

Teen Pregnancy and Adolescent Sexual Health in Missouri: Factors, Trends, and Impact

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Introduction

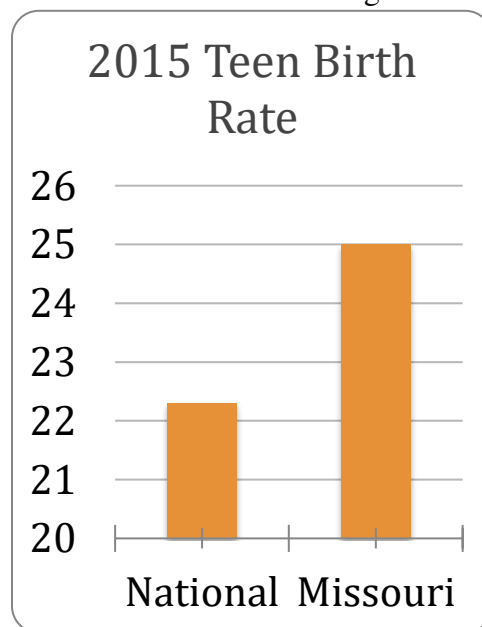
Missouri has had a 61% reduction in teen pregnancy rates from its peak year in 1991, with an 8% decrease since 2014 (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2017). While much progress has been made in the last few decades in reducing teen pregnancy and birth rates, there is still work to be done. This report will address why this work must continue by first outlining the current trends in teen pregnancy and teen births in both the United States and, more specifically, in Missouri. The second chapter will briefly highlight the study done by the South Carolina Campaign to Prevent Teen Pregnancy titled “Accelerating Progress: A Road Map for Achieving Further Reductions in Teen Pregnancy,” as well as map out the research design for this report, replicating the study done by the South Carolina Campaign. The third chapter will focus on the findings of this replication report. The final chapter will suggest future research and initiatives in order for the unplanned teen pregnancy rates in Missouri to continue their decline.

Chapter 1

Continued Declines

Teen birth rates across the United States have hit historic lows over the past decade. In 2015, the birth rate among 15 to 19 year olds across the United States was 22.3 per 1,000 women, dropping 8% since 2014 (Centers for Disease Control and Prevention, 2017). Missouri data follows the downward trend. Between 1991 and 2015, the teen pregnancy rate in Missouri alone has reduced by 61% (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2017). In 2015, Missouri was ranked 30th among all 50 states in teen birth rates, with the number of births per 1,000 women between the ages of 15 to 19 estimated at 25 births (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2017). These rates have decreased among all ethnic and racial groups, yet disparities still remain when taking race/ethnicity into consideration, as the birth rate in Missouri for non-Hispanic white teenagers, non-Hispanic black teenagers, and Hispanic teenagers was 22 births, 37 births, and 35 births, respectively.

Though these rates have decreased dramatically among Missouri teens in a 24 year period, in 2015, there were still an estimated 4,838 births to teens in the state (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2017). In 2010 alone, the public cost of teen childbearing was estimated at \$184 million. Missouri’s teen birth rate also remains higher than the national average, with a rate of 22.3 births per 1,000 girls nationally (compared to a rate of 25 per 1,000 in Missouri).



The factors that contribute to the rates of teen pregnancy and birth have been well documented. The Centers for Disease Control and Prevention (2017) attribute social determinants of health, including low education attainment, low income, and high unemployment, as some of the primary factors that impact teen pregnancy. In their 2016 analysis, Pew Research Center also credits the steadily declining rates of teen pregnancy to the use of more effective forms of contraception and pregnancy prevention resources.

In order to understand the cause and effect of teen pregnancy and teen birth rates in Missouri, it is necessary to outline policies, programs, and funding that shape Missouri's current climate towards teen pregnancy prevention.

Statewide Initiatives to Prevent Teen Pregnancy in Missouri

Policy and Education

Under Missouri law, schools are required “to teach health education, including human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) prevention education, beginning in elementary school” (SIECUS, 2017, pg. 1). If Missouri schools choose to provide additional sexuality education beyond HIV and AIDS prevention, they are required to present abstinence as the preferred choice of sexual behavior and may choose to follow federal abstinence education law, 42 U.S.C. Section 710, rather than present medically accurate information on the benefits and side effects of contraception. Missouri statute also allows for the school board of each school district to determine their own curriculum.



Because of this policy, medically accurate sexuality education (MASHE) is not currently required under state law (Teen Pregnancy & Prevention Partnership, 2017). MASHE ensures that all information regarding sexual health is medically accurate. In contrast to MASHE, many of the federally approved abstinence-only curricula contain misinformation that is dangerous to students' health and puts students at risk of an unintended pregnancy. Studies show that teaching abstinence-only-unless-married (also known as sexual risk avoidance) curricula does not decrease teen sexual activity but does decrease the likelihood of teens using condoms or other types of contraception while engaging in sexual activity. Teaching comprehensive, medically accurate sexual health education has been shown to decrease teen pregnancy rates, delay initiation of sexual activity, and increase the use of contraception.

Every other year, the Centers for Disease Control and Prevention publishes the “School Health Profiles: Characteristics of Health Programs Among Secondary Schools.” The most recent profile made publically available in 2017 contains survey data collected from public schools in 2016. This biennial publication is produced in order to help education and health agencies

identify what resources, curriculum, and trainings are in place within secondary schools to support students in several facets of their health. It analyzes systems in place regarding sexual health education, including curriculum surrounding reproductive and sexual health, professional development resources in place for teachers to adequately educate youth on reproductive and sexual health, as well as information and resources available for students to take outside of the classroom.

The [Missouri School Health Profiles](#) show that a majority of districts in the state do not teach all 19 HIV, STD, and pregnancy prevention topics, many of which are included in the [Health Education Grade-Level Expectations](#) (GLEs) provided by the state's Department of Elementary and Secondary Education. Less than 20% of Missouri schools reported that their lead health education teacher received professional development on human sexuality in the last two years. Despite the benefits of medically-accurate, comprehensive sexual health education in preventing teen pregnancy and promoting positive health behaviors, Missouri schools are not required to provide it and are not fully prepared to implement it.

State Level Support and Capacity Building from the Teen Pregnancy & Prevention Partnership Founded in 1997, Teen Pregnancy & Prevention Partnership (TPPP) promotes adolescent sexual health and teen pregnancy prevention by uniting Missouri through advocacy, collaboration, training, and public awareness. TPPP brings together public and private health agencies, youth-serving organizations, school districts, and individuals to support, promote, and advocate for activities which lead to a decrease in pregnancies and STIs among Missouri's youth. TPPP believes that parents and communities have responsibilities to educate youth regarding sexual health. The organization and its members are committed to promoting the use of evidence-based practices, including medically-accurate and comprehensive sexuality education in schools, to holistically address the issue of teen pregnancy and early parenting.

TPPP has been active for over 20 years, raising awareness of the impact of teen pregnancy, and providing an atmosphere for professionals to learn about evidence-based approaches and coordinate service delivery. Recognizing the need to address stubbornly high rates of teen pregnancy throughout Missouri, TPPP stepped forward in mobilizing the state. In 2010, with technical assistance from Advocates for Youth, TPPP emerged from a St. Louis group as a statewide organization.

