134</sup>) was associated with being severely obese before pregnancy and with having greater weight gain during pregnancy compared with women from food secure households. Findings like these are important to consider when developing and implementing programs to improve the health of mothers and children.

**Figure 49.** Prenatal care and maternal health by race in St. Louis County in 2011



**Figure 50.** Prenatal care and maternal health by race in St. Louis City in 2011



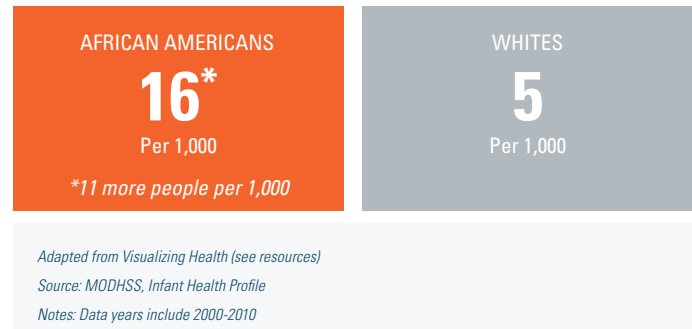


## Infant health and social determinants of health

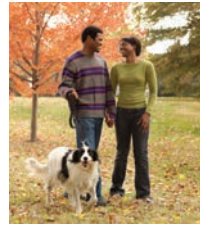
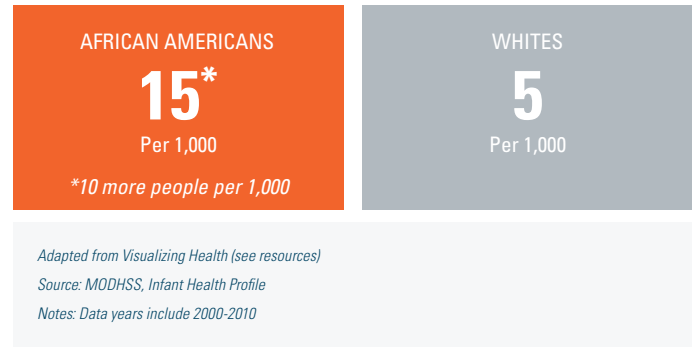
There are many indicators that help us assess the health of infants. Two common indicators of infant health are preterm birth and low birth weight. Preterm birth is defined as the birth of an infant prior to 37 weeks of pregnancy, which increases the risk of infant death and long-term disabilities connected to children’s nervous systems. This is because important growth of organ systems happens in the final weeks of pregnancy. In the U.S., preterm birth affects approximately 1 of every 8 babies (about 13%).<sup>135</sup> In St. Louis County, preterm birth affects African American infants (18%) at a higher rate than the national average and at a higher rate compared with whites (10%).<sup>136</sup> Rates of preterm birth in the County and the City are similar.<sup>137</sup> Low birth weight refers to infants who weigh 5.5 pounds or less at birth. In St. Louis County, 14% of African American infants born in 2011 were classified as low birth weight.<sup>138</sup> This rate among African American infants is a little over twice the rate of whites. In St. Louis City, 17% of African American infants born in 2011 were classified as low birth weight.<sup>139</sup> Likewise, this rate is over twice the rate of whites.

Racial disparities also exist in infant mortality (i.e., the death of children under 1 year of age). In the U.S., African American infants are more than two times more likely to die before the age of 1 compared with white infants. The difference is higher in the St. Louis region, where African American infants are 3 times more likely to die compared with white infants. Figure 51 shows that in St. Louis County, 11 more African American infants per 1,000 die before their first birthday compared with white infants. Figure 52 shows that the difference in infant mortality by race in St. Louis City is 10 more infants per 1,000.

**Figure 51. Infant death rate in St. Louis County**



**Figure 52. Infant death rate in St. Louis City**



There is growing awareness of the importance of women’s health before and between pregnancies (i.e. preconception health). This shift from exclusive care during pregnancy to also considering preconception health demonstrates an understanding that a woman’s health over her lifespan impacts her health and that of her baby before, during, and after pregnancy.



## Local progress to improve maternal and child health in Missouri and the St. Louis region

- > The Maternal, Child and Family Health Coalition (MCFHC) fosters local and national partnerships to improve birth outcomes and promote healthy families and communities. Examples of MCFHC initiatives and partnerships include St. Louis Healthy Start and the Gateway Immunization Coalition.
- > Nurses for Newborns provides home-based education, healthcare, and positive parenting skills. Nurse

home visitors provide many services to women and children at risk, including physical and mental health assessments, referrals to specialized services, and help connect women with local resources.

- > Parents as Teachers provides information and support that parents need to help their children develop optimally during the early years of life. Parents as teachers develop curricula,

train professionals, and provide many services and resources, including an evidence-based home visiting model.<sup>140</sup>

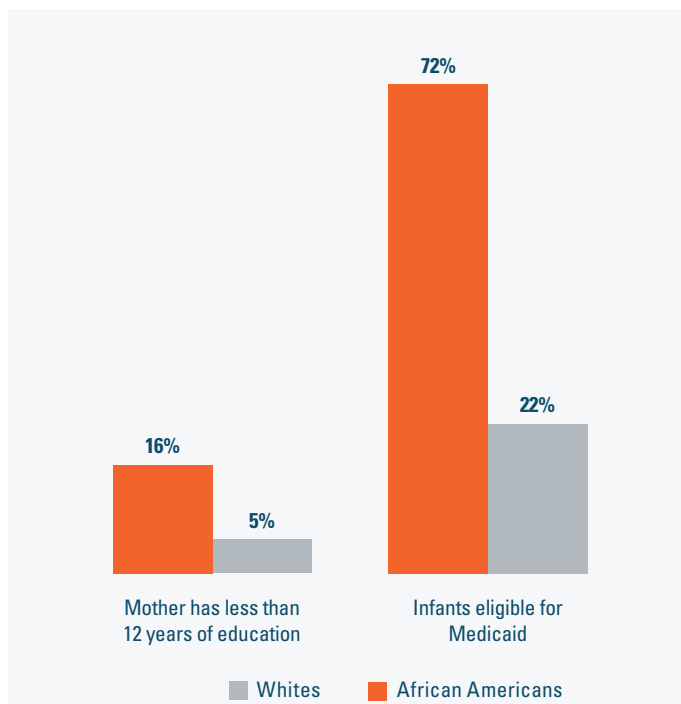
- > The Nurse-Family Partnership is a nationally-recognized, evidence-based program<sup>141</sup> implemented through the St. Louis County Health Department. This program provides nurse home visitation services to low-income, first-time mothers.



Higher levels of education benefit women and their children in many ways, including increased knowledge of health and healthy behaviors, increased resources, and greater access to quality health care. The relationship between maternal education and infant health was described on page 41. Among African American infants in St. Louis County, 16% have mothers with less than 12 years of education, and that percentage is even higher in St. Louis City (29%). African American infants are three times more likely to have a mother with less than 12 years of education compared with white infants. Although education is essential to improving maternal and child health, disparities in birth outcomes by race exist within each level of education (see page 41).

Median family incomes and enrollment in programs for low-income families indicate that African American infants in the County and the City are also more likely to live in low-income families compared with white infants. Among African American infants born in 2010 in St. Louis County and St. Louis City, 72% (County) and 94% (City) were eligible for Medicaid (figures 53 and 54). In 2008, there were nearly as many African American infants enrolled in the Women, Infants and Children (WIC) program as were born that year in St. Louis County and St. Louis City.<sup>142</sup> Residents are eligible for the WIC Infant program from birth to their first birthday. This number may overestimate usage due to changes in eligibility

**Figure 53. Mother’s education status and Medicaid eligibility by race in St. Louis County**



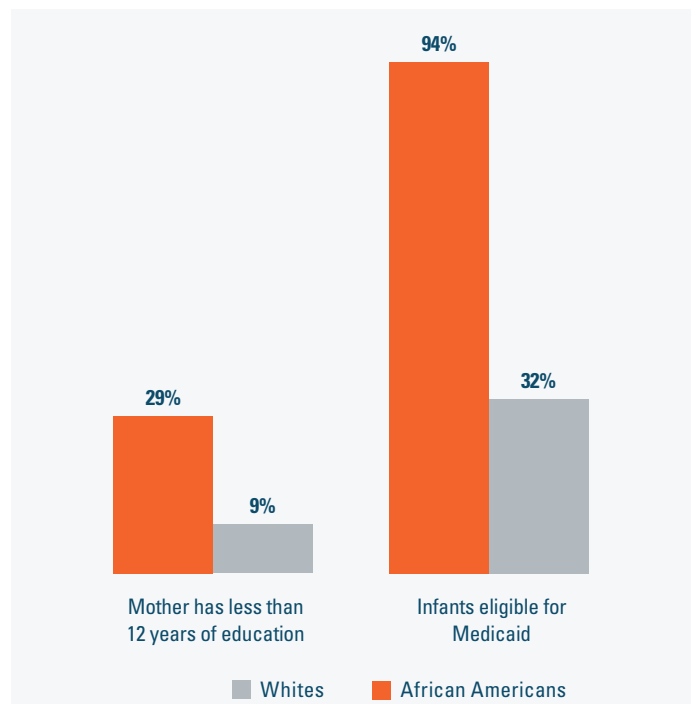
Source: MODHSS, Birth MICA; MODHSS Infant Health Profile

Notes: Mother’s education (2011); Infants on Medicaid (2010); infants on Medicaid refers to number of resident infants (less than one year of age) eligible for Medicaid (having a Medicaid card -unduplicative count) on December 31 of given year and the percent this number is of total resident live births for calendar year. Medicaid status is acquired from Department of Social Services files. Percent may be over 100 due to in-migration to geographic area and changes in eligibility status.

status and in-migration to St. Louis County and St. Louis City. WIC is a special supplemental nutrition program that serves pregnant women, new mothers, and children under the age of five, and provides food and services like health screening, nutrition education, and breastfeeding promotion.<sup>143</sup>

Researchers have tried to explain the differences in rates of adverse birth and infant health outcomes by race. Differences in behavior and socioeconomic status are part of the explanation. However, other factors like neighborhood quality, stress, health care access and quality, and exposure to racial discrimination also help explain these disparities.<sup>144–146</sup> For example, a recent study found that everyday discrimination was associated with lower birth weight and that this relationship is mediated by maternal depression (i.e., women who experienced greater discrimination experienced more depressive symptoms and these symptoms were associated with lower infant birth weight).<sup>147</sup> Another study showed that neighborhood conditions such as poverty levels, unemployment, and education contributed to preterm birth differences between African Americans and whites.<sup>148</sup> It is also important to understand that pregnancy and birth-related outcomes are influenced by many factors, and that these outcomes are interrelated. For example, preterm birth is a risk factor for infant mortality.<sup>149</sup>

**Figure 54. Mother’s education status and Medicaid eligibility by race in St. Louis City**



Source: MODHSS, Birth MICA; MODHSS Infant Health Profile

Notes: Mother’s education (2011); Infants on Medicaid (2010); infants on Medicaid refers to number of resident infants (less than one year of age) eligible for Medicaid (having a Medicaid card -unduplicative count) on December 31 of given year and the percent this number is of total resident live births for calendar year. Medicaid status is acquired from Department of Social Services files. Percent may be over 100 due to in-migration to geographic area and changes in eligibility status.

## 5.5 Mental health

While the specific causes and symptoms of mental health problems differ for everyone, mental health can have a tremendous impact on social functioning and economic status. This is true not only for an individual, but for entire families. Persons with mental health conditions are at increased risk for school dropout, imprisonment, and lower income throughout their lives.<sup>150–152</sup> There are also links between poor mental health and physical health problems such as heart disease and diabetes.<sup>153–154</sup>

### Persons with mental health conditions are at increased risk for school dropout, imprisonment, and lower income throughout their lives.

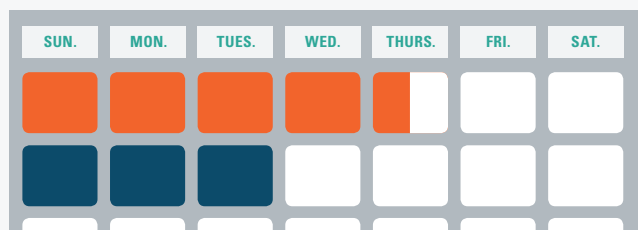
Mental health conditions include mood disorders such as depression and bipolar disorder and anxiety disorders such as generalized anxiety disorder and post-traumatic stress disorder. Mental health conditions can develop from early childhood through late life. The impacts can range from having no symptoms to severe impairment in daily activities to suicidal thoughts and actions.

