

# Data Book 2013

The State of Children in Memphis & Shelby County



## This Book's Purpose

*The State of Children in Memphis & Shelby County* was created by The Urban Child Institute and first published in 2006. The initial purpose was to collect the best available data on children in our community. Many individuals and organizations were gathering important information on children, but the 2006 "Data Book" was the first time that the data had been assembled in a single document.

This 2013 volume continues to track and update the data. It has also become more focused on our community's youngest children, specifically those under age three. Additionally, The Urban Child Institute is excited that the new *Data Book* includes contributions from some of our community's top experts in various fields related to children's well-being.

## The Urban Child Institute

The Urban Child Institute is a non-profit organization dedicated to the wellbeing and health of children from conception to three years old in Memphis and Shelby County. We are a data-driven, result-oriented coalition of researchers, strategists, practitioners, parents, and community members dedicated to turning knowledge and research into measurable change.

The Urban Child Institute is working to become a recognized leader in child advocacy research, a trustworthy community partner, and a place of choice for expertise, advice, and collaboration for those who want to improve the lives of children in Shelby County, Tennessee.



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## Introduction

We began publication of the *Data Book: The State of Children in Memphis and Shelby County* in 2006 to inspire action by encouraging data-driven decisions, illuminating the challenges and opportunities facing our community, and shaping a community-wide conversation about the importance of giving every child a fair start in life.

We are encouraged by the progress that has been made in the ensuing seven years. Early childhood development is now at the top of our civic agenda, but proposed cuts to programs benefiting children (Pre-K, for instance) remind us that there is much more to do. We want the Data Book to arm parents, caregivers, educators, community leaders, elected officials, and others with the facts that can strengthen their programs and advocacy efforts.

The facts about early childhood and brain development are well-established, and new research findings have only deepened our understanding of the importance of investing in children early. No investment that we make as a community has a greater return than preparing young children to learn and thrive, because when we enrich children's lives, we enrich the future of the community itself.

All of us at The Urban Child Institute are dedicated to communicating this message. Our recent efforts include our "Baby Small" television and radio campaign about the crucial brain development that takes place before a child is three years old. In addition, building on the collaboration with the Neighborhood Christian Center that produced our "Touch, Talk, Read, Play" program, we have developed a curriculum that is being used by the Congregational Health Network.

The work that we do at The Urban Child Institute is based on the information in this *Data Book*, which remains the most definitive source of local data about the forces, trends, and factors affecting children. The 2013 Data Book once again underscores the dichotomy that exists in our community. The contrast between urban and suburban children remains profound, but we are making progress in several key areas:

- The infant mortality rate has declined by about 25 percent in two years.
- The infant mortality rate for African-Americans decreased by almost 30 percent in two years.
- The birth rate for teenagers has declined by 26 percent since 2008.
- The percentage of mothers receiving no prenatal care is now at a record low of 5.6 percent.
- Breastfeeding has reached a record high, with the greatest increases taking place with African-American mothers (48 percent increase since 2004).

These positive trends should fortify and galvanize our work on behalf of our youngest residents. We continue to face serious hurdles because of the high rate of family poverty that creates risks for childhood well-being and optimal brain development:

- 32 percent of Memphis families with children live in poverty, compared to 7 percent in suburban Shelby County.
- 60.4 percent of Memphis children live in families headed by a single parent.
- Median income for Shelby County families without children is \$14,000 more than that of families with children, and in Memphis the difference is \$18,000.
- 39 percent of Memphis children live in poverty and more than half of Shelby County children face economic hardships.

Demographics are not destiny. Although too many of our children face adversities that threaten their success in life, many children thrive despite these barriers. Research shows that effective parenting can be a protective buffer against the effects of poverty and other risks, and a positive home environment is the foundation for healthy brain development and long-term positive outcomes.

This year's Data Book continues our tradition of spotlighting exemplary programs that set the standard in their service to children. Featured in this year's Data Book is Memphis Child Advocacy Center, which has been on the front lines combating child sexual abuse for 20 years. Through prevention, education, and community collaboration, The Child Advocacy Center promotes healing and seeks justice for victims of sexual abuse and severe physical abuse.

As a community, we have no greater moral imperative than to protect children and to give each one a fair start in life. There is no magical answer. Rather, there is only the magic of a community united by its commitment to providing positive developmental experiences for young children by supporting parents, quality child care, and early education. *The 2013 Data Book: The State of Children in Memphis and Shelby County* is our contribution to the pursuit of those goals.

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# The first years of life are a vital period for early brain development.

Decades of research show that the environment of a child's earliest years can have effects that last a lifetime. The biological embedding of early experience in brain development is supported by numerous studies.<sup>1</sup> Thanks to recent advances in studying the brain, we have a clearer understanding of how these effects are related to building early brain architecture. Neuroscientists can now identify patterns of brain activity that are associated with various types of toxic stress, such as growing up in poverty.<sup>2</sup>

Although the dangers of early toxic stress, like poverty, neglect and maltreatment, have long been recognized, we can now 'see' their effects using brain scanning technology. Scientists continue to do research to determine exactly how experiences affect development, and exciting advances continue to enhance intervention and prevention efforts.<sup>3</sup>

## The architecture of a child's brain is affected by early experiences.

Specialized brain cells called neurons send and receive information by forming connections with one another. The connection is called a 'synapse'. The newborn brain continues to add neurons over the first few years of life and grows at an amazing rate. It doubles in size in the first year, and by age three it reaches 80 percent of its adult volume.<sup>4-6</sup> This growth is due mostly to neuron growth and new synapses being made.

Even more importantly, connections are formed at a faster rate during these years than at any other time. In fact, the brain creates many more connections than it needs: at age two or three, the brain has up to twice as many connections as it will have in adulthood (FIGURE 1). The experiences of a child play a big role in determining which surplus connections are gradually eliminated throughout childhood and adolescence, a process sometimes referred to as pruning.<sup>7</sup>

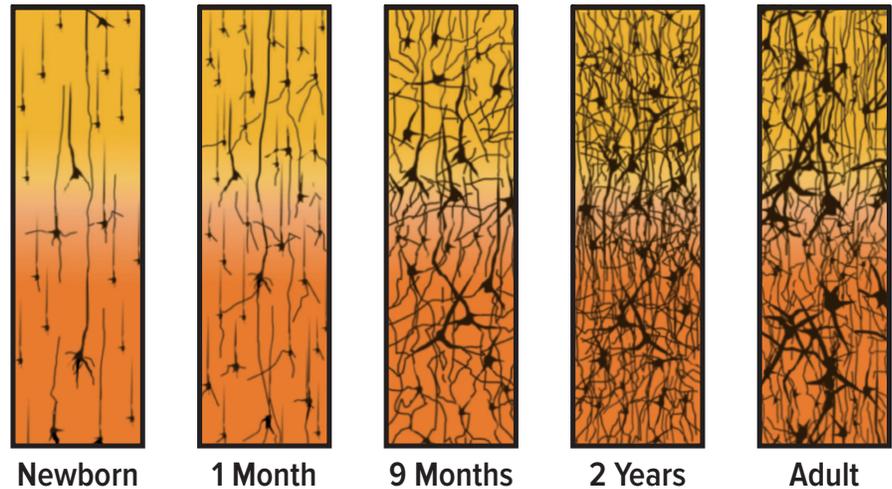


FIGURE 1:  
Neuron Growth &  
Connections Over Time

Source: Corel, J.L. The postnatal development of the human cerebral cortex. Cambridge, MA: Harvard University Press; 1975

## The growth and pruning of connections responsible for specific functions like vision, language or learning, occur at different rates.

Senses like hearing, vision and touch mature rapidly and are especially responsive to early external input during early infancy. The connections that are important for language development and social interactions mature over a longer period of time, but are particularly sensitive in toddlers (FIGURE 2).

For these skills, the first 3 years is the period when the brain can "capture" experience more efficiently than it will be able to later, when the pruning of unused connections is underway.<sup>7</sup>

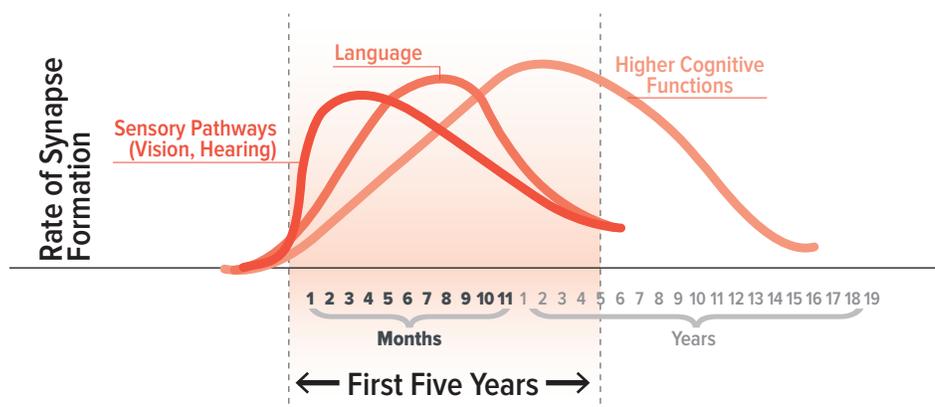


FIGURE 2:  
Neural circuits mature at different times, occur in a sequential fashion, & are built upon previously established circuits

Source: C.A. Nelson, in *Neurons to Neighborhoods*, 2000

## Genetic and environmental factors work together to shape early brain development.

Although the first stages of brain development are strongly affected by genetic factors, genes do not design the brain completely.<sup>8,9</sup> Instead, when and where genes are used is fine-tuned according to the input they receive from the environment – this happens even during pregnancy when maternal nutrition and stress can influence the early phases of brain architecture. These gene-environment relations allow for each child to adapt to their surroundings more readily and more quickly than they could if genes alone determined the brain's wiring.<sup>10</sup> There are two major ways that genes and environment work together to sculpt the brain. One is through inheriting certain forms of genes that can have very different interactions with the environment.<sup>11</sup> The second is through environmental influences that can alter the read-out of genes without changes to the genes themselves. This second process is becoming better understood thanks to recent research in a relatively new scientific field called *epigenetics*.

## The field of epigenetics has changed our understanding of how the environment interacts with our genes and how genes interact with the environment.

Epigenetics (meaning 'above' genetics) is the study of enduring changes in gene activity that do not change the DNA code itself, but through chemical changes, do influence how the code is used. Many environmental factors and experiences result in chemical 'marks' on certain parts of genes, and these epigenetic changes can influence the activity, or 'expression', of the gene.<sup>12</sup>

You can think of the epigenetic processes as the software that directs the functioning of a gene's DNA hardware. Because the development of all cells, tissues, and organs is affected by when and how specific genes are expressed, epigenetic processes can be a powerful influence on health and well-being.

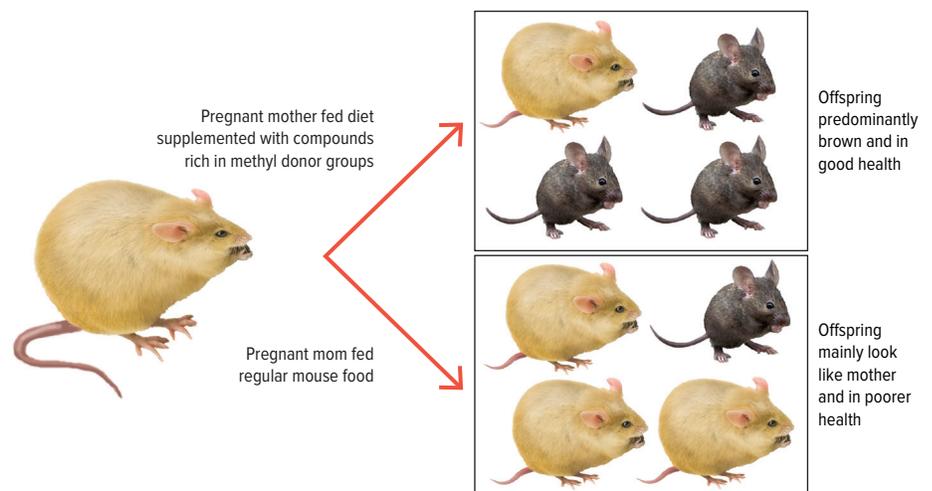
## Animal research shows that epigenetic changes can be long-lasting and even can be passed from one generation to the next.

So far, much of what we know about epigenetics comes from research on animals. Numerous studies now show how genetic activity can be altered by exposure to different foods, toxins, and powerful experiences. One remarkable illustration of how potent epigenetics can be was done in genetically identical pregnant mice (like identical twins). The mothers all carried genetic information that gave rise to a yellow coat color, obesity, and vulnerability to disease. Half of the pregnant mothers received a normal diet while the other half was fed a diet high in compounds that can result in modified DNA through epigenetic mechanisms. Interestingly, the offspring of the “normal” diet group resembled their mothers in coat and weight and health outcomes. The offspring from the second diet group were more likely to have brown fur, normal weight, and no increased disease risk (FIGURE 3). But like their mothers, all of the offspring in both groups had identical DNA sequences. The differences in color, weight, and health were due to differences in how genes were expressed following epigenetic changes to a specific gene. This resulted in dramatic changes in terms of how the mice appeared and even their improved health outlook. In distinction to this positive outcome, research now tells us that there are a number of external factors that occur prenatally, such as exposure to alcohol or environmental toxins that lead to negative alterations in the DNA changes and negative health outcomes.

Remarkably, the healthier female offspring eventually became pregnant and gave birth to babies that showed the same traits—brown fur, normal weight, and low disease risk—even though this third generation went back to receiving a normal diet. This experiment, and others like it, shows how influential the environment can be on epigenetics, which can have effects from one generation to the next.

FIGURE 3:  
**Female Agouti Mouse**  
(Fully Expressing a Gene That Causes Yellow Coat, Susceptibility to Diabetes and Obesity)

Source: Illustration by Bill Day adapted from Waterland, RA., Jirtle, RL. Transposable elements: Target for early nutritional effects on epigenetic gene regulation. *Molecular and Cellular Biology*. 2003; 23(15):5293–5300



In another series of experiments, adult mice that had received generous amounts of licking and grooming from their mothers as pups were less anxious and had lower levels of stress hormones than those raised by mothers who showed anxious behavior and were not as nurturing. How can the differences in mother-pup interactions result in long-lasting changes in stress responses? A second phase of research was done to show that it wasn't due to genetic differences between the different moms. To show this, pups from higher care moms were switched at birth to be with the lower care moms. The scientists also did the opposite – switch the pups from lower care moms to be with the higher care moms.

The results showed the powerful impact of early experience. Babies born to high-nurturing mothers, but switched to be raised by low-nurturing mothers grew up to express increased levels of anxious behavior similar to their foster moms. Remarkably, the mouse pups born to low-nurturing mothers but raised by high-nurturing mothers showed less anxiety. The studies also showed that a specific gene that controls stress response was expressed more highly in the mice raised by higher care moms, compared to those raised by lower care moms.<sup>13</sup>

## Epigenetics is strongly related to early brain development.

We know that children's experiences during the first years of life are strongly associated with long-term cognitive, emotional, and social outcomes.<sup>14</sup> And we know that the quality of a child's early experiences affects the development and function of the growing brain. But discovering how these processes occur has been challenging. The growing body of research on epigenetic processes, which are especially active early in development,<sup>15</sup> is likely to provide new answers to how adversity threatens optimal development.

For ethical and practical reasons, it is harder to study the gene/environment relationship in humans than in animals. Still, scientists have already found convincing evidence of epigenetic effects in human development. In one study, women who were pregnant during a severe famine tended to give birth to underweight infants. When these babies grew up and became parents themselves, they also tended to have underweight children, even though their own food intake since birth had not been affected by the famine.<sup>16</sup> Other studies have found that childhood abuse is associated with lifelong decreased activation of a gene that protects against high levels of stress hormones.<sup>12</sup> Recent research has found that experiences during a child's early life can result in epigenetic changes that are apparent even when the child reaches adolescence.<sup>11,17</sup>

Studies show that high stress and low nurturing in the first stages of life impair the development of healthy brain architecture. These effects are especially dramatic in brain areas related to memory, learning, and social and emotional adjustment.<sup>13</sup>

## Epigenetic research supports the importance of a preventive approach to child health and well-being.

Epigenetic processes indicate that development is remarkably flexible. But in the absence of prevention or interventions, epigenetic changes – and their effects on behavior and health – can be stable once they occur. Moreover, research tells us that such changes can be transmitted from generation to generation.<sup>18</sup> Whether they can become permanent is not yet known, but even when the conditions that created an epigenetic mark no longer exist, it is likely to take several generations before it begins to fade.<sup>12</sup>

In other words, epigenetics makes a strong argument that prevention is the best policy approach for protecting young children from the effects of toxic stress. Early exposure to chronic stressors, such as regularly witnessing violence, caregiver neglect or abuse, poor nutrition, and other environmental hazards can have long-lasting and powerful effects on adult physical and mental well-being. Research is giving us a better understanding of epigenetic changes that occur due to early adverse experiences, which will lead to the development of more effective intervention and prevention programs to protect young children from adverse experiences in the first years of life.<sup>19,20</sup>

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# Demographics are not destiny.

In our community, as in many metropolitan areas, life within the city limits is often different from life in the suburbs. Demographic, economic, and political differences between Memphis and suburban Shelby County\* frequently underlie debates regarding taxation, public schools, and other issues.

However we should not let these differences obscure the fact that each of us has a stake in our community's overall success. This becomes especially apparent when we consider the linked fates of our children. Children in Memphis families and children in suburban families will eventually share responsibility for leading and sustaining the community.

Unfortunately, one important difference between Memphis and suburban Shelby County is the disparity in children's access to positive experiences that promote health, well-being, and future success. Poverty and its related risk factors are much more widespread in Memphis than in outlying areas of the county. Research has linked early risk to a wide array of negative outcomes, including academic failure, emotional problems, physical health, and adult earnings.<sup>1,2</sup>

Certainly, many children thrive in spite of facing these risks. What enables some children to beat the odds while others with similar backgrounds fail to reach their potential?

One well-established finding is that effective parenting can be a protective factor that buffers children from the effects of poverty and other risks. Sensitive, age-appropriate caregiving reduces the biological stress of growing up in adversity. Other protective factors include parental education and high quality child care.<sup>3</sup>

Each of these protective factors represents an opportunity for our community to create policies that help children thrive. Although this chapter's demographic profile of Memphis and Shelby County includes some discouraging figures, we believe that the realistic assessment of a problem is the first step toward solving it.

As a community, we have responsibility to promote the well-being of our children. It's not enough to sit idly by and hope that more children beat the odds. We must do what we can to provide healthy, nurturing, and stable environments for them. The strength and vitality of our community's future depends on it.

\*Please note that throughout the Data Book "suburban Shelby County" refers to areas of the county outside the city limits of Memphis, while "Shelby County" refers to the county as a whole, including Memphis.

## Shelby County has nearly a quarter of a million children.

FIGURE 1 shows the number of children living in Memphis and suburban Shelby County.

Of the 246,887 children in Shelby County, approximately 7 in 10 children live within Memphis city limits; the rest live in the outlying suburbs.

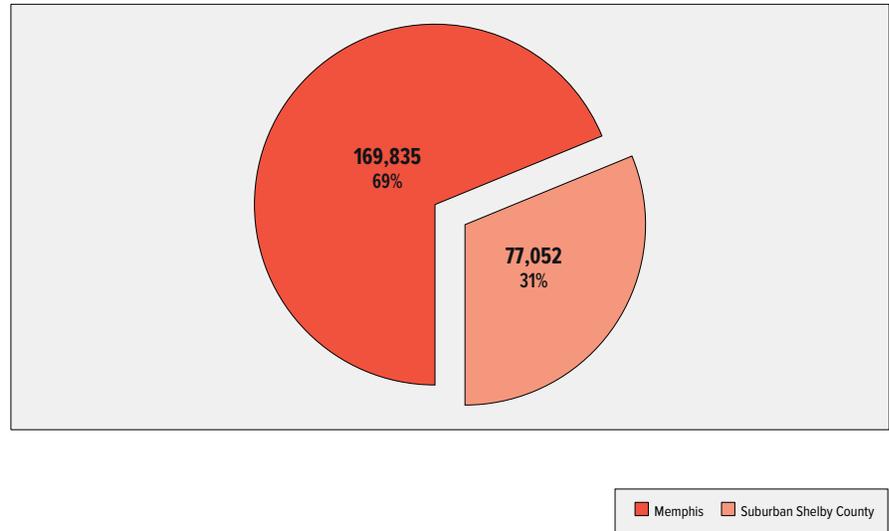


FIGURE 1:  
Number & Percent of Children,  
Memphis & Suburban Shelby  
County, 2011

Source: United States Census Bureau 2007–2011,  
American Community Survey, B01001

FIGURE 2 shows the age distribution of children in Memphis and in suburban Shelby County.

## Children in Memphis, as a group, differ from suburban children in age, race, and family type.

Memphis has a higher proportion of very young children than suburban Shelby County.

- Memphis has over 48,000 children under five, representing 29 percent of all residents under 18.
- In suburban Shelby County, children under five make up 23 percent.