TPPP currently has one full time staff member and benefits from a very active and dedicated Board of Directors from around the state who ensure mission accountability, approve financial plans and actively chair committees which oversee the ongoing work of the organization. Our committees are filled with dedicated individual and organizational members, and community volunteers.

A survey of TPPP participants indicated that they are involved because they get the most current and accurate information from the professional development sessions and have found TPPP to be

the only venue to network with others providing services to similar populations. TPPP works closely with organizations across the state that are using federal and state funding to provide evidence-based teen pregnancy prevention programs.

Funding Targeting Teen Pregnancy Prevention and Adolescent Sexual Health

Every year, SIECUS publishes State Profiles which provide funding totals and descriptions of the funding streams. In Fiscal Year 2017, the state of Missouri received:

- Division of Adolescent and School Health funds totaling \$70,000
- Personal Responsibility Education Program funds totaling \$899,642
- Title V State Abstinence Education Program funds totaling \$1,236,744

Division of Adolescent and School Health (DASH)

DASH provides funding for state agencies to collect and report YRBS and School Health Profiles data for policy and program improvements. In FY 2017, the Missouri Department of Elementary and Secondary Education received \$70,000 to collect and report YRBS and School Health Profiles data.

Personal Responsibility Education Program (PREP)

The Missouri Department of Health and Senior Services (DHSS) receives PREP funds for the state. The goal of Missouri's PREP is to educate and support adolescents (ages 12-18) to make informed decisions, develop life skills, and practice healthy behaviors to prevent teen pregnancy. PREP funding must be used to support approved evidence-based programs that educate adolescents on both abstinence and contraception to prevent pregnancy and sexually transmitted infections (STIs) including HIV/AIDS. Importantly, these programs must address adult preparation subjects (healthy relationships, adolescent development, healthy life skills, and educational success).

Missouri's PREP funding is targeted in areas deemed to have the highest risk of teen pregnancy based on compiled county level data on teen pregnancy, birth rates, incidences of STIs and HIV, as well as economic and education indicators associated with teen pregnancy. Currently, there are 12 contracts including 4 specifically serving youth in foster care. DHSS also contracts with the University of Missouri/Institute of Public Policy (IPP) to provide evaluation services, training, and technical assistance to contractors implementing local programs.

Title V State Abstinence Education Grant Program

The Missouri Department of Health and Senior Services (DHSS) receives Abstinence Education Grant Program (AEGP) funds for the state. Per the guidance from the Department of Health and Human Services, the AEGP is to provide funding for additional tools to address the rates of teen pregnancy among those groups who are most likely to bear children out-of-wedlock. The Program provides consultation, education, training, technical assistance, and resources for school personnel, parents, adolescents, state agencies, and community organizations, with abstinence

from sexual activity until marriage as the prominent message. Additional tenants of the AEGP are developing healthy relationships and making good choices.

Missouri's AEGP provides adolescent groups in targeted high-risk populations with medically-accurate sexual education curriculum, approved by the CASH curriculum review committee. It runs a media campaign which offers encouragement and skill building for parents to communicate with their teens regarding healthy sexual behaviors and healthy decision-making. In 2017, Missouri's AEGP debuted the "Connect with Me" campaign. AEGP also contracts with professional evaluators to analyze for program effectiveness.

In Fiscal Year 2017, local entities in Missouri received:

- Teen Pregnancy Prevention Program funds totaling \$1,249,997
- Sexual Risk Avoidance Education Grant Program funds totaling \$1,095,050

Teen Pregnancy Prevention Program

Better Family Life (BFL) is a non-profit that focuses on community development. Established in 1983 in response to "the crises within the African-American family," BFL aims to "plan and establish social, cultural, artistic, youth, economic, housing, and educational programs that help to promote positive and innovative changes within the metropolitan St. Louis area."

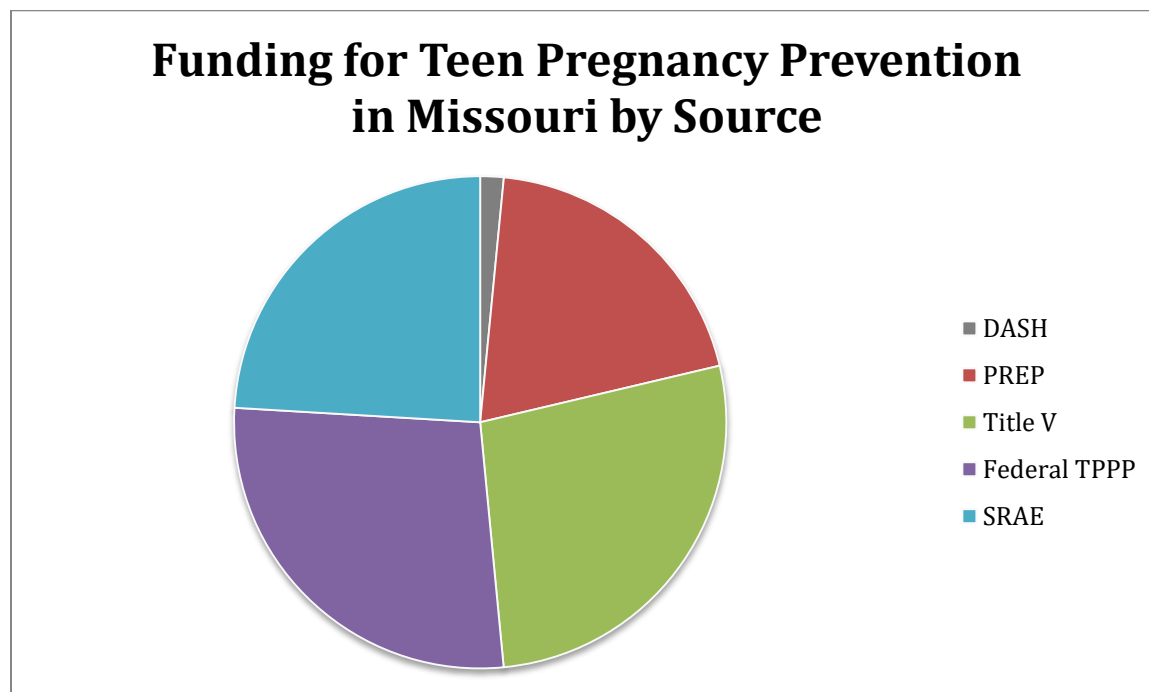
(www.betterfamilylife.org). The organization's Teen Pregnancy Prevention Tier 1B program, which was awarded \$1,249,997, aims to reduce teen birth rates in 28 zip codes within St. Louis City, St. Louis County and St. Clair County, IL. BFL partners with middle schools, high schools, and after-school programs to provide the BFL Teen Pregnancy Prevention Program to young people using three evidence-based curricula: Sisters Saving Sisters, Promoting Health Among Teens (PHAT), and Making Proud Choices!. The program is designed to educate young people on positive sexual health decision-making and emphasizes abstinence. BFL aims to serve 4,000 young people annually.

Sexual Risk Avoidance Education Grant Program (SRAE)

According to SIECUS, "the SRAE program—a rebranding of the competitive AOUM grant program—provides funding for public and private entities for programs that "teach young people to voluntarily refrain from non-marital sexual activity and prevent other youth risk behaviors." These programs are also required by statute to "teach the benefits associated with self-regulation; success sequencing for poverty prevention; healthy relationships; goal setting and resisting sexual coercion; dating violence; and other youth risk behaviors, such as underage drinking or illicit drug use, without normalizing teen sexual activity." In FY 2017, \$15 million was appropriated for the SRAE grant program, and \$13.5 million was awarded to 27 grantees in 14 states through a competitive application process."