#### Prevalence of mental health conditions

Nationally, about 19% of the general public has some type of mental illness.<sup>155</sup> About 4% have a serious mental illness, such as schizophrenia, that substantially interferes with daily functioning.<sup>156</sup> There are not significant national differences in mental health prevalence between whites and African Americans.<sup>157</sup> For serious mental illness, the rate for whites is 4%, compared to 3% for African Americans.<sup>158</sup> Figure 55 shows the number of days all adults reported poor mental health in St. Louis City and St. Louis County.

**Figure 55.** Poor mental health days among all adults in St. Louis City and St. Louis County

In St. Louis City, adults spend **4.5 DAYS A MONTH** in poor mental health. In St. Louis County the figure is **3 DAYS A MONTH**. That's nearly half a week or more feeling hopeless, anxious or overwhelmed.



Source: University of Wisconsin Population Health Institute, County Health Rankings & Roadmaps 2014

Notes: Indicators are age-adjusted; derived from Behavioral Risk Factor Surveillance System (BRFSS); data years include 2006-2012

Diagnosis (28% vs. 12%) and treatment with medication (21% vs. 10%) for mental illness is twice as high for African American youth as white youth.<sup>159</sup> Additionally, 36% of African American parents in St. Louis County reported drug and alcohol abuse as a challenge for youth in their neighborhoods.<sup>160</sup> Comparable data was not available for St. Louis City youth.

#### Mental health impacts

Mental health can impact several areas of a person's life. Poor mental health in early childhood is associated with higher rates of school dropout,<sup>161</sup> lower household income,<sup>162,163</sup> higher rates of divorce,<sup>164</sup> and higher rates of incarceration later in life.<sup>165,166</sup> Drug and alcohol use disorders are also more common for individuals with mental illness.<sup>167</sup> Mental health conditions that begin early in life are also associated with imprisonment.<sup>168,169</sup> A 2012 study of mental health in the criminal justice system found that imprisoned men and women had a rate of serious mental illness three times that of the general population.<sup>170</sup> Approximately 64% of individuals in jail and prison have mental health conditions.<sup>171</sup> Racial and ethnic minorities are overrepresented in the prison system, with 1 in 3 African American males incarcerated at some point in their lives.<sup>172</sup> As noted in the demographic overview, African Americans account for 61% of St. Louis adult residents in correctional facilities, though they are less than 30% of the regional population.

#### Mental health and race

We have already established that African Americans have higher poverty, lower income, and higher unemployment compared to whites in St. Louis County and St. Louis City. We have also seen that African Americans often have worse health outcomes compared to others. Considering these data, it may be surprising to see that African Americans have lower rates of mental illness at a national level. In St. Louis County and St. Louis City, African American adults have lower rates of depression compared to whites. Depression affects 17% of African Americans compared with 20% of whites in St. Louis County.<sup>173</sup> In St. Louis City, depression affects 16% of African Americans compared with 25% of whites.<sup>174</sup> While these findings are consistent with results from national studies, it seems puzzling considering the economic and physical health disparities described above. However, estimates of alcohol and substance abuse disorders are higher in St. Louis for African Americans compared to whites. Also, social stigma connected to mental illness or mistrust of mental health care can keep people from seeking the treatment they need.<sup>175,176</sup>

Despite lower rates of depression, there are large differences in mental health treatment between African Americans and whites in St. Louis County and St. Louis City. Figure 56 shows emergency room (ER) visit rates for all mental health conditions in St. Louis City and St. Louis County combined. The African American ER visit rate is 121% higher than that of whites. African Americans visited the ER for serious mental illness (schizophrenia and related disorders) at a rate nearly 10 times that of whites (2.9 compared to 0.3 per 1,000).<sup>177</sup> Rates for alcohol and substance-related visits are also higher for African Americans compared with that of whites (6.2 compared to 3.1 per 1,000).<sup>178</sup>

**Figure 56.** Emergency room rates due to mental health conditions by race in St. Louis County and St. Louis City in 2011

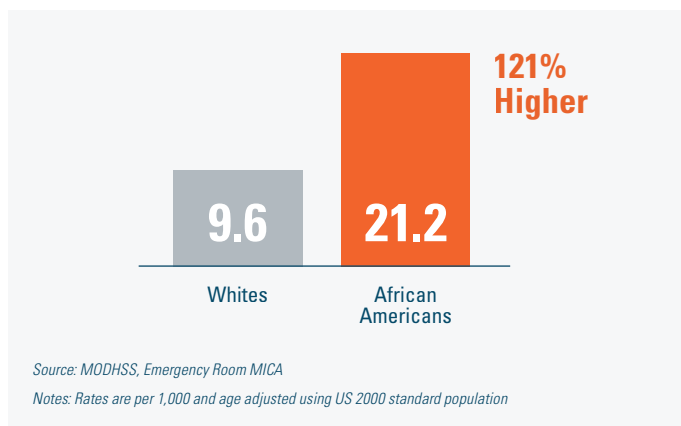


Figure 57 shows the differences by race for inpatient hospitalizations for all mental health conditions. The African American hospitalization rate is 64% higher than that of whites. The difference in hospitalization rates for serious mental illness (schizophrenia) is particularly striking — African Americans have a rate (64.9 per 10,000) nearly 5 times that of whites (14.3 per 10,000).<sup>179</sup> Hospitalization, the most expensive and least effective treatment option for mental illness, is often the only source of health care for many individuals.

High hospitalization rates for mental health point to a lack of access to care for many living in St. Louis. The *North St. Louis Health Care Access Study* found that access to mental health services was lowest for racial and ethnic minority and low-income residents.<sup>180</sup> Moreover, the report found that many residents in North St. Louis City felt the only ways to access mental health care were through acts of violence, jail, or psychosis.<sup>181</sup>

B

### Beacon story summary: The need for community-based mental health

Struggling with depression, graphic artist La'Shay Williams shared her story with the *St. Louis Beacon*. When experiences with two bad relationships left her feeling she had no way out, Williams chose not to seek help from a mental health professional for her depression and turned to her faith to help her heal.

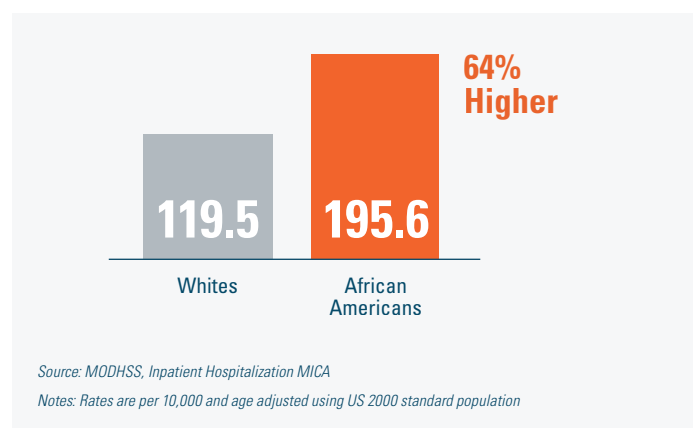


The article reports on the stigma associated with mental illness that keeps many African Americans from seeking professional treatment for mental health issues like depression, anxiety, substance abuse, and schizophrenia.

Research shows that better awareness and screening for mental illness can make treatment more accessible. The World Health Organization recommends community-based mental health services such as mental health centers and awareness campaigns to help reduce the stigma associated with mental health treatment and prevent costly and ineffective trips to the emergency room. Additionally, increased data collection and sharing has been shown to improve mental health awareness and knowledge in racial and ethnic minority communities.

Story by the *St. Louis Beacon*

**Figure 57.** Inpatient hospitalization rates due to mental health conditions by race in St. Louis County and St. Louis City in 2011



## Hospital charges for mental health in St. Louis

Annual hospital charges in 2011 for mental health conditions were estimated to be \$230 million in St. Louis City and St. Louis County combined. Among African Americans alone, that figure is \$96 million.<sup>182</sup> This means that charges for hospital-based mental health treatment for African Americans, who make up about 30% of the population in the St. Louis region, amounts to 42% of the charges for treatment for all of St. Louis City and County.<sup>183</sup>

Annual hospital charges for mental health conditions in 2011 in St. Louis

**\$96 million**  
AFRICAN AMERICANS

**\$230 million**  
ALL ST. LOUIS RESIDENTS

## Mental health and suicide

Nationally, suicide is the 10th leading cause of death for all ages, but the 4th leading cause of death for those between 18 and 65 years old.<sup>184</sup> St. Louis suicide rates mirror national trends, with lower rates for African Americans compared to whites (see table 15). Many individuals with mental health conditions are at high risk for suicide, and those with co-occurring substance use issues are at even higher risk.

**Table 15. Suicide rates by race in 2011**

	St. Louis County		St. Louis City		City & County Combined	
	Number	Rate	Number	Rate	Number	Rate
African Americans	9	3.6*	13	9.0*	22	5.8
Whites	120	16	28	17.9	148	16.2

Source: MODHSS, Death MICA

Notes: Rates are per 100,000 and age adjusted using US 2000 standard population; \*rate is unstable (numerator less than 20)

## 5.6 Violence and injury

Violence has been identified as a public health issue for several decades. Agencies like the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) suggest that the problem of violence must be addressed like other public health problems: through collaboration across multiple sectors of society. We noted previously that behavior was essential to preventing chronic disease, and preventing violence also



## Local mental health resources

- > The Amanda Lockett Murphy Hopewell Center takes a community-based approach to mental health care, providing comprehensive inpatient and outpatient mental health services, transportation assistance, and community integration programming.
- > Places for People serves diverse community members, including people who experience mental disorders, homelessness, trauma, medical disorders, and substance abuse disorders. In addition to providing mental health services, they provide assistance with medication and housing.
- > Mental Health First Aid Missouri is one example of an effort to raise awareness of mental health conditions. This is a course to educate the general public about how to recognize mental health conditions.

Though rates of common types of mental illness are lower for African Americans in St. Louis, access to mental health treatment remains a challenge, as it does for the region as a whole. Both greater awareness and investment are needed to address lack of access to vital mental health treatment.

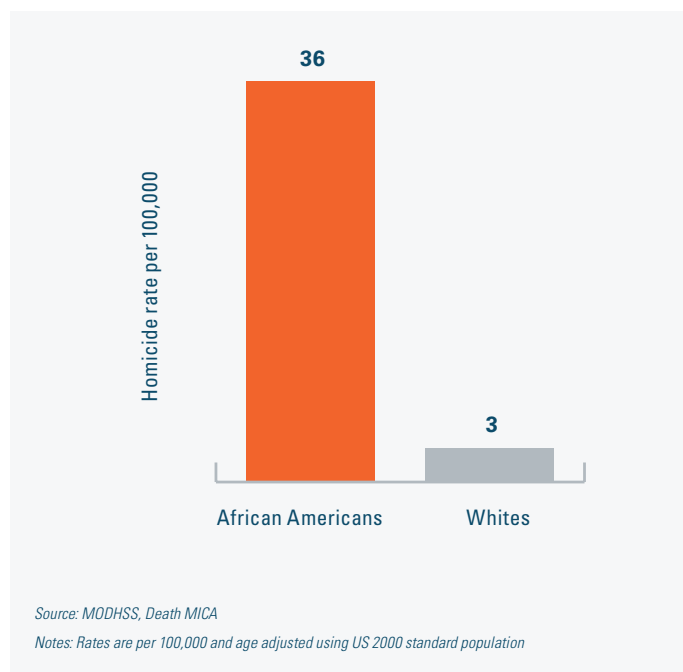
Eliminating racial and ethnic differences in mental health could save as much as \$27 million in inpatient hospital charges. Other economic impacts associated with poor mental health include crime, imprisonment, reduced earnings and employment, and family disruption.

means changing behavior.<sup>185</sup> Not just individual behavior, but the health, social, and environmental conditions that are associated with violence also must be addressed.<sup>186</sup> In this way the public health approach to violence is also similar to the response to infectious diseases like tuberculosis, small pox, and polio. By understanding how violence is “transmitted” in a community, we can take steps to prevent it.