FIGURE 3 shows racial/ethnic differences among the child populations of Memphis, Shelby County, Tennessee, and the United States.

Racial demographics in Memphis differ from those of Tennessee and the United States.

- 71 percent of children in Memphis are black and 17 percent are white.
- In Shelby County as a whole, the pattern is similar but less pronounced (58 and 29 percent respectively).
- Statewide and nationally, however, the black-white ratio is roughly the opposite of our community.
- For other racial/ethnic groups, patterns in Memphis and Shelby County are similar to state and national patterns.

FIGURE 4 shows differences in living arrangements between children in Memphis and children in suburban Shelby County.

Memphis children are more likely than their suburban peers to live in single parent families.

- 60 percent of Memphis children live with an unmarried parent.
- 23 percent of children in suburban Shelby County live with an unmarried parent.

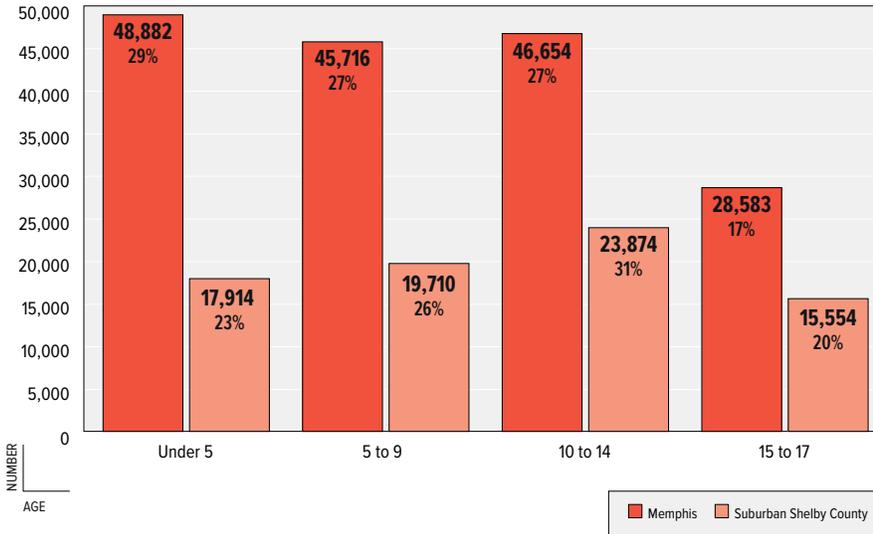


FIGURE 2:  
Number & Percent of Children  
by Age, Memphis & Suburban  
Shelby County, 2011

Source: United States Census Bureau 2007–2011,  
American Community Survey, B01001

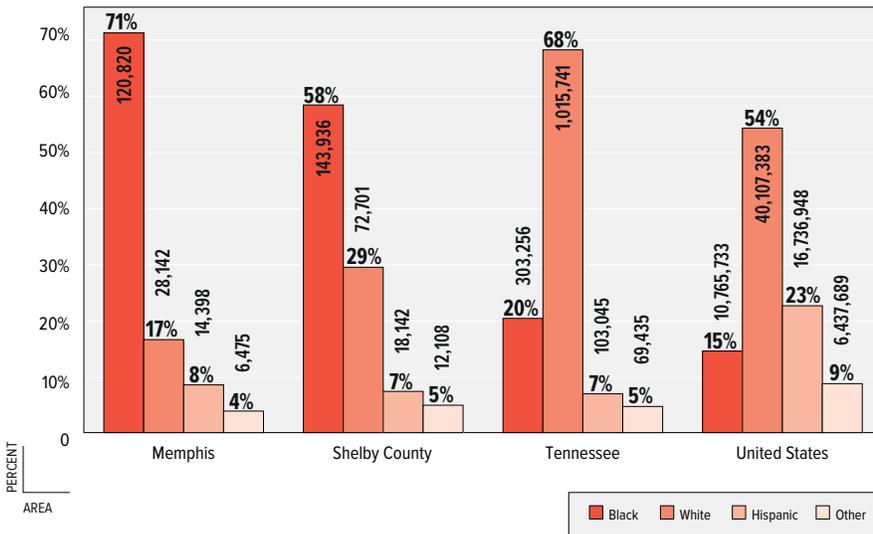


FIGURE 3:  
Percent & Number of Children  
by Race in Memphis, Shelby  
County, Tennessee & United  
States, 2011

Source: United States Census Bureau 2007–2011,  
American Community Survey, C01001B,C,D,E,F,H&I

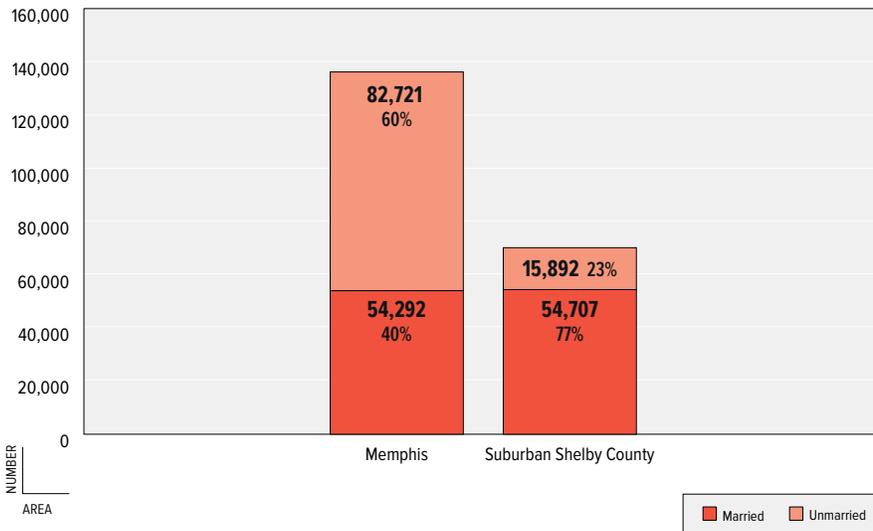


FIGURE 4:  
Number & Percent of Children  
by Living Arrangement,  
Memphis & Suburban Shelby  
County, 2011

Source: United States Census Bureau 2007–2011,  
American Community Survey, C17006

## Shelby County families with children make less money than families without children.

Family income affects the quality of a child’s home environment. Parents with stable and adequate incomes are better able to provide their children with books, educational toys, enriching activities, and high-quality child care. Children whose families have higher incomes tend to do better in school and show better behavioral and social adjustment.<sup>4</sup>

FIGURE 5 shows median income for families with children and for families without children in Memphis and in Shelby County as a whole.

Low-income parents, in addition to having fewer economic resources, often have fewer social and emotional resources. Compared to middle-class parents, for example, they are at higher risk for stress and poor health. Economic hardship can lead to less parental warmth and responsiveness, which in turn are associated with negative child outcomes.<sup>5</sup>

- Across Shelby County, median income for families without children is almost \$14,000 more than for families with children.
- When we consider only families living within Memphis, the gap increases to over \$18,000.

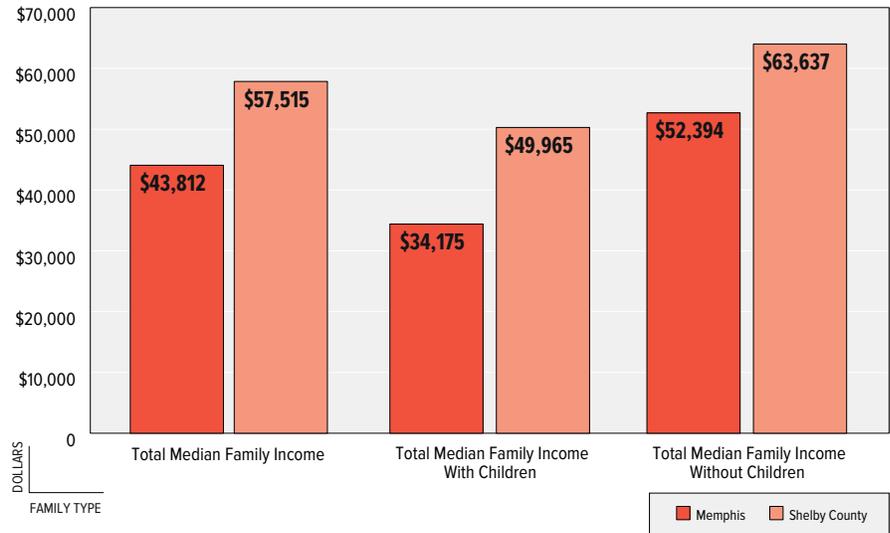


FIGURE 5:  
**Median Family Income by Presence of Children, Memphis & Shelby County, 2011**

Source: United States Census Bureau 2007–2011, American Community Survey, B19125

## Shelby County families pay a larger share of their incomes for rent than in previous years.

Housing is typically the biggest item in a family’s budget. Experts agree that a family should spend no more than about 30 percent of its annual income on housing, but poor and low-income families often pay as much as 50 percent.

Families with children are particularly vulnerable to unaffordable housing: they earn less than other families, but need more space. When less income is left over after paying the rent, parents must make sacrifices that can reduce their children’s quality of life. Too often, these choices include cutting back on necessities like food, clothes, and healthcare.<sup>6,7</sup>

Since 2000, more and more families face housing costs that are well above the recommended 30 percent threshold.

FIGURE 6 shows recent changes in the percent of renters in Shelby County who pay 35 percent or more of their incomes on rent.

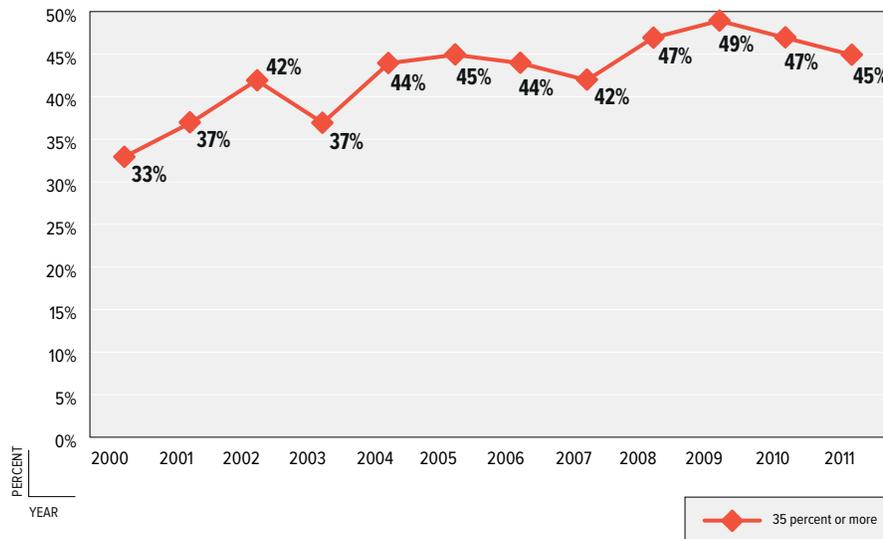


FIGURE 6:  
Gross Rent as Percent of Household Income, Shelby County 2000–2011

Source: United States Census Bureau, American Community Survey, 2000–2011, B25070

## The Memphis child poverty rate is nearly double the national rate.

The terms “poor” and “in poverty” are applied to families with annual incomes below the Federal Poverty Level (FPL) set by the United States Department of Health and Human Services. The FPL for a family of four is \$22,350.

Poverty endangers children’s healthy development. Poor families experience, on average, more turmoil, violence, and instability than other families. Poor children watch more TV, have fewer books, and are read to less frequently than their better-off peers. They attend lower-quality schools and have poorer nutrition. As early as the first three years of life, they score lower on cognitive measures, and the effects of early poverty often persist into adulthood.<sup>8–11</sup>

FIGURE 7 compares child poverty rates in Memphis and suburban Shelby County.

Shelby County child poverty is largely concentrated in Memphis.

- In Memphis, 39 percent of children live in poverty.
- Nine percent of children in suburban Shelby County live in poverty.
- The national child poverty rate is 21.9 percent (not shown).
- Child poverty has been relatively steady in suburban Shelby County in recent years.
- In Memphis, there has been a slight upward trend.

FIGURE 8 shows changes in child poverty rates for Memphis and suburban Shelby County from 2003 to 2011.

## Over half of Shelby County children face economic hardship.

The Federal Poverty Level (FPL) is an inadequate tool for measuring economic hardship. Grouping families into those above the poverty threshold and those below it underestimates the wide variations in economic distress among families in need.

Not all poor families experience the same types of hardship. Families with incomes just under the poverty line face very different circumstances than families whose incomes fall far short of it.

Similarly, many families have incomes above FPL but still deal with the same difficulties as poor families. Extensive research shows that it takes an income about twice the poverty level for a family to meet its basic needs.

As a result, most researchers distinguish two additional categories: low-income (also called “near poverty”) and extreme poverty. Low-income families have incomes above the FPL but below 200 percent of the FPL. Families with incomes below half of the FPL are in extreme poverty.<sup>12–14</sup>

More than half of our community’s children are poor or low-income.

- 30 percent of Shelby County children are living in poverty.
- Of this 30 percent, half are in extreme poverty.
- 23 percent of children in Shelby County live in low-income families.
- Fewer than half of Shelby County’s children are economically secure (at or above 200 percent of the FPL).

FIGURE 9 shows the living standards of Shelby County children according to family income and the Federal Poverty Level.

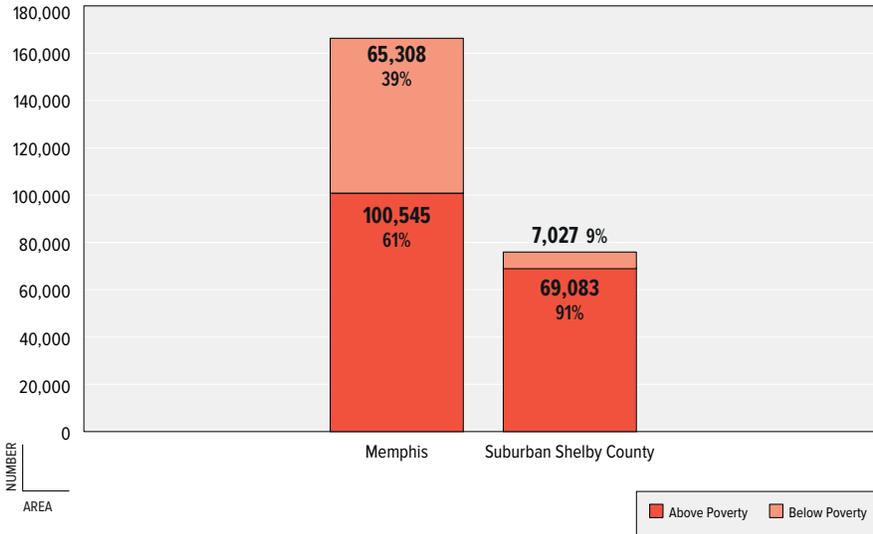


FIGURE 7:  
Number & Percent of Children in Poverty, Memphis & Suburban Shelby County, 2011

Source: United States Census Bureau 2007–2011, American Community Survey, C17001

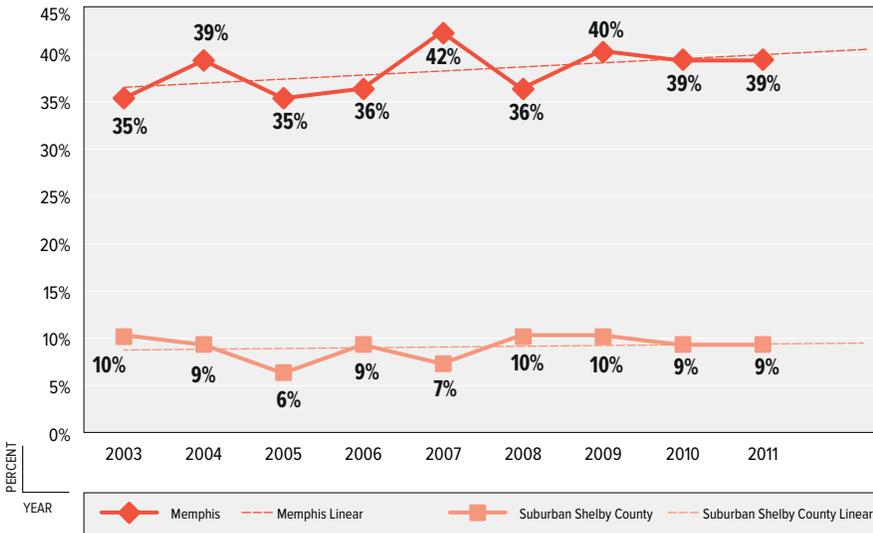


FIGURE 8:  
Percent of Children in Poverty, Memphis & Suburban Shelby County, 2003–2011

Source: United States Census Bureau, American Community Survey 2003–2011, C17001

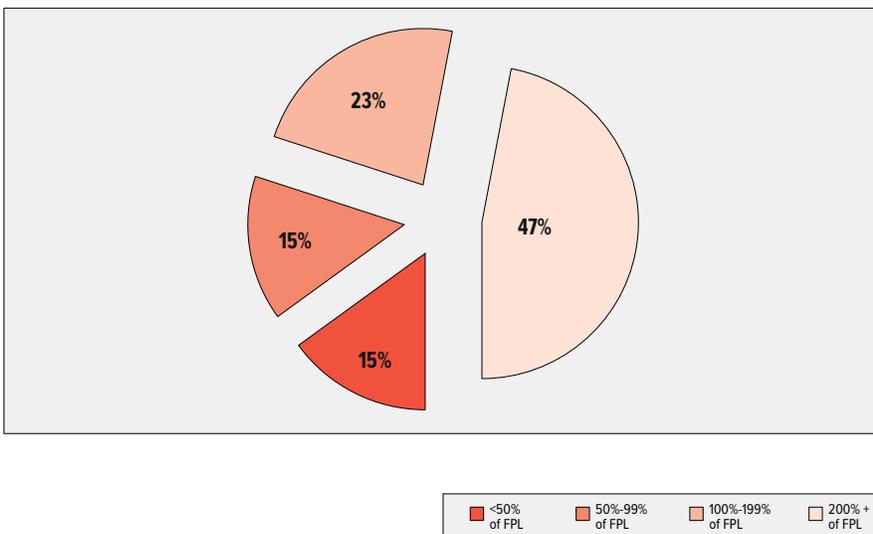


FIGURE 9:  
Percent of Children by Living Standard, Shelby County, 2011

Source: United States Census Bureau 2007–2011, American Community Survey, C17024

## Children in poverty often face other risks as well.

Poor children can thrive in spite of their families' economic adversity, especially if they have the protective benefits of warm and responsive parenting. Too often, however, poverty goes hand in hand with other risks that reduce parents' ability to provide this buffer. These may include maternal depression, low parental education, and neighborhood crime.

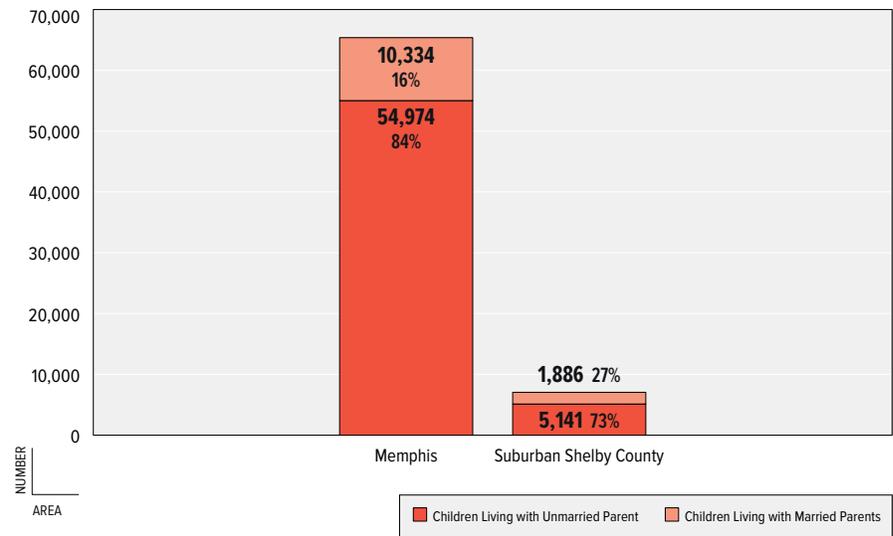
One widely studied risk factor is living in a single-parent family. Single mothers, on average, are younger, have less education, earn lower incomes, and have less social support than married mothers. Conditions like these increase the likelihood of ineffective, inconsistent, and harsh parenting behaviors.<sup>15,16</sup>

- In Memphis, 84 percent of children in poverty live in unmarried-parent families.
- Similarly, in suburban Shelby County, 73 percent of poor children live in unmarried-parent families.

FIGURE 10 shows living arrangements among children in poverty in Memphis and suburban Shelby County.

FIGURE 10:  
Number & Percent of Children Living in Poverty by Living Arrangement, Memphis & Suburban Shelby County, 2011

Source: United States Census Bureau 2007–2011, American Community Survey, C17006



## Kids are better off when their parents are better educated.

Education helps parents earn more money, allowing them to improve their children’s physical surroundings and purchase books and other stimulating materials.