In FY 2017, there were two SRAE grantees in Missouri: The Curators of the University of Missouri St. Louis (\$548,104) and Thrive St. Louis (\$546,946).

When adolescents are given the tools to decide if, when, and under what circumstances they would like to have children, this leads to significant savings. The Power to Decide, a national campaign that works to prevent unplanned pregnancy, released in January 2018 a profile of Missouri titled, “Progress Pays Off.” They note that due to efforts to decrease unintended births among teens, “Missouri saved \$70 billion in public spending in 2015 alone” (para 1). They specifically identify the ability to access contraception as a key factor in the decline of teen pregnancies, a more cost-effective solution than supporting an unintended birth. More specifically, the Power to Decide cites a 2014 nationwide study by Frost, Sonfield, Zolna, and Finder found that there is a \$7 return on every \$1 spent on family planning.



Need for Sustained Investment

While great progress has been made in Missouri to decrease the number and rates of teen pregnancies and births, more strategic work is required moving forward to ensure that 1) these numbers and rates continue to decline and 2) to address the public health concerns that correlate with teen pregnancy. Though current prevention efforts exist in the form of different policies, programs, and funding, several of them are disconnected to current needs, a challenge to measure collectively, and have been hard to sustain over time.

Although a steady decline continues in Missouri, there are a number of public health issues that teen births have been intrinsically linked to. Numerous studies have devised different methodologies in order to identify how teen births and unplanned teen pregnancy impact the community. Related public health concerns include:

- Lower birth weight and increased infant mortality rates due to poor (if any) prenatal care (Langille, 2007 & Chen et. al, 2007);
- Increased rates of high school dropout (Langille, 2007; Freudenberg et. al, 2007; Clay et. al, 2012; Collins et. al, 2014 & Kane et. al, 2013);
- And a higher risk of poverty, underemployment, and unemployment among teen mothers (Langille, 2007; Missouri Kids Count, 2016; Clay et. al, 2012; Diaz, et. al, 2016 & Collins et. al, 2014).

When exploring trends in Missouri, these common themes hold true. When it comes to lower birth weight and increased infant mortality rate in Missouri:

- Rates of infant mortality in Missouri are higher than the national average, especially among mothers age 15-19, with a rate of 9.0 deaths per 1,000 live births in Missouri and 8.5 deaths per 1,000 live births in the United States (America's Health Rankings, 2016).
- These disparities in infant death are even more pronounced when taking race and ethnicity into consideration, with infant mortality at a rate of 11.0 deaths per 1,000 births for black mothers, 5.3 deaths per 1,000 births for Hispanic mothers, and 5.5 deaths per 1,000 births for white mothers, each of which are higher than the national averages among these different ethnic groups (10.8 deaths, 5.0 deaths, and 5.0 deaths per 1,000 births, respectively). (America's Health Rankings, 2016).

Finally, when exploring the impact that teen pregnancy rates have on poverty and high school dropout rates in Missouri:

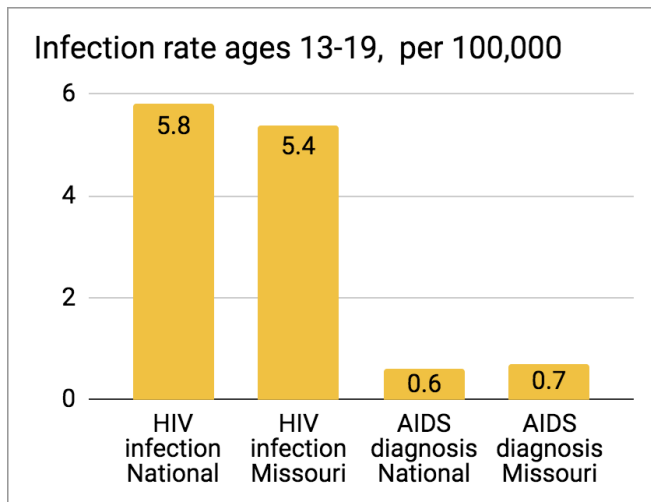
- The total Missouri population is at 5.9 million people. Of those 5.9 million, 277,687 are children at 100% or below the federal poverty line (*Missouri Community Action Network*, 2017). This estimated to about 19.9% of children under 18 living in families with poverty (*Talk Poverty*, 2016).
- The Missouri high school graduation rate in 2016 was at 88.8% (*Open Data Network*, 2016). Nevertheless, an estimated 20,000 students dropped out in the class of 2010, estimating that the lifetime earnings totaled nearly \$5.2 billion (Kittle, 2011).

When addressing the impact of teen sexual activity on the surrounding community, it is important to not only look at teen pregnancy rates but also the rates of STDs among adolescents. As nationwide studies have shown:

- Young people between 13 and 24 accounted for an estimated 22% of new cases of HIV in 2015 (*Centers for Disease Control and Prevention*, 2017).
- Half of nearly 20 million new cases of STDs reported each year were among people between the ages of 15 and 24 (*Centers for Disease Control and Prevention*, 2017).

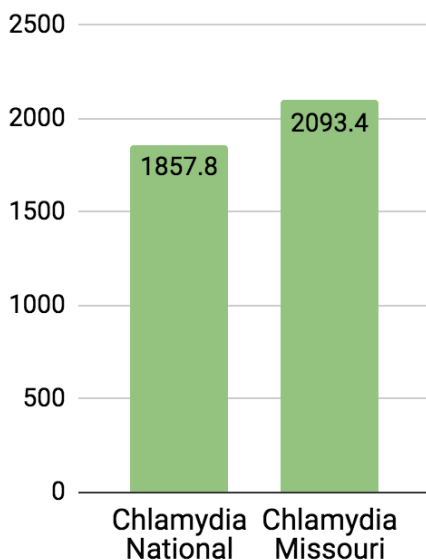
When looking at Missouri more specifically, according to SIECUS' 2017 Missouri state profile, using data from the Centers for Disease Control and Prevention's Youth Risk Behavior Survey:

- “In 2015, the reported rate of diagnoses of HIV infection among adolescents ages 13–19 in Missouri was 5.4 per 100,000, compared to the national rate of 5.8 per 100,000.



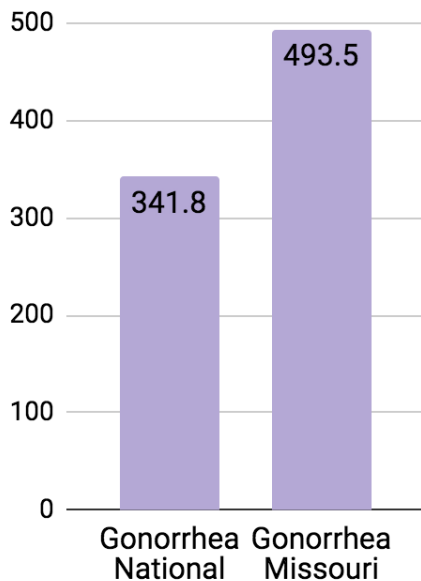
- In 2015, the reported rate of AIDS diagnoses among adolescents ages 13–19 in Missouri was 0.6 per 100,000, compared to the national rate of 0.7 per 100,000.38

Chlamydia infection ages 15-19 per 100,000



- In 2015, Missouri had the 16th highest rate of reported cases of chlamydia among young people ages 15–19 in the United States, with an infection rate of 2,093.4 cases per 100,000, compared to the national rate of 1,857.8 per 100,000. In 2015, there were a total of 8,280 cases of chlamydia among young people ages 15–19 reported in Missouri.