## Homicide

The overall homicide death rate in 2011 among African Americans is more than twice as high in St. Louis City (53 per 100,000) compared to St. Louis County (24 per 100,000).<sup>187</sup> A large proportion of the homicide deaths in 2011 among African Americans in both the County (90%) and City (87%) were due to firearms.<sup>188</sup> The homicide death rate among African Americans in St. Louis County and St. Louis City combined is more than 12 times higher than the rate for whites (figure 58). Interventions that support nurturing relationships between parents and children, conflict resolution, job skills training, youth mentoring, and strategies that address unemployment and access to quality education have been identified as effective in preventing homicide and other violent crimes.<sup>189</sup> There are also interventions like Cure Violence (see description in box to the right) that have been successful in violence prevention by using trusted community members to “interrupt transmission.”<sup>190</sup>

**Figure 58.** Homicide death rates by race in St. Louis County and St. Louis City in 2011



## Cure Violence

Founded by physician and epidemiologist, Dr. Gary Slutkin, Cure Violence is a Chicago-based organization that has experienced success in addressing homicide using a public health model. Cure Violence’s prevention strategy includes three steps using the terminology of the spread of disease: 1) Interrupt “transmission” of acts of violence, 2) Identify and change the thinking of highest potential “transmitters” of violence, and 3) Change group norms about the acceptability of violence in communities. Originally established under the name Cease Fire, Inc, the organization was credited with helping to reduce crime in its target area by 67% in its first year. The model has already been replicated 50 times in 15 cities and 8 countries.

### Youth violence

Although homicide no longer ranks among the top fifteen leading causes of death in adults, it is still the second leading cause of death in youth ages 13 to 24 nationwide.<sup>191</sup> Homicide is the number one cause of death for African-American youth ages 10 to 24.<sup>192</sup>

Local data are equally troubling. Last year the *St. Louis Regional Youth Violence Prevention Task Force Community Plan* reported that St. Louis ranks second nationally in the rate of youth killed by gun violence at 50 per 100,000 — a rate that is three times the national average of youth killed by gun violence, and that is high even for some of the most violent regions in the world.<sup>193</sup> The community plan also reported that 85% of youth in St. Louis City and 31% of youth in St. Louis County live in environments that have at least one risk factor for violence. These risk factors include teen parenthood, frequent changes in residence, and single-parent households.<sup>194</sup>

Neighborhood violence can affect youth in the region even if they are not personally involved in violent activity. Some parents refuse to allow their children to play outdoors or walk to and from school because of the fear of violent crime.<sup>195</sup> Nearly a third of African American parents (31%) in St. Louis County say that youth violence and gang activity are serious concerns.<sup>196</sup>





## St. Louis Regional Youth Violence Prevention Task Force

In 2012, St. Louis Mayor Francis Slay and his Commission on Children, Youth and Families partnered with over 200 community stakeholders to develop a comprehensive youth violence prevention plan for the region.

This 55-page report describes the St. Louis metropolitan area's youth violence statistics and the task force recommendations in the areas of prevention, intervention, enforcement, and re-entry. The report also includes examples of organizations doing work in the St. Louis Region to address youth development. A link to the report is available under Resources.

## Firearm injuries

While thousands of people are killed by firearms annually, the vast majority of those injured survive.<sup>197</sup> In 2012 the United States experienced 81,396 firearm injuries, the highest number ever recorded. Thirty-four percent of those injured were African American, even though African Americans make up only 12 – 13% of the U.S. population. African Americans have been injured by firearms more than any other group for many years.<sup>198</sup>

African Americans in St. Louis are also disproportionately affected by firearm injuries. The rate of African American firearm injuries in St. Louis County is 16 times higher than the rate for whites in St. Louis County and the rate for African Americans in St. Louis City is 12 times higher than it is for whites (see table 16).

## Injury

Even when violence does not end in death, African Americans in St. Louis are more likely to be victimized. In the City of St. Louis and St. Louis County, African Americans are 5 times more likely to be injured in a fight, 1.3 times more likely to overdose from drugs or alcohol, 6 times more likely to be injured from abuse, neglect or rape, and 17 times more likely to be injured by firearms (figure 59).

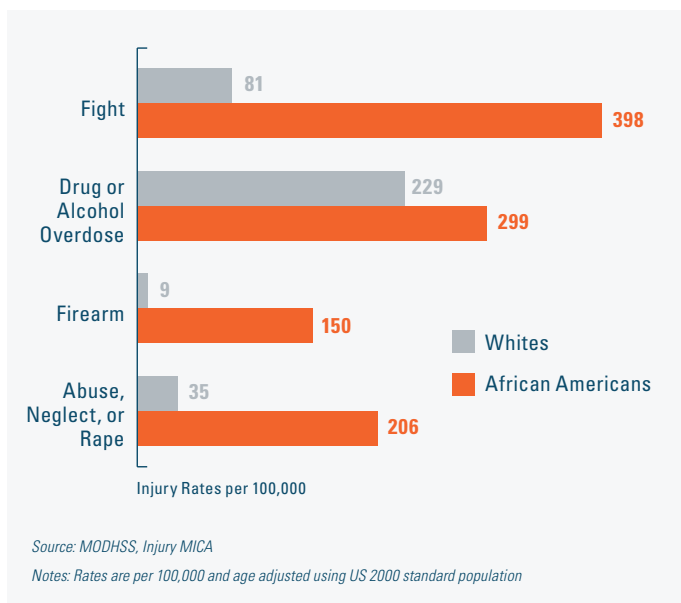
**Table 16.** Firearm injury rates by race in 2011

	St. Louis County	St. Louis City	City and County combined
African Americans	111	209	150
Whites	7	18	9

Source: MODHSS, Death MICA

Notes: Rates are per 100,000 and age adjusted using US 2000 standard population

**Figure 59.** Injury rates by mechanism by race in St. Louis County and St. Louis City in 2011



## The impact of violence

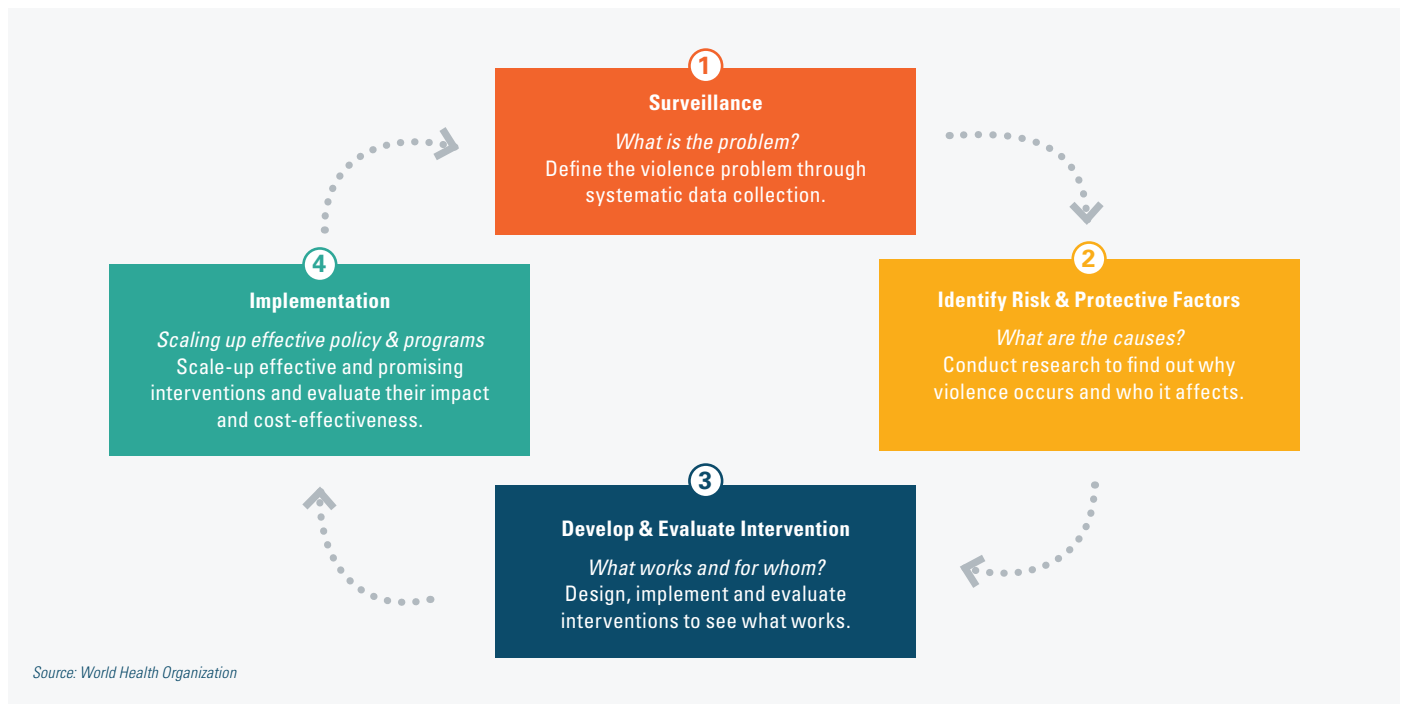
When violence is experienced at a young age it can result in substance abuse, learning disabilities, post-traumatic stress syndrome, anxiety, depression and severe physical harm.<sup>199</sup> There are also long-term social and health issues like poverty, low educational attainment, and maternal and child health problems. At the level of communities, violence severs basic human connections, engendering fear, social isolation, and helplessness.<sup>200–202</sup>

Not only is violence harmful to health and well-being; it is costly. According to the CDC, the cost of the 51,173 violent deaths in 2005 totaled \$215 million dollars in medical charges and \$47 billion in work loss costs for that year.<sup>203</sup>

## The Public Health Approach

Violence demands an approach that is very similar to how we would fight a disease. The public health approach to violence offers a clear framework for preventing violence and addressing its negative health, economic, and other social consequences.

## The steps of the public health approach



## 5.7 HIV/AIDS and other STDs

Infections can often be a direct cause of disease. Infectious diseases are caused by an organism like a bacteria or virus. Despite significant improvements over the last century, infectious diseases are still a major cause of death and disability.<sup>204</sup> In St. Louis, sexually transmitted diseases (STDs) and HIV/AIDS are two major types of infectious disease that impact well-being. HIV/AIDS is also a cause of death for those in St. Louis County and St. Louis City.<sup>205</sup>

### STDs and HIV/AIDS

In St. Louis County and St. Louis City, there are large differences in rates of STDs and HIV/AIDS between African Americans and whites (see tables 17 – 19). Like other aspects of health, social and economic factors are important contributors to these differences.<sup>206</sup> Factors like income, unemployment, education and segregation all contribute to the prevalence of STDs.<sup>207–212</sup>

The wide differences in STD rates are unlikely to be the result of differences in sexual behaviors. For example, national data show that there are only small differences in sexual behaviors between African American and white women.<sup>213</sup> Moreover, it has been suggested that behaviors like condom use cannot fully account for the differences seen in STD rates.<sup>214–216</sup> Efforts to reduce differences in STDs must address the underlying social and economic differences that

exist. Discrimination based on sexual orientation and stigma associated with HIV in particular also make efforts to address HIV/AIDS more challenging.<sup>217</sup> STDs are of concern because, if left untreated, they can lead to multiple health problems. For example, untreated STDs may increase risk of certain cancers, increase risk of infertility, support the transmission of HIV, and harm babies born to infected mothers.<sup>218</sup>

Factors like income, unemployment, education and segregation all contribute to the prevalence of STDs.

As shown on page 45, African American adolescents (age 15-19) have high rates of gonorrhea and chlamydia in St. Louis County and St. Louis City. Previous studies have also shown that adolescent females, in particular, experience higher rates of STDs.<sup>219,220</sup> This is partially explained by sexual partner characteristics. Adolescent females who have older male sexual partners increase their risk for STDs.<sup>221</sup> Older male partners are more likely to have had multiple sexual partners throughout their lives and are more likely to be already infected compared with younger partners.<sup>222</sup> Also, adolescent females are less likely to use contraceptives.<sup>223</sup> These are just some of the reasons why it has been suggested that adolescent females who have sex with older male partners are at higher risk for STDs and HIV.<sup>224–227</sup>

## Gonorrhea and chlamydia

Gonorrhea and chlamydia are two common types of sexually transmitted disease. Table 17 shows gonorrhea and chlamydia rates among African American and white females in St. Louis County and St. Louis City. (To our knowledge, comparable data for African American males is not publicly available for St. Louis County and St. Louis City.) In St. Louis County, African American females have a gonorrhea rate that is 22 times higher than white females, and the chlamydia rate is 13 times higher among African American females compared with whites. STD rates are higher in St. Louis City compared with St. Louis County. Large disparities also exist in St. Louis City. The gonorrhea rate among African American females is 15 times higher compared with white females, and the chlamydia rate is 13 times higher among African American females compared with white females. Figures 60 and 61 highlight the differences in chlamydia rates between African American and white females in St. Louis County and St. Louis City.

