



TEENAGE PREGNANCY

The Case for Prevention and Increased Quality of Life
in Waco, Texas

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*Note: This research was conducted through evidence based studies. Sources were accumulated and utilized based on quality of evidence not assessing political motives of researchers or their affiliate groups. All results reflect

quantitative and qualitative analysis and do not reflect the personal opinions of the researchers, Texas A&M University, or SmartBabies.

Executive Summary

In 2011, Texas was ranked 5th in the nation for total teen births rates amongst females, ages 15-19 (Department of Health and Human Resources 2011). Compared to the national average in the United States of 31.3 per one thousand, in 2011 46.9 per one thousand of Texas teens became pregnant (Appendix A). Teen Pregnancy is a very real issue in Texas, and the Waco community has found itself in the forefront of this fight.

In 2007, the Waco Foundation, a community-based foundation that supports the Waco and McLennan County areas through grant making and philanthropy, commissioned a Quality of Life Report to be conducted within their community. Children in McLennan County were discovered to have an overall quality of life score, a measure of physical health status and disease, of 41.67%. Dispersed among the county's zip codes, this score represented a 57% disparity in scores between the lowest and highest zip codes in the county (Smith, Romero and Alonzo 2009). In searching for causes for this disparity, the Quality of Life Report found a correlation between low early childhood quality of life and teenage parents (Smith, Romero and Alonzo 2009).

This led to the community accepting the urgency of the issue and creating the SmartBabies Early Childhood Initiative. It is SmartBabies' mission to raise the quality of life for all children within McLennan County. Because of this, the SmartBabies Steering Committee, encompassing representatives from health care, business, and early childhood development sectors, has determined the best way to address low quality of life caused by teen pregnancy is to prevent teenage pregnancy altogether by introducing "preventative" programming (SmartBabies Community Update, 2013).

The Waco Foundation SmartBabies Early Childhood Initiative commissioned this study to provide an analysis of the relative costs of teen pregnancy prevention as opposed to reactive support in the Waco, Texas community and to support the community's current and future projected programming activities. The analysis includes a literature review, collection of secondary data, qualitative interviews, and an inclusive presentation of findings to SmartBabies, the Waco Foundation and its stakeholders, showing the positive impacts as a result of Waco proactively reducing teen pregnancy.

Key words: teen pregnancy, prevention, community initiative, evidence-based prevention

Glossary of Teen Pregnancy Terminology

Abstinence-only sex education (Collins, et. al 2002)

Abstinence-only education is a form of sex education that focuses on instilling the concept of sex outside of marriage always being inappropriate. This form of education does not include that of safe sex. Fans of this form of education argue that abstinence is the only way to reduce STDs. Those who oppose argue that these programs withhold information from adolescents that might help them make better decisions. Results from this form of education have proven to be statistically insignificant and unsuccessful in reducing teen pregnancy.

Community-Based Initiative (Boonstra 2009)

A community-based initiative is one that brings community programs together to fight for a solution to a social issue. It motivates community members and programs to utilize their strengths in uniting efforts to reduce teen pregnancy, for example. SmartBabies is an example of a community initiative. These initiatives combine resources and expertise to more efficiently address social issues.

Comprehensive sex education (Bridges and Alford 2009)

Comprehensive sex education is often used by teen pregnancy prevention practitioners to implement evidence-based education into curricula and programming. According to Bridges and Alford (2009), evaluations of comprehensive sex education programs show that these programs can help youth delay onset of sexual activity, reduce the frequency of sexual activity, reduce the number of sexual partners, and increase condom and contraceptive use.

Curriculum (Boonstra 2009)

Curricula refer to the sex education ideals instilled in teens. The curricula can be taught by a program (see definition below) or by a high school educator or administrator. It can reflect abstinence-only or evidence-based education (see definition below).

Evidence-based sex education (Healthy Teen Network 2010)

Evidence-based education is defined as science-based programs that use social science research to assess the needs of the teens they serve and conduct outcome evaluations to continually improve programs. These programs are designed to delay sex in adolescents through extended programs that teach youth communication skills, address peer pressure, and are adjusted for the age and experience of participants. This form of education was adopted in 2006 after the U.S. saw a spike in teen pregnancy.

Preventative Support (Guttmacher 2013)

Preventative support comes prior to the pregnancy or birth of a child to a teen mother. The support can come through curriculum and education (see definition below), through contraceptive supply, or through general knowledge of the consequences of teen pregnancy. This support uses mostly evidence-based (see definition below) programming and curricula to reduce the chances of teen pregnancy.