Gonorrhea infection rates ages 13-19, per 100,000



- In 2015, Missouri had the 9th highest rate of reported cases of gonorrhea among young people ages 15–19 in the United States, with an infection rate of 493.5 cases per 100,000, compared to the national rate of 341.8 per 100,000. In 2015, there were a total of 1,952 cases of gonorrhea among young people ages 15–19 reported in Missouri.

- In 2015, Missouri had the 28th highest rate of reported cases of primary and secondary syphilis among young people ages 15–19 in the United States, with an infection rate of 3.0 cases per 100,000, compared to the national rate of 5.4 per 100,000. In 2015, there were a total of 12 cases of syphilis reported among young people ages 15–19 in Missouri” (pg. 8 and 9).

What is the story behind this data? Why is this report necessary? In sum, unplanned teen pregnancy is an issue that greatly impacts the health and education of adolescents and the surrounding community. According to the National Council of State Legislators (2017):

- One in four girls will be pregnant at least once before age 20.
- One in six teen moms will have a second child during their teen years.
- Teen mothers are less likely to finish high school, more likely to live in poverty, depend on public assistance, and be in poor health than slightly older mothers.
- Children of teen parents are more likely to experience lower school achievement, enter the welfare and correctional system, not complete high school, and become teen parents themselves.

And in the case of teen fathers:

- In a 2012 report by Child Trends, using National Longitudinal Survey of Youth data from 1997 through 2008, they found that in their sample size of teen fathers, more than half who fathered a teen child had an additional child between the ages of 22 and 24.
- Similar to teen mothers, teen fathers are less likely to finish school, rely on public assistance, and have lower-income jobs throughout their life (Olson, 2016).

How do we measure the impact of teen pregnancy on the surrounding community? What can be done to support young people, including parenting teens, to improve their health and wellbeing? Chapter 2 will further explore the study done by the South Carolina Campaign to Prevent Teen Pregnancy and how Teen Pregnancy & Prevention Partnership will utilize this report in order to identify effective solutions.

Chapter 2

The South Carolina Study: Research and Methodology

As discussed in the previous section of this report, a number of studies have been conducted over the past several decades in order to get a better understanding of the determinants of teen pregnancy and birth rates, from contributing factors, to the effects that they have on the surrounding community. Teen Pregnancy & Prevention Partnership has decided to utilize the study and model developed by the South Carolina Campaign to Prevent Teen Pregnancy in their 2014 report “Accelerating Progress: A Road Map for Achieving Further Reductions in Teen Pregnancy” by looking specifically at Missouri.

In implementing their report, the South Carolina Campaign wanted to better understand the decline of teen births and the prevention methods that have been put in place. Similar to Missouri, South Carolina witnessed a decline in the number of teen pregnancy and teen birth rates. In order to better understand why South Carolina had the 12th highest teen pregnancy rate in the nation, the South Carolina Campaign utilized the Collective Impact Model. The purpose of the Collective Impact Model was to get together a group of stakeholders in teen pregnancy prevention to develop a statewide plan to advance the field of teen pregnancy prevention. From there, the South Carolina Campaign posed this research question:

Research Question: If we were to invest funds in teen pregnancy prevention, where and how should we do it?

In order to answer this question, the South Carolina Campaign utilized both qualitative and quantitative methods to answer their research question. Qualitative methods included interviews with several audiences, notably physicians, school leaders, and parents. For the purpose of this replication study, we are going to focus on and highlight the quantitative portion of their research design.

To determine what areas in South Carolina had the greatest need, the South Carolina Campaign asked two questions:

1. Where do the highest number of teen births occur?
2. Where are the highest rates of teen births?

From here, the campaign determined that identifying the counties that are of the “greatest need” must move beyond comparing numbers and rates. The South Carolina Campaign chose to create a more comprehensive comparison by accounting for both numbers and rates and creating a measurement for “volume.” Volume is measured in four ways:

- High rate, low number.
- High rate, high number.
- Low rate, high number.
- Low rate, low number.

But the volume measurement only tells part of the story. It is also necessary to understand the “burden” placed on the county when a teen birth occurs. Multiple indicators were used by the South Carolina Campaign to determine how “burden” can be measured. The indicators included children in poverty, high school dropout rates, infant mortality, rate of teen births, and rate of births to mothers under 20 who had prior live births.

Each factor was then given a value of 1 or 2 points when calculating burden level. If the counties were greater than the average for the state, they would receive points towards their final burden level. The county would receive 1 point for the higher than state average levels for: child poverty level, high school dropout rate, and infant mortality rate. The county would receive 2 points for higher than state average for: teen birth rate and repeat births to mothers under 20. The counties were then placed into categories of low (scoring <4), moderate (scoring 4-5), and high (scoring 6-7).

Based on both the “volume” and the “burden” measurements, the Campaign concluded that both are necessary to take into consideration when identifying counties in South Carolina in need of resources for teen pregnancy prevention. It is also informative to consider in what counties high volume and high burden overlap. As the South Carolina Campaign concludes, when identifying which counties have the greatest need, a holistic approach that includes both a qualitative and quantitative analysis that addresses both the volume and burden for each county is necessary when identifying the most effective solutions to be implemented.

Changes to the Report for Teen Pregnancy Prevention Partnership

The report created by the South Carolina Campaign to Prevent Teen Pregnancy provided a helpful model to replicate in Missouri in order to understand which counties have the greatest need when addressing teen pregnancy and adolescent sexual health. For the purposes of this replication study, Teen Pregnancy & Prevention Partnership has chosen to modify a few key components of the model.

As addressed in the previous section, this replication will focus specifically on the quantitative model created by the South Carolina Campaign in order to answer the research question that was posed. For this quantitative analysis, we are redefining the “burden” measurement by renaming it the “impact” measurement. Although both “burden” and “impact” measure many of the same variables, we felt that “impact” more adequately represented what we are attempting to do with this replication study; understand the impact of teen pregnancy and adolescent sexual health on the individual and surrounding community.

Because of this, we also chose to use a series of different variables in order to measure impact based on previous literature outlined in Chapter 1. These variables include:

- Infant mortality rates (total rates between 2011 and 2015)
- Low birthweight rates (total rates between 2011 and 2015)
- Percent of children in poverty (2015)
- Rate of Annual High School Dropouts (2015)
- Gonorrhea rates (all sexes, ages 15-19, in 2016)
- Chlamydia rates (all sexes, ages 15-19, in 2016)

For the infant mortality rate and low birthweight rate, these rates are not adjusted for age. That is because the county level numbers and rates would be too low to be reliable.

Now that the research design and changes to the model have been addressed, Chapter 3 will delve into the analysis of each of the counties in Missouri and their teen birth numbers, rates, volume, and impact levels.