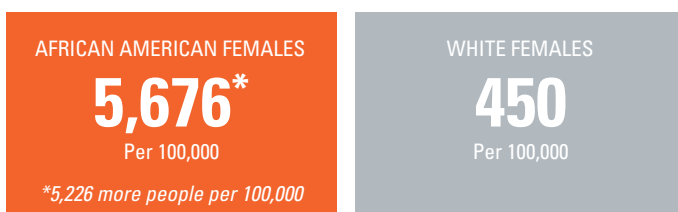
**Table 17. STD rates among females (age 15 – 44), 2007 – 2009**

	St. Louis County		St. Louis City	
	Cases	Rate	Cases	Rate
<b>Gonorrhea</b>				
African Americans	1,771	1,037.9	2,266	2,041.7
Whites	182	46.5	139	135.2
<b>Chlamydia</b>				
African Americans	5,470	3,205.7	6,299	5,675.6
Whites	970	247.9	463	450.2

Source: MODHSS, Women's Reproductive Health Profile

Notes: Rates are per 100,000 females ages 15 – 44; data years include 2007 – 2009

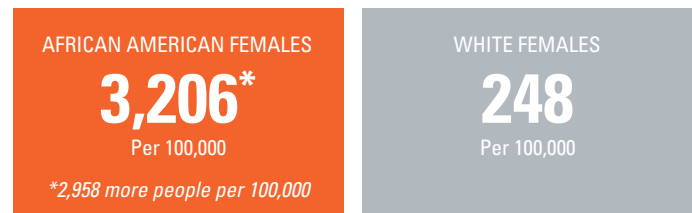
**Figure 60. Chlamydia rates among females (age 15 – 44) in St. Louis City, 2007 – 2009**



Adapted from Visualizing Health (see resources)

Source: MODHSS, Women's Reproductive Health Profile

**Figure 61. Chlamydia rates among females (age 15 – 44) in St. Louis County, 2007 – 2009**



Adapted from Visualizing Health (see resources)

Source: MODHSS, Women's Reproductive Health Profile

## HIV/AIDS

HIV (human immunodeficiency virus) is a virus that can be transmitted in many ways. For example, from mother to child during pregnancy, birth, and breast feeding, through injection drug use, or sexual contact. HIV can eventually lead to AIDS (acquired immunodeficiency syndrome). There is no cure for this disease, but it can be managed through treatment and care. Survival for individuals with HIV has increased with better treatment. Many live as long as those who are uninfected. However, many of the same factors we have described as interfering with health also impact whether individuals receive adequate treatment for HIV.

**Table 18. Newly diagnosed HIV cases and rates by race in 2012**

	Whites			African Americans		
	Cases	%	Rate*	Cases	%	Rate*
<b>St. Louis City</b>	32	30.5%	23.2	68	64.8%	44.6
<b>St. Louis County</b>	21	19.4%	3.1	81	75.0%	35

Source: MODHSS, 2012 Epidemiologic Profile of HIV, STD and Hepatitis in Missouri

Notes: Rates are per 100,000; row percentages are shown; percentages do not total 100% because other race/ethnicities are not shown

In St. Louis City and St. Louis County, there were 213 newly diagnosed HIV cases in 2012.<sup>228</sup> Despite being about 30% of the population in these two counties combined, African Americans represented 70% of new HIV cases. African Americans represented 65% of the 105 new HIV cases in St. Louis City. This imbalance is even more pronounced in St. Louis County, where African Americans represented 75% of the 108 new HIV cases (see table 18). Rates represent a standard way of measuring the amount of disease between populations. In St. Louis City, the HIV rate among African Americans (44.6) is twice as large compared with whites (23.2). The disparity is even wider in St. Louis County. The HIV rate among African Americans (35) is 11 times larger compared with whites (3.1).

**Table 19. Newly diagnosed AIDS cases and rates by race in 2012**

	Whites			African Americans		
	Cases	%	Rate*	Cases	%	Rate*
<b>St. Louis City</b>	9	40.9%	6.5	11	50.0%	7.2
<b>St. Louis County</b>	8	28.6%	1.2	19	67.9%	8.2

Source: MODHSS, 2012 Epidemiologic Profile of HIV, STD and Hepatitis in Missouri

Note: Rates are per 100,000; row percentages are shown; percentages may not total due to rounding

AIDS is the stage of HIV infection when the immune system is severely damaged. When this happens, the body becomes susceptible to infections and cancers that are linked to infection. When indicators of immune system functioning in the blood fall below a certain threshold, it has progressed to AIDS. Without medical care, those with AIDS are less likely to survive.<sup>229</sup> In St. Louis City and St. Louis County, there were 50 newly diagnosed cases of AIDS in 2012.<sup>230</sup> In St. Louis City, African American represented 50% of new AIDS cases. In St. Louis County, African Americans represented 68% of new AIDS cases (see table 19). The AIDS rate in St. Louis City is slightly larger among African Americans compared to whites. However, the AIDS rate in St. Louis County is a different picture. The AIDS rate among African Americans is almost 7 times higher than whites in St. Louis County. It should be noted that these rates may not be reliable given the small number of cases involved. For this reason, these rates should be viewed with caution.

HIV/AIDS can eventually lead to death. There were a total of 375 deaths due to HIV/AIDS from 2001 – 2011 among African Americans in St. Louis County and St. Louis City.<sup>231</sup> In St. Louis County, the HIV/AIDS death rate for African Americans (6 deaths per year per 100,000) is 6 times higher than whites (1 death per year per 100,000).<sup>232</sup> In St. Louis City, the HIV/AIDS death rate for African Americans (14 deaths per year per 100,000) is over twice as high as the death rate for whites (6 deaths per year per 100,000).<sup>233</sup>



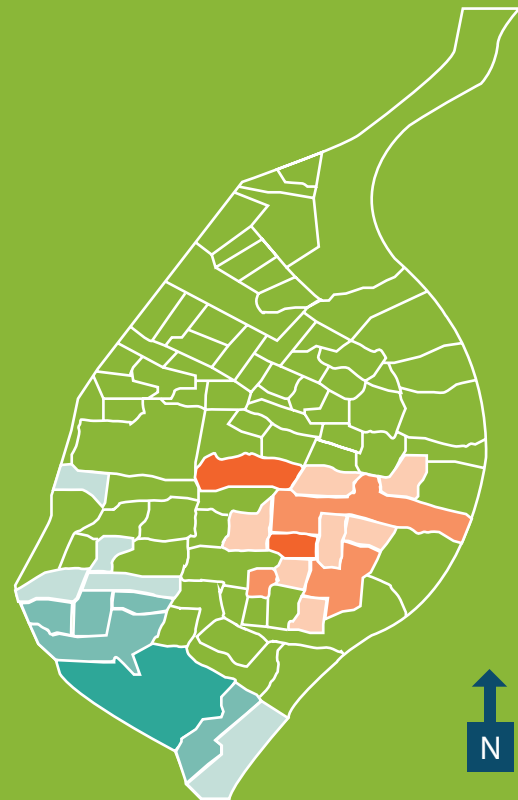
St. Louis Effort for AIDS is a non-profit organization dedicated to providing education about HIV/AIDS prevention. The organization also offers comprehensive services to those impacted by HIV/AIDS. Some of these services include free and confidential testing and support groups.



## HIV in St. Louis City

This map highlights HIV cases that occurred between 2006 and 2011 in St. Louis City. The map identifies hot spots or clusters of HIV cases in neighborhood areas called census tracts. The highest rates are in red and lowest in blue. HIV hot spots are located in parts of the central corridor and neighborhoods just below. Areas in the most southern parts of St. Louis City have the lowest rates of HIV (cold spots). The location or geography of where HIV cases occur is becoming recognized as one of the most important factors that shape patterns of HIV.

**Figure 62. HIV cases in St. Louis City (2006 – 2011)**



Source: Hot spot analysis and map by Enbal Shacham, PhD, MEd, MPE

Notes: Hot spot analysis calculated using the Getis-Ord  $G_i^*$  statistic; HIV cases are controlled for four census tract level factors including: percent African American, percent below poverty, percent below high school, and percent between 15 and 44 years.

06

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# RECOMMENDATIONS

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We cannot afford to continue like this. Something has to change in order for everyone in the St. Louis region to be able to thrive and contribute to its growth and vitality.



Even though we face considerable challenges to ensure health and well-being *for the sake of all* in the St. Louis region, there are tangible steps we can take to address those challenges. We have highlighted some examples for this community and other communities around the country throughout this report. The following is a specific set of policy and programmatic recommendations responding to the major themes of our briefs and this report. We have underlined where the recommendations have been modified to respond to themes that emerged from the Community Feedback Forum (see pages 07-08).

## 1 Invest in quality early childhood development for all children.

**Every \$1 invested in early childhood returns between \$7 and \$17 of benefit for society.**

Setting up children to succeed at the youngest ages has powerful health effects as well. A recent study showed that individuals who had high-quality early childhood programming as children were less likely to have risk factors for heart disease and diabetes in their mid-30s.<sup>234</sup>

**Targeted investments and strategies include:**

- > Expanding all children's access to well-designed early childhood programs with a) small class sizes, b) qualified teachers, c) significant time spent on instruction, d) school-family partnerships, and e) an emphasis on social and emotional development in addition to academic preparation.
- > Fully funding early childhood programs at the state level
- > Implementing a quality improvement process with accountability measures
- > Improving the level of child care subsidies for low-income families
- > Expanding home visitation services and other supports to parents that cover the prenatal through early childhood period

## 2 Help low-to-moderate income families create economic opportunities.

**Children who have savings in their names — even in small amounts — are up to 3 times more likely to attend college and 4 times more likely to graduate compared with students without savings.**<sup>235</sup>

There is emerging evidence that having financial assets like college savings accounts is associated with better social and emotional development for children<sup>236</sup> and lower levels of depressive symptoms for mothers.<sup>237</sup>

**Targeted investments and strategies include:**

- > Making college savings accounts universally available for children at birth or school entry, and providing additional savings as incentives for educational success and parental engagement throughout K-12 schooling.
- > Making financial advice and services easily accessible and affordable to families at all income levels.

## 3 Invest in coordinated school health programs for all students.

**Poor health can be a serious barrier to educational success.**

According to the Centers for Disease Control and Prevention, health activities in schools need to be better integrated and coordinated. Bringing the main parts of school health together through an organized approach can help schools improve service delivery, build partnerships, and develop healthy behaviors in students and staff.

**Targeted investments and strategies include:**

- > Expanding coordinated school health programs to all schools, particularly those in high-poverty communities.
- > Making positive child and youth development opportunities available through afterschool and other programming in partnership with the community.
- > Implementing evaluation, technical assistance, and resource plans to support school districts in their efforts to create or expand coordinated school health programs.
- > Building private-public partnerships to support coordinated school health efforts.

## 4 Invest in mental health awareness, screening, treatment, and surveillance.

**There is a significant need for accessible, community-based mental health services in the St. Louis region.**

Without greater investment in this area, there are large social and economic costs. The region must also change norms around seeking necessary mental health treatment as a vital part of addressing care of overall health.

**Targeted investments and strategies include:**

- > Investing in counseling and psychological services for young people through private and public sources.
- > Improving mental health awareness using community-wide education to change community norms and increasing screenings in medical and other settings.

- > Investing in more outpatient community mental health centers, particularly in areas of need, and coordinate screenings and referrals for high-risk populations.
- > Improving the quality and availability of mental health data by establishing regional systems for tracking and reporting on the prevalence of mental health conditions and their treatment.

## 5 Invest in quality neighborhoods for all in St. Louis.

**Our region continues to be divided along lines of race and social class, and where you live has a considerable impact on your health.**

Neighborhoods also offer very different opportunities to engage in a healthy lifestyle.

**Targeted investments and strategies include:**

- > Promoting development and housing choice without displacement.
- > Investing in the viability, stabilization, and health promotion of neighborhoods through strategic community partnerships and regional economic integration.
- > Addressing violence as a public health problem that impacts the quality of neighborhoods.
- > Using tax, zoning, and other housing policies to allow residents choice and voice in development.
- > Promoting the benefits of diverse neighborhoods through community partnerships that highlight model communities.
- > Safeguarding fair housing by enforcing existing laws.