It also promotes effective parenting: On average, better-educated parents read to their children more often, use larger vocabularies, and have higher expectations. Their children, in turn, tend to have better academic and behavioral outcomes.<sup>17,18</sup>

- High school graduates earn 42 percent more than high school dropouts.
- Attending some college, even without finishing a degree, raises a high school graduate’s income another 26 percent.
- For those who complete a Bachelor’s degree, median income is almost double that of high school graduates.

FIGURE 11 shows how median annual income varies according to educational attainment for Shelby County adults.

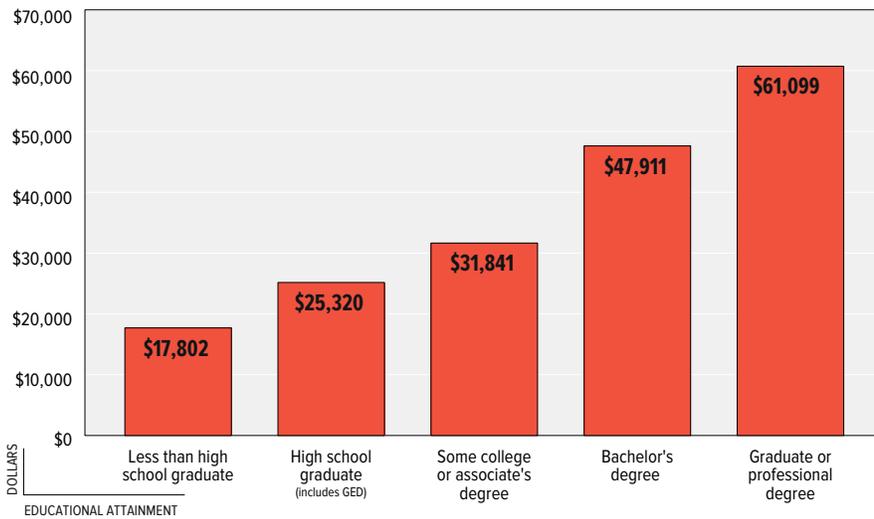


FIGURE 11: Median Annual Income by Educational Attainment, Shelby County, 2011

Source: United States Census Bureau 2007–2011, American Community Survey, B20004

## Most Shelby County homes do not have children.

- Only 33 percent of households in Memphis have children younger than 18 years present.
- Only 41 percent of households in suburban Shelby County have children.

FIGURE 12 shows the number and percent of families with children for Memphis and suburban Shelby County.

Families with children are a minority in our community. This is a potential barrier to building and sustaining an effective public voice for children. For instance, supporting investments in child well-being may be a lower priority for adults without children or those whose children have already come of age.<sup>19</sup>

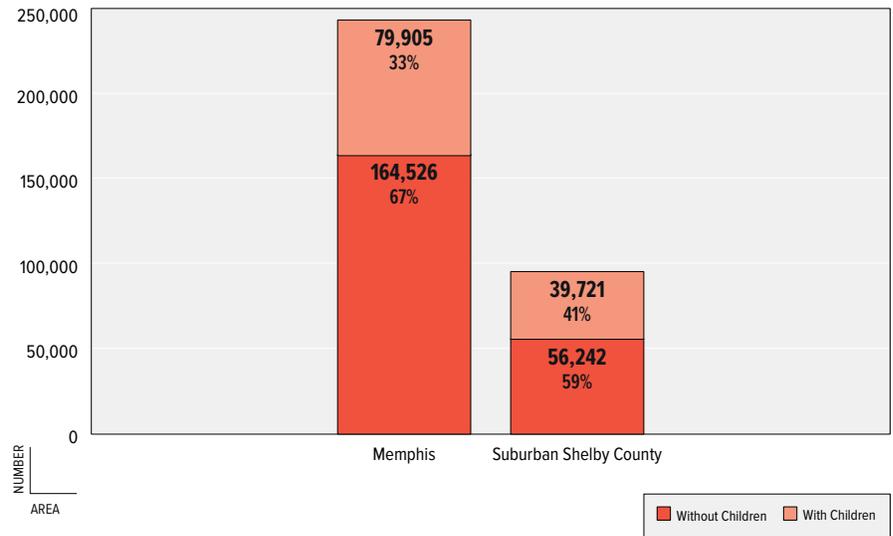


FIGURE 12:  
Number & Percent of  
Households by Presence of  
Children, Shelby County, 2011

Source: United States Census Bureau 2007–2011,  
American Community Survey, C11005

The differences between Memphis and suburban Shelby County, many of which have been detailed in this chapter, may represent another barrier. Suburban Shelby County has a higher share of families with children, but it has proportionately fewer African American children, children in poverty, and children in single parent families. These realities tend to isolate middle-class families from families in need and make it difficult to create a shared identity among parents and caregivers throughout our community.<sup>20</sup>

To overcome these obstacles, we must increase public awareness that what is good for children is good for all of us. Morally, allowing half our children to grow up in or near poverty is incompatible with our ideals of fairness and equal opportunity. Economically, reducing child poverty and its lifelong effects will result in significant public savings by increasing earnings and productivity and decreasing crime and poor health.<sup>21</sup>

Investments in the well-being of our children are investments in our community's future.

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# The health and well-being of our children determines the future of our community.

Improving the well-being of mothers, infants and children is an essential public health goal for Shelby County.

The health and well-being of our children determines the future of our community. This section of the *Data Book* examines some of the most common problems that jeopardize the health of our mothers, infants and children. It aims to provide community partners and public officials with the information they need to promote policy development and to assure quality service delivery in Shelby County.

This year's health chapter shows that some Shelby County health measures have improved, while others have worsened. For example, infant mortality has declined, and fewer mothers report receiving no prenatal care. On the other hand, low birth weight remains essentially unchanged, and racial disparities persist for most health indicators.

## Birth outcomes are a key measure of community health.

The Healthy People 2020 objectives identify infant mortality and preterm births as leading health indicators for maternal, infant and child health in the United States.<sup>1</sup>

These are defined as:

- *infant death*: death during the first year after birth
- *premature birth*: birth before 37 weeks gestation

FIGURE 1 shows Shelby County’s total number of births, infant deaths, and premature births.

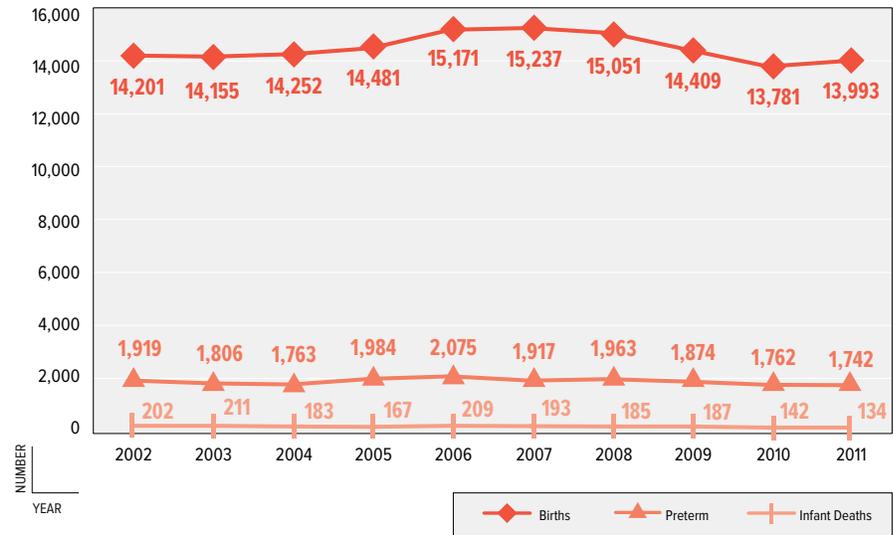
In 2011:

- 13,993 babies were born.
- 134 died during infancy.
- 1,742 were born prematurely.

The raw numbers tell only part of the story. For a better understanding, we need to examine the infant mortality rate, as well as the percentage of preterm babies, which are presented in FIGURES 2 and 3.

FIGURE 1:  
Number of Total Live Births,  
Preterm Births & Infant Deaths,  
Shelby County, 2002–2011

Source: Tennessee Department of Health,  
2002–2011<sup>21</sup>



# The infant mortality rate has declined by approximately 25 percent during the past two years.

The measure of infant deaths is typically reported as the *infant mortality rate*—the number of infant deaths per 1,000 live births. This measure is widely used across the world as an overall indicator of community health status.

Infant mortality can be divided into two categories:

- *Neonatal mortality* (death before 28 days) is typically associated with short gestation, low birth weight, pregnancy complications and congenital malformations.
- *Post-neonatal mortality* (death between 28 days and 1 year) is associated with Sudden Infant Death Syndrome (SIDS), congenital malformations, and unintentional injuries.<sup>2</sup>

In Shelby County:

- The infant mortality rate declined between 2009 and 2011, from 13 to 9.6 infant deaths per 1,000 live births.
- Still, it remains higher than the national rate (6.1 per 1,000 live births) and the Healthy People 2020 goal of 6 deaths per 1,000 live births (FIGURE 2).
- Approximately 45 percent of all infant deaths among babies born in 2010 were attributed to preterm-related causes.<sup>3</sup>

While racial disparities in infant mortality are related to several risk factors, such as preterm and low birth weight delivery, socioeconomic status and access to medical care, these differences only partially explain the observed disparities.<sup>4</sup>

In Shelby County:

- The infant mortality rate among infants born to black women decreased by almost 30 percent (18.5 to 13 deaths per 1,000 live births) between 2009 and 2011.
- However, the rate remains almost triple that of infants born to white women (FIGURE 2).

FIGURE 2 highlights the decline in infant mortality in Shelby County between 2009 and 2011.



FIGURE 2: Infant Mortality Rate per 1,000 Live Births by Race, Shelby County, Tennessee & United States, 2002–2011

Source: Tennessee Department of Health, 2002–2011<sup>31</sup>; National Center for Health Statistics, 2009<sup>32</sup>; National Center for Health Statistics, 2011<sup>33</sup>

## Twelve percent of all infants were born preterm during 2011.

Babies born prematurely (before 37 weeks gestation) are at increased risk for health complications and death. Complications arising during infancy can include respiratory distress, jaundice and anemia. Longer term complications can include learning and behavioral problems, cerebral palsy, lung problems and vision and hearing loss.<sup>4</sup> In 40 percent of the more than half a million babies born prematurely each year in the United States, the cause is unknown.<sup>5</sup> Induced preterm births are typically medically indicated due to preeclampsia or intrauterine growth restriction, whereas spontaneous preterm births can result from multiple causes, including vascular disease, infection or inflammation.<sup>6</sup>

Premature birth remains a leading cause of infant death in the United States, but nationally, the percentage of preterm births declined between 2005 and 2011.<sup>4</sup>

As FIGURE 3 shows, preterm births in Shelby County have not significantly declined in recent years.

In Shelby County:

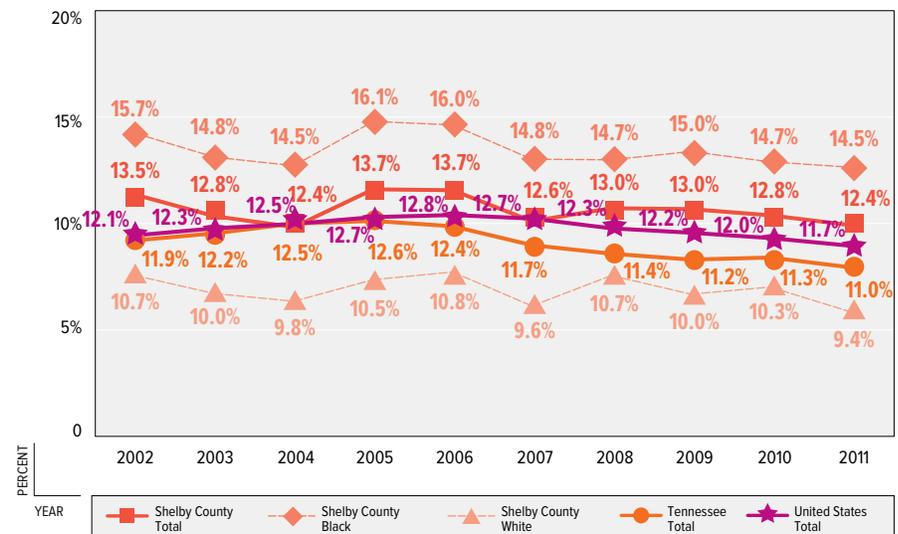
- The percentage of preterm births (12.4 percent in 2011) has not significantly declined over the past two years and remains slightly higher than the national percentage (11.7 percent) and Healthy People 2020 Goal of 11.4 percent (FIGURE 3).
- In 2011, 8.6 percent of babies were born “late preterm” (34 to 36 weeks’ gestation), 1.5 percent at 32–33 weeks, and 2.3 percent were “very preterm” (less than 32 weeks).

Nationally, non-Hispanic black women have the highest rates of preterm birth.<sup>4</sup> Racial disparities among preterm births are also apparent in Shelby County:

- In 2011, 14.5 percent of babies born to black women were born preterm, compared to 9.4 percent of babies born to white women.
- This racial gap has remained relatively unchanged over the past ten years, with black women consistently reporting a higher percentage of preterm births than white women (FIGURE 3).

FIGURE 3:  
Percent of Preterm Babies by Race, Shelby County, Tennessee & United States, 2002–2011

Source: Tennessee Department of Health, 2002–2011<sup>31</sup>; National Center for Health Statistics, 2009<sup>34</sup>; National Center for Health Statistics, 2011<sup>35</sup>



# The percentage of low birth weight babies has remained unchanged over the past ten years.

Infants born at low birth weight (less than 2,500 grams or 5.5 pounds) are at a greater risk for physical and developmental health problems and death within the first year of life compared to infants of normal birth weight. Low birth weight is often a result of premature birth, but it can also occur in full term babies affected by fetal growth restriction related to factors such as maternal hypertension, tobacco smoke exposure or inadequate weight gain during pregnancy.<sup>7</sup>

In Shelby County:

- The percentage of low birth weight babies during 2011 (11 percent) remains above national figures (8.1 percent) and the Healthy People 2020 goal of 7.8 percent (FIGURE 4).
- 18.8 percent of all low birth weight births were very low birth weight (<1,500 grams) in 2011.

Nationally, infants born to non-Hispanic black women have low birth weight rates almost two times greater than infants born to non-Hispanic white women.\* Provided the increased risk for death, this racial disparity in low birth weight contributes to the infant mortality gap between non-Hispanic black and white infants.<sup>4</sup>

Racial disparities among low birth weight babies are also apparent in Shelby County:

- In 2011, the percentage of low birth weight babies born to black women (14 percent) was more than twice the percentage born to white women (6.3 percent).
- This racial gap has remained relatively unchanged over the past ten years, with black women consistently reporting a higher percentage of low birth weight births than white women (FIGURE 4).

\*Please note that for US - NCHS report is broken down by non-Hispanic black and non-Hispanic white.

FIGURE 4 highlights the racial disparities in low birth weight in Shelby County.

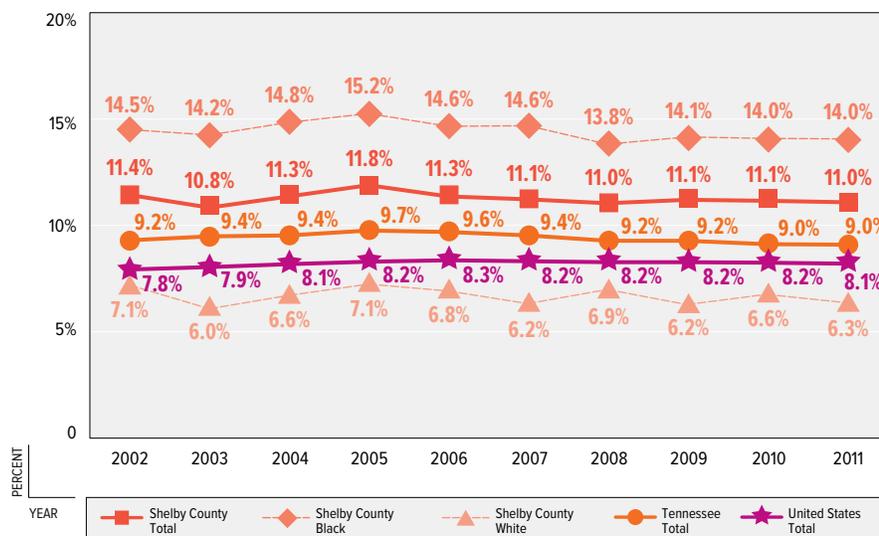


FIGURE 4:  
Percent of Low Birth Weight Babies by Race, Shelby County, Tennessee & United States, 2002–2011

Source: Tennessee Department of Health, 2002–2010<sup>31</sup>, National Center for Health Statistics, 2009<sup>34</sup>, National Center for Health Statistics, 2011<sup>35</sup>

## Teenage pregnancies have declined in recent years.

Teen pregnancy and childbearing can have substantial long-term effects on children, such as poor academic achievement, incarceration, and unemployment as an adult.<sup>8</sup> The *teen birth rate* is expressed as the number of births per 1,000 females aged 15–19. Nationally, the birth rate among adolescent females in 2011 decreased to the lowest rate ever recorded (31.3 per 1,000). This decline is attributed to delays in age at first intercourse and increased use of contraceptive methods.<sup>4</sup>

In Shelby County:

- 1,802 infants (13 percent of all births) were born to teenagers (age 15–19), for a teen birth rate of 51 per 1,000 teens during 2011.
- The teen birth rate has declined by 26 percent since 2008 but remains above the national rate in 2011 (31.3 per 1,000).
- Substantial racial disparities persist in teen birth rates: black teens have a birth rate over twice the rate among white teens (FIGURE 5).

FIGURE 5 highlights the fact that teen birth rates continue to decline in Shelby County.

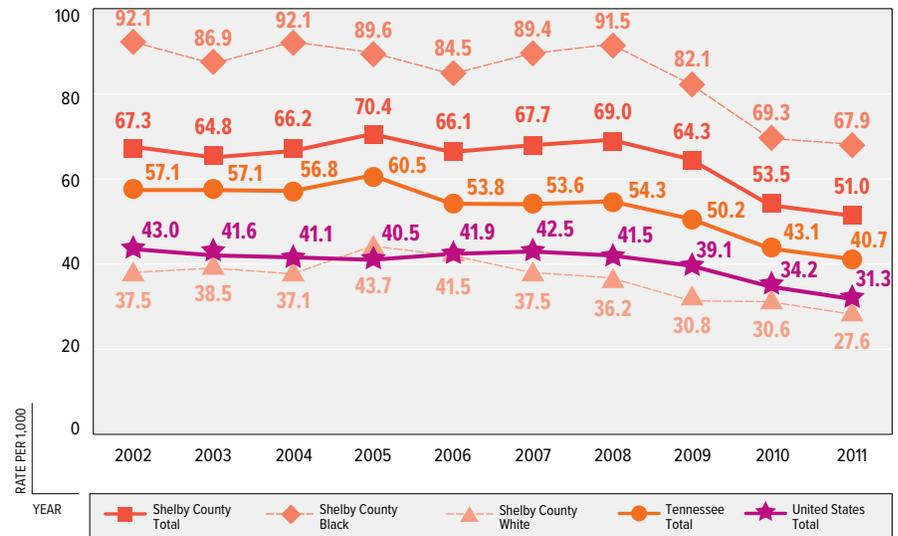
Adolescent abortion trends are also important measures to monitor progress in reducing pregnancies among females 15–19 years;<sup>9</sup> the rate of *induced termination of pregnancy* is expressed as the number of abortions per 1,000 females.

In Shelby County:

- During 2010, 4,551 induced terminations were reported, and approximately 14 percent (n=618) occurred among teens aged 15–19 years (not shown).<sup>10</sup>
- From 2008–2010, the rate of induced termination of pregnancy among females 15–17 and 18–19 years declined by 24 percent and 28 percent, respectively (not shown).<sup>10</sup>

FIGURE 5:  
Birth Rate per 1,000 Females Age 15–19 Years by Race, Shelby County, Tennessee & United States, 2002–2011

Source: Tennessee Department of Health, 2002–2011<sup>31</sup>; National Center for Health Statistics, 2009<sup>34</sup>, National Center for Health Statistics, 2011<sup>35</sup>, American Community Survey, 2002 – 2009, 2011<sup>36</sup>, United States Decennial Census, 2010<sup>37</sup>



# STD rates among adolescent females indicate the risk for unintended pregnancy.

Rates of sexually transmitted diseases (STDs) can indicate the presence of risky sexual behaviors and consequently unintended pregnancy among adolescents.

Trends in adolescent female STD rates are shown in FIGURE 6:

- The Chlamydia rate among females aged 15–19 years in Shelby County peaked in 2009 and has since declined by 23 percent. The national Chlamydia rate among females 15–19 years has not shown the same declining trend; however, the rate among Shelby County females remains 3.5 times higher than the national rate in 2011.
- The Gonorrhea rate among females aged 15–19 years in Shelby County showed a consistent decline by 27 percent between 2007 and 2010 but still remains over four times greater than the national female Gonorrhea rate in 2011.