Chapter 3

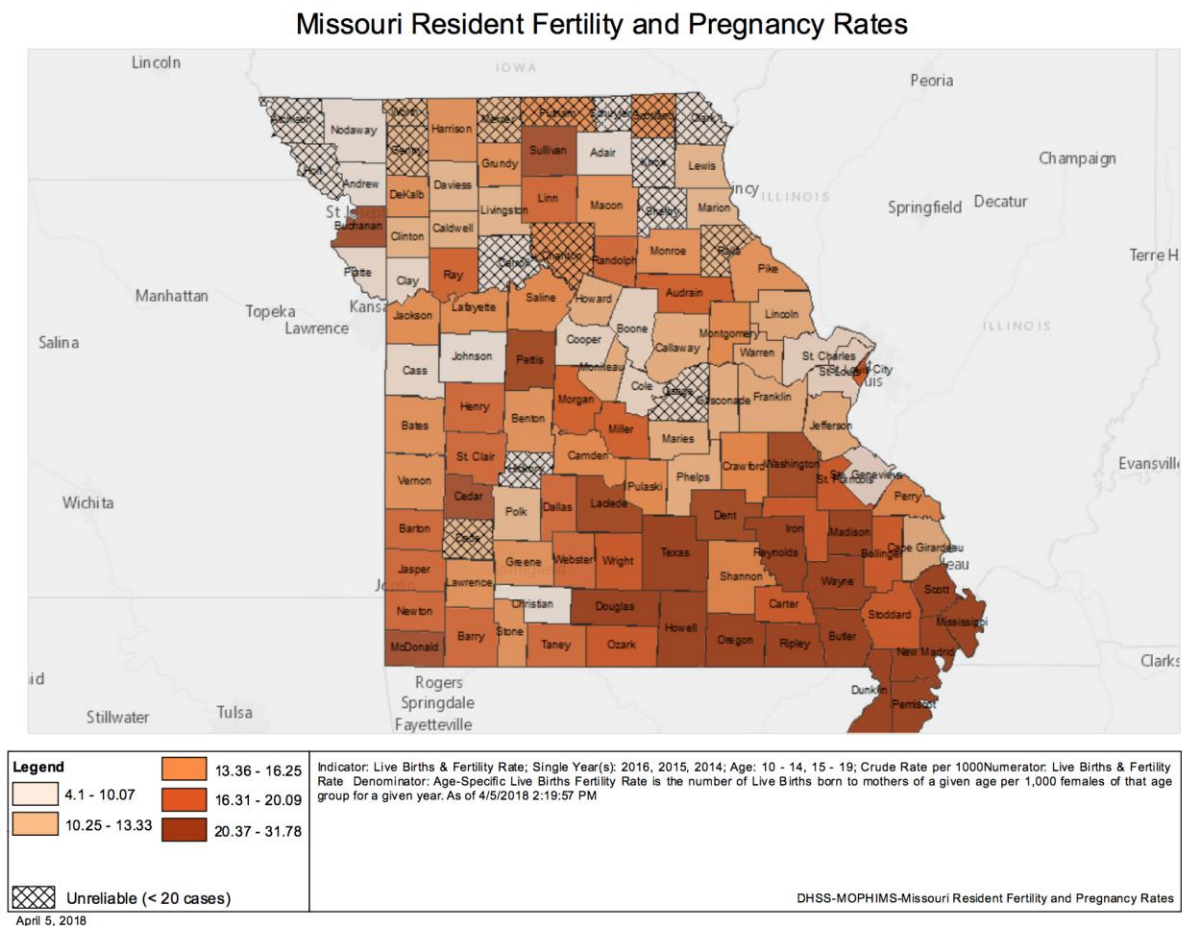
Results

Numbers Versus Rates

Two of the most basic ways to illustrate the impact of teen pregnancy are to look at the number of occurrences in a given period and to look at the rate. When doing this we find that the two measures result in different counties that make up the top ten affected.

- Landscape of Missouri in 2015 among women age 15 to 19:
 - Total number of births: 4,835
 - The average number of births among all counties: 42.41 (rounded up to 43)
 - The average birth rate among all counties: 25.03

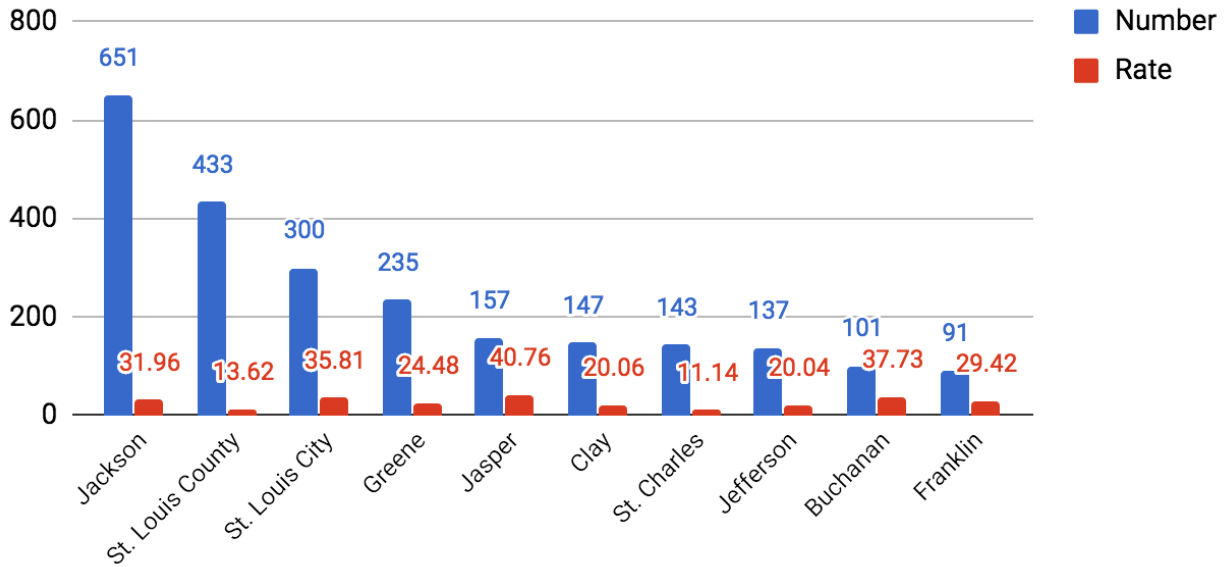
Below is a map of teen pregnancy rates for young women in Missouri ages 10 to 19 from 2014 to 2016 from the Missouri Department of Senior Services Fertility and Pregnancy Rate MICA.