## 6 Coordinate and expand chronic and infectious disease prevention and management.

**Chronic and infectious diseases carry large human and economic costs for our region.**

The health care sector needs partners to adequately address this burden of disease. Cross-sector collaboration and investment is needed to make St. Louis a healthy and productive place to live.

**Targeted investments and strategies include:**

- > Expanding health promotion partnerships across sectors to address chronic diseases that are the leading causes of death in the region.
- > Addressing social and economic barriers to health in medical settings.
- > Considering the health impacts of all policies at the state and local level.
- > Investing in chronic and infectious disease prevention and management by making healthy behavioral choices easy choices.



### Call to action:

- > **Business:** establish private-public partnerships to advance education, economic development, and health; invest in employee health
- > **Philanthropies:** incentivize work across sectors; focus on social determinants to impact health
- > **Education:** implement coordinated school health and school-based health care; ensure educational equity
- > **Local and state policy makers:** examine health in all policies; consider impact of policy across sectors (e.g., education and economic development impact on health)
- > **Early childhood providers:** adopt standards for high quality programming; integrate health in delivery of services
- > **Health care systems:** expand notion of health to include social and economic factors; enhance community partnerships and presence in areas of high need
- > **Community and economic development:** make neighborhoods accessible across socioeconomic lines; foster development without displacement; focus on features of neighborhoods that support health; include everyone in economic benefits of development
- > **Individual community members and community groups:** contact elected representatives and ask them to consider policies in line with recommendations; organize your own community-level response to recommendations; seek out more information about promising and proven strategies and support them

# GLOSSARY OF TERMS

## Age-adjusted rate

Age adjusting rates is a way to make fairer comparisons between groups with different age distributions. For example, a county having a higher percentage of elderly people may have a higher rate of death or hospitalization than a county with a younger population, merely because the elderly are more likely to die or be hospitalized. Age adjustment can make the different groups more comparable.

## Health

The state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. Health has many dimensions-anatomical, physiological and mental-and is largely culturally defined.

## Health disparities

Differences in morbidity and mortality due to various causes experienced by specific sub-populations.

## Hospital charges

Charges are the total amount of billed charges for the hospital stay (i.e., hospitalization). Charges do not necessarily reflect costs of providing services or the final reimbursement amount. Hospitalizations refer to hospital discharges of St. Louis County and St. Louis City residents from non-federal and non-state acute care (average days of care less than 30 days) general and specialty hospitals whose facilities are open to the general public.

## Life expectancy at birth

Provides an estimate of the number of years a person is expected to live. It is a good measure of the overall health of an area. Life expectancy is calculated using birth, death, and population data.

## Live birth

Live birth is defined as the complete expulsion or extraction from its mother of a child, irrespective of the duration of pregnancy, which after such expulsion or extraction, breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. The definition is also irrespective of birth weight.

## Morbidity

A measure of disease incidence or prevalence in a given population, location or other grouping of interest.

## Mortality

A measure of deaths in a given population, location or other grouping of interest.



## Prevalence

The proportion (usually a percentage) of a population that has a defined risk factor, disease, or condition at a particular point in time.

## Rates

A rate is a ratio of those having the event of interest to the population of those at risk of having the given health event. Rates are calculated by dividing the number of events by the population at risk, or a related population, and then multiplying by a constant.

## Socioeconomic gradient in health

This term refers to the stepwise fashion health outcomes improve as socioeconomic status improves. This gradient can be measured by a person's income, occupation, or the highest level of education he or she has.

## Social determinants of health

The social determinants of health are conditions in the environments in which people are born, live, learn, work, play, and age that affect a wide range of health, functioning, and quality of life outcomes and risks.

## Vital statistics

The data derived from certificates and reports of birth, death, spontaneous fetal death, marriage, dissolution of marriage and related reports.

# RESOURCES

## **Amanda Lockett Murphy Hopewell Center**

<http://www.hopewellcenter.com/>

## **American Community Survey**

[http://www.census.gov/acs/www/Downloads/data\\_documentation/Accuracy/ACS\\_Accuracy\\_of\\_Data\\_2012.pdf](http://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/ACS_Accuracy_of_Data_2012.pdf)

## **American Graduate**

<http://americangraduate.ninenet.org/>

## **Beyond Housing**

<http://www.beyondhousing.org/>

## **Community Data Profiles**

<http://health.mo.gov/data/CommunityDataProfiles/index.html>

## **Coordinated School Health (CDC)**

<http://www.cdc.gov/HealthyYouth/cshp/>

## **Cure Violence**

<http://cureviolence.org>

## **Delmar Divide (BBC)**

<http://www.bbc.com/news/magazine-17361995>

## **Estimated cost of life lost and deaths due to social factors**

[https://forthesakeofall.files.wordpress.com/2013/08/brief1\\_appendix\\_revjuly2015.pdf](https://forthesakeofall.files.wordpress.com/2013/08/brief1_appendix_revjuly2015.pdf)

## **Gateway Earned Income Tax Credit Coalition**

<http://gatewayeitc.org/>

## **Harold Alfond College Challenge**

<http://www.500forbaby.org/>

## **Healthy Food Financing Initiative**

<http://www.acf.hhs.gov/programs/ocs/resource/healthy-food-financing-initiative-o>

## **Maternal, Child and Family Health Coalition**

<http://stl-mcfhc.org/wp/>

## **Mental Health First Aid Missouri**

<http://www.mentalhealthfirstaid.org/cs/>

## **Missouri County-level Study (CLS)**

<http://health.mo.gov/data/cls/designmethodology.php>

## **Missouri Department of Elementary & Secondary Education (DESE)**

<http://mcde.dese.mo.gov/Pages/default.aspx>

## **Missouri Information for Community Assessment (MICA)**

<http://health.mo.gov/data/mica/MICA/>

## **Missouri State Asthma Plan**

<http://health.mo.gov/living/healthcondiseases/chronic/asthma/pdf/asthmastateplan.pdf>

## **Nurses for Newborns**

<http://www.nfnf.org/index.php>

## **Nurse-Family Partnership (Building Blocks in Missouri)**

<http://www.stlouisco.com/HealthandWellnessHealthCentersandMedicalServicesPublicHealthNursingProgram/NurseFamilyPartnership>

## **OneSTL**

<http://www.onestl.org/>

## **Parents as Teachers**

<http://www.parentsasteachers.org/>

## **Patient Abstract System (PAS)**

<http://health.mo.gov/data/patientabstractsystem/index.php>

## **Places for People**

<http://www.placesforpeople.org/>

## **Preconception health in St. Louis (MCFHC)**

[http://stl-mcfhc.org/docs/mcfhc\\_womens\\_health\\_report.pdf](http://stl-mcfhc.org/docs/mcfhc_womens_health_report.pdf)

## **Project LAUNCH**

<http://projectlaunch.promoteprevent.org/>

## **St. Louis Effort for AIDS**

<http://www.stlefa.org/>

## **St. Louis Equal Housing Opportunity Council**

<http://www.ehocstl.org/>

## **St. Louis Healthy Corner Store Project**

<http://extension.missouri.edu/stlouis/healthycornerstore.aspx>

## **St. Louis Neighborhood Market DrillDown**

<http://drilldownstl.org/wordpress/wp-content/uploads/2012/09/FinalDrillDownReport.pdf>

## **St. Louis Regional Health Commission**

<http://www.stlrhc.org/>

## **St. Louis Regional Youth Violence Prevention Task Force**

<https://stlouis-mo.gov/government/departments/mayor/documents/loader.cfm?csModule=security/getfile&pageid=369606>

## **United Way of Greater St. Louis**

<http://www.stl.unitedway.org/>

## **VCU Center on Society and Health**

<http://www.societyhealth.vcu.edu/>

## **Visualizing Health**

<http://www.vizhealth.org/>

## **Vital Statistics**

<http://health.mo.gov/data/vitalstatistics/>



# REFERENCES

- Meara ER, Richards S, Cutler DM. The gap gets bigger: Changes in mortality and life expectancy, by education, 1981-2000. *Health Affairs*. 2008; 27:350-360.
- US Census Bureau. Social Explorer. Census 1950, Race. St. Louis County, Missouri & St. Louis City County, Missouri. Retrieved from <http://www.socialexplorer.com/explore/tables>.
- US Census Bureau. Social Explorer. Census 1960, Race. St. Louis County, Missouri & St. Louis City County, Missouri. Retrieved from <http://www.socialexplorer.com/explore/tables>.
- MODHSS (Missouri Department of Health and Senior Services). Vital statistics reports for 1960s. Data compiled and verified by Bureau of Health Care Analysis and Data Dissemination. Estimate for African Americans classified as "non-white" population.
- US Census Bureau. Social Explorer. Census 2000 & 2010, Race. St. Louis County, Missouri & St. Louis City, Missouri. Retrieved from <http://www.socialexplorer.com/explore/tables>.
- US Census Bureau. Social Explorer. Census 2000 & 2010, Race, supra.
- US Census Bureau. Social Explorer. Census 2000 & 2010, Race, supra.
- Frey W. America's diverse future: Initial glimpses at the U.S. child population from the 2010 Census. Washington: Brookings; April 2011. Available at [www.brookings.edu/~media/research/files/papers/2011/06%20census%20diversity%20ofrey/0406\\_census\\_diversity\\_frey.pdf](http://www.brookings.edu/~media/research/files/papers/2011/06%20census%20diversity%20ofrey/0406_census_diversity_frey.pdf).
- US Census Bureau. Census 2010 Brief CB12-90: Most Children Younger Than Age 1 are Minorities, Census Bureau Reports. Washington, DC: US Census Bureau; 2012. Available at: <http://www.census.gov/newsroom/releases/archives/population/cb12-90.html>
- Frey (2011), supra.
- US Census Bureau. Social Explorer. Census 2010, Group Quarters Population by Group Quarters Type. St. Louis County, Missouri & St. Louis City, Missouri. Retrieved from <http://www.socialexplorer.com/explore/tables>.
- US Census Bureau. Social Explorer. Census 2010, Total Population. St. Louis County, Missouri & St. Louis City, Missouri. Retrieved from <http://www.socialexplorer.com/explore/tables>.
- Alexander M. The new Jim Crow: Mass incarceration in the age of colorblindness. 2010. New York: New Press.
- Roberts DE. The social and moral cost of mass incarceration in African American communities. *Stanford Law Review*. 2004; 56: 1271-1305.
- Golembeski C, Fullilove R. Criminal (in)justice in the city and its associated health consequences. *Am J Public Health*; 2005; 95:1701-06.
- Jacobi J V. Prison health, public health: obligations and opportunities. *Am J Law Med*. 2005; 31:447-478.
- Crimmins EM, Saito Y. Trends in healthy life expectancy in the United States, 1970-1990: gender, racial, and educational differences. *Soc Sci Med*. 2001; 52:1629-1641.
- Bartley M, Plewis I. Accumulated labour market disadvantage and limiting long-term illness: Data from the 1971-1991 Office for National Statistics' Longitudinal Study. *Int. J. Epidemiol*. 2002; 31:336-41.
- Braveman P, Egerter S, Williams DR. The social determinants of health: Coming of age. *Annu. Rev. Public Health*. 2011; 32:381-98.
- Braveman P, Egerter S, Williams DR (2011), supra.
- Braveman P, Egerter S, Williams DR (2011), supra.
- Kawachi I, Adler NE, Dow WH. Money, schooling, and health: Mechanisms and causal evidence. *Ann. N. Y. Acad. Sci*. 2010; 1186:56-68.
- Muennig P. Health selection versus causation in the income gradient: What can we learn from graphical trends? *J. Health Care Poor Underserved*. 2008; 19:574-79.
- Braveman P, Marchi K, Egerter S, Kim S, Metzler M, et al. Poverty, near-poverty, and hardship around the time of pregnancy. *Matern. Child Health J*. 2010; 14:20-35.
- Evans GW, Kim P. Childhood poverty and health: Cumulative risk exposure and stress dysregulation. *Psychol. Sci*. 2007; 18:953-57.
- McEwen BS, Gianaros PJ. Central role of the brain in stress and adaptation: Links to socioeconomic status, health, and disease. *Ann. N. Y. Acad. Sci*. 2010; 1186:190-222.
- Steptoe A, Marmot M. The role of psychobiological pathways in socioeconomic inequalities in cardiovascular disease risk. *Eur. Heart J*. 2002; 23:13-25.
- McEwen BS, Gianaros PJ (2010), supra.
- Seeman T, Epel E, Gruenewald T, Karlamangla A, McEwen BS. Socio-economic differentials in peripheral biology: Cumulative allostatic load. *Ann. N. Y. Acad. Sci*. 2010; 1186:223-39.
- Steptoe A, Marmot M (2002), supra.
- McEwen BS. Protective and damaging effects of stress mediators: Central role of the brain. *Dial. Clin. Neurosci*. 2006; 8:367-81.
- Seeman TE, McEwen BS, Rowe JW, Singer BH. Allostatic load as a marker of cumulative biological risk: MacArthur studies of successful aging. *Proc. Natl. Acad. Sci. USA*. 2001; 98:4770-75.
- Seeman TE, Singer BH, Rowe JW, Horwitz RI, McEwen BS. Price of adaptation—allostatic load and its health consequences. *MacArthur Studies of Successful Aging. Arch. Intern. Med*. 1997; 157:2259-68.
- US Census Bureau. Underlying unemployment data provided by current population survey. Retrieved from <http://www.bls.gov/cps/cpsaat03.htm>.
- US Census Bureau. Underlying unemployment data provided by Current Population Survey, supra.
- US Census Bureau. Social Explorer. 2012 American Community Survey 1-Year Estimates, Median Household Income (In 2012 Inflation Adjusted Income). St. Louis County, Missouri & St. Louis City, Missouri. Retrieved from <http://www.socialexplorer.com/explore/tables>.
- Dahl M, Deleire T, Schwabish J. Stepping stone or dead end? The effect of the EITC on earnings growth. Institute for the Study of Labor, revised April 2009. Available at <http://ftp.iza.org/dp4146.pdf>.
- Maag E. Child-related benefits in the federal income tax. Washington, DC: Urban Institute. December 31, 2013. Available at <http://www.urban.org/publications/413003.html>.
- Sorensen E, Lippold K. Strengthening families through stronger fathers initiative: Summary of impact findings. Washington, DC: Urban Institute. October 15, 2012. Available at <http://www.urban.org/url.cfm?ID=412966&renderforprint=1>.
- US Census Bureau. Social Explorer. 2012 American Community Survey 1-Year Estimates, Poverty Status in 2012. St. Louis County, Missouri & St. Louis City, Missouri. Retrieved from <http://www.socialexplorer.com/explore/tables>.
- Cohen S, Janick-Deverts D, Chen E, Matthews KA. Childhood economic status and adult health. *Annals of the New York Academy of Sciences*. 2010; 1186: 37-55.
- US Census Bureau. Social Explorer. 2012 American Community Survey 1-Year Estimates, Poverty Status in 2012 for Children under 18. St. Louis County, Missouri & St. Louis City, Missouri. Retrieved from <http://www.socialexplorer.com/explore/tables>.
- Pollack CE, Chideya S, Cubbin C, Williams B, Dekker M, Braveman P. Should health studies measure wealth? *Am. J. Prev. Med*. 2007; 33(3).
- Pollack CE, Chideya S, Cubbin C, Williams B, Dekker M, Braveman P (2007), supra.
- Oliver ML, Shapiro TM. Black wealth / White wealth: A new perspective on racial inequality. 2nd ed. New York, NY: Routledge; 2006.
- Pollack CE, Chideya S, Cubbin C, Williams B, Dekker M, Braveman P (2007), supra.
- Sherraden M. Individual development accounts and asset building policy: Lessons and directions. In: R. M. Blank & M. Barr (Eds.), *Insufficient funds: Savings, assets, credit, and banking among low-income households*. New York, NY: Russell Sage Foundation. 2009: 191-217.
- Christy-McMullin K, Murphy Y, Shobe M, Jordan S, Barefield L, Gergerich E. Second-generation individual development account research: Preliminary findings. *J Evid Based Soc Work*. 2010; 7:251-266.
- Birkenmaier J, Curley J, Kelly P. Credit building in IDA programs: Early findings of a longitudinal study. *Res Soc Work Pract July 12, 2012*. Available at <http://rsw.sagepub.com/content/early/2012/07/12/1049731512453208.full.pdf>.