The Youth Risk Behavior Survey, a national-based survey implemented by the Centers for Disease Control and Prevention, has been administered bi-annually by Memphis City Schools since 2003.

According to the high school survey results:

- In 2011, 37 percent of female survey participants reported having sex with at least one person in the past three months; this finding is significantly lower than 2005 (44.2 percent) (not shown).<sup>11</sup>
- Since 2007, the percentage of females not using birth control pills has declined (from 91.4 percent to 86.7 percent), and the percentage of females not using a condom during last sexual intercourse has increased (from 30.8 percent to 34.8 percent), but these changes are not statistically significant (not shown).<sup>11</sup>

FIGURE 6 shows that the rates of Chlamydia and Gonorrhea among teen girls in Shelby County have declined, but still remain higher than national rates.

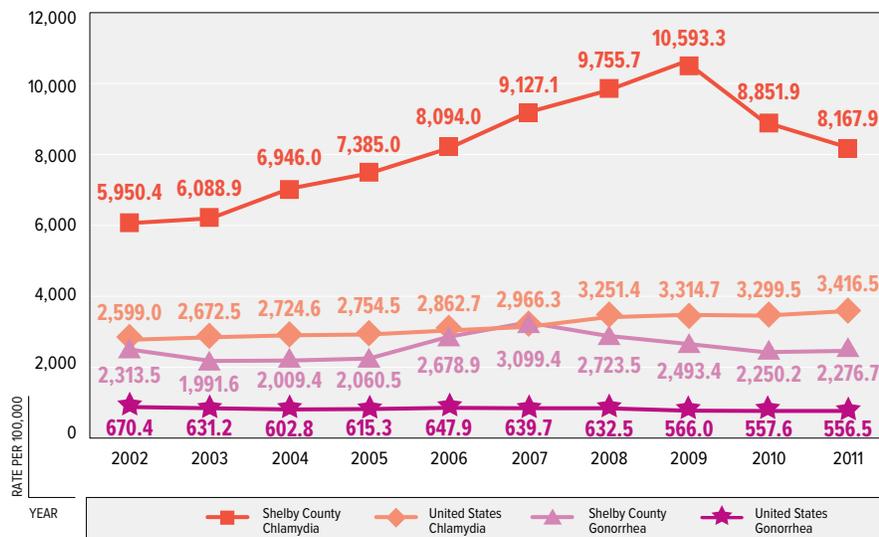


FIGURE 6:  
Chlamydia & Gonorrhea Rate per 100,000 among Females Age 15–19 Years, Shelby County & United States, 2002–2011

Source: American Community Survey, 2002–2009, 2011<sup>36</sup>, United States Decennial Census, 2010<sup>37</sup>, Tennessee Department of Health, Office of Policy, 2002–2011<sup>38</sup>, Centers for Disease Control and Prevention, 2002–2011<sup>39</sup>

## Reduction of perinatal HIV and congenital syphilis are key targets to promote maternal and child health outcomes.

Prevention of perinatally acquired HIV and congenital syphilis infections are two objectives represented among the Healthy People 2020 Goals.<sup>1</sup> Mother-to-child transmission of HIV can occur during pregnancy, labor, delivery or breastfeeding. Since the mid-1990s, HIV testing and preventive interventions have resulted in more than a 90 percent decline in the number of children acquiring perinatal HIV in the United States.<sup>12</sup> In Shelby County, the number of perinatal infections peaked at 10 cases during 1999. Since then, less than five cases have been diagnosed each year, and zero infections were identified during 2011. Observed racial disparities in access to prenatal care are also reflected in the burden of perinatal HIV; since 2000, more than 90 percent of newly diagnosed infections have been among non-Hispanic black infants (not shown).<sup>13</sup>

Syphilis can also be transmitted to a baby during pregnancy. National trends in female primary and secondary syphilis are usually followed by similar patterns in the incidence of congenital syphilis.<sup>14</sup> This trend is also observed in Shelby County during the past two decades. As the number of female primary and secondary syphilis cases has declined by over 90 percent between 1992 and 2011, the number of congenital syphilis cases has also declined by over 80 percent during this same time period. Despite these reductions, the congenital syphilis rate during 2011 (50 per 100,000 live births) was more than five times higher than the Healthy People 2020 objective (9.1 per 100,000 live births) (not shown).<sup>15</sup>

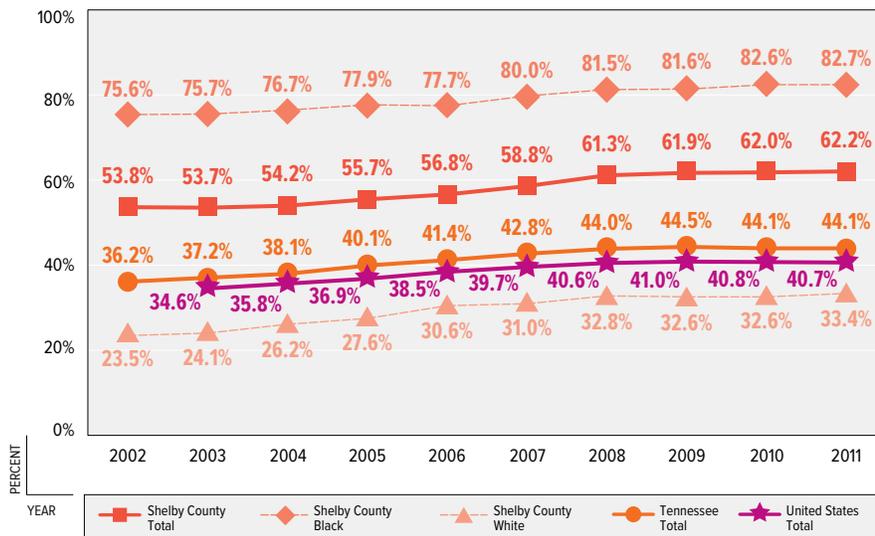


FIGURE 7:  
Percent of Births to Unmarried  
Parents by Race, Shelby County,  
Tennessee & United States,  
2002–2011

Source: Tennessee Department of Health, 2002–2011<sup>31</sup>, National Center for Health Statistics, 2011<sup>35</sup>, CDC Wonder, 2003–2009<sup>40</sup>

## Births to unmarried mothers continue to increase.

Children of unmarried mothers are at higher risk for adverse birth outcomes than children born to married women.<sup>16,17</sup> In addition, children born to single-mothers tend to have fewer social and financial resources and more academic, emotional and behavioral problems.<sup>18,19</sup> In Tennessee, infants born to unmarried mothers have an infant mortality rate that is up to twice that of infants born to married mothers.<sup>20</sup>

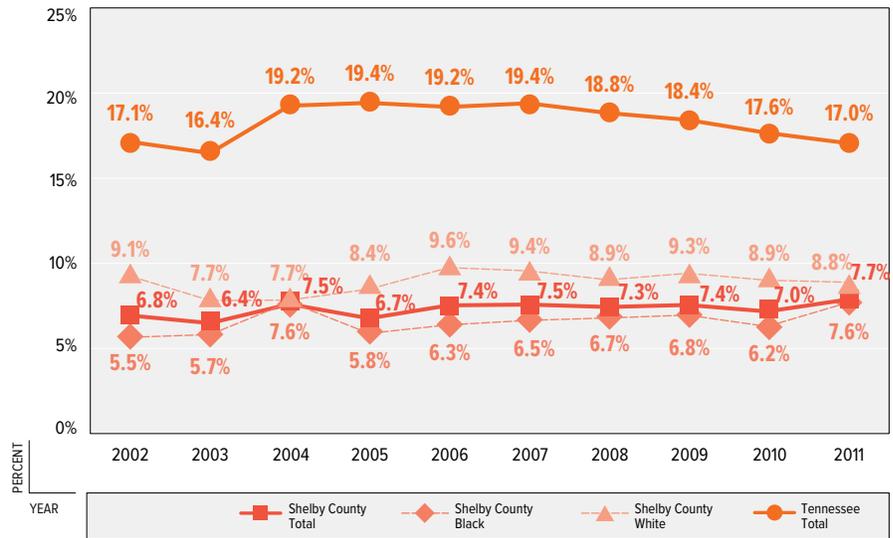
In Shelby County:

- The percentage of births to unmarried mothers has increased from 53.8 percent in 2002 to 62.2 percent in 2011 (FIGURE 7).
- Racial disparities among births to unmarried mothers are apparent; 82.7 percent of births among black women were to unmarried women, compared to 33.4 percent among white women in Shelby County. (FIGURE 7).

FIGURE 7 highlights the persistent racial disparities among births to unmarried mothers in Shelby County.

FIGURE 8:  
Percent of Mothers Who Reported Smoking During Pregnancy by Race, Shelby County & Tennessee, 2002–2011

Source: Tennessee Department of Health, 2002–2011<sup>21</sup>



## Smoking during pregnancy remains low.

Smoking during pregnancy is associated with increased risk for preterm delivery, low birth weight, and perinatal mortality, including stillbirths, neonatal deaths, and sudden infant death syndrome (SIDS).<sup>21</sup> Additionally, women who smoke are less likely to breastfeed their infants than women who do not smoke.<sup>22</sup>

In Tennessee, the infant mortality rate among mothers who smoked during pregnancy is higher than that of non-smoking mothers (13.4 vs. 7.7 per 1,000 births).<sup>20</sup>

FIGURE 8 indicates that prenatal smoking continues to be less common in Shelby County than across Tennessee:

- Statewide, the percentage of mothers who smoked during pregnancy (17 percent) was more than twice the percentage for Shelby County (7.7 percent).
- The trend in prenatal smoking among Shelby County mothers has remained relatively stable around 7 percent in the past six years, but increased from 7 percent in 2010 to 7.7 percent in 2011.
- Smoking during pregnancy is consistently higher among white mothers than black mothers in Shelby County; however, the percent of black mothers smoking during pregnancy increased in 2011 (from 6.2 percent in 2010 to 7.6 percent in 2011) while the percent of white mothers smoking during pregnancy remained stable.

FIGURE 8 indicates that prenatal smoking continues to be less common in Shelby County than across Tennessee.

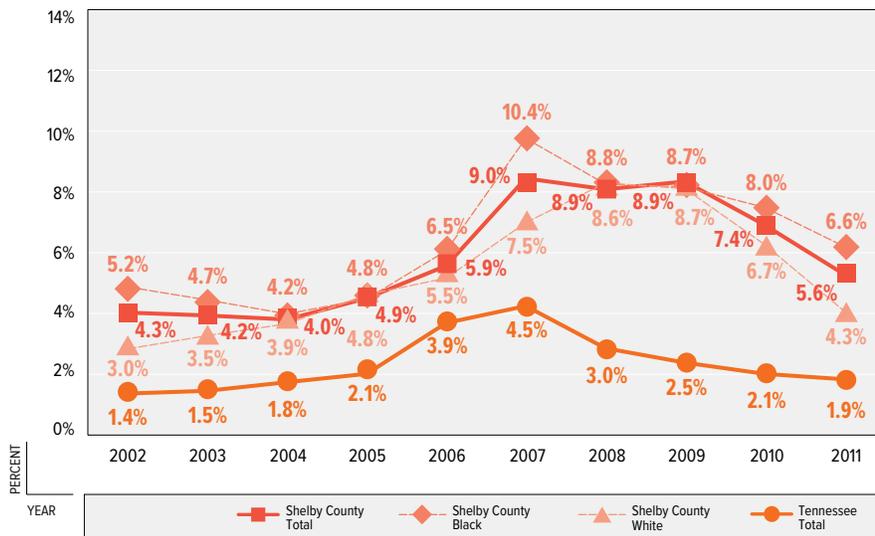


FIGURE 9:  
Percent of Mothers Who Report Having Received No Prenatal Care, Shelby County & Tennessee, 2001–2011

Source: Tennessee Department of Health, 2001–2011<sup>21</sup>

## The percentage of mothers receiving no prenatal care continues to decline.

Poor use of prenatal care has been associated with increased risk for premature and low birth weight births, infant mortality and maternal mortality.<sup>23</sup>

FIGURE 9 presents yearly percentages of mothers who had no prenatal care documented on the infants' birth certificate:

- In 2011, 5.6 percent of Shelby County mothers had no prenatal care, down from 8.9 percent in 2009.
- The percentage of black mothers and white mothers not receiving prenatal care also declined from 2009–2011, but the lack of prenatal care remains higher among black mothers (6.6 percent) than white mothers (4.3 percent).
- As in previous years, the percentage of women not receiving prenatal care is higher in Shelby County than across the state (5.6 percent vs. 1.9 percent).

There are often socio-demographic barriers to accessing prenatal care, including poverty, adolescent age, non-English speaking, being unmarried, and having less than a high school education.<sup>23</sup> Nationally, 2.5 percent of mothers with a bachelors degree received late or no prenatal care, compared to 11.6 percent of mothers who had less than a high school diploma.<sup>4</sup> This disparity is also apparent in Shelby County.

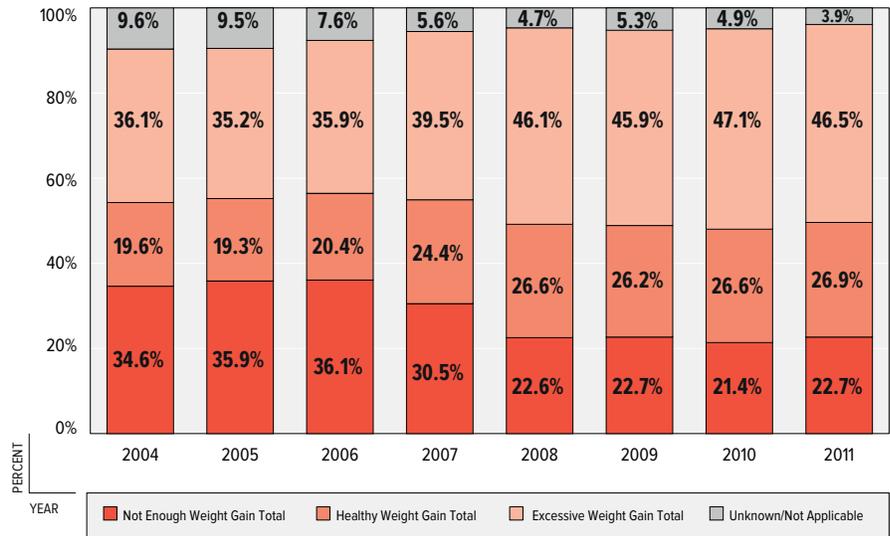
Among women who had no prenatal care in 2011:

- 54.8 percent had less than a high school diploma, which is higher than the percentage of women who did receive prenatal care and had less than a high school diploma (22.2 percent) (not shown).
- 17.3 percent were less than 20 years of age, which is higher than the percentage of women less than 20 years of age who did receive prenatal care (12.9 percent) (not shown).
- 85.8 percent were unmarried, which is higher than the percentage of unmarried women who did receive prenatal care (60.8 percent) (not shown).

FIGURE 9 illustrates the continuing decline in the percentages of Shelby County and Tennessee mothers who received no prenatal care.

FIGURE 10:  
Percent of Mothers by  
Pregnancy Weight Gain Status,  
Shelby County, 2004–2011

Source: Tennessee Department of Health,  
2004–2011<sup>21</sup>



## Excessive weight gain during pregnancy is a pertinent health risk for mothers and infants.

FIGURE 10 highlights the prevalence of insufficient and excessive weight gain during pregnancy among Shelby County mothers.

Obesity among American women of childbearing age has more than doubled since the 1970s.<sup>24</sup> In the United States, more than half of pregnant women are overweight or obese, putting them at risk for pregnancy complications such as gestational diabetes, hypertension, preeclampsia, cesarean delivery, and postpartum weight retention.<sup>25</sup>

Excess gestational weight gain is also associated with maternal and child health outcomes, including preterm and low birth weight births, large-for-gestational-age infants, and cesarean delivery.<sup>26</sup>

FIGURE 10 shows patterns of pregnancy weight gain among Shelby County mothers from 2004 through 2011, based on Institute of Medicine recommendations.<sup>24</sup>

In 2011:

- 46.5 percent of pregnant mothers experienced excessive weight gain.
- Almost 23 percent did not gain enough weight.
- About 27 percent had shown healthy weight gain.

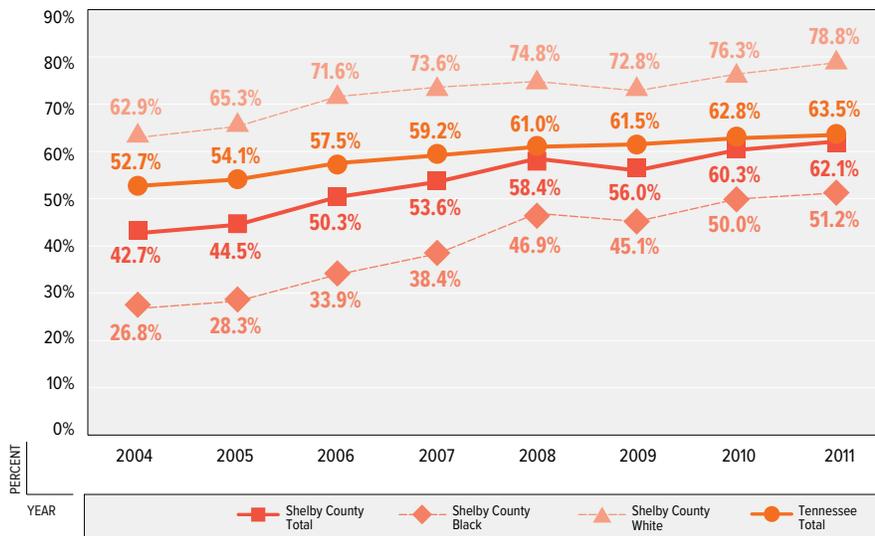


FIGURE 11:  
Percent of Mothers Who  
Initiated Breastfeeding, Shelby  
County & Tennessee, 2004–  
2011

Source: Tennessee Department of Health,  
2004–2011<sup>31</sup>

## Initiation of breastfeeding is increasing.

Breast milk is the most appropriate source of nutrition for infants, and it provides vital health benefits to both the infant and mother. The American Academy of Pediatrics (AAP) recommends exclusive breastfeeding during a baby's first six months and continued breastfeeding for at least the first year.<sup>27</sup> Infants who are not breastfed are more likely to suffer poor health outcomes, including infections, asthma, diabetes, obesity, leukemia and sudden infant death syndrome. Benefits for mothers include reduced risk of breast cancer, ovarian cancer, diabetes, and postpartum depression.<sup>28,29</sup>

In 2009, national survey data shows that 77 percent of new mothers initiated breastfeeding, but only 48 percent were breastfeeding 6 months later, and this declined to 26 percent by 12 months. Additionally, only 16 percent of new mothers followed the AAP recommendation to exclusively breastfeed (give only breast milk) for babies younger than 6 months.<sup>30</sup>

Breastfeeding statistics for Shelby County are collected from birth certificate forms, which include information on whether new mothers have begun breastfeeding by the time they leave the hospital.

FIGURE 11 indicates:

- Mothers who initiated breastfeeding in Shelby County increased from 42.7 percent in 2004 to 62.1 percent in 2011.
- The percentage of mothers who initiated breastfeeding in Shelby County (62.1 percent) was slightly lower than Tennessee (63.5 percent) during 2011.
- Initiation of breastfeeding is consistently higher among white mothers than black mothers in Shelby County, where 78.8 percent of white mothers initiated breastfeeding in 2011 compared to 51.2 percent of black mothers.

FIGURE 11 highlights the substantial increase from 2004 to 2011 in the percentage of new mothers in Shelby County who initiate breastfeeding.

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# A positive home environment is the foundation for healthy brain development.

Children's surroundings have a huge impact on their well-being. A healthy, safe home is essential for a child to grow, learn and explore. A problematic home environment, by contrast, can have detrimental effects on a child's intellectual, social and emotional development. Research has shown that a negative home environment during the early years of life can lead to impaired development, including

- poor language skills
- behavioral problems
- deficits in school readiness<sup>1-3</sup>

A child's early home environment has also been linked to longer-term outcomes, including

- high school graduation
- teen parenthood
- adult employment and earnings<sup>4-6</sup>

Brain imaging studies suggest that growing up in a disadvantaged or stressful environment can cause the brain to develop differently. Studies of young children have identified distinct patterns of brain activity associated with family income and other socio-economic factors that relate to social and emotional development, cognitive ability, and learning and memory.<sup>7-9</sup>

## Family poverty puts children at a disadvantage.

Each year, around 14,000 babies are born in Shelby County and more than half are born into families with incomes below the poverty line. Poverty can have a profound effect on a child’s development and later life outcomes.