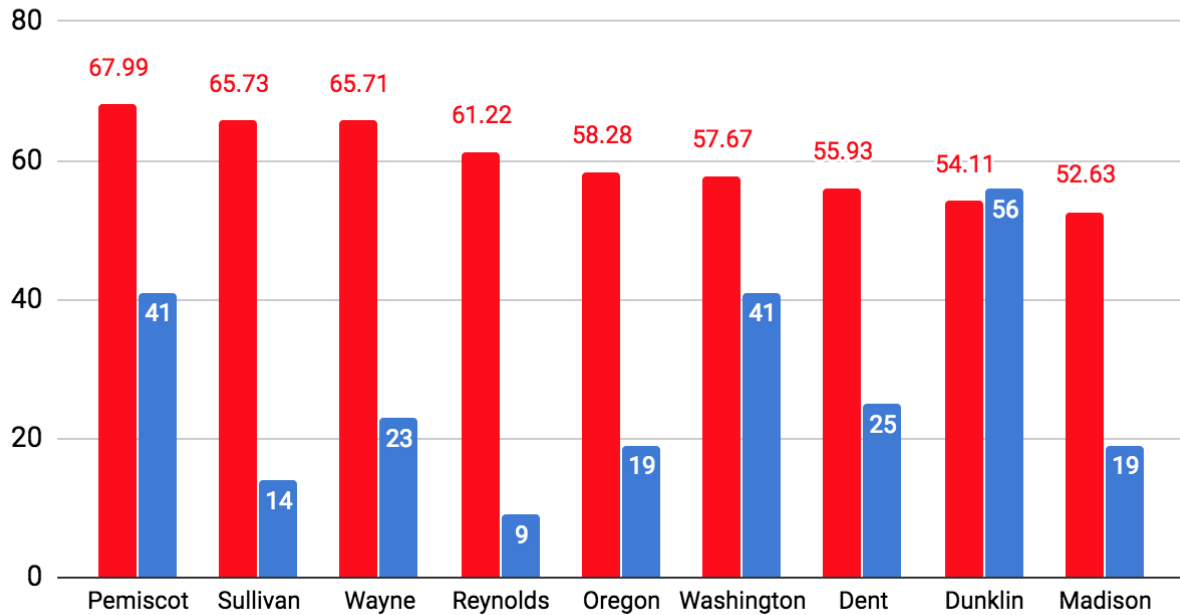
Map from Missouri Department of Health and Senior Services (DHSS). Fertility and Pregnancy Rate MICA. MOPHIMS (Missouri Public Health Information Management System). <https://webapp01.dhss.mo.gov/MOPHIMS/MOPHIMSHome>. Accessed April 5, 2018

High Number Counties		
County	Number	Rate/1000
Jackson	651	31.96
St. Louis County	433	13.62
St. Louis City	300	35.81
Greene	235	24.48
Jasper	157	40.76
Clay	147	20.06
St. Charles	143	11.14
Jefferson	137	20.04
Buchanan	101	37.73
Franklin	91	29.42
TOTAL:	2,395	
% of Total Births	49.5%	

Teen Pregnancy Rate High Number Counties



Teen Pregnancy High Rate Counties



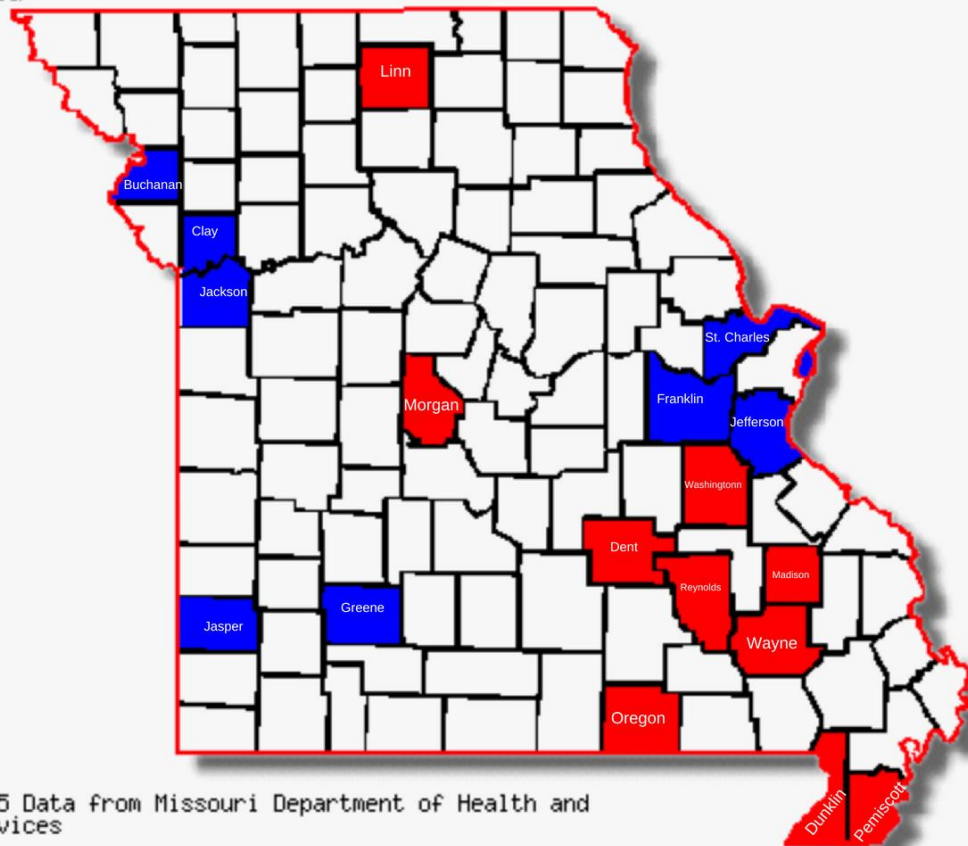
High Rate Counties		
County	Number	Rate/1000
Pemiscot	41	67.99
Sullivan	14	65.73
Wayne	23	65.71
Reynolds	9	61.22
Oregon	19	58.28
Washington	41	57.67
Dent	25	55.93
Morgan	28	55.01
Dunklin	56	54.11
Madison	19	52.63
TOTAL:	275	
% of Total Births	5.75%	

Rate vs. Number

When we look at the top ten counties in terms of number, we find that these counties account for 49.5% of the total number of teen births in the state. Meanwhile, looking at the top ten counties by rate, we find that these accumulate to only 5.75% of the total number of teen births in the state. We also find that there are no overlapping high number counties and high rate counties in the top 10 list. A map illustrating the high rate and high number counties is included on the following page.

Counties Impacted by High Rates and High Numbers of Teen Births

- - High Rate
- - High Number



NOTES:

Based on 2015 Data from Missouri Department of Health and Senior Services

Source: diymaps.net (c)

Volume

While the information regarding teen pregnancy/birth numbers and rates is useful, one is left to question if it is more important to intervene in counties with high numbers or counties with high rates. Another calculation that looks at combination of both number and rate is “volume”.

As defined previously, a high volume of teen births, for the purposes of this report, is a county that has both a number and rate greater than the average of the state. High volume counties can be seen in the Table 2 in the Appendix. The other three tables and the counties they contain may also be useful in determining where each county stands in terms of both rate and number. Table 1 contains counties with a rate higher than the state average but a number lower than the state average. Table 2 counties, as previously mentioned, are high volume (higher than the Missouri average in both rate and number). Table 3 contains counties with a higher than state average number, but a lower than state average rate. Table 4 contains counties with both a lower than average rate of teen births and number of teen births. Tables of the counties in each group, along with counties that were excluded, are in the Appendix of this report.

Impact

In addition to knowing where teen births are most common, we must know what areas require the most resources to support teens, especially teen parents. This can be determined by understanding the potential impact of teen births in a county as well as related sexual health indicators. Because there are numerous ways in which teen birth can have an effect, we will look at several factors. These factors include:

- Infant mortality rate totals between 2011 and 2015 (gathered from the Missouri Department of Health and Senior Services)
- Low birthweight rates between 2011 and 2015 (gathered from the Missouri Department of Health and Senior Services)
- Gonorrhea rates (all sexes, ages 15-19) in 2016 (gathered from the Missouri Department of Health)
- Chlamydia rates (all sexes, ages 15-19) in 2016 (gathered from the Missouri Department of Health)
- Percent of children in poverty in 2015 (gathered from Missouri KIDS Count indicators)
- Rate of annual high school dropouts in 2015 (gathered from Missouri KIDS Count indicators)

Each factor was then given a value of 1 point when calculating impact level. If the counties were greater than the average for the state, they would receive points toward their final impact level. If the county and state average are equal, the county will be given a value of .5 points when calculating the impact level. If the county average is lower than the state, then the county will receive 0 points for that specific impact level.