50. Huang J, Sherraden M, Kim Y, Clancy M. Effects of child development accounts on early social-emotional development: an experimental test. *JAMA Pediatr.* 2014; 168:265-71.
51. Huang J, Sherraden M, Purnell JQ. Impacts of child development accounts on maternal depressive symptoms: evidence from a randomized statewide policy experiment. *Soc Sci & Med.* 2014. 10.1016/j.socscimed.2014.04.023
52. Harold Alfond College Challenge. Available at <http://www.500forbaby.org/>.
53. Braveman P, Egerter S, Williams DR (2011), *supra*.
54. Logan JR, Stults BJ. 2011. The persistence of segregation in the metropolis: New findings from the 2010 Census. Available at <http://www.s4.brown.edu/us2010/Data/Report/report2.pdf>.
55. Gordon, C. *Mapping Decline: St. Louis and the fate of the American city.* Philadelphia: University of Pennsylvania Press; 2008.
56. Acevedo-Garcia D, Lochner KA, Osypuk TL, Subramanian S V. Future directions in residential segregation and health research: A multilevel approach. *Am. J. Public Health.* 2003; 93(2):215.
57. Carlson D, Haveman R, Kaplan T, Wolfe B. The benefits and costs of the Section 8 Housing Subsidy Program: A framework and estimates of first-year effects. *J Policy Anal Manage.* 2011;30(2):233-55. Available at <http://onlinelibrary.wiley.com/doi/10.1002/pam.20561/abstract>.
58. Block JP, Scribner RA, DeSalvo KB. Fast food, race/ethnicity, and income: A geographic analysis. *Am J Prev Med.* 2004; 27(3):211-217.
59. Moore DJ, Williams JD, Qualls WJ. Target marketing of tobacco and alcohol-related products to ethnic minority groups in the United States. *Ethn Dis.* 1996; 6(1-2):83-98.
60. LaVeist TA, Wallace JM Jr. Health risk and inequitable distribution of liquor stores in African American neighborhood. *Soc Sci Med.* 2000; 51(4):613-617.
61. MODHSS (Missouri Department of Health and Senior Services). Community Data Profiles. Health & Preventive Practices Profile. Retrieved from <http://health.mo.gov/data/CommunityDataProfiles/>.
62. MODHSS. Community Data Profiles. Health & Preventive Practices Profile, *supra*.
63. Herman DR, Harrison GG, Afifi AA, Jenks E. Effect of a targeted subsidy on intake of fruits and vegetables among low-income women in the special supplemental nutrition program for women, infants, and children. *Am J Public Health.* 2008;98(1):98-105.
64. Policy Link. Improving access to healthy food. Available at [http://www.policylink.org/site/c.lkIXLbMNJrE/b.5136687/k.1FDB/Improving\\_Access\\_to\\_Healthy\\_Food.htm](http://www.policylink.org/site/c.lkIXLbMNJrE/b.5136687/k.1FDB/Improving_Access_to_Healthy_Food.htm).
65. Crabtree S. Income, education levels combine to predict health problems. Gallup. April 28, 2010. Available at: <http://www.gallup.com/poll/127532/income-education-levels-combine-predict-health-problems.aspx>.
66. Virginia Commonwealth University Center on Society and Health. Education: It matters more to health than ever before. 2014. Available at <http://www.societyhealth.vcu.edu/Page.aspx?nav=307>.
67. Virginia Commonwealth University Center on Society and Health, *supra*.
68. Woolf SH, Johnson RE, Phillips RL, Philipsen M. Giving everyone the health of the educated: An examination of whether social change would save more lives than medical advances. *Am J Public Health.* 2007; 97(4):679-683.
69. Braveman P, Egerter S, Williams DR (2011), *supra*.
70. Braveman P, Egerter S, Williams DR. (2011), *supra*.
71. Center for the Study of Regional Competitiveness in Science and Technology. 2013. School indicators: Black dropout rate 9th-12th grade from Black total [Data file]. Retrieved from [http://maps.wustl.edu/cistl/subject\\_select.asp?table\\_name=ED&sub\\_select=School%20Indicators](http://maps.wustl.edu/cistl/subject_select.asp?table_name=ED&sub_select=School%20Indicators).
72. Hernandez DJ. Double Jeopardy: How third-grade reading skills and poverty influence high school graduation. The Annie E. Casey Foundation. 2012. Available at <http://www.aecf.org/~media/Pubs/Topics/Education/Other/DoubleJeopardyHowThirdGradeReadingSkillsandPoverty/DoubleJeopardyReport030812forweb.pdf>.
73. Roderick M, Nagaoka J, Coca V. College readiness for all: The challenge for urban high schools. *Future of Children.* 2009. Available at <http://futureofchildren.org/publications/journals/article/index.xml?journalid=30&articleid=53&sectionid=215>.
74. National Research Council. High school dropout, graduation, and completion rates: Better data, better measures, better decisions. Washington, DC: The National Academies Press, 2011.
75. Lee J. College for all: Gaps between desirable and actual P-12 math achievement trajectories for college readiness. *Educational Researcher,* 41(2), 43-55.
76. Dubow EF, Boxer P, Huesmann LR. Long-term effects of parents' education on children's educational and occupational success: Mediation by family interactions, child aggression, and teenage aspirations. Merriil Palmer Q (Wayne State Univ Press). 2009; 55(3): 224-249.
77. Reichman, N. E. Low birth weight and school readiness. *Future of Children.* 2005; 15(1): 91-116. Available at [futureofchildren.org/futureofchildren/publications/docs/15\\_01\\_06.pdf](http://futureofchildren.org/futureofchildren/publications/docs/15_01_06.pdf).
78. Whitaker AH, Feldman JF, Lorenz JM, et al. Motor and cognitive outcomes in nondisabled low-birth-weight adolescents. *Archives of Pediatrics & Adolescent Medicine.* 2006; 160, 1040-1046.
79. Collins JW, David RJ, Handler A, Wall S, Andes S. Very low birthweight in African American infants: The role of maternal exposure to interpersonal racial discrimination. *Am J Public Health.* 2004; 94(12): 2132-2138.
80. Gisco CL, Lobel M. Explaining disproportionately high rates of adverse birth outcomes among African Americans: The impact of stress, racism, and related factors in pregnancy. *American Psychological Association.* 2005; 131(5): 662-683.
81. Breslau, J. Health in childhood and adolescence and high school dropout (California Dropout Research Project Report 17). California Dropout Research Project, University of California at Santa Barbara. 2010. Available at <https://schoolhealthteams.aap.org/uploads/ckeditor/files/healthanddropout.pdf>.
82. Centers for Disease Control and Prevention. Asthma in the US. Published May 2011. Page last updated May 3, 2011. Available at <http://www.cdc.gov/vitalsigns/Asthma/>.
83. Eggleston PA, Buckley TJ, Breyse PN, Wills-Karp M, Kleeberger SR, Jaakkola JJK. Urban children and asthma: Morbidity and mortality. *Immunology and Allergy Clinics of North America.* 1998; 18(1): 75-84.
84. Basch CE. Asthma and the achievement gap among urban minority youth. *Journal of School Health.* 2011; 81(10): 606-613.
85. MODHSS (Missouri Department of Health and Senior Services). MICA. In Chronic Disease MICA. Retrieved from <http://health.mo.gov/data/mica/ChronicDiseaseMICAs/>.
86. Basch CE. (2011), *supra*.
87. Centers for Disease Control and Prevention. School connectedness: Strategies for increasing protective factors among youth. Atlanta, GA: U.S. Department of Health and Human Services, 2009.
88. Moonie S, Sterling DA, Figgs LW, Castro M. The relationship between school absence, academic performance, and asthma status. *Journal of School Health.* 2008; 78(3): 140-148.
89. Moonie S, Sterling DA, Figgs LW, Castro M. Asthma status and severity affects missed school days. *Journal of School Health.* 2006; 76(1): 18-24.
90. Centers for Disease Control and Prevention. Children's mental health – New report. Page last updated May 21, 2013. Available at <http://www.cdc.gov/features/childrensmentalhealth/>.
91. MODMH (Missouri Department of Mental Health). Community Profile. Behavioral Health Profile. Retrieved from [http://dmh.mo.gov/docs/ada/Progs/MOBHEW/profiles/29189\\_saintlouis\\_profile.pdf](http://dmh.mo.gov/docs/ada/Progs/MOBHEW/profiles/29189_saintlouis_profile.pdf). [http://dmh.mo.gov/docs/ada/Progs/MOBHEW/profiles/29510\\_saintlouiscity\\_profile.pdf](http://dmh.mo.gov/docs/ada/Progs/MOBHEW/profiles/29510_saintlouiscity_profile.pdf).
92. St. Louis County Children's Service Fund (CSF). Children's mental health and substance abuse services needs assessment for St. Louis County. St. Louis, MO; 2013. Available at <http://www.keepingkidsfirst.org/Portals/3/documents/needs%20assessments/Childrens%20Service%20Fund%20-%202012%20Needs%20Assessment%20FINAL%20REPORT.pdf>
93. Spencer MB, Cross WE, Harpalani V, Goss TN. Historical and developmental perspectives on Black achievement: Debunking the "Acting White" myth and positing new directions for research. In Yeakey CC, Henderson RD, eds. *Surmounting all odds: Education, opportunity, and society in the new millennium* (pp. 273-304). Greenwich, CT: Information Age Publishing; 2003.