Low-income children have fewer enriching experiences and learning resources than higher-income children. While parents with stable and sufficient incomes are able to provide their children with plenty of books, enriching activities and high-quality childcare, low-income parents find it more difficult to provide their children with experiences that support optimal brain development.<sup>10</sup>

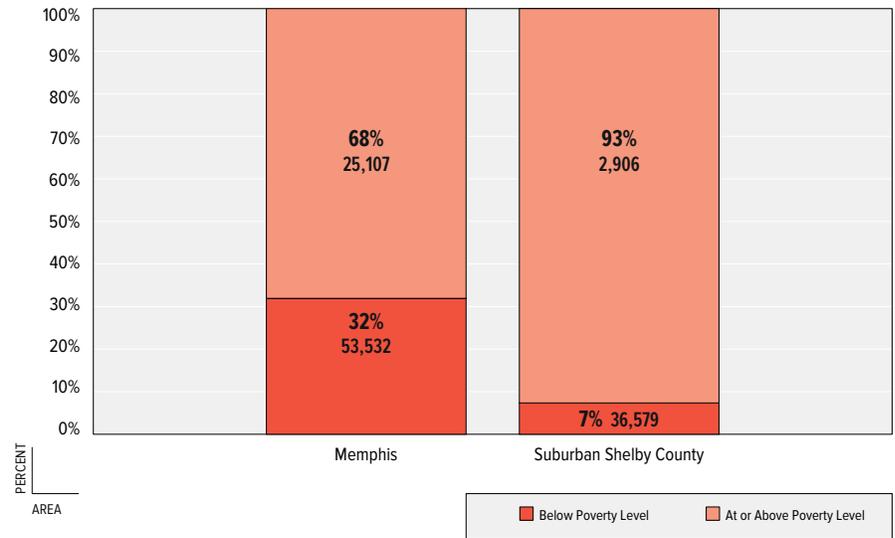
But lack of money is only part of the story. The stress that often accompanies economic hardship means that low-income parents often have fewer social and emotional resources as well. For instance, poor and low-income mothers are more likely to be affected by stress, anxiety and depression, which can undermine positive parenting.<sup>11,12</sup> Young children in low-income families typically hear fewer spoken words than their middle-income peers, and they also hear a higher proportion of negative statements.<sup>13</sup>

FIGURE 1 shows that families with children in Memphis are more likely to live in poverty than suburban Shelby County families with children.

FIGURE 1 shows the poverty status of families with children living in Shelby County. Poverty is not evenly distributed across Shelby County: 32 percent of Memphis families with children are below the poverty line, compared to only 7 percent of suburban Shelby County families with children.

FIGURE 1:  
Percent & Number of Families With Children by Poverty Status, Memphis & Suburban Shelby County, 2011

Source: US Census Bureau, American Community Survey, 2007–2011, B17010



## Better-educated parents tend to create more positive home environments.

Parents' educational attainment has an important influence on the environments they create for their children, and it is a predictor of cognitive and behavioral outcomes.<sup>14</sup>

Studies have linked higher levels of maternal education with

- more parental warmth and responsiveness<sup>14</sup>
- more learning materials in the home<sup>15</sup>
- increased school readiness<sup>15</sup>
- improved educational and employment outcomes throughout life<sup>16</sup>

Education influences parenting knowledge and beliefs, which, in turn, affect parenting practices and the quality of home environments.<sup>15,17</sup>

FIGURE 2 shows educational attainment for Shelby County families. 16 percent of Memphis families are headed by an adult with less than a high school education, compared to 5 percent of suburban Shelby County families. 24 percent of Memphis families are headed by an adult with a Bachelor's degree or higher, compared to 46 percent of suburban Shelby County families.

FIGURE 2 shows that Memphis families are more likely than suburban Shelby County families to be headed by an adult with less than a high school education.

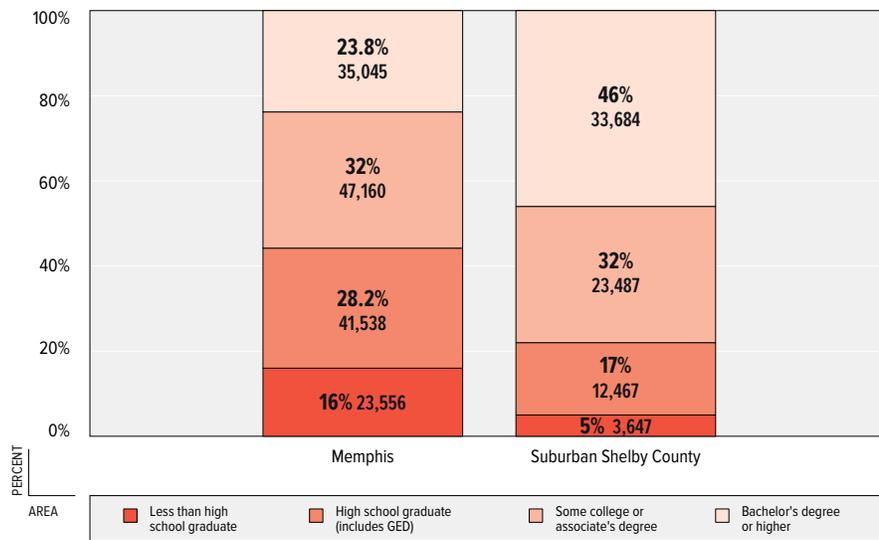


FIGURE 2:  
Percent & Number of Families by Educational Attainment of Householder, Memphis & Suburban Shelby County, 2011

Source: US Census Bureau, American Community Survey, 2007–2011, B17018

## Maternal depression is a threat to early childhood development.

Maternal postpartum depression is the most common medical complication of childbearing. While most women experience some symptoms of depression in the first week or two after giving birth, 10 to 15 percent of new mothers develop major depression—often lasting 6 months or longer.<sup>18–20</sup>

Common symptoms of postnatal depression include sleep disturbances, feelings of guilt and loss of interest in daily activities. Together, these symptoms often make it impossible for new mothers to provide positive experiences that encourage healthy brain development. This can lead to negative behavioral outcomes, including withdrawal, passivity and problems with self-regulation.<sup>21,22</sup>

Figure 3 indicates that around 10 percent of mothers in the CANDLE study were at risk for maternal depression.

Early exposure to disengaged or unresponsive parenting is also predictive of poorer academic outcomes later in childhood. A longitudinal study showed lower IQ scores, more attention problems, and more learning difficulties in children whose mothers suffered from depression at three months postpartum.<sup>23</sup>

The Conditions Affecting Neurocognitive Development and Learning in Early Childhood (CANDLE) is an ongoing study of approximately 1,500 Shelby County women and their young children. Mothers enroll in their second trimester and participate until their child is three years old.

Mothers in the CANDLE study complete a brief assessment to screen for possible depression at 4 weeks after birth and again at 12 months. While not an actual diagnosis, an “At Risk” score indicates that a mother is likely to be suffering from post partum depression and that further assessment is recommended.

FIGURE 3 indicates that at four weeks postpartum, more than 11 percent of mothers scored “At Risk.” At 12 months postpartum, almost 10 percent scored “At Risk.”

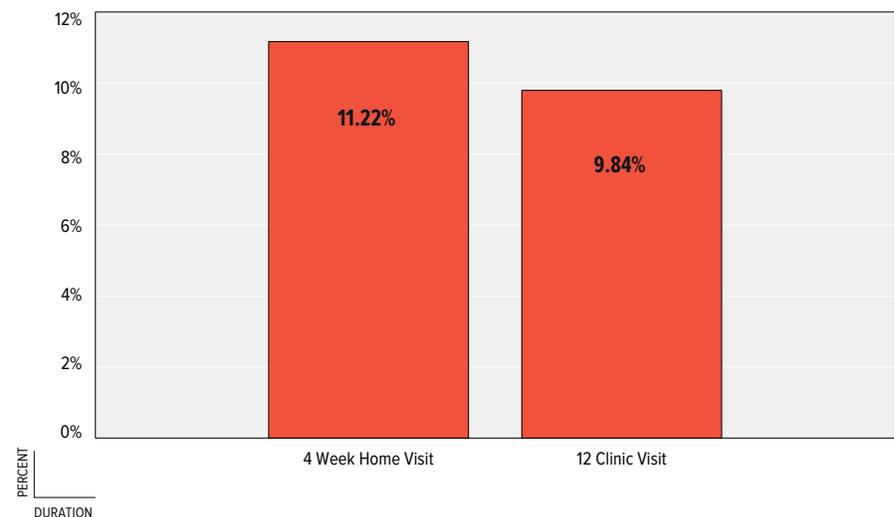


FIGURE 3:  
Percent of CANDLE Mothers  
“At Risk” for Depression,  
Shelby County, 2012

Source: Tylavsky, F., Atkins, J. K., Atkins, R., Bush, A., et al. (2013). Conditions Affecting Neurocognitive Development and Learning in Early Childhood. Unpublished

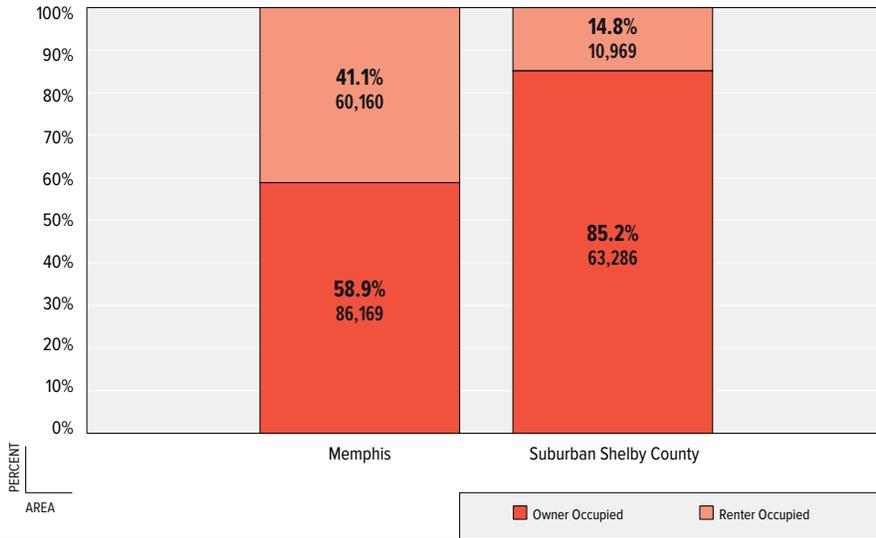


FIGURE 4:  
Percent & Number of Families  
by Tenure, Memphis &  
Suburban Shelby County, 2011

Source: US Census Bureau, American Community Survey, 2007–2011, B11012

## Home ownership affects child and adolescent outcomes.

Home ownership is beneficial to families and to the communities in which they live. Recent studies show that it is also specifically associated with child well-being. There is a growing literature that suggests family home ownership improves early cognitive and behavioral development.

For example, a recent study shows that living in a home-owning family is associated with higher educational attainment at age 7.<sup>17</sup> Others show that the benefits of home ownership continue into adolescence and young adulthood. Children who grow up in owner-occupied homes are less likely to drop out of high school and less likely to become a teen parent.<sup>5,6</sup>

FIGURE 4 shows the distribution of home ownership among Shelby County families. 59 percent of Memphis families own their homes, compared to 85 percent of suburban Shelby County families.

As shown in FIGURE 4, Memphis has a lower proportion of home-owning families than suburban Shelby County.

## Crowded living conditions can interfere with healthy development.

Overcrowding is a risk factor in children’s development. Crowding tends to reduce the quality of the caregiving environment, and it can affect children even during infancy.<sup>24</sup>

Residential density (number of people per room) has been linked with cognitive and behavioral outcomes as well as physical health.<sup>25</sup>

Crowding is also associated with parenting behaviors, even after accounting for income and education. In families living in crowded conditions, parents tend to be less sensitive, less verbally responsive, and more punitive.<sup>26</sup>

Overcrowding is defined as more than one person per room.<sup>27</sup> According to data from the U.S. Census Bureau, crowding does not appear to be widespread in Shelby County.

Still, there are significant differences in risk based on family characteristics:

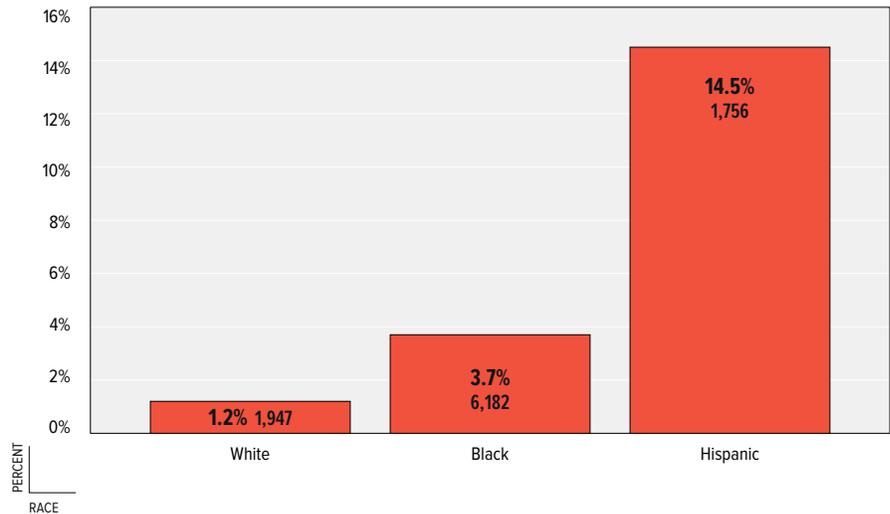
- Black families are three times more likely than white families to live in crowded conditions (3.7 percent vs. 1.2 percent).
- Almost 15 percent of Hispanic families live in overcrowded conditions.

FIGURE 5 shows that only 1.2 percent of white homes are overcrowded, compared to 3.7 percent of black homes and 14.5 percent of Hispanic homes.

FIGURE 5 shows that only 1.2 percent of white homes are overcrowded, compared to 3.7 percent of black homes and 14.5 percent of Hispanic homes.

**FIGURE 5:**  
Percent & Number of Households by Overcrowding by Race, Shelby County, 2011

Source: US Census Bureau, American Community Survey, 2007–2011, B25014



## Grandparent-headed families may need extra support to ensure positive child outcomes.

Across the U.S. the number of children living with their grandparents has increased significantly in the past several years. This phenomenon is a significant concern because family structure has been shown to have a profound impact on child well-being—most significantly on physical and mental health.<sup>28</sup>

Grandparent-headed households often emerge due to negative life events. For example, children who receive primary care from their grandparents are more likely to have a teenage parent, a parent with substance abuse issues, an incarcerated parent, or a parent with health problems.<sup>29</sup> Because of these risk factors, children from grandparent-headed households are more likely to experience emotional and behavioral difficulties than children living in a traditional home with their biological parents.<sup>30</sup>

Despite these risks, grandparent-headed families can be a positive alternative to foster care or an unstable parental home. Grandparents have been shown to provide a more caring and stable environment than foster care or other alternatives.<sup>31</sup> However, because of the adverse circumstances from which these families often emerge, extra support services can help prepare grandparents for caregiving responsibilities and ensure improved outcomes for their grandchildren.

FIGURE 6 shows the distribution of households with a grandparent responsible for grandchildren under 18 in Memphis and suburban Shelby County. Two percent of suburban Shelby County homes are headed by grandparents, compared to 4.5 percent of Memphis homes.

FIGURE 6 shows that Memphis has a higher proportion of grandparent-headed families than suburban Shelby County.

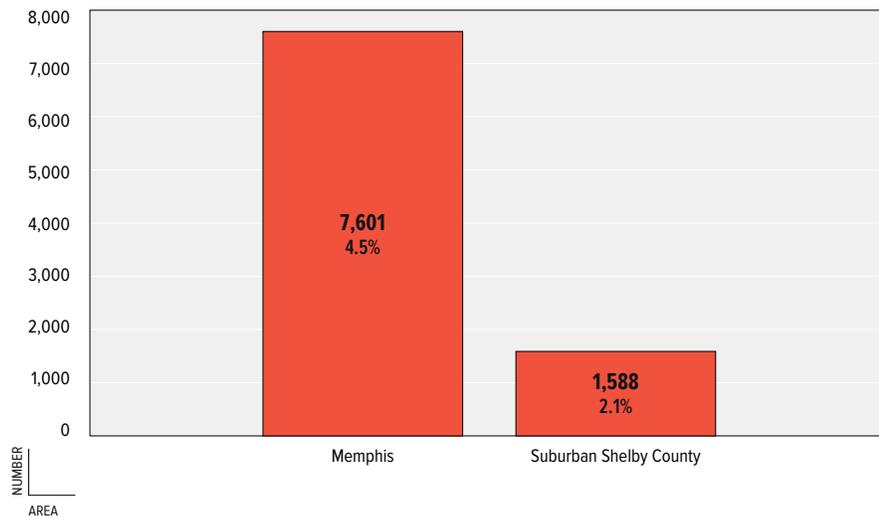
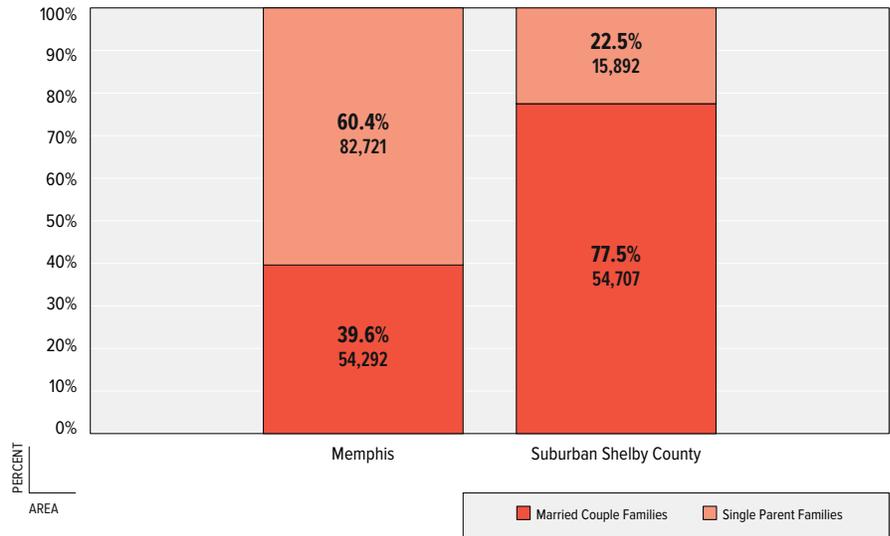


FIGURE 6:  
Number & Percent of  
Households with Grandparent(s)  
Responsible for Children Under  
18 Years, Memphis & Suburban  
Shelby County, 2011

Source: US Census Bureau, American Community Survey, 2007–2011, B10063

FIGURE 7:  
**Percent & Number of Families  
 by Presence of Children by  
 Family Type, Memphis &  
 Suburban Shelby County, 2011**

Source: US Census Bureau, American Community Survey, 2007–2011, B09002



## Research has linked child well-being to family type.

Research over the past several decades has shown that family structure is a strong predictor of child outcomes. Specifically, growing up with only one parent has been associated with a number of negative outcomes.

Compared to children living with their married parents, children in single-parent families are at a greater risk of

- behavioral issues<sup>32</sup>
- poor health<sup>33</sup>
- low self-esteem<sup>34</sup>
- alcohol and substance abuse<sup>35</sup>
- risky sexual behavior<sup>36</sup>
- high school dropout<sup>37</sup>

As shown by FIGURE 7, Memphis has a lower percentage of families with married parents compared to suburban Shelby County.

An enriching and stimulating home environment fosters healthy growth and brain development by providing a child with love, emotional support, and opportunities for learning and exploration. In families where only one parent is present, there are often fewer economic and emotional resources. Competing demands at work and at home can hinder a parent’s ability to provide an environment conducive to learning and development.<sup>38</sup>

FIGURE 7 compares family structure in Memphis and suburban Shelby County. In Memphis, married families make up about 40 percent of families with children. In suburban Shelby County, 77.5 percent of families with children have married parents.



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# Early education is critical for life-long success.

Experiences during a child's earliest years will shape the development of fundamental cognitive, behavioral, and language skills that are necessary for learning and thriving upon reaching school.<sup>1</sup> During this crucial period, children are developing the foundations for later learning, including how to understand and use language, how to appropriately interact with others, healthy self-confidence, and appropriate self-control.

Exposure to negative early experiences, such as poverty and stress, can adversely affect early development. Research indicates that young children who are raised in poverty are exposed to fewer words, and reach school with smaller vocabularies, than children who are raised in middle-income families.<sup>2,3</sup> Poor and low-income children tend to have fewer books and fewer early learning experiences than children raised in middle-class or upper-class homes.<sup>4-6</sup> As a result, disadvantaged children often reach kindergarten with greater risk for developmental delays.