Program (Boonstra 2009)

A program is a single entity that works based off its own mission, budget, and strategic plan. Programs, in the case of teen pregnancy, serve as providers rather than facilitators (community initiatives). They often function as the branches of a community initiative and work directly with the target sample, teen mothers, fathers, and their children in this case.

Reactive Support (Guttmacher 2013)

Reactive support in regards to teen pregnancy would include any medical, health, or educational care given to the teen parent, mother or father, of a child. The support could come in the form of a nurse-family practitioner who helps the mother learn parenting habits, it could come in the form of contraception given to a mother to reduce chances of second teen births, or it could include medical care such as abortions or treatment to the mother or child after the birth in an effort to improve quality of life for the new born.

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Chapter 1: Defining Quality of Life for Future Generations

Introduction

Teenage pregnancy is a multifaceted issue within the United States, with tax payers, individuals, and future generations suffering the consequences. In the United States, teen pregnancy rates among teens 15-19 are higher than in other developed countries, at a rate of roughly 38 out of 1000 girls becoming pregnant in 2008 (National Campaign 2013). In 2008, 31.1% of U.S. teens became parents costing taxpayers an estimated \$11 billion (Solomon-Fears 2013). Texas was ranked 5th out of 51 states in 2011 for high rates of teen pregnancy amongst females ages 15-19 and holds one of the highest rates of repeat births in the United States (National Campaign, 2013). Waco is no exception from Texas' high teen pregnancy rate, with 2.5% of their teenage, female population becoming pregnant, 8.81 infant deaths per 1000 live births, 171 unintentional and 10 intentional injuries of children ages 0-4, and rates of abuse or neglect ranging from 8.51 to 11.28 incidents per 1000 children (Smith, Romero and Alonzo 2009). Fletcher and Wolfe (2009) found that teenage childbearing is negatively associated with labor income. A teenage mother has a lower labor income of \$2,200 to \$2,400. Lee (2010) and Ashcraft, Fernández-Val, and Lang (2013) also found that teenage childbearing has significant negative effects on early socioeconomic outcomes for mothers, fathers and children.

In 2007, the Waco Foundation, a community foundation that aims to improve the quality of life of all residents within Waco and McLennan County, commissioned an *Early Childhood Quality of Life* Report to be conducted within their community. The report found that children zero to five years old in McLennan County have an overall quality of life score, a measure based on physical health status and disease, of 41.67% out of 100%. Dispersed among the county's zip codes, this score represented a 57% disparity in scores between the lowest and highest zip codes in the county (Smith, Romero and Alonzo 2009). In searching for causes of the low quality of life scores for children 0-5 years old, the Quality of Life Report found a correlation between children's quality of life and them being born to teen parents (Smith, Romero and Alonzo 2009). This led to the creation of the SmartBabies Early Childhood initiative, a community-based initiative that works to bring various stakeholders within the community together in an effort to increase the quality of life of children. The SmartBabies Steering Committee, encompassing community leaders and practitioners from various related fields, determined one way to address low quality of life is to prevent teenage pregnancy altogether.

SmartBabies has commissioned the Bush School of Government and Public Service at Texas A&M University Capstone Program¹ to provide an analysis of the costs of teen pregnancies in McLennan County. The analysis includes a review of pertinent literature framing the issue of teen pregnancy and the design of a predictive model that estimates the costs of one teen pregnancy in Waco, between the ages of 15-19. This study will reveal the savings to the Waco community if teen pregnancy is delayed between the 15-19 year old age bracket. It will also

¹ The Capstone Program provides students with hands-on learning experience and enables them to practice the lessons of the classroom in the fields of public policy analysis or management.

recommend support for future community programming, by reporting on effective teen pregnancy prevention initiatives in other communities. Researchers from the Texas A&M Bush School Capstone group have determined the Kids Having Kids (Hoffman and Maynard 2008) outline of the costs of teen pregnancy will serve as the model for the Waco- analysis. Our study collected all data comparisons and costs specific to Waco from the 2010 U.S. Census Bureau data.

In determining specific costs of teen pregnancy, it is important to recognize the scarcity of statistical modeling and evidence of the consequences associated with teen pregnancy. Understanding this issue on a holistic level includes defining the individual, societal, and economic influence teenage pregnancy can have on our nation. The following section aims to do two things 1) define key terms and programs used in literature to promote teen pregnancy prevention, and 2) shape this issue in the United States, Texas, and Waco.