94. Spencer MB, Cross WE, Harpalani V, Goss TN. (2003), supra.
95. Basch, CE. Aggression and violence and the achievement gap among urban minority youth. *J Sch Health*. 2011; 81: 619-625.
96. Centers for Disease Control and Prevention. Youth violence. 2012. Available at [http://www.cdc.gov/violenceprevention/pdf/yv\\_datasheet\\_2012-a.pdf](http://www.cdc.gov/violenceprevention/pdf/yv_datasheet_2012-a.pdf).
97. Centers for Disease Control and Prevention. Youth violence. (2012), supra.
98. Busch V, Loyen A, Lodder M, Schrijvers AJP, Van Yperen TA, De Leeuw JRJ. The effects of adolescent health-related behavior on academic performance: A systematic review of the longitudinal evidence. *Review of Educational Research*. 2014. doi: 10.3102/0034654313518441.
99. Breslau, J. (2010), supra.
100. University of Michigan, Center for Managing Chronic Disease. What is Chronic Disease? Available at <http://cmcd.sph.umich.edu/what-is-chronic-disease.html>.
101. U.S. Department of Health and Human Services. Healthy People 2020. Available at <http://www.healthypeople.gov/2020/about/GenHealthAbout.aspx#chronic>.
102. Missouri Foundation for Health. Health equity series: African Americans health disparities in Missouri. 2013.
103. St. Louis Regional Health Commission. Decade review of health status for St. Louis City and County 2000-2010. St. Louis, MO; 2012.
104. Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey—Table of Total Expenses, 2010.
105. MODHSS (Missouri Department of Health and Senior Services). MICA. In Hospital Discharge, Charges and Days of Care MICA. Retrieved from [http://health.mo.gov/data/mica/D\\_C\\_DofCMICA/](http://health.mo.gov/data/mica/D_C_DofCMICA/).
106. MODHSS. MICA. In Hospital Discharge, Charges and Days of Care MICA., supra.
107. NIH, NHLBI Obesity Education Initiative. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. Available at [http://www.nhlbi.nih.gov/guidelines/obesity/ob\\_gdlns.pdf](http://www.nhlbi.nih.gov/guidelines/obesity/ob_gdlns.pdf).
108. Flegal KM, Graubard BI, Williamson DF, Gail MH. Cause-specific excess deaths associated with underweight, overweight, and obesity. *JAMA*. 2007;298(17):2028-2037.
109. Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among US adults, 1999-2008. *JAMA*. 2010;303(3):235-241.
110. Malnick SD, Knobler H. The medical complications of obesity. *QJM*. 2006;99(9):565-579.
111. U.S. Department of Health and Human Services. The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.
112. MODHSS (Missouri Department of Health and Senior Services). *Community Data Profiles*. Tobacco Cessation Profile. Retrieved from <http://health.mo.gov/data/CommunityDataProfiles/>
113. Kaiser Commission on Medicaid and the Uninsured. Key Facts about the Uninsured Population. September, 2013. Available at: <http://kff.org/uninsured/fact-sheet/key-facts-about-the-uninsured-population/>
114. Clancy C, Munier W, Brady J, et al. *2012 National healthcare quality report*. Rockville, MD: Agency for Healthcare Research and Quality (AHRQ); 2013.
115. Clancy C, Munier W, Brady J, et al. (2012), supra.
116. Steinbrook R. Easing the shortage in adult primary care — Is it all about money? *N Engl J Med*. 2009;360:2696-2699.
117. Baicker K, Chandra A. Medicare spending, the physician workforce, and beneficiaries' quality of care. *Health Aff*. April 7, 2004: w4.184-197.
118. Midwest Health Initiative. The Doctor Is In: An Overview of Practicing Primary Care and Select Specialty Providers in Eastern and Mid-Missouri Counties. St. Louis, MO; 2014. Available at: [http://www.midwesthealthinitiative.com/upload/media/MHI\\_Physician\\_Inventory\\_The\\_Doctor\\_Is\\_In.pdf](http://www.midwesthealthinitiative.com/upload/media/MHI_Physician_Inventory_The_Doctor_Is_In.pdf)
119. The City of St. Louis Department of Health. Understanding Our Needs. St. Louis, MO: 2012. Available at: <https://www.stlouis-mo.gov/government/departments/health/documents/upload/Understanding%20Our%20Needs%202012%20Part%20I.pdf>
120. St. Louis County Department of Health. St. Louis County Community Health Needs Assessment. St. Louis, MO: 2011. Available at: <http://www.stlouisco.com/HealthandWellness/HealthEducationandInformation/2011CommunityHealthNeedsAssessment>
121. St. Louis County Department of Health. St. Louis County Community Health Needs Assessment, supra.
122. St. Louis County Department of Health. St. Louis County Community Health Needs Assessment, supra.
123. St. Louis County Department of Health. St. Louis County Community Health Needs Assessment, supra.
124. St. Louis Regional Health Commission, supra.
125. Healthy People. Maternal, infant, and child health. Page last updated November 13, 2013. Available at <http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicId=26>.
126. World Health Organization. Maternal, newborn, child and adolescent health. Available at [http://www.who.int/maternal\\_child\\_adolescent/topics/maternal/mdg/en/](http://www.who.int/maternal_child_adolescent/topics/maternal/mdg/en/).
127. Healthy People. Maternal, infant, and child health. (2013), supra.
128. Office on Women's Health, U.S. Department of Health and Human Services. Prenatal care fact sheet. Last updated July 16, 2012. Available at <http://womenshealth.gov/publications/our-publications/fact-sheet/prenatal-care.html#a>.
129. Hall LF, Neubert AG. Obesity and pregnancy. *Obstet Gynecol Surv*. 2005; 60(4):253-60.
130. Leddy MA, Power ML, Schulkin J. The impact of maternal obesity on maternal and fetal health. *Rev Obstet Gynecol*. 2008;1(4): 170-178.
131. Centers for Disease Control and Prevention. Smoking during pregnancy. Page last updated January 8, 2014. Available at [http://www.cdc.gov/tobacco/basic\\_information/health\\_effects/pregnancy/](http://www.cdc.gov/tobacco/basic_information/health_effects/pregnancy/).
132. Mayo Clinic. Smoking and pregnancy: Understand the risks. Available at <http://www.mayoclinic.org/healthy-living/pregnancy-week-by-week/in-depth/smoking-and-pregnancy/art-20047021>.
133. Centers for Disease Control and Prevention. Tobacco use and pregnancy. Page last updated January 28, 2014. Available at <http://www.ers.usda.gov/publications/err-economic-research-report/err155.aspx#.U2px3lea-4s>.
134. Laraia BA, Siega-Riz AM, Gundersen C. Household food insecurity is associated with self-reported pregravid weight status, gestational weight gain, and pregnancy complications. *J Am Diet Assoc*. 2010; 110(5):692-701.
135. Centers for Disease Control and Prevention. Preterm birth. Page last updated December 9, 2013. Available at <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm>.
136. MODHSS (Missouri Department of Health and Senior Services). MICA. In Birth MICA. Retrieved from <http://health.mo.gov/data/mica/BirthMICA/>.
137. MODHSS. MICA. In Birth MICA, supra.
138. MODHSS. MICA. In Birth MICA, supra.
139. MODHSS. MICA. In Birth MICA, supra.
140. Parents as Teachers National Center, Inc. An evidence-based home visiting model. 2012. Available at [http://www.parentsteachers.org/images/stories/documents/906\\_EBHVm.pdf](http://www.parentsteachers.org/images/stories/documents/906_EBHVm.pdf).
141. Nurse-Family Partnership. Proven effective through extensive research. Available at <http://www.nursefamilypartnership.org/proven-results>.
142. MODHSS (Missouri Department of Health and Senior Services). *Community Data Profiles*. Infant Health Profile. Retrieved from <http://health.mo.gov/data/CommunityDataProfiles/>.
143. MODHSS (Missouri Department of Health and Senior Services). WIC. Available at <http://health.mo.gov/living/families/wic/index.php>.
144. Schempf AH, Kaufman JS, Messer LC, Mendola P. The neighborhood contribution to black-white perinatal disparities: An example from two North Carolina counties, 1991-2001. *Am J Epidemiology*. 2011; 174(6): 744-52.