Research shows that, upon reaching kindergarten, children who have grown up in poverty can be an entire year behind non-poor children on certain cognitive measures.<sup>7</sup> These differences in early development can have life-long implications, potentially translating into

- lower academic achievement
- increased risk of high school dropout
- increased dependence on public assistance
- increased risk of criminality
- lower quality of life<sup>8,9</sup>

However, positive early childhood experiences promote positive early development and the acquisition of fundamental skills, and can help to reduce the negative influence of developmental risk factors, such as poverty.<sup>10</sup>

## High-quality early education and child care can help promote positive developmental experiences for young children.<sup>11</sup>

Pre-kindergarten (pre-k), Head Start, and other high-quality structured child care can facilitate children's readiness to learn upon entering kindergarten, and thus support future academic success. Years of tracking incoming kindergartners in Memphis City Schools (MCS) has demonstrated that children whose parents reported they attended MCS Pre-K, Head Start, or other structured child care consistently scored higher on measures of kindergarten readiness than children who spent the year prior to kindergarten at home or in the care of a relative.<sup>12</sup>

Pre-kindergarten programs have recently garnered a large amount of interest at the local, state, and national levels. This intense focus has caused many, from parents to policymakers, to wonder exactly how pre-kindergarten programs help support young children, and whether certain children receive the greatest benefit. Data are now available to help answer these questions, in a school district that has nearly doubled its available pre-k slots over the past eight years.

## While progress has been made to offer greater access to pre-k in Memphis, there is still greater need than there are available slots.

In MCS last year, 4,100 pre-k slots were available to families with four-year-old children, while approximately 9,000 children would enroll in kindergarten the following year. Because of this shortage, families with the greatest need are given enrollment priority. MCS determines pre-k enrollment priority by screening children's developmental level and by assessing financial need and other research-based family risk factors associated with lower kindergarten readiness among children.<sup>13-16</sup>

These risk factors are:

- growing up in a family that struggles financially
- teenage motherhood
- parents with less than a high school education
- having only one parent at home
- children's difficulty with language

Among last year's 3,644 applicants to MCS Pre-K for whom data are available,

- most children (71%) had one or two risk factors
- about 14% had three or four risk factors
- about 15% of these children had no risk factors

(Only three children demonstrated all five family risk factors; therefore, this group was not included in the analysis.<sup>17</sup>)

## The Peabody Picture Vocabulary Test measures children’s language skills as they enter pre-k and again at the end of the pre-k year.

After enrollment into pre-k, children’s receptive vocabulary (vocabulary that is understood by the child) is assessed as an indicator of language acquisition. The Peabody Picture Vocabulary Test (PPVT) is used by MCS at the beginning and end of pre-k, and is a common, age-normed assessment for receptive vocabulary. PPVT scores are standardized based on the child’s age. In other words, a child with the same standard score at age three and age five has been learning increasingly complex and developmentally appropriate vocabulary during those two years.

A PPVT standard score of 100 is equivalent to the 50th percentile, meaning that half of all test takers would be expected to score above 100, and the other half would be expected to score less than 100. A score between 85 and 115 indicates a score within normal limits. A score less than 85 would indicate a concern in the acquisition of vocabulary.

Because PPVT standard scores are interpreted the same way regardless of the age of the child, the scores of children who are of different ages (and therefore of different expected abilities) can be meaningfully compared over time.

## At the beginning of the pre-k school year, children with more family risk factors tended to score lower than children with fewer risk factors.

The first PPVT is given at the beginning of the pre-k school year. We found that children with more family risk factors scored lower, on average, than children with fewer risk factors. In fact, with each additional risk factor, children’s PPVT pretest scores decreased significantly, and the range of scores observed was remarkable. Overall, children with four family risk factors scored almost 33 points lower than children who had no risk factors.

FIGURE 1 shows that at the beginning of the pre-k year, children with more family risk factors had, on average, lower language test scores than children with fewer risk factors.

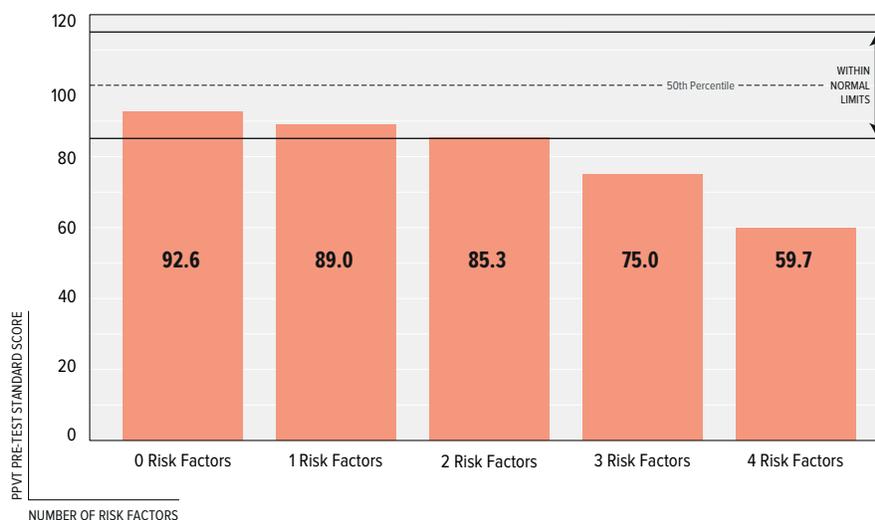


FIGURE 1:  
Beginning PPVT Scores by  
Number of Family Risk Factors,  
Memphis City Schools, 2012

Source: Memphis City Schools, Office of Evaluation.  
Unpublished Data 2012

The challenge facing the students served by the pre-k program is poignantly illustrated by examining the initial PPVT scores more closely. While the group averages for children with zero, one, or two risk factors are within normal limits for the PPVT, none of the groups reached the 50th percentile. Moreover, the average scores of children with 3 or more risk factors did not even reach the normal range. This is concerning because early vocabulary deficits may herald later deficits in reading comprehension, and could also indicate delays in language acquisition that warrant intervention.<sup>4</sup>

Furthermore, because these scores are averages for each of these categories, there were children in all groups who scored below the lower end of what is considered normal limits for the PPVT. For example, nearly one half of children with two risk factors scored below 85 points on the first PPVT. Therefore, these students must overcome large vocabulary deficits at the same time they are in the process of mastering the kindergarten curriculum.

## By the end of the pre-k year, students in all risk groups made gains on the PPVT.

The second PPVT is given at the end of the pre-k year. Scores from the second PPVT scores show that all five risk groups made gains on the PPVT by the end of the pre-k school year, demonstrating that children’s developing vocabularies were positively influenced over the pre-k year.

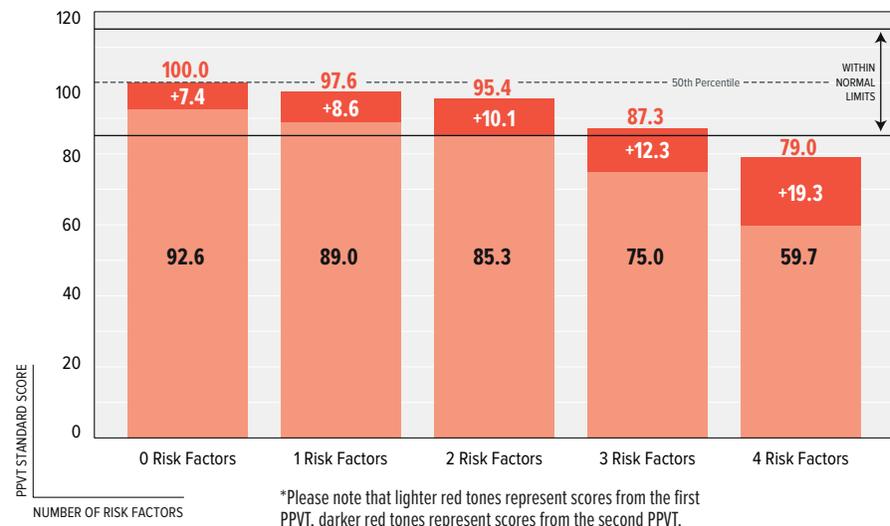
## Children with more family risks made larger PPVT gains during pre-k.

FIGURE 2 shows that performance gaps between higher-risk and lower-risk children were substantially reduced by the end of the pre-k year.

As the number of risk factors increased, differences in averages between the beginning and concluding test also increased. In other words, groups of students with more risk factors made larger gains in vocabulary acquisition, on average, over the course of the year. Despite the evident challenges faced by higher-risk children, their receptive vocabularies were substantially bolstered during the pre-k year.

FIGURE 2:  
Growth in PPVT Scores Over The Pre-Kindergarten Year by Number of Family Risk Factors, Memphis City Schools, 2012\*

Source: Memphis City Schools, Office of Evaluation. Unpublished Data 2012



## Gaps in PPVT scores between groups of children from different home environments remained at the end of the year.

Despite the remarkable gains made by higher-risk children, averages from the later PPVT remained below the average scores for children with fewer risks. Children from families with the most risk factors ended pre-kindergarten with scores below the lower limit for typical vocabulary acquisition, indicating potential concern. Only the group of children with no family risk factors reached the 50th percentile score.

However, performance gaps were substantially reduced by the end of the pre-k year: scores from the second PPVT indicate the overall gap between children with no risk factors and children with four risk factors was reduced from 32.9 points to 21 points – a difference of almost 12 points.

## Pre-k children made remarkable progress, but additional investments could promote even better outcomes.

Because PPVT standard scores account for the influence of age on vocabulary development, it is reasonable to assume that if children remained on the same trajectory at which they entered pre-k, their secondary PPVT scores at the end of pre-k would be very similar to their initial scores at the beginning of pre-k. Instead, all groups of children had substantially higher average scores at the end of the pre-k year, particularly those who had more risk factors and entered pre-k with the lowest scores. Therefore, the intervening year of pre-k clearly made positive and meaningful impact on the development of children's receptive language skills.

Ongoing support throughout kindergarten and early grades is important to help young children—particularly those at higher risk—continue to learn and thrive in school. Pre-k can provide meaningful developmental support to young children, but cannot remove pre-existing risk factors from the picture. A sustained effort to support all families with young children is vital to help blunt the negative effects these factors have on early development and future academic success.

These results suggest that all children, especially those at greatest risk for developmental delays, should receive meaningful support from pre-k programs and reach kindergarten with greater capacity to succeed and thrive in school. Moreover, other methods of supporting families and their young children's development are also important, particularly in the years before school begins. High-quality intervention in the earliest years yields the greatest return on investment by promoting optimal development, thereby helping to set young children on a positive early trajectory for success in school and in later life.<sup>1,18,19</sup>

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# Memphis Child Advocacy Center: helping victims become children again.

Child sexual abuse is widespread in our nation and in Shelby County. It can happen to children from any background and the consequences can be profound and long-lasting. For 20 years, the Memphis Child Advocacy Center has been at the forefront of combating child sexual abuse in Shelby County. The Child Advocacy Center supports safety for children through informed prevention, community collaboration, and a team approach to healing and justice for victims of child sexual and severe physical abuse.

The good news is that in the past 20 years, the number of children being abused is decreasing due to increasing public awareness of child sexual abuse as well as increased offender accountability and treatment.<sup>1</sup>

## Child Advocacy Centers: The frontline of child sexual abuse.

Not long ago, interventions for abused children were inconsistent and often re-victimized abused children and their families. In the 1980s, many professionals who worked with abused children began to call for a new approach.<sup>2</sup>

The child advocacy center model was created to increase collaboration among agencies, and the first child advocacy center was opened in Huntsville, Alabama in 1985. Multidisciplinary teams typically include forensic interviewers, child advocates, mental health professionals, medical clinicians, and representatives from child protective services, law enforcement, and the criminal justice system.

Child advocacy centers are child-friendly, supportive to non-offending parents and caregivers, and provide services which reduce the number of child interviews needed and improve coordination among professionals.<sup>2</sup>

Due to the positive results of this new coordinated team approach, child advocacy centers began opening across the country. The coordinated team approach

- decreases processing time for child sexual abuse cases.<sup>3,4</sup>
- improves felony prosecution rates.<sup>5</sup>
- increases the likelihood of children receiving forensic medical exams.<sup>3,6</sup>
- increases the rate of law enforcement involvement in child protection and substantiation of allegations.<sup>4,6</sup>

Not only does a coordinated investigation increase the ability of communities to hold perpetrators accountable for their actions, it also saves communities money. Return on investment of a multidisciplinary approach is \$3.33 for every dollar invested.<sup>7</sup> This multidisciplinary approach is now mandatory in many states including Tennessee.<sup>2,8</sup>

## The Memphis Child Advocacy Center is making a difference.

The Memphis Child Advocacy Center was the 14th child advocacy center formed in the United States. At the Memphis Child Advocacy Center (CAC), a full range of services are offered to children and their non-offending families members at no cost. The Center coordinates the local multidisciplinary Child Protection Investigation Team which includes representatives from the Tennessee Department of Children Services, local law enforcement, the District Attorney General's office, the Shelby County Rape Crisis Center, and Juvenile Court. The team reviews and determines the course of action for all reports of suspected sexual and severe physical abuse in Shelby County.

Typically, children come to the Memphis CAC for a forensic interview. Interviewers at the CAC are specially trained to conduct developmentally appropriate interviews yielding accurate information that can be used during investigation and prosecution. Due to the coordination among agencies, most children are interviewed only once, which spares them the trauma of having to re-tell their story multiple times.

The Memphis CAC offers victim advocacy and therapy services to children and their non-offending family members. Victim advocates help families understand the legal process and connect families to ancillary support services as needed. Our therapists offer trauma-focused cognitive-behavioral therapy, widely considered the best treatment available for sexually abused children.<sup>9</sup> With this high-quality evidence-based treatment, children who come through our doors are able to heal.

FIGURES 1 through 4 show the high level of parental satisfaction with the Memphis Child Advocacy Center.

The Memphis CAC regularly conducts satisfaction surveys with parents who bring their children to the center. The results indicate high levels of parent satisfaction:

- 79 percent strongly agreed that their child felt safe at the CAC (FIGURE 1).
- 82 percent strongly agreed that they were given information about the services and programs provided by the CAC (FIGURE 2).
- 81 percent strongly agreed that the interview process had been clearly explained to them (FIGURE 3).
- 71 percent strongly agreed that after their experience with the CAC, they understood their child’s situation (FIGURE 4).

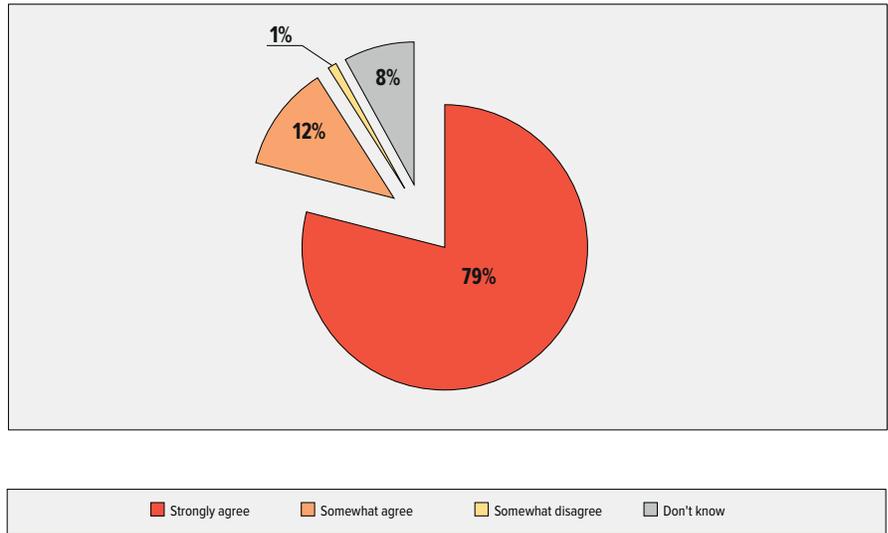


FIGURE 1:  
**My child felt safe at the center**

Source: Memphis Child Advocacy Center, Unpublished data, 2012

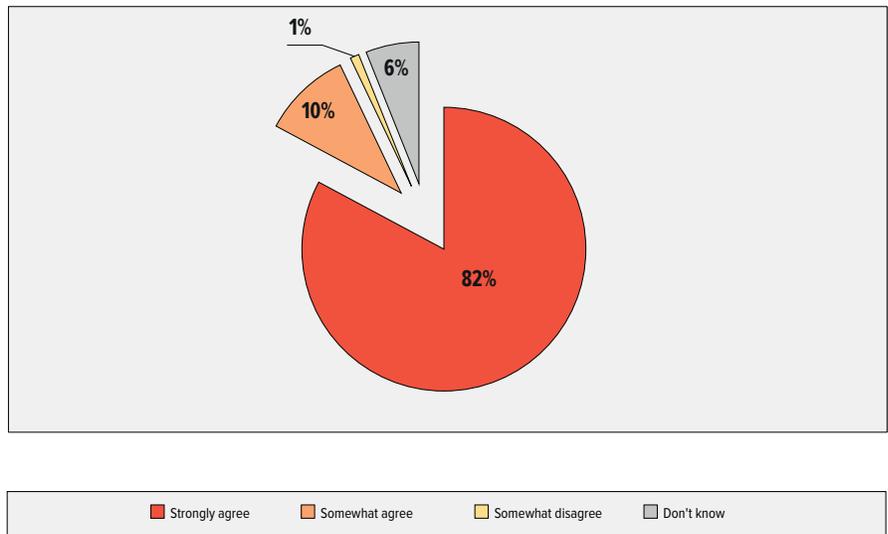


FIGURE 2:  
**I was given information about the various services and programs provided by the center**

Source: Memphis Child Advocacy Center, Unpublished data, 2012

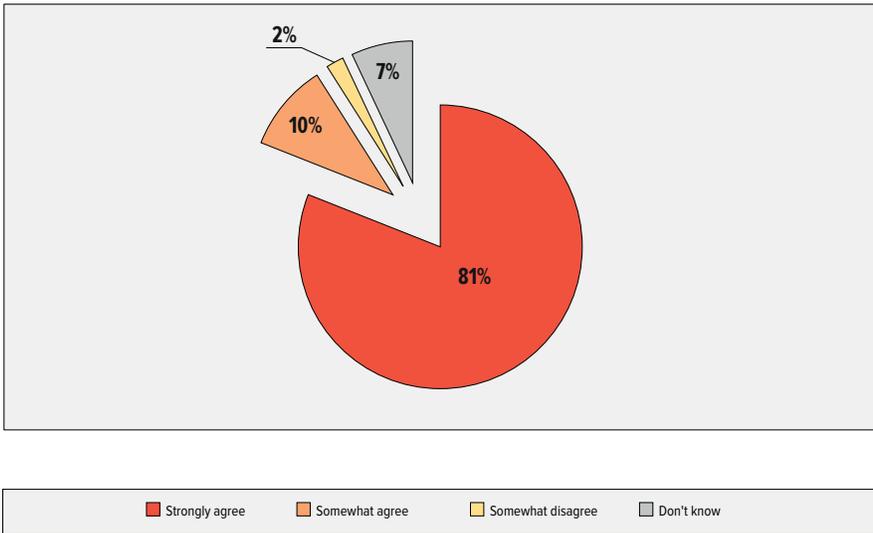


FIGURE 3:  
The process for the interview of my child at the center was clearly explained to me

Source: Memphis Child Advocacy Center, Unpublished data, 2012

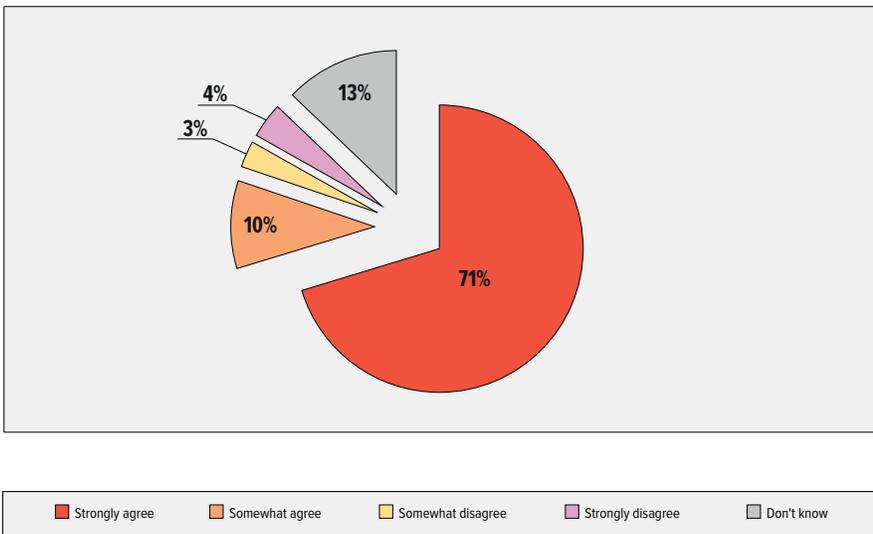


FIGURE 4:  
After our visit at the center today, I feel I know what to expect with the situation facing my child

Source: Memphis Child Advocacy Center, Unpublished data, 2012

## Effective prevention stops abuse before it occurs.

The Memphis CAC Prevention Team provides abuse prevention training to parents and adults who work with children. During the past decade, the field of child sexual abuse prevention has shifted from a child-focused approach to a public health approach that attempts to stop sexual abuse before it occurs.<sup>10</sup> While child-focused approaches have demonstrated effectiveness in increasing children's knowledge about sexual abuse and actions they can take to protect themselves, the effectiveness of child-focused education on actually preventing abuse is unknown.<sup>11,12</sup>

*Stewards of Children*<sup>™</sup>, the prevention training used by the CAC, teaches adults to prevent, recognize, and react responsibly to child sexual abuse. The curriculum helps adults take an active role in preventing child sexual abuse from happening in the first place. The steps provided in this curriculum encompass an ecological approach to prevention which addresses the individual, relationship, community, and cultural contexts in which abuse occurs.<sup>10</sup>

## We're making progress.

FIGURE 5 shows that after the *Stewards of Children*<sup>™</sup> training, participants were more likely to take specific actions to protect children.