Study Limitations

For the purpose of time constraints, budget and data availability, researchers used 2010 data from the U.S. Census Bureau to calculate the total cost of teen birth rates in Waco. Consultation with cost-benefit analysis and education finance expert, Dr. Lori Taylor, associate professor in the Bush School of Government and Public Service and an adjunct associate professor in Texas A&M University's Department of Economics, suggested this to be the best available sources for the purpose of this study. The year 2010 represents the most recently available, public data on teen birth rate (not pregnancy), and it is close to the historical shift to evidence-based education and programming that occurred in 2009.

The History of Teenage Pregnancy

We will first define the issue of teen pregnancy and its dimensions. Because of the potential difference in outcomes and consequences, as well as programming costs, it is important to recognize the sample of teenage women referred to in each study or literature review, and how results will differ depending upon the definition used. For adolescents, pregnancy and resulting parenthood are negatively correlated with physical and psychological health, education, and future earning potential (Hoffman and Maynard 2008). In order to understand how this correlation is relevant to society, we must account for the varying definitions of teenage pregnancy and how each can reveal a different set of costs.

Literature has revealed a number of definitions for teenage pregnancy: a female, ages 15-19 having already given birth; a female, ages 13-19 currently pregnant; a female, ages 15-19 pregnant, having not yet given birth; or a female, ages 13-19 giving birth to their second child. The consequences for each of these subgroups depend on age, resilience, environment, and the resources they have available to them. For example, teenage mothers who put off birth for 1-2 years, post adolescence have a much better chance of becoming a productive citizen and their child has a higher quality of life (National Campaign, 2013).

For the purpose of this study, we will refer to teen pregnancy using the United Nations Children's Fund (UNICEF) definition, a teen between the ages of 15 and 19, or a female who has not yet reached legal adulthood, becoming pregnant. We selected this definition because the

majority of literature and the U.S. Census Bureau data used in this study measure the costs of teen pregnancy by females age 15 to 19 years having already given birth (UNICEF 2008). Further, UNICEF (2008) defines the term “teen” as a female who has not reached legal adulthood. In the United States this signifies that most programs addressing teen pregnancy cease when the adolescent turns eighteen or graduates from high school, whichever occurs first (Collins, et al. 2002).

It is important to note that literature reflects that teenage pregnancy also impacts males, and males are included in our study’s social costs and consequences of teen pregnancy (i.e. cost of social services, lower educational attainment and therefore lower earnings potential). We discuss this idea further in Chapter 3.

In the United States, teenage pregnancy rates among the 15-19 year old female population are higher than in other developed countries, at a rate of roughly 38 of 1000 girls in 2008 (National Campaign 2013). A majority of individuals report having been sexually active before their twentieth birthday with 63.1% of twelfth graders reporting having experienced sexual intercourse (Solomon-Fears 2013). In addition to the detrimental social and economic effects of teen pregnancy on the individual teen, teenage pregnancy and parenthood negatively impact communities and society as a whole (National Campaign, 2013). In Texas, these economic effects are especially clear in the cost of teen childbearing to taxpayers.

Many teenage pregnancy prevention and sex education programs have been implemented in order to eradicate, or at least diminish, this problem. As teenage pregnancy rates dropped steadily throughout the nineties, these programs appeared successful (Ventura, et. al 2012). The decline in pregnancy rates was influenced by a decrease in sexually active teenagers and a drop in frequency of sexual intercourse among sexually experienced teens (Darroch and Singh, 1998). Whether this can be attributed to the effects of preventive programs is unclear. This trend continued for 14 years until 2006, when a 4% increase in teen births raised alarms throughout the United States (Solomon-Fears 2013). The 2006 spike was attributed to irresponsibility on the part of teens, and complacency on the part of parents and decision-makers. Due to the consistently falling teen pregnancy rate, policymakers and communities diverted resources to other issues (National Campaign 2009, Solomon-Fears 2013). While there are many factors that may have led to this increase, other than the diversion of funds and attention, policymakers used the spike as a catalyst for change.