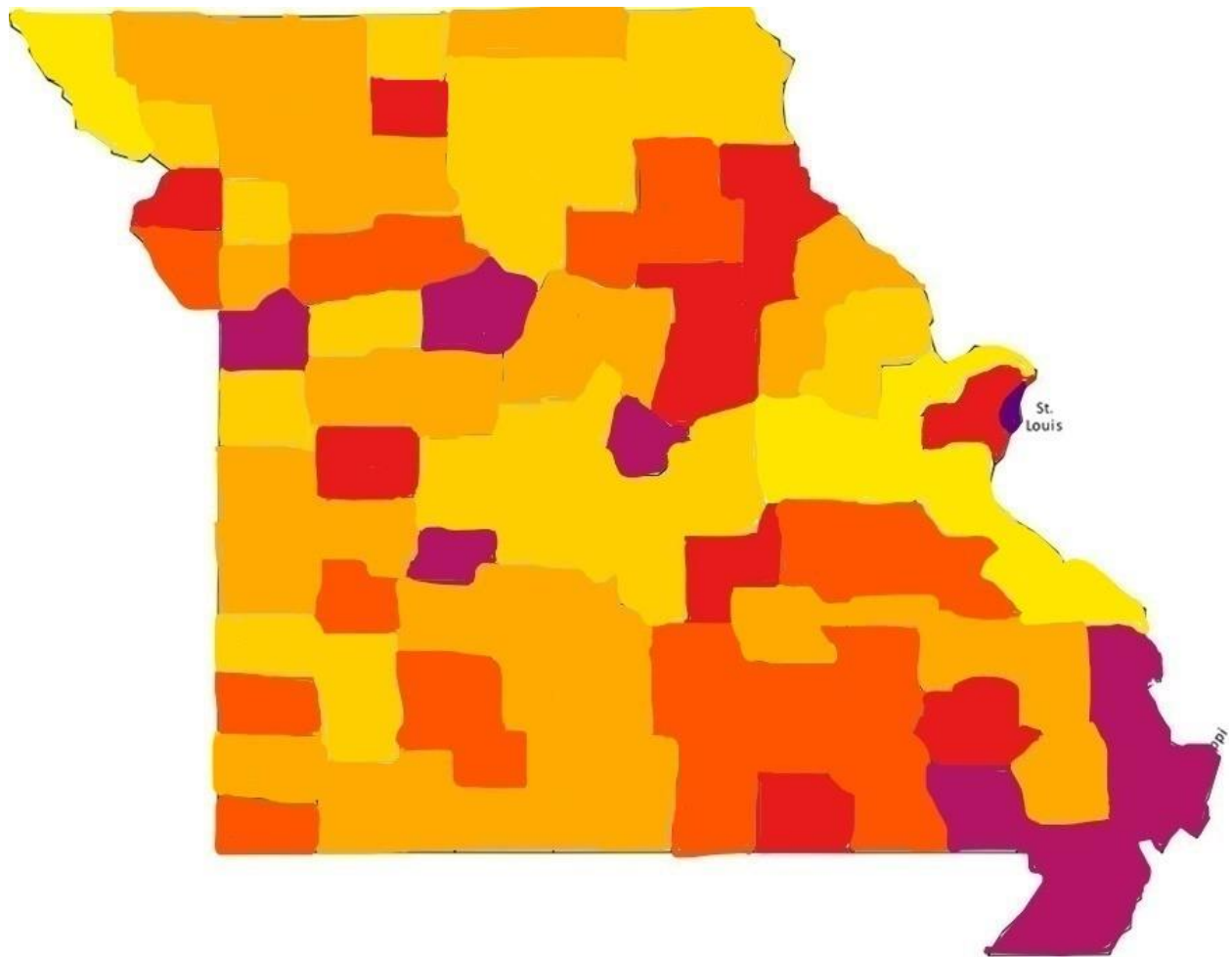
The counties were then placed into categories of low, moderate, and high impact level.

Additionally, to paint a better picture of what types of counties have an increased impact, rural counties have been italicized. The 2013 NCHS Urban-Rural Classification Scheme determined rural designation for counties.

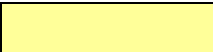






Impact Level

High Impact	Moderate Impact	Low Impact	
Scoring 5-6	Scoring 3-4	Scoring < 3	
<p>Scored 6: St. Louis City</p> <p>Scored 5: <i>Butler</i> Cape Girardeau Cole <i>Dunklin</i> Jackson <i>Mississippi</i> <i>New Madrid</i> <i>Pemiscot</i> <i>Saline</i> <i>Scott</i></p>	<p>Scored 4: <i>Audrain</i> Buchanan Callaway <i>Henry</i> <i>Marion</i> <i>Oregon</i> <i>Phelps</i> <i>Ralls</i> St. Louis County <i>Wayne</i></p> <p>Scored 3: <i>Carroll</i> <i>Cedar</i> Christian <i>Crawford</i> Greene <i>Howell</i> Jasper McDonald Platte <i>Randolph</i> Ray <i>Reynolds</i> <i>Ripley</i> <i>Shannon</i> <i>St. Francois</i> <i>Texas</i> <i>Washington</i></p>	<p>Scored 2: <i>Barry</i> Bates Bollinger Boone Caldwell <i>Carter</i> Clay <i>Cooper</i> Dallas <i>Daviess</i> DeKalb <i>Dent</i> <i>Gentry</i> <i>Harrison</i> <i>Howard</i> <i>Iron</i> <i>Johnson</i> <i>Laclede</i> <i>Livingston</i> <i>Madison</i> <i>Montgomery</i> Newton <i>Nodaway</i> <i>Ozark</i> <i>Pettis</i> <i>Pike</i> Polk <i>Putnam</i> <i>St. Clair</i> <i>Stoddard</i> <i>Stone</i> <i>Taney</i> <i>Vernon</i> Webster <i>Wright</i></p>	<p>Scored 1.5: <i>Benton</i> Moniteau</p> <p>Scored 1: <i>Adair</i> Andrew <i>Barton</i> <i>Camden</i> Cass <i>Chariton</i> Clinton <i>Dade</i> <i>Douglas</i> <i>Knox</i> Lafayette <i>Lawrence</i> <i>Lewis</i> Lincoln <i>Linn</i> <i>Macon</i> <i>Maries</i> <i>Miller</i> <i>Morgan</i> <i>Pulaski</i> <i>Scotland</i> <i>Sullivan</i> Warren</p> <p>Scored .5: <i>Perry</i></p> <p>Scored 0: Franklin <i>Gasconade</i> Jefferson St. Charles <i>Ste. Genevieve</i></p>

Impact Level Map



Impact Level Map Key

Impact Score 0	
Impact Score 1	
Impact Score 2	
Impact Score 3	
Impact Score 4	
Impact Score 5	
Impact Score 6	

Counties with High Volume and High Impact

County Name	Number	Rate	Impact Score
Butler	55	43.96	5
Dunklin	56	54.11	5
Jackson	651	31.96	5
Scott	53	49.72	5
St. Louis City	300	35.81	6

After analyzing both the “volume” and “impact” measurements, there are five counties that have both a high volume and high impact: Butler County, Dunklin County, Jackson County, Scott County, and St. Louis City. Chapter 4 will delve deeper into how these results can be interpreted and what this means for work that must begin or continue in Missouri.