145. Rosenthal L, Lobel M. Explaining racial disparities in adverse birth outcomes: Unique sources of stress for black American women. *Soc Sci Med.* 2011; 72(6):977-83.
146. Bryant AS, Worjolah A, Caughney AB, Washington AE. Racial/ethnic disparities in obstetric outcomes and care: Prevalence and determinants. *Am J Obstet Gynecol.* 2010;202(4):335-43.
147. Earnshaw VA, Rosenthal L, Lewis JB, et al. Maternal experiences with everyday discrimination and infant birth weight: A test of mediators and moderators among young, urban women of color. *Ann Behav Med.* 2013; 45:13-23
148. Schempf AH, Kaufman JS, Messer LC, Mendola P. (2011), supra.
149. MacDorman MF. Race and ethnic disparities in fetal mortality, preterm birth, and infant mortality in the United States: An overview. *Semin Perinatol.* 2011;35(4):200-8.
150. Breslau J, Lane M, Sampson N, Kessler RC. Mental disorders and subsequent educational attainment in a US national sample. *J Psychiatr Res.* 2008; 42(9):708-716.
151. Goodman A, Joyce R, Smith JP. The long shadow cast by childhood physical and mental problems on adult life. *Proc Natl Acad Sci U S A.* 2011; 108(15), 6032-7.
152. Kawakami N, Abdulghani EA, Alonso J, et al. Early-life mental disorders and adult household income in the World Mental Health Surveys. *Biological psychiatry.* 2012; 72(3), 228-37.
153. Duru OK, Gerzoff RB, Selby JV, et al. Identifying risk factors for racial disparities in diabetes outcomes: the translating research into action for diabetes study. *Medical Care.* 2009; 47(6), 700-706.
154. McEwen BS, Gianaros PJ (2010), supra.
155. National Institutes of Mental Health. Any mental illness among adults. Available at: [http://www.nimh.nih.gov/Statistics/1ANYDIS\\_ADULT.shtml](http://www.nimh.nih.gov/Statistics/1ANYDIS_ADULT.shtml).
156. National Institutes of Mental Health. Serious mental illness among adults. Available at: [http://www.nimh.nih.gov/Statistics/SMI\\_AASR.shtml](http://www.nimh.nih.gov/Statistics/SMI_AASR.shtml).
157. National Institutes of Mental Health. Any mental illness among adults, supra.
158. National Institutes of Mental Health. Serious mental illness among adults, supra.
159. St. Louis County Children's Service Fund (CSF). Children's mental health and substance abuse services needs assessment for St. Louis County. (2013), supra.
160. St. Louis County Children's Service Fund (CSF). Children's mental health and substance abuse services needs assessment for St. Louis County. (2013), supra.
161. Breslau J, Lane M, Sampson N, Kessler RC (2008), supra.
162. Goodman A, Joyce R, Smith JP (2011), supra.
163. Kawakami N, Abdulghani EA, Alonso J, et al (2012), supra.
164. Kessler RC, McLaughlin KA, Green, JG, et al. Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *Br J Psychiatry.* 2010; 197(5), 378-85.
165. Copeland WE, Miller-Johnson S, Keeler G, Angold A, Costello EJ. Childhood psychiatric disorders and young adult crime: A prospective, population-based study. *Am J Psychiatry.* 2007; 164, 1668-1675.
166. Greenberg GA, Rosenheck RA. Psychiatric correlates of past incarceration in the national co-morbidity study replication. *Crim Behav and Ment Health.* 2014; 24(1): 18-35.
167. Osher F, D'Amora DA, Plotkin M, Jarret N, Eggleston A. *Adults with Behavioral Health Needs Under Correctional Supervision: A Shared Framework for Reducing Recidivism and Promoting Recovery.* New York, NY: Council of State Governments Justice Center; 2012.
168. Copeland WE, Miller-Johnson S, Keeler G, Angold A, Costello EJ (2007), supra.
169. Greenberg GA, Rosenheck RA (2014), supra.
170. Osher F, D'Amora DA, Plotkin M, Jarret N, Eggleston A (2012), supra.
171. Bureau of Justice Statistics. Mental health problems of prison and jail inmates. Washington, DC, 2006. Available at: <http://www.bjs.gov/content/pub/pdf/mhppji.pdf>
172. U.S. Department of Justice. Prisoners in 2011. Washington, DC, 2012. Available at: <http://www.bjs.gov/content/pub/pdf/p11.pdf>.
173. MODHSS (Missouri Department of Health and Senior Services). Community Data Profiles. Health & Preventive Practices Profile. Retrieved from <http://health.mo.gov/data/CommunityDataProfiles/>.
174. MODHSS. Community Data Profiles. Health & Preventive Practices Profile, supra.
175. Snowden LR, Catalano R, Shumway M. Disproportionate use of psychiatric emergency services by African Americans. *Psychiatr Serv.* 2009; 60(12), 1664-1671.
176. Snowden LR, Yamada AM. Cultural differences in access to care. *Ann Rev Clin Psych.* 2005; 1(1), 143-166.
177. MODHSS (Missouri Department of Health and Senior Services). MICA. In Emergency Room MICA. Retrieved from <http://health.mo.gov/data/mica/EmergencyRoomMICA/>.
178. MODHSS. MICA. In Emergency Room MICA, supra.
179. MODHSS (Missouri Department of Health and Senior Services). MICA. In Inpatient Hospitalization MICA. Retrieved from <http://health.mo.gov/data/mica/InpatientHospitalizationMICA/>.
180. Morrow-Carter L, Jackson SA. *North St. Louis Health Care Access Study.* St Louis: Barnes Jewish BJC Healthcare Research and Evaluation Solutions, 2008.
181. Morrow-Carter & Jackson (2008), supra.
182. MODHSS (Missouri Department of Health and Senior Services).MICA. In Hospital Discharge, Charges and Days of Care MICA. Retrieved from [http://health.mo.gov/data/mica/D\\_CDofCMICA](http://health.mo.gov/data/mica/D_CDofCMICA).
183. US Census Bureau. Social Explorer. 2012 American Community Survey 1-Year Estimates, Race. St. Louis County, Missouri & St. Louis City, Missouri. Retrieved from <http://www.socialexplorer.com/explore/tables>.
184. National Institutes of Mental Health. Serious mental illness among adults, supra.
185. Centers for Disease and Control. The history of violence as a public health issue. Available at [http://www.cdc.gov/violenceprevention/pdf/history\\_violence-a.pdf](http://www.cdc.gov/violenceprevention/pdf/history_violence-a.pdf).
186. Mercy JA, Rosenberg ML, Powell KE, Broome CV, Roper WL. Public health policy for preventing violence. *Health Affairs.* 1993;12(4):7-29.
187. MODHSS (Missouri Department of Health and Senior Services). MICA. In Death MICA. Retrieved from <http://health.mo.gov/data/mica/DeathMICA/>.
188. MODHSS. MICA. In Death MICA, supra.
189. World Health Organization. Violence prevention: The evidence. Available at [http://apps.who.int/iris/bitstream/10665/77936/1/9789241500845\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/77936/1/9789241500845_eng.pdf?ua=1).
190. Cure Violence. What we do. Available at <http://cureviolence.org/what-we-do/the-model/>.
191. Centers for Disease and Control. Injuries and violence are leading causes of death: Key data & statistics. Available at <http://www.cdc.gov/injury/overview/data.html>.
192. City of St. Louis. Community health improvement plan. 2012. Available at <https://stlouis-mo.gov/government/departments/health/documents/upload/City-of-St-Louis-Community-Health-Improvement-Plan-2012-2.pdf>.
193. United Nations Office on Drugs and Crime, 2013. Available at [http://www.unodc.org/documents/gsh/pdfs/2014\\_GLOBAL\\_HOMICIDE\\_BOOK\\_web.pdf](http://www.unodc.org/documents/gsh/pdfs/2014_GLOBAL_HOMICIDE_BOOK_web.pdf) (p. 30).
194. St. Louis Regional Youth Violence Prevention task force. supra
195. St. Louis Regional Youth Violence Prevention task force. supra.
196. St. Louis County Children's Service Fund (CSF). Children's mental health and substance abuse services needs assessment for St. Louis County. (2013), supra.
197. Firearm & Injury Center at Penn. Firearm injury in the U.S. Available at <http://www.uphs.upenn.edu/ficap/resourcebook/pdf/monograph.pdf>.
198. National Center for Injury Prevention. Centers for Disease and Control. Overall firearm gunshot nonfatal injuries and rates per 100,000 2001 - 2012, United States all Races 1, both sexes, all ages disposition: all cases.
199. Lynch M. Consequences of children's exposure to community violence. *Clin Child Fam Psych Rev.* 2003;6(4):265-74.

200. Bolland JM, Lian BE, Formichella CM. The origins of hopelessness among inner-city African-American adolescents. *Am J Community Psychol*. 2005;36:293–305.
201. Leventhal T, Brooks-Gunn J. The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. *Psychol Bull*. 2000;126:309–37.
202. Stoddard SA, Henly SJ, Sieving RE, Bolland J. Social connections, trajectories of hopelessness, and serious violence in impoverished urban youth. *J Youth Adolesc*. (2011); 40(3):278–95.
203. Centers for Disease Control and Prevention. Violence death costs: Table 1. Available at <http://www.cdc.gov/violenceprevention/violentdeaths/table1.html>.
204. Centers for Disease Control and Prevention. Achievements in public health, 1900–1999: Control of infectious diseases. *MMWR*. 1999 Jul 30;48(29):621–9.
205. MODHSS (Missouri Department of Health and Senior Services). *Community Data Profiles*. Leading Cause of Death Profile. Retrieved from <http://health.mo.gov/data/CommunityDataProfiles/>
206. Hogben M, Leichter JS. Social determinants and sexually transmitted disease disparities. *Sex Transm Dis* 2008; 35:S13–S18.
207. Cohen D, Spear S, Scribner R, Kissinger P, Mason K, Wildgen J. “Broken windows” and the risk of gonorrhea. *Am J Public Health*. 2000;90(2):230–236. doi: 10.2105/AJPH.90.2.230.
208. Ellen JM, Kohn RP, Bolan GA, Shiboski S, Krieger N. Socioeconomic differences in sexually transmitted disease rates among black and white adolescents, San Francisco, 1990 to 1992. *Am J Public Health*. 1995;85(11):1546–1548. doi: 10.2105/AJPH.85.11.1546.
209. Rice RJ, Roberts PL, Handsfield HH, Holmes KK. Sociodemographic distribution of gonorrhea incidence: implications for prevention and behavioral research. *Am J Public Health*. 1991;81(10):1252–1258.
210. Rothenberg RB. The geography of gonorrhea. Empirical demonstration of core group transmission. *Am J Epidemiol*. 1983;117(6):688–694.
211. Holtgrave DR, Crosby RA. Social capital, poverty, and income inequality as predictors of gonorrhoea, syphilis, chlamydia and AIDS case rates in the United States. *Sex Transm Infect*. 2003;79(1):62–64.
212. Thomas JC, Gaffield ME. Social structure, race, and gonorrhea rates in the southeastern United States. *Ethn Dis*. 2003;13(3):362–368.
213. Mosher WD, Chandra A, Jones J. Sexual behavior and selected health measures: Men and women 15–44 years of age, United States, 2002. Hyattsville, MD: National Center for Health Statistics, 2005. Advance Data from Vital and Health statistics; No 362.
214. Hallfors DD, Iritani BJ, Miller WC, et al. Sexual and drug behavior patterns and HIV and STD racial disparities: The need for new directions. *Am J Public Health* 2007; 97:125–132.
215. Ellen JM, Aral SO, Madger LS. Do differences in sexual behaviors account for the racial/ethnic differences in adolescents’ self-reported history of a sexually transmitted disease? *Sex Trans Dis* 1998; 25:125Y129.
216. Tillerson K. Explaining racial disparities in HIV/AIDS incidence among women in the U.S.: A systematic review. *Stat Med* 2008; 27:4132Y4143.
217. Brooks RA, Etzel MA, Hinojos E, Henry CL, Perez M. Preventing HIV among Latino and African American Gay and Bisexual Men in a Context of HIV-Related Stigma, Discrimination, and Homophobia: Perspective of Providers. *AIDS Patient Care STDS*. 2005; 19(11): 737–744.
218. CDC. STD Trends in the United States, 2010: National Data for Chlamydia, Gonorrhea, and Syphilis, Atlanta: U.S. Department of Health and Human Services; 2011. Available at: <http://www.cdc.gov/std/stats10/trends.htm>
219. Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance, 2000. Atlanta: Department of Health and Human Services, 2001.
220. Eng TR, Butler WT, eds. *The Hidden Epidemic: Confronting Sexually Transmitted Diseases*. Washington, DC: National Academy Press, 1997.
221. Darroch JE, Landry DJ, Oslak S. Age difference between sexual partners in the United States. *Fam Plann Perspect* 1999; 31:160–167.
222. Miller KS, Clark LF, Moore JS. Sexual initiation with older male partners and subsequent HIV risk behavior among female adolescents. *Family Planning Perspectives*. 1997;29:212–214.
223. Darroch JE, Landry DJ, Oslak S (1999), supra.
224. Begley EN, Crosby RA, DiClemente RJ, Wingood GM, Rose E. Older partners and STD prevalence among pregnant African American teens. *Sexually Transmitted Diseases*. 2003;30:211–213.
225. DiClemente RJ, Wingood GM, Crosby RA, Sionean C, Cobb BK, Harrington K, et al. Sexual risk behaviors associated with having older sex partners: A study of black adolescent females. *Sexually Transmitted Diseases*. 2002;29:20–24.
226. Harper GW, Doll M, Bangi AK, Contreras R. Female adolescents and older male sex partners: HIV associated risk. *Journal of Adolescent Health*. 2002;30:146–147.
227. Miller KS, Clark LF, Moore JS. Sexual initiation with older male partners and subsequent HIV risk behavior among female adolescents. *Family Planning Perspectives*. 1997;29:212–214.
228. MODHSS (Missouri Department of Health and Senior Services). 2012 Epidemiologic Profiles of HIV, STD and Hepatitis in Missouri. St. Louis Region. Available at: <http://health.mo.gov/data/hivstdaids/pdf/SLHIVSTD2012.pdf>
229. Centers for Disease Control and Prevention. About HIV/AIDS. Atlanta: U.S. Department of Health and Human Services; 2014. Available at: <http://www.cdc.gov/hiv/basics/whatishiv.html>
230. MODHSS. 2012 Epidemiologic Profiles of HIV, STD and Hepatitis in Missouri, supra.
231. MODHSS (Missouri Department of Health and Senior Services). *Community Data Profiles*. Leading Cause of Death Profile. Retrieved from <http://health.mo.gov/data/CommunityDataProfiles/>
232. MODHSS. *Community Data Profiles*. Leading Cause of Death Profile, supra.
233. MODHSS. *Community Data Profiles*. Leading Cause of Death Profile, supra.
234. Campbell F, Conti G, Heckman JJ, et al. Early childhood investments substantially boost adult health. *Science*. 2014;343(6178):1478–85.
235. Elliott W, Beverly SG. The role of savings and wealth in reducing ‘wilt’ between expectations and college attendance. *Journal of Children & Poverty*. 2011;17(2):21p.
236. Huang J, Sherraden M, Kim Y, Clancy M (2014), supra.
237. Huang J, Sherraden M, Purnell JQ (2014), supra.



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