Factors that contribute to teenage pregnancies include adolescent sexual behavior, alcohol and drug use, lack of education and information about reproductive sexual health including lack of access to tools that prevent pregnancies, peer pressure to engage in sexual activity, incorrect use of contraception, sexual abuse that leads to rape, poverty, exposure to abuse, violence and family strife at home, low self-esteem, and low educational ambitions and goals (Darroch and Singh 1998, UNICEF 2008). While these are all significant problems, one of the most challenging in the United States is risky sexual behavior among youth that often leads to unplanned pregnancies (Solomon-Fears 2013). All of these factors play a huge role in the overall costs of teen pregnancy to the Waco community. However, all of these factors are also evident in varying sectors of the Waco community. If a change is going to be made and teen pregnancy is going to be reduced, uniting the community and utilizing various program resources and expertise will be

vital (Boonstra 2009). If the community can agree that the costs need to decrease, these environmental factors that contribute to teen birth rates in Waco must be addressed. There are a number of models and educational methods that can be used to do this, but uniting as a community and using the strengths of current program to fight for a reduction in the cost of teen pregnancy to tax payers will be the most successful (Boonstra 2009).

The Role of Sex Education Curricula to Address Teen Pregnancy Prevention

Abstinence-only education focuses on instilling in the child the concept that having sex out of wedlock is always inappropriate, and therefore they do not need to be educated on safe sex practices. The use of this curricula is based upon a belief that abstinence-only education delays teen sex, albeit briefly, when it is taught to young adolescents (Howell and Keefe 2007). These programs teach that abstinence is the expected standard for school age children (Howell and Keefe 2007, U.S. Social Security Act Sec 510). There is also an emphasis on the negative results of sexual activity outside of marriage, including harmful physical and psychological effects, as well as negative effects to society.

Providing abstinence-only education (see glossary of terms) has its advantages and disadvantages. The foremost benefit is that abstinence is the only manner by which teenagers can wholly avoid sexually transmitted diseases, pregnancy, and emotional turmoil caused by a physically or emotionally abusive relationship as is related to sexual activity (Collins et al. 2002). Waiting to have sex until marriage, or even until no longer a teen, allows children time to mature emotionally and physically, develop self-esteem, and develop stronger friendships. Thus, many people, particularly in conservative communities, believe that abstinence-only education is valuable (Collins et al. 2002).

In spite of the broad implementation of this type of education and its popularity in past decades, a variety of evaluations and studies found no statistically significant link between abstinence-only programs and preventing sexual activity (Boonstra 2009; Collins, et al. 2002). Critics are quick to point out that not only do these programs withhold information from adolescents that might help them make better decisions; they simply are not successful (Boonstra 2009; Collins, et al. 2002). As such, comprehensive sex education programs are now considered the primary solution to educate teens and prevent teen pregnancy.

“Evidence-based” is defined as science-based programs that use social science research to assess the needs of the teens they serve, and conduct outcome evaluations to continually improve programs (Healthy Teen Network 2013). By teaching abstinence in conjunction with healthy practices, adolescents are more informed and have the capacity to make better decisions (HealthyTeen Network 2013). Comprehensive sex education programs, which use evidence-based curricula, are designed to delay sex in adolescents through extended programs that teach youth communication skills, address peer pressure, and are adjusted for the age and experience of participants (National Campaign 2013). Such programs strive to incorporate the message that abstinence is the ideal for teenagers, while still providing them with essential information to

assist them in protecting their health if they do engage in sexual activity. By making sexual health programs available to adolescents and increasing their health, these programs also increase the health of the overall population (Anderson, et. al 2013). Comprehensive sex education programs, although not perfected, are believed to have contributed to the decrease in teenage pregnancy rates since 2006.

A perceived flaw in comprehensive sex education is that critics feel that these programs give mixed messages by encouraging abstinence while still teaching birth control methods, and are therefore less effective at encouraging abstinence (Boonstra 2009). Some religious groups feel that comprehensive sex education encourages sexual activity and push contraceptives, but studies show that they are effective in delaying sex in teens (Boonstra 2009, Collins et al. 2002).

Therefore, the upcoming discussion of models for teen pregnancy prevention will focus on comprehensive sex education programs. These programs have been statistically shown to be more effective than abstinence-only education and incorporate a more holistic approach to teenage pregnancy prevention.

Traditionally, comprehensive sex education and abstinence-only education have been implemented as individual programs, defined by a single organization promoting, managing, and carrying out the education. UTTeenHealth, on the other hand, is defined as a community-based initiative due to its use of resources and collaboration with other organizations or agencies within the community to achieve a certain outcome. By categorizing programs that are already present in the Waco community, as well as several best practice teen pregnancy prevention organizations found across the nation, we are able to understand some of the key components of each.