Nationally, child sexual abuse rates have declined recently.<sup>1</sup> Possible explanations include increased public awareness of child sexual abuse as well as increased incarceration, monitoring, and treatment of perpetrators.<sup>13,14</sup>

Additionally, prevention programs aimed at teaching adults to better protect children – such as *Stewards of Children*<sup>™</sup> – are becoming more prevalent across the country. *Stewards of Children*<sup>™</sup> has been shown to improve adults' knowledge about child sexual abuse and increase their likelihood of taking specific actions to protect children.<sup>15</sup>

FIGURE 6 illustrates the numbers of *Stewards of Children*<sup>™</sup> participants from 2012 who work in each zip code.

An independent evaluation of the Memphis CAC *Stewards of Children*<sup>™</sup> training has replicated these findings. An average of 23 percent of adults who complete the training demonstrated gains in knowledge about child sexual abuse. The largest gain in knowledge was in understanding that older youth are perpetrators in two-fifths of child sexual abuse cases. Results showed an 87 percent increase in the proportion of participants who answered this item correctly from pre- to post-test.

Furthermore, the training resulted in more adults taking specific actions to protect children. For example, the proportion of individuals who ensured that one-adult/one-child situations are observable and interruptible increased by 123 percent as measured at the six-month follow-up (FIGURE 5).

The Memphis CAC has committed to training 5 percent of the adult population in Shelby County within the next 5 years.

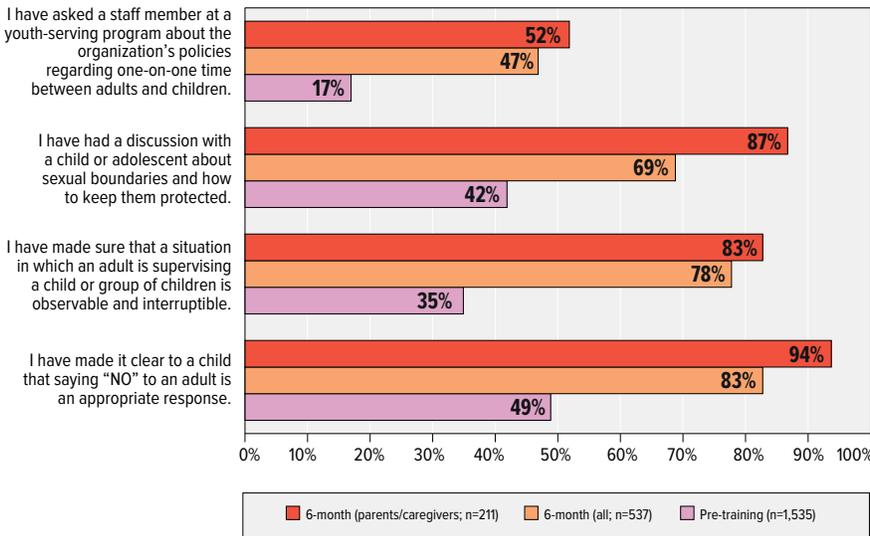


FIGURE 5:  
Gains in Prevention Knowledge  
Among *Stewards of Children*<sup>™</sup>  
Participant's at Six-Month  
Follow-up

Source: Memphis Child Advocacy Center,  
Unpublished data, 2013

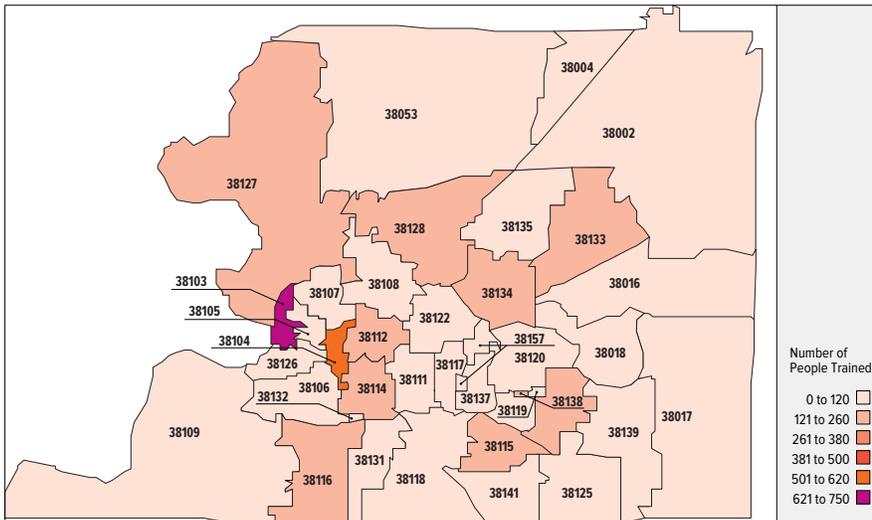


FIGURE 6:  
*Stewards of Children*<sup>™</sup>  
Participants by Work Zip Code,  
Shelby County, 2012

Source: Memphis Child Advocacy Center,  
Unpublished data, 2013

Since 2010, the Memphis CAC has provided 249 trainings to 6,350 adults, training an average of 318 adults each month. In 2012, the Memphis CAC began collecting home and work zip codes from adults who took the training. FIGURE 6 illustrates the numbers of adults trained who work in each zip code.

In addition to providing *Stewards of Children*<sup>™</sup> prevention training, the Memphis CAC also provides free consultation to youth-serving organizations seeking to strengthen child protection policies. The Memphis CAC has worked with groups including the City of Germantown, the Memphis Grizzlies Mentoring Alliance, and the Girl Scouts Heart of the South.

## You can help.

As a community, we must commit to child sexual abuse prevention in order to save our children from living with the life-long pain that child sexual abuse can inflict. Contact the Memphis CAC to bring *Stewards of Children*™ to your child's school, sports league, community organization, or faith center—any place where kids spend time.

In addition to learning about the steps you can take to protect children, you can use your voice and your vote to make a difference. Advocate for stronger child-protection policies at youth-serving organizations with which you have contact. Encourage legislators to pass laws that will protect our children and hold offenders accountable.

**You can help: Learn how to spot, prevent, and stop child sexual abuse.**

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# Special Interest Section: Child Sexual Abuse

Child sexual abuse can take many forms.

Child sexual abuse is the sexual exploitation of a child achieved by persuasion, coercion, force, or the threat of force.<sup>1</sup> Child sexual abuse can take many forms, ranging from verbal, non-contact abuse to sexual assault. Examples include, but are not limited to, an encounter with exhibitionism (or “flashing”), over-the-clothes fondling by an acquaintance, ongoing abuse by a relative or family member, and exploitation through prostitution or pornography.

Using data from national research and local statistics provided by the Memphis Child Advocacy Center (CAC), this section examines child sexual abuse and its impact on Shelby County children.

## Child sexual abuse is epidemic.

The Centers for Disease Control and Prevention has identified child maltreatment - which includes sexual abuse - as a public health problem and a prevention priority.<sup>2</sup> The statistics are startling: A 2008 national survey showed 9.8 percent of children had been sexually victimized before they were 18 years of age.<sup>3</sup>

Shelby County has the highest number of reports of abuse in the state.

- 5,229 reports were made in 2010.<sup>4</sup>
- In 2011, there were 790 substantiated reports in Shelby County of forcible rape, forcible sodomy, sexual assault with an object, forcible fondling, incest, or statutory rape against minors.<sup>5</sup>

## Childhood sexual abuse threatens brain development, physical health, and emotional well-being.

Children who are sexually abused, especially those who grow into adulthood without appropriate intervention, are at higher risk for a wide range of cognitive, emotional, and social problems that can persist into adulthood.

Traumatic experiences such as sexual abuse impact the brain, flooding synapses with stress hormones produced by the body in response to threatening situations.<sup>6</sup> This can be especially detrimental to young children, whose brains are still developing. Persistent activation of the stress response system can disrupt healthy brain development.<sup>7</sup> Furthermore, alterations in stress-related brain regions can have lifelong effects on a child's coping skills.<sup>6</sup>

Early trauma also threatens physical health. Survivors of child sexual abuse are at increased risk for obesity, heart disease, chronic pain, sleep problems, and immune-related disorders.<sup>8,9</sup> Psychological effects of child sexual abuse include Post-traumatic Stress Disorder, depression, relationship difficulties, substance abuse, eating disorders, and even suicide attempts.<sup>9-12</sup>

Girls who are sexually abused are more likely to engage in risky sexual behavior, to become pregnant as a teen, and to have a sexually transmitted disease.<sup>9,10,13</sup>

Child sexual abuse costs our communities as well. The national economic cost of child sexual abuse is estimated between \$23 billion and \$35 billion annually and includes immediate costs like medical care as well as longer-term costs related to poor quality of life in adulthood.<sup>14,15</sup> In Shelby County, the estimated immediate cost of child sexual abuse is \$10 million and the long-term cost is \$105 million.<sup>15</sup>

## National data show that many children never tell.

Because many children don't tell anyone after being sexually abused, the official statistics are likely to represent only a fraction of the total number of children who are victims. Delays and non-disclosure are more common in cases involving younger children, multiple assaults and abuse by a relative.<sup>16</sup>

A national survey of women who were raped as children confirmed that many children do not come forward after being sexually abused.

- 18 percent of surveyed women told someone within 24 hours of their assault.
- 20 percent told 1 to 12 months after the assault.
- 63 percent disclosed a year or more after the assault. About half of these women had never told anyone prior to the survey.<sup>16</sup>

Local data from the Memphis Child Advocacy Center reveals a similar trend (FIGURE 1). Among 162 children referred to therapy between July 2011 and June 2012 following a disclosure of abuse.

- About 33 percent had come forward within 24 hours.
- Another 19 percent disclosed within a month.
- Almost 20 percent waited between 1 and 12 months.
- 29 percent waited a year or more.

FIGURE 1 shows that only about one-third of children seen at the Memphis CAC told someone within 24 hours that they had been abused, and almost 30 percent waited a year or longer.

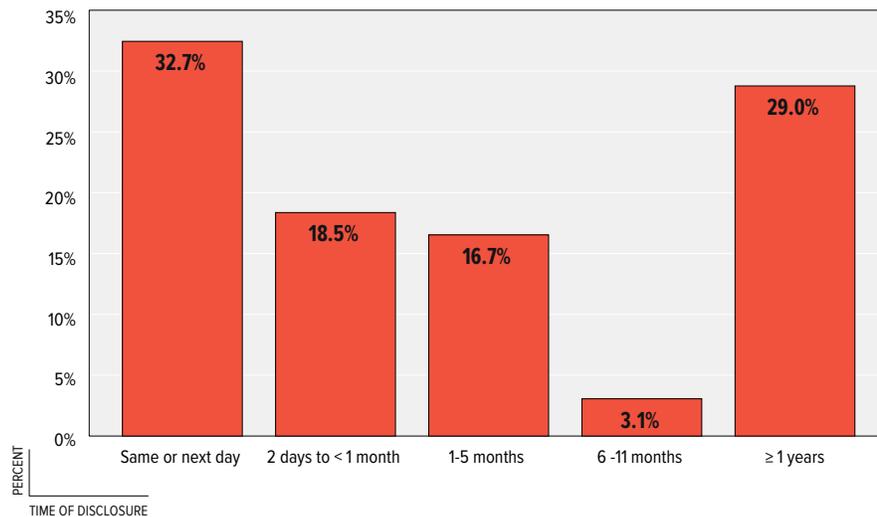


FIGURE 1:  
Percent of Children by Timing  
of Disclosure of Sexual Abuse,  
Shelby County, 2012

Source: Memphis Child Advocacy Center.  
Unpublished Data, 2012

## All children are vulnerable to sexual abuse.

Children are vulnerable to child sexual abuse regardless of family structure, family income level, neighborhood, race, religion, age, or gender. When looking across all types of sexual victimization, prevalence rates do not vary based on household income or race. Rates are similar for boys and girls until around age 14, after which sexual victimization is substantially higher among females.<sup>17,18</sup>

The average age of children seen for therapy services at the Memphis Child Advocacy Center last year was 10.2 years. Of the 257 children who received therapy,

- 81 percent were female and 19 percent were male
- 72 percent were African-American
- 20 percent were white
- 7 percent were Hispanic

## Most perpetrators are not strangers.

FIGURE 2 shows that 93 percent of offenders are known by the child.

Perhaps contrary to common belief, national research shows that in the majority of cases children are victimized by someone known to them, whether a family member or an acquaintance.<sup>17</sup> A similar trend is seen among children treated at the Memphis Child Advocacy Center: 93 percent of offenders are known by the child – an unrelated juvenile, a related juvenile or adult, or a trusted adult acquaintance (FIGURE 2).

## Offenders do not fit a narrow profile.

A research study with unincarcerated, self-described sex offenders seeking treatment in two sites – Memphis and New York – revealed a wide range of ages and backgrounds.<sup>19</sup>

- Two-fifths had finished at least one year of college.
- Nearly two-thirds were employed.
- Almost half were currently in, or had been in, a heterosexual relationship with an adult.

FIGURE 3 indicates that one out of every four children seen at the Memphis CAC endured abuse for more than a year.

## Too often, abuse is an ongoing trauma.

Child sexual abuse typically is not an isolated incident. In a national survey of women raped as children, three-quarters reported that they were repeatedly assaulted over the course of a year or longer.<sup>16</sup>

One out of every four children seen at the Memphis CAC endured abuse for more than a year (FIGURE 3).

FIGURE 4 indicates that over half of children seen at the Memphis CAC reported assaults involving penetration of some kind.

Many of these children are being violated aggressively. Over half of children seen at the Memphis CAC reported assaults involving penetration of some kind (FIGURE 4).

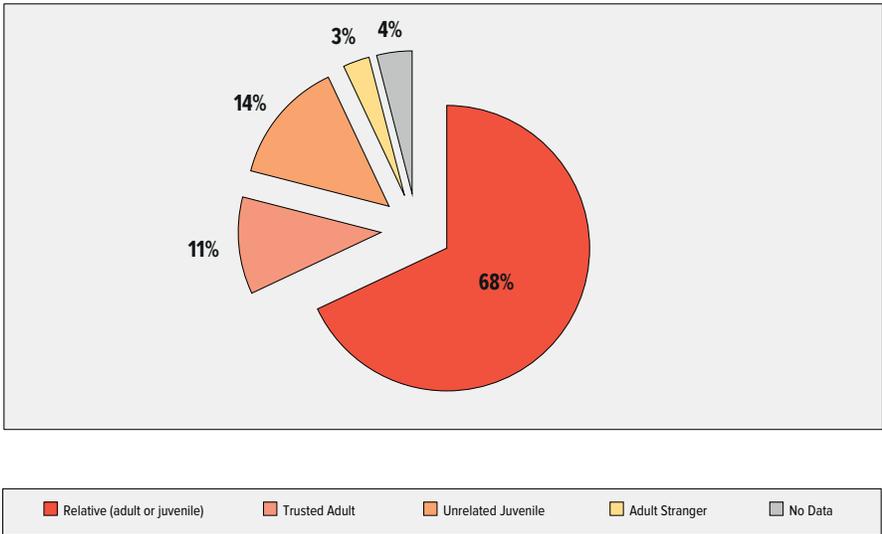


FIGURE 2:  
Percent of Children by Relationship to Offender, Shelby County, 2012

Source: Memphis Child Advocacy Center. Unpublished Data, 2012

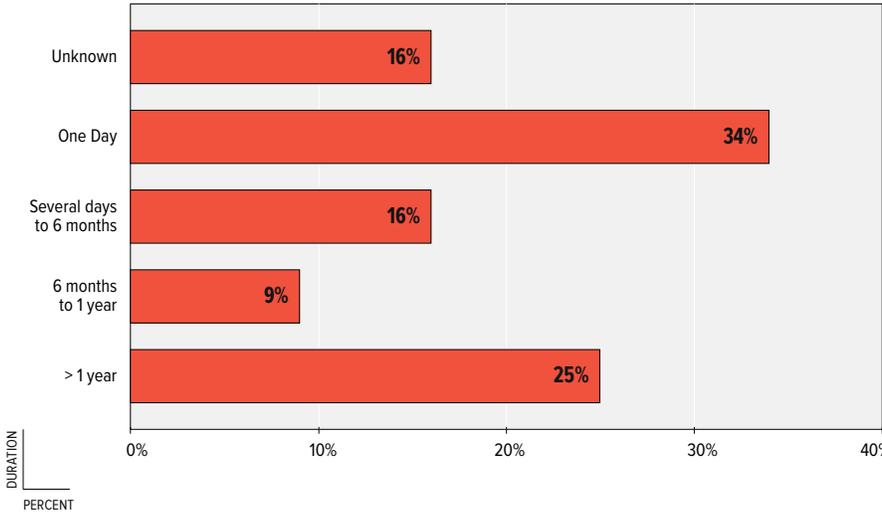


FIGURE 3:  
Percent of Children by Duration of Abuse, Shelby County, 2012

Source: Memphis Child Advocacy Center. Unpublished Data, 2012

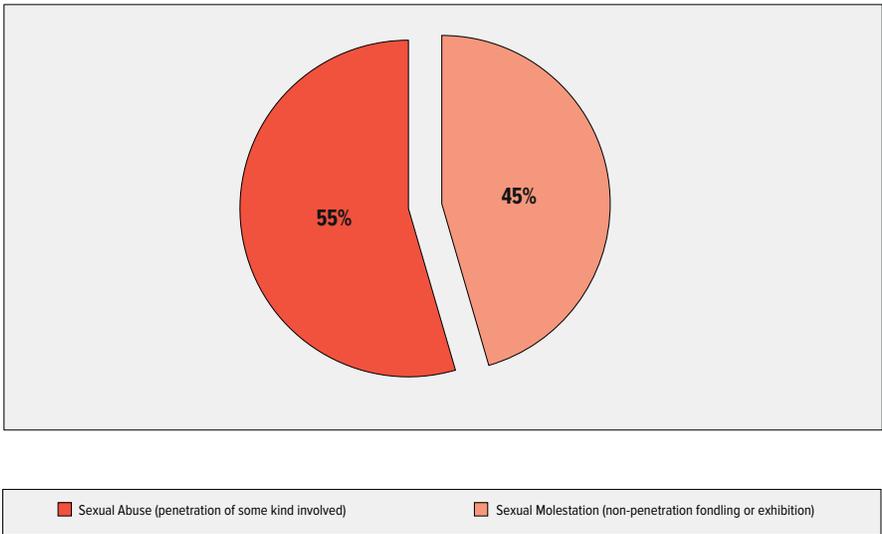


FIGURE 4:  
Percent of Children by Type of Sexual Abuse, Shelby County, 2012

Source: Memphis Child Advocacy Center. Unpublished Data, 2012

## Not all victims suffer long-term consequences.

Sexual abuse poses a grave threat to children's healthy development. However, not all abused children are destined for poor outcomes. The likelihood of long-term negative effects is strongly related to the severity and duration of abuse and the child's relationship to the perpetrator.<sup>20</sup>

Supportive relationships with key caregivers or extended caregivers can help children cope after traumatic experiences.<sup>9</sup> Appropriate treatment can also reduce the impact of abuse: Cognitive-behavioral therapy (the approach used by the Memphis CAC) has been shown to be particularly effective at alleviating stress symptoms, reducing victims' sense of stigma, and providing children with the knowledge and skills they need to overcome the trauma of sexual abuse.<sup>21</sup>

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# Community matters for children's well-being.

Neighborhoods have important effects on parents' ability to create a safe and healthy environment for their children. Resources like parks, playgrounds, and after-school programs help parents provide their children with enriching experiences, and social connections among adults increase parents' sense of support and well-being. On the other hand, living in a crime-ridden, deteriorating area can undermine a family's efforts.

The neighborhood where a child lives can have effects over and above parental income and other family-level influences. Crime, widespread unemployment, social isolation, and lack of community resources create unhealthy environments for children's development.

Children who live in high-poverty neighborhoods face more risks than children in higher-income neighborhoods. Unfavorable neighborhood conditions can increase children's vulnerability to adverse experiences early in life, which in turn may interfere with optimal brain development, cognitive growth, and emotional and behavioral adjustment.<sup>1</sup>

This chapter takes a look at the most recent available data on community-level factors that have been shown to affect children's chances for later achievement and success.