Counties with High Impact and High Volume Levels



Chapter 4

Results

The five counties that have both a high volume and high impact score accounted for nearly a quarter of the teen births in Missouri in 2015. Three of the five (Butler, Dunklin and Scott) are rural counties located in the Missouri bootheel. Jackson County and St. Louis City are urban locations with significant differences in demographics and resources from the bootheel. While young people in all of these counties could benefit from teen pregnancy prevention programs, there is not one approach or evidence-based intervention that will fit all these communities. This information should, instead, be used to inform local efforts to provide sustainable services and programs that are tailored to the community.

The South Carolina Campaign's original report included qualitative data which informed their priority activities. Considering the distinct geographies and demographics of the five counties that stand out based on the quantitative analysis, this report should serve as an invitation to these communities to explore the issues impacting teen birth rates and adolescent sexual health. Qualitative data can be combined with the information in this report to create local initiatives that support young people and improve the health of the community.

Future Research and Strategic Direction

The focus of this report was a broad analysis of the impact of teen pregnancy and related health indicators in Missouri. However, we know that there are significant disparities in teen pregnancy and health outcomes. National data show racial disparities and disparities associated with sexual orientation and gender identity. Data and research on populations in Missouri impacted by disparities should be gathered and analyzed so that targeted, evidence-based interventions can be implemented in order focus scarce resources where they can create equity and significantly impact outcomes. In addition, more research should be done as evidence-based and evidence-informed programs and curricula are implemented to strengthen them and support the creation of innovative new interventions.

While this report acknowledges the social determinants of health, Missouri-specific data that clearly connects health outcomes with those social determinants could also be used to create effective interventions.

TPPP is committed to continuing collective efforts to support young people in teen pregnancy prevention and adolescent sexual health. This includes evaluating and sustaining existing activities, addressing disparities, and working with community partners across the state to create innovative new programs and policies. Programs and initiatives in the counties with high impact and high volume scores should be a priority in these efforts.

Knowing the impact teen pregnancy has on Missouri, TPPP has focused programming in the areas of community engagement/public awareness, professional development and advocacy.

Work in these areas is aligned with TPPP's mission and strategic work plan in order to support teen pregnancy prevention and adolescent sexual health throughout the state. Additional information and opportunities to join in these efforts are available on [TPPP's website](#).

Conclusion

Even as the teen birth rate has declined, sexual health education is inadequate or inconsistent in many Missouri school districts and educators do not have the resources they need to implement it. Broader grassroot support and greater political capital is needed to enact policies to ensure comprehensive, medically-accurate sexual health education is provided to all students across the state. This report highlights the importance of comprehensive sexual health education in unplanned teen pregnancy prevention efforts. It also includes a review of the funding for teen pregnancy prevention which does not reach all youth and is not dedicated solely to comprehensive programs. By integrating the sexual health information into classes and community programs, more Missouri students would have the knowledge they need to make healthy decisions and prevent unplanned pregnancies and STIs.

This report also illustrates the complex nature of teen pregnancy as an indicator of individual and community health. Efforts to address teen pregnancy need to be inclusive of all young people, support positive youth development and acknowledge the related social determinants of health or they could have negative repercussions within the community, especially for teen parents. TPPP is committed to working with partners across Missouri to center youth in these efforts and build capacity for systems-level change that goes beyond teen pregnancy prevention to promote adolescent sexual health.

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Appendix

Table 1: Counties with high rate, low number.

County	Birth Number (2015)	Birth Rate (2015)
Audrain	30	42.61
Barton	19	46.45
Benton	13	29.02
Bollinger	11	30.22
Caldwell	9	29.41
Camden	40	37.66
Carter	8	41.45
Cedar	21	49.53
Chariton	5	26.74
Crawford	25	34.15
Dade	8	37.38
Dallas	17	34.55
Daviess	9	33.83
DeKalb	10	37.45
Dent	25	55.93
Douglas	13	36.62
Gasconade	12	27.84

Appendix

Table 1: Counties with high rate, low number, continued.

County	Birth Number (2015)	Birth Rate (2015)
Harrison	6	25.1
Henry	22	35.83
Howard	10	25.58
Iron	12	40.4
Lawrence	42	32.43
Linn	14	36.65
Livingston	14	33.33
Macon	16	37.91
Madison	19	52.63
Maries	7	26.52
Marion	26	27.34
McDonald	37	46.95
Miller	39	51.86
Mississippi	17	50.75
Moniteau	14	27.13
Montgomery	10	31.65
Morgan	28	55.01
New Madrid	21	38.04

Appendix

Table 1: Counties with high rate, low number, continued.

County	Birth Number (2015)	Birth Rate (2015)
Oregon	19	58.28
Ozark	9	39.3
Pemiscot	41	67.99
Perry	22	37.04
Putnam	5	37.04
Randolph	31	39.69
Ray	19	26.5
Reynolds	9	61.22
Ripley	15	38.46
Saline	21	27.31
Scotland	6	35.71
Shannon	9	34.22
Stoddard	42	49.94
Stone	32	41.13
Sullivan	14	65.73
Texas	28	37.89
Vernon	27	31.8
Washington	41	57.67
Wayne	23	65.71
Webster	42	33.2
Wright	28	49.73

Table 2: Counties with high rate, high number.

County	Birth Number (2015)	Birth Rate (2015)
Barry	46	44.53
Buchanan	101	37.73
Butler	55	43.96
Dunklin	56	54.11
Franklin	91	29.42
Howell	59	47.93
Jackson	651	31.96
Jasper	157	40.76
Laclede	55	51.35
Lincoln	48	25.3
Newton	55	28.98
Pettis	55	38.43
Pulaski	57	31.35
Scott	53	49.72
St. Francois	62	34.31
St. Louis City	300	35.81
Taney	52	28.76

Table 3: Counties with low rate, high number

County	Birth Number (2015)	Birth Rate (2015)
Boone	80	10.54
Cape Girardeau	58	19.45
Cass	69	20.21
Christian	55	19.99
Clay	147	20.06
Cole	45	18.15
Greene	235	24.48
Jefferson	137	20.04
Platte	50	16.49
St. Charles	143	11.14
St. Louis County	433	13.62

Table 4: Counties with low rate, low number

County	Birth Number (2015)	Birth Rate (2015)
Adair	17	10.71
Andrew	9	16.45
Bates	8	16.16
Callaway	40	24.48
Carroll	5	16.45
Clinton	14	22.19
Cooper	6	11.39
Gentry	5	24.39
Johnson	35	15.67
Knox	0	0
Lafayette	24	23.17
Lewis	6	15.38
Nodaway	12	8.3
Phelps	35	24.51
Pike	11	22.09
Polk	23	16.99
Ralls	5	18.87
St. Clair	6	24.69
Ste. Genevieve	7	13.23
Warren	22	22.87

Counties Not Included in Analysis:

Suppressed due to low number for confidentiality.

County	
Atchison	Monroe
Clark	Osage
Grundy	Schuyler
Hickory	Shelby
Holt	Worth
Mercer	