A community-based initiative enables organizations to work with each other to fill in service gaps and exchange helpful information. Different from a single program, this approach utilizes the resources of many different organizations and agencies. For example, if one provider focuses solely on the health education of students in Waco, they have the potential to partner with a health care facility that shares similar goals. This concept of community-based initiatives is now rapidly gaining popularity in the United States due to their ability to increase service effectiveness and efficiency through collaboration techniques (Milner and Lomotey 2014).

This report will present the research design used to estimate the current costs of teen pregnancy to Waco tax payers, as well as determine the long-term costs to the Waco community if teen pregnancy is not delayed (i.e. 15 year projected costs if teen pregnancy continues at the current rate). The analysis then continues to review best practice programming models across the nation that have been documented to be the most effective interventions in preventing teen pregnancy, to distill specific innovations in implementation that might be of interest to the Waco community. The report will close with a prioritized set of recommend programming options deemed most feasible for enhancing the community's efforts to address teen pregnancy prevention in both the near and long-term future.

Chapter 2: Research Design

The goal of our research is to determine the economic costs of teenage pregnancy to the Waco community and identify the structure and function of best practice community-based initiatives for teenage pregnancy prevention. This chapter provides an overview of our research design. This design employs a quantitative stage, which analyzes potential costs of teenage pregnancy and childbirth to the Waco community, as well as a qualitative stage that reviews national best practice community-based initiatives. We utilize the data gathered in these stages to provide recommendations to the Waco community that will support a comprehensive, community-based strategic planning effort. The chapter provides an overview of the *Kids Having Kids* model, discusses the rationale behind employing a two stage analysis, and details the specific steps undertaken to accomplish this analysis.

Research Design: Accomplishing our Goals

This study has been designed to answer the following research questions:

1. What is the cost to the Waco community if teen pregnancy is not delayed between the 15-19 year old age brackets?
2. What programming models across the nation are:
 - a) Demonstrated as feasible models to address the needs of a community- wide strategy?
 - b) Documented to have gained momentum in preventing teen pregnancy?

To answer these questions, we engaged in two stages of data collection and analysis.

Stage 1: Quantitative Cost Analysis

In order to answer our first research question, we performed a cost analysis to determine the annual cost of teenage pregnancy and childbirth in Waco, Texas. Our cost analysis is adapted from the ten step model employed in the *Handbook of Practical Program Evaluation* (Wholey, et al. 2010) and employs cost data from *Kids Having Kids: Economic Costs and Social Consequences of Teenage Pregnancy* (Hoffman and Maynard 2008). We selected the *Kids Having Kids* model for its sophisticated methodology in isolating the teen mother's circumstances from the birth itself to discover the true costs of teenage pregnancy. Further, the *Kids Having Kids* study took great care to distinguish the causal impact of a teenage birth itself from the effects of other risk factors that could contribute to poor outcomes.

Stage 2: Qualitative Initiative Review

To respond to the second research question, we assessed methods of preventative support through a review of selected best practice community-based initiatives for teenage pregnancy prevention across the United States. This data allowed us to draw from evidence of best practices in order to define a more holistic set of recommendations to implement within the Waco community.

After reviewing the results of the cost analysis and review of best practice community-based initiatives we present recommendations for action in Waco. Recommendations have been developed keeping in mind the necessity of ensuring a clear rationale for devoting substantial community resources to teenage pregnancy prevention, as well as the importance of providing a sense of a politically feasible set of resources required to develop a community-wide strategy for teenage pregnancy prevention.

Methodology

Model

We elected to use *Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy* as the basis of our cost analysis model because of its comprehensiveness and efforts to control for outside influences (Hoffman and Maynard 2008). The study is groundbreaking in its ability to isolate underlying factors present in the teenage mother's life prior to pregnancy and separate them from the costs causally linked to pregnancy and childbirth. *Kids Having Kids* uses data from national surveys to obtain costs associated with teenage pregnancy. *Kids Having Kids* tells the public and policymakers what teen pregnancy and teen childbirth monetarily equate to and provides suggestions for teenage pregnancy prevention programs.

The *Kids Having Kids* study was first published in 1997 and updated in 2008 to provide a broad overview of outcomes associated with teenage pregnancy (Table 1) and identify consequences of teenage births for mothers, fathers, children, and society (Hoffman and Maynard 2008). *Kids Having Kids* controls for accuracy by researching groups of mothers with similar backgrounds who were in different age groups at the time their first child was born.