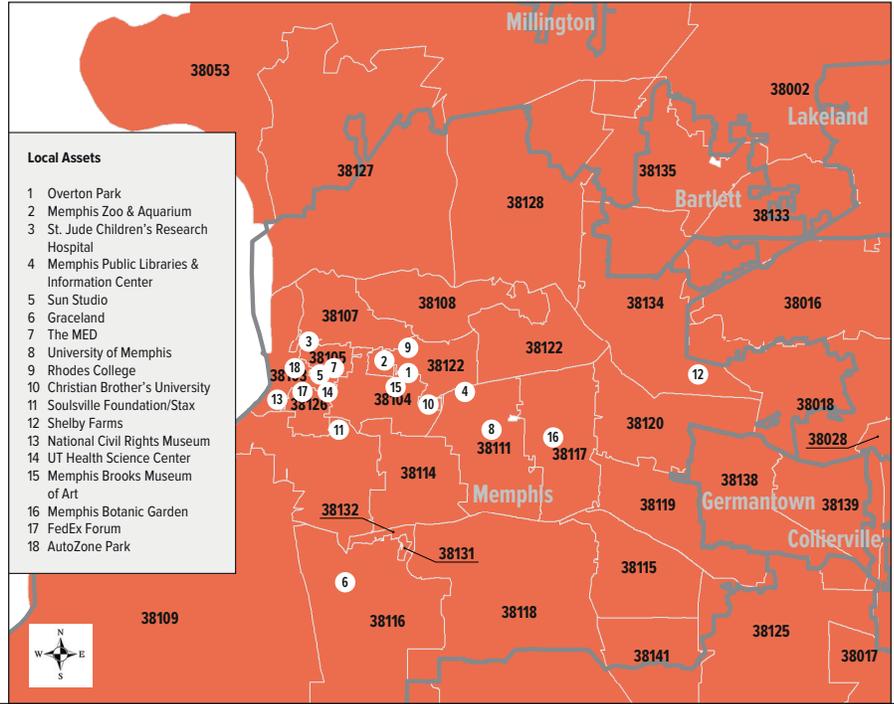


FIGURE 1:  
**Assets & Municipalities**

Source: Center for Community Building & Neighborhood Action, 2010

Most of the data is presented at the census-tract level. To ensure readability, we have not labeled individual census tracts in the following maps. Instead, we include zip code labels to provide a context for the tract-level statistics. Additionally, we have provided a map of well-known landmarks (FIGURE 1) to help readers orient themselves.

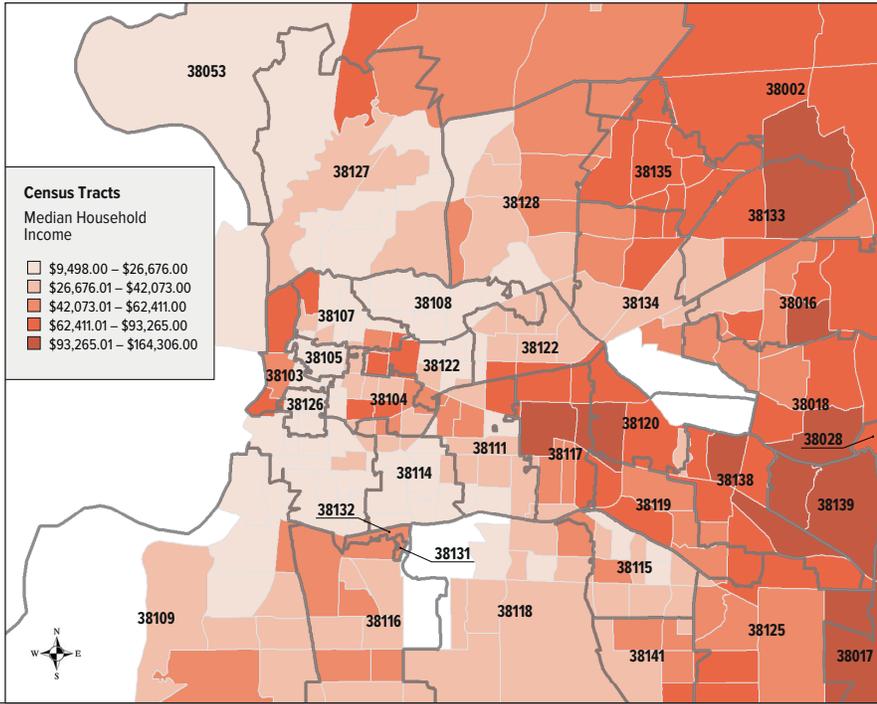


FIGURE 2:  
Median Household Income

Source: US Census Bureau, American Community Survey, 2007–2011

## Neighborhood income is related to children’s outcomes.

Research consistently links income to child well-being. The effects of income begin early: by age three, lower-income children tend to have lower cognitive scores and more behavioral problems.<sup>2</sup>

But even after accounting for family income, living in a low-income neighborhood can have negative effects on children. In areas of concentrated disadvantage, children are likely to face multiple risk factors that threaten their educational, emotional, and social outcomes.<sup>3,4</sup>

On average, children from poorer neighborhoods have lower cognitive test scores than children from more affluent neighborhoods, regardless of family income.<sup>5</sup>

FIGURE 2 depicts the median household incomes for Census Tracts in Shelby County.

- Census Tracts 213.53, 215.40, 215.30 in East Shelby County have the highest median incomes—all over \$100K.
- Census Tracts with the lowest incomes are 112 (with less than \$10K), 45 (about \$10K) and 114 (about \$10K). All three are in Memphis.

## Neighborhood economic hardship threatens children’s healthy development.

Economic hardship at the neighborhood level can be assessed in several ways. The most common measures are poverty, public assistance receipt, and unemployment. The following three figures use these measures to show neighborhood economic distress in Memphis and Shelby County.

### Poverty

Research suggests that there is a critical threshold or “tipping point” of neighborhood poverty. When the percentage of poor families in a neighborhood reaches 20 to 30 percent, negative family and child outcomes increase sharply.<sup>6</sup> Therefore, high-poverty neighborhoods are typically defined as having more than 30 percent of households living below the federal poverty threshold.<sup>7</sup>

Living in high-poverty neighborhoods is associated with lower-quality learning experiences in the homes of young children, even after family income is taken into account.<sup>5,8</sup> Children in high-poverty neighborhoods are at higher risk of health problems, behavioral difficulties, teen pregnancy, high school dropout, and substance abuse, even after accounting for family characteristics.<sup>6</sup>

As early as age 3, children are being affected by neighborhood characteristics.<sup>5</sup> Neighborhood income has been linked to important aspects of young children’s home environments, including safety, maternal warmth, and learning stimulation.<sup>9</sup>

FIGURE 3 shows each Census Tract’s percentage of families with incomes below the poverty line.

- Census Tracts 45, 114, 112 have the highest percentages in Shelby County.
- In Census Tract 45, 73% of families are living in poverty.

### Public Assistance

Further evidence of the economic distress experienced by many Shelby County neighborhoods is presented in FIGURE 4, which shows the number of families receiving public assistance through the Supplemental Nutrition Assistance Program (SNAP).

- Census Tracts with the highest number are 88, 99.01, 223.22.
- Census Tracts with the lowest numbers are 85 (downtown Memphis) and 214.20 and 43 (along the Poplar corridor).

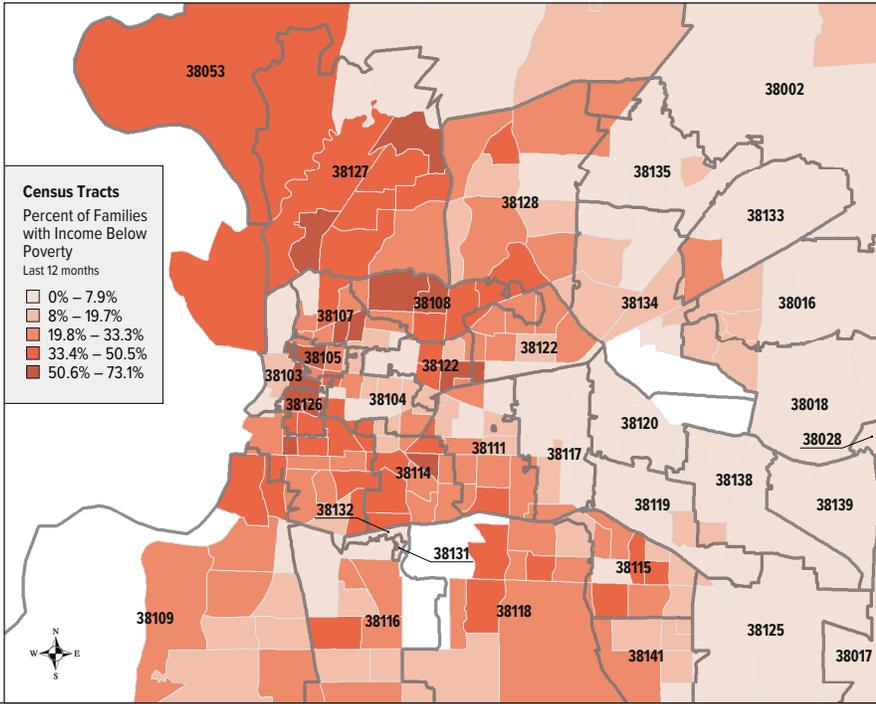


FIGURE 3:  
Percent of Families Living Below the Poverty Line

Source: US Census Bureau, American Community Survey, 2007–2011

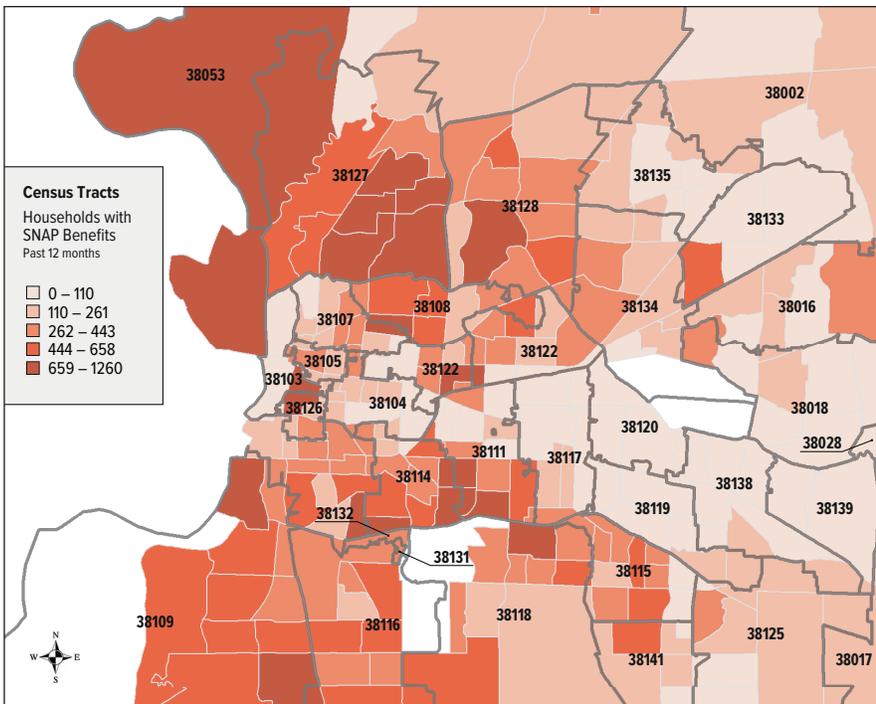
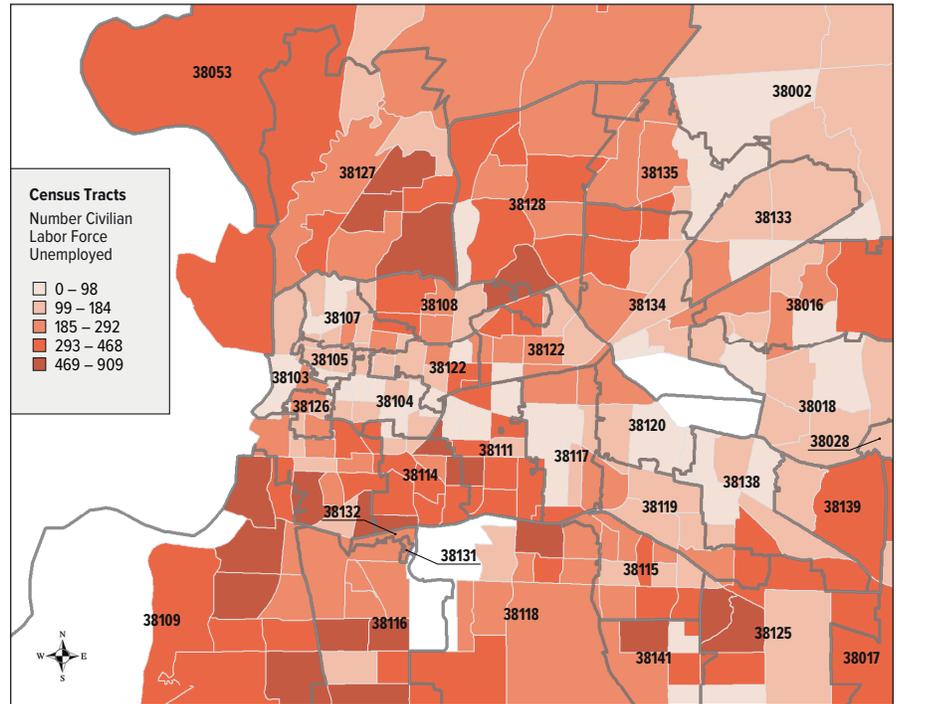


FIGURE 4:  
Number of Households Receiving SNAP

Source: US Census Bureau, American Community Survey, 2007–2011

FIGURE 5:  
Number Civilian Labor  
Force Unemployed

Source: US Census Bureau, American  
Community Survey, 2007–2011



### Unemployment

Widespread unemployment creates an unfavorable environment for children. Neighborhood unemployment has been linked to negative birth outcomes like prematurity<sup>10</sup> and to long-term outcomes including high school graduation, teen nonmarital childbearing and employment.<sup>11,12</sup>

FIGURE 5 shows Census Tract patterns of unemployment in Shelby County. (Our measure of unemployment is based on census estimates of individuals who were not working but were able, available, and actively looking for work.)

- Census Tracts with the highest number of unemployed adults are 78.21, 100, and 67, with 700 or more.
- Census Tracts with the lowest numbers are 211.13 and 43 (downtown Memphis) with around 20.

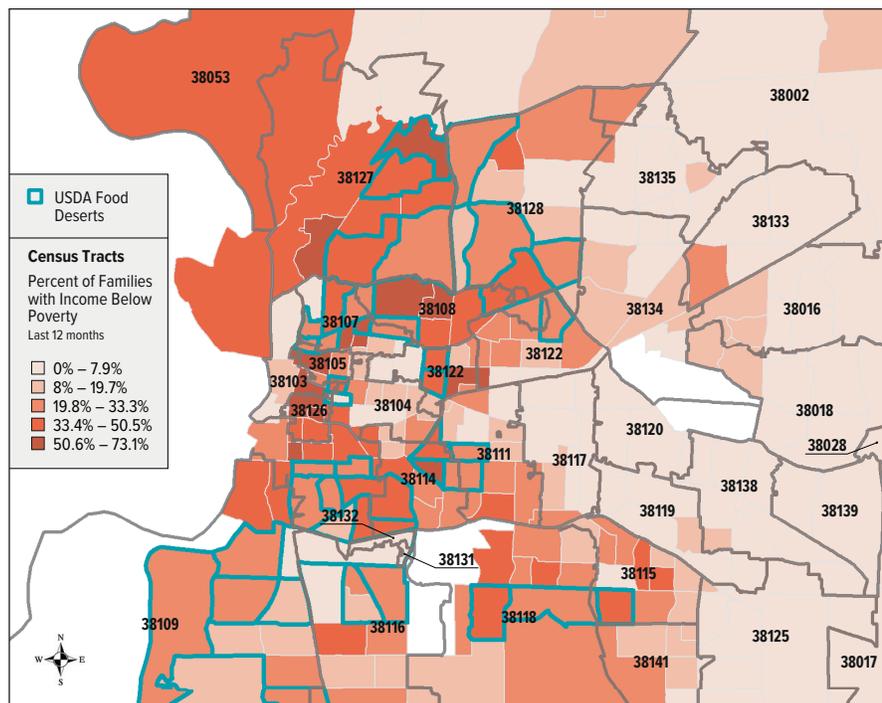


FIGURE 6:  
Percent of Families Below  
Poverty & Food Deserts

Source: US Census Bureau, American Community Survey, 2007–2011; US Department of Agriculture, Economic Research Services, 2013

## Many families lack convenient access to healthy food.

A “food desert” is an area without a convenient source of healthy food. Specifically, the U.S. Department of Agriculture (USDA) defines a food desert as a census tract where a substantial number of residents have low access to a supermarket or large grocery store.<sup>13</sup> Instead, the chief sources of food for the neighborhood are fast food chains and convenience stores.

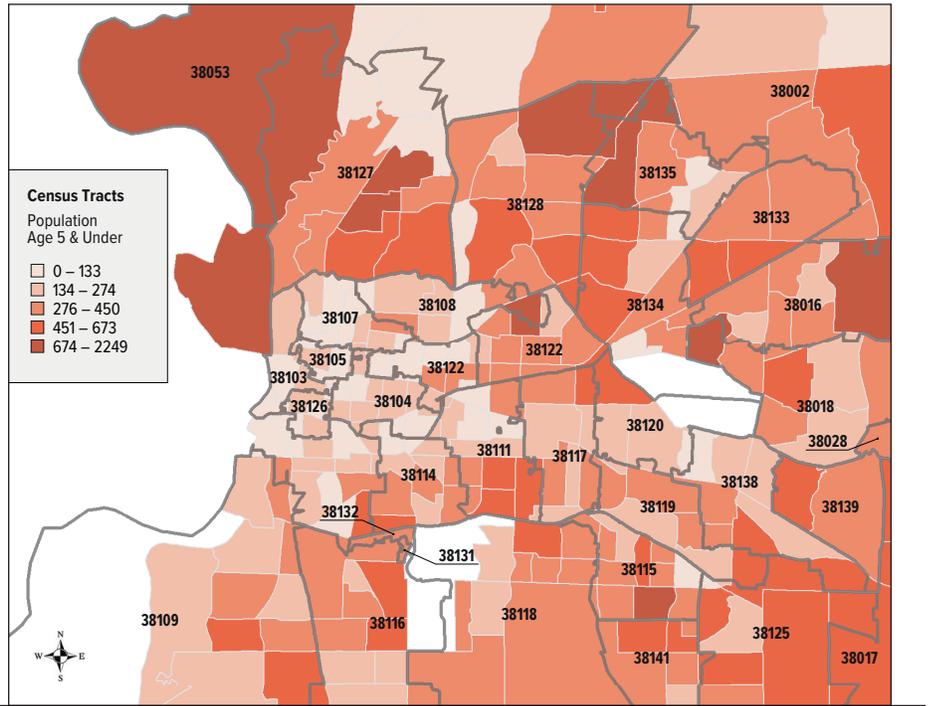
A proper balance of nutrients during early childhood is critical for normal brain development. Malnutrition in infancy and early childhood is a key risk factor for cognitive deficits, lower academic achievement, and behavior problems. Because of the rapid pace and lifelong effects of brain development in a child’s first three years, even mild or temporary nutritional deficits can have serious and sometimes irreversible consequences.<sup>14,15</sup>

FIGURE 6 shows the prevalence of food deserts in Shelby County. Census Tracts outlined in blue are classified as food deserts by the USDA.

- Memphis has an alarming number of food deserts, including Census Tracts in North Memphis, Frayser, Whitehaven, Downtown, and other areas.
- Food deserts are likely to be found in high poverty areas. For example, Census Tracts 103, 5, 68 have high poverty percentages and are also classified as USDA Food Deserts.

FIGURE 7:  
Percent of Total Population  
5 years & Under

Source: US Census Bureau, American  
Community Survey, 2007–2011



## Too many of Shelby County's youngest children are at risk.

The statistics presented in this chapter have troubling implications for the well-being of Shelby County's young children. The prevalence of neighborhood risk factors means that children can be at risk even as their families struggle to provide a nurturing and stimulating home environment.

Early disadvantage is especially detrimental to children's development. For example, income and economic circumstances appear to have stronger effects in early childhood than in adolescence.<sup>16</sup>

FIGURE 7 shows the population of children under age 5 in Shelby County. Comparing this pattern to those of the maps above reveals that a disproportionate number of our community's children live in high-risk neighborhoods.

- Census Tracts 206.44 and 206.21 (both in North Memphis) and 213.52 (in East Shelby County) have the highest numbers of children age 5 and younger.
- Census Tracts 42 and 43 (both in downtown Memphis) have the lowest numbers.

## **Community-level policies are necessary to promote positive outcomes for Shelby County's children.**

Neighborhoods matter for children's well-being. Experts are becoming increasingly aware that efforts to promote children's well-being must include community-level initiatives. Targeted, substantial investments in neighborhood resources are a key component in reducing poverty and fostering human capital.<sup>17</sup>

This is especially true for Shelby County, where residential patterns have changed in recent years. The population of Memphis' central areas is decreasing, while outlying areas of Shelby County are gaining population. In order to combat neighborhood-level risk for Shelby County's children, we need a more thorough understanding of these trends and the ways they will affect our community's future.

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