Kids Having Kids isolates the causal impacts of teen births from the effects of other risk factors in the lives of adolescents by controlling for three main variables: demographic characteristics (including race, geographical location, and social class), family background (such as income, education level, history of teen pregnancy), and other potential influences (Hoffman and Maynard 2008). The full list of variables *Kids Having Kids* controlled for in each cost category is detailed in Appendix D: Control Variables in Each Category. Our study adopted the *Kids Having Kids* model through a replication of its cost categories and adoption of its monetized costs associated with these categories because of its reputation as a reliable source of costs causally associated with teenage pregnancy and childbirth.

Cost Categories

Our study simplifies the *Kids Having Kids* cost categories, combining them into three categories of direct impact: costs for mothers, costs for fathers, and costs for children, as described in Table 1: Cost Categories. These categories are an adaptation of those contained in the *Kids Having Kids* study, which we employed to determine the national costs of teenage pregnancy and monetize the costs using the Waco specific data available in the United States Census (Hoffman and Maynard 2008, Census). We adjusted the costs outlined in the *Kids Having Kids* study to the cost of teenage pregnancy prevention in Waco by utilizing Waco specific demographic information obtained from the U.S. Census.

Table 1: Cost Categories

This table indicates the categories we have selected from which we have assessed the costs of teenage pregnancy and childbirth, disaggregated to mothers, fathers and children’s outcomes on a range of relevant indicators.

	<i>Kids Having Kids Findings</i>
Costs and Consequences for Teen Childbearing Mothers	Teenage mothers are less likely to graduate from high school and the positive effect of completing General Education Development (GED) is small and not offsetting. Impacts on own earnings and the income of a spouse are also both negative and reasonably large.
Costs and Consequences for Fathers	In general, early entry into fatherhood is associated with lower levels of schooling, lower actual occupational income, and fewer hours worked in the labor market.
Outcomes for Children of Teen Mothers from Kindergarten through Adolescence	A young maternal age represents a clear marker for children who experience challenges and disadvantages. Children born to teen mothers are a disadvantaged group; delaying these pregnancies would foster child well-being.
Children’s Health and Healthcare	Children of young teen mothers tend to have more chronic health problems than the children of older mothers. In addition, although the children of young teen mothers visit medical providers less frequently and have lower total medical expenses, a larger percentage of the expenses they incur are paid by others in society than is the case among children of older mothers.
Consequences of Teen Childbearing for Child Abuse, Neglect, and Foster Care Placement	Children of adolescent moms are more likely to be physically abused, abandoned, or neglected. Early childbearing and closely linked factors lead to 23,600 children—an estimated 5% of all those born to adolescent mothers each year—ending up in foster care. (The effect of adolescent childbearing on foster-care placement results in a taxpayer burden as high as \$900 million a year.)
Consequences of Teen Childbearing for Incarceration among Adult Children	Studies show a delay of a teen birth would decrease the probability of incarceration by 10.6% and years in jail by 13.4%.
Children of Teen Mothers as Young Adults	This cost refers to the intergenerational impact of a teen birth on outcomes for young adults. Impacts do not end with the mother or even the child, but can continue for many generations. Especially strong impacts are found for children of young teen parents for both high school completion, and even more so, the probability of having a teen birth.
The information contained in this table was taken as secondary data from <i>Kids Having Kids</i> (2008), as well as qualitative data retrieved in an interview with Dr. Rebecca Maynard, principle investigator for <i>Kids Having Kids</i> .	

Assumptions

The cost analysis employed in *Kids Having Kids* rests on two key assumptions and any monetized costs in the *Kids Having Kids* study were calculated based on these assumptions. By utilizing the cost data found in *Kids Having Kids*, these assumptions were adopted into our analysis.

- **Assumption One:** The measured economic consequences of adolescent childbearing fall into three broad classifications. These three classifications are isolated to locate the direct economic consequences of teenage pregnancy (Hoffman and Maynard 2008).
 - a) The first classification relates to the productivity of mothers, their spouses, and their children in adulthood as measured by income and levels of educational attainment.
 - b) The second measures public assistance received through TANF, SNAP, public housing and healthcare subsidies. Such costs include per child estimated costs along with the costs of administering public welfare programs.
 - c) The final classification includes three other consequences of adolescent childbearing: out of pocket costs of healthcare, costs of foster care, and costs of incarceration.

Based on this assumption, the monetized costs included in our study incorporate income, education, public assistance received, and costs associated with healthcare, foster care, and incarceration as consequences of teenage pregnancy and childbirth.

- **Assumption Two:** This assumption indicates that there are four clusters of perspectives from which costs and consequences are measured. These are productivity effects (measured by earnings of mothers, spouses, fathers, and children), private transfers and taxes (which includes child support), public assistance, and other consequences.²

In accordance with the second assumption, the monetized costs recognized in our study also accounted for these four perspectives and their impacts on the cost categories reviewed. Bearing these assumptions in mind, *Kids Having Kids* estimated costs for each cost category that we have adapted into our model. Any monetized cost we adopted from the *Kids Having Kids* study was calculated in that study using these assumptions (2008).

A detailed version of the modeling process for our cost analysis is included in Appendix F, which provides the specific formulas to determine costs for the aforementioned cost categories (Table 2). All costs included in *Kids Having Kids* were obtained at the national level. To conduct a cost analysis that assists SmartBabies in garnering community support and establishing its teen pregnancy prevention efforts, it was necessary to convert the national numbers to Waco specific numbers for these categories. We obtained Waco specific data through the U.S. Census, the American Community Survey, State of Texas formula funding and the Texas Education Agency. With this information, we were able to determine the impact on the Waco community of delaying pregnancy in the teenage population for women ages 15-19.

² These perspectives and their impacts on teen mothers, taxpayers, and society can be found in Appendix E: Analytic Framework for the Cost Analysis.

Stage 1: Quantitative Cost Analysis

In order to determine the costs associated with teenage pregnancy and childbirth in Waco, and the potential savings if these are prevented, we conducted a cost analysis. Cost analysis refers to the evaluation of factors associated with a problem according to their costs when each is measured in monetary terms (Levin and McEwan 2000). A cost analysis allowed us to calculate the costs associated with the results of teenage pregnancy and childbirth and understand the savings to Waco if teenage pregnancy is prevented.

In the *Handbook of Practical Program Evaluation*, Wholey, et al. (2010) presents a ten-step process to completing a Cost Analysis. His ten steps are as follows:

1. Set the framework for the analysis
2. Decide whose costs and benefits should be recognized
3. Identify and categorize costs and benefits
4. Project costs and benefits over the life of the program, if applicable
5. Monetize (place a dollar value on) costs
6. Quantify benefits in terms of units of effectiveness, or monetize benefits (only when conducting cost effective analysis or cost benefit analysis)
7. Discount costs and benefits to obtain present values
8. Compute a cost - effectiveness ratio or a net present value (only when conducting cost effective analysis or cost benefit analysis)
9. Perform sensitivity analysis
10. Make a recommendation where appropriate³

Our cost analysis methodology adopted a modified version of Wholey's model, presented below:

The Framework

Establishing the framework of the analysis began with understanding the status quo in Waco, or the state of the teenage pregnancy prevention problem in the absence of a community-based initiative to prevent teenage pregnancy. The scope of our study was not to assess the effects of an existing program in the Waco community, but rather to determine the costs of the problem to be addressed (teenage pregnancy) in order to support the development of programming.

Waco does not currently have an established community-based initiative to prevent teenage pregnancy and childbirth. As such, the focus of our analysis was to assess the costs teenage pregnancy and childbirth and their resulting effects on impacted parties in the City of Waco, and the anticipated savings if these costs could be prevented. The findings of this cost analysis comprise Chapter 3 of this study, which includes a discussion of the quantitative costs of teenage pregnancy, childbirth, and associated costs that result from pregnancy and childbirth in the teen years.

Whose Costs Are Recognized

The costs we selected for our study are those associated with individuals directly affected by teenage pregnancy and childbirth: teenage mothers, fathers, and the children of teenage mothers.

³ A detailed version of Wholey's ten step outline is included in Appendix B

The community often bears the burden of these costs. To obtain a more comprehensive categorization of recognized costs, we adopted these classifications from *Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy* study performed by Saul Hoffman and Rebecca Maynard (2008). We interviewed Rebecca Maynard for further information and refinement of our selected categories (Appendix C). These categories are discussed in greater detail in Table 1.

Data Collection: Cost Identification and Monetization

To identify and categorize costs, we utilized the previous selection of recognized costs to identify known costs of teenage pregnancy and childbirth within those categories. We adopted the cost categories found in *Kids Having Kids* (Table 1) in order to identify costs that are causally linked to teenage pregnancy. *Kids Having Kids* controlled for adolescent risk factors other than pregnancy, thereby generating a more accurate cost.

We gathered the necessary cost data for our analysis from the *Kids Having Kids* study. We employed the dollar values contained therein to assign a monetary value to our selected cost categories.

Discounting Costs

In order to provide an accurate assessment of the costs of teenage pregnancy and childbirth, we discounted the monetized costs to current values. For the annual cost, we adjusted to values in 2010 by discounting from the 2008 values presented in *Kids Having Kids* and by Fletcher (2009), in accordance with the latest U.S. Census data of 2010. We utilized the CPI Inflation Calculator from the Bureau of Labor Statistics (2014) to accomplish this task. For the 15-year cost, we need to discount it to the present value with a conservative interest rate of 2% (Board of Governors of the Federal Reserve System 2014).

Cost Projection

After discounting costs to the present year, we projected costs into future years. By so doing, we were able to identify the long-term costs of teenage pregnancy and childbirth to teenage mothers and the others whose costs we researched. Using the *Kids Having Kids* estimates, we developed an equation that projected the cost of teenage pregnancy and childbirth over the first 15 years of the child's life (Appendix G). Our research found that most costs associated with teenage pregnancy are captured within the first 15 years of the child's life, later years capture costs associated with other factors in the child's life (Hoffman and Maynard 2008). As such, we limited the projection to the first 15 years. The projection of costs occurs in Chapter 3.

Costs in Waco

Our study narrowed the geographical scope of recognized costs to the City of Waco, as defined in the United States Census.⁴ We first obtained the national costs of teenage pregnancy for those within our identified cost categories and developed an equation to apply this data to Waco using demographic data from the United States Census report (2010).

⁴ We selected the City of Waco as our area of focus following after determining that the implementation of a community-based initiative would begin at the city rather than at the county level.

Stage 2: Qualitative Initiative Review

We performed a qualitative investigation of best practice community-based initiatives to prevent teenage pregnancy and childbirth, in order to flesh out a range of “best practice” programming activities implemented across the nation, from which the Waco community might benefit as they consider next steps in their community-wide initiative. We present these findings in Chapter 4, reviewing program details, methods and strategies in existing community-based initiatives throughout the country.

We selected three initiatives from our initial research on programs for teenage pregnancy prevention based upon their major funding, significant recognition nationally as best practices, programming content, ability to engage the community, and documented reduction of teenage pregnancy rates. These include the Teen Pregnancy Prevention Initiative established by The Chicago Department of Public Health’s Office of Adolescent and School Health, the UTTeenHealth (UTTH) and the United Way of Greater Milwaukee Teen Pregnancy Prevention Initiative (TPPI). Although we did not base sampling rationale on demographics, we chose the San Antonio initiative based on their geographic proximity and Texas’ climate for teen pregnancy prevention.

We created a questionnaire to deepen our understanding of their initiative efforts and how they have gained momentum and reduced teenage pregnancy rates within their communities. This questionnaire is located in Appendix C. This supported the formulation of our recommendations for future community-based initiative plans by the Waco community.

Chapter 3: Analysis of Costs and Consequences of Teen Pregnancy in Waco

Kids Having Kids has demonstrated that teen pregnancy leads to negative effects for teen mothers, fathers, and their children nationwide. Using the *Kids Having Kids* framework, this chapter will present aggregate costs associated with teen childbearing in Waco: costs for teen mothers, costs for fathers, and costs for children.

The age range of teen mothers for whom we measure costs is 19 and younger. The basic demographic information we considered includes the Texas population, the Waco population and the teen birthrate based on the 2010 U.S. Census. The total population of Texas is 25,145,561. In Waco, the total population is 124,805, with the total adult female population between 15-19 years old being 6,366, and the number of pregnant teenagers between the ages of 15-19 is 25 per 1000. In sum, the total pregnant teenage population in Waco was 159 girls in 2010. We estimate that the total number of fathers of children born to teen moms in Waco is 159 in the same year, assuming that there is one father linked to each teenage mother. Although it is possible that a father could be linked to multiple pregnancies, we have made this assumption based on a lack of information regarding fathers of children born to teenage mothers and the numbers associated with birth and pregnancy rates in the Census.

Table 2: Demographic Information in Waco, TX

This table shows the Census numbers of populations significant to the study.

	Waco
Total Population	124,805
Total Female Population 15-19	6366
Total Teenage Mother Population	159 ⁵
Total Taxpayers Population	79,876
Source: U.S. Census 2010	

In addition to the detrimental social and economic effects of teen pregnancy on individual mothers, fathers, and children, teenage pregnancy and parenthood negatively impact communities and society as a whole (National Campaign, 2013). The costs to those directly affected by teenage pregnancy and childbirth are more obvious, but the costs to society are not always as clear. Understanding the cost of teenage pregnancy and childbirth to the community as a whole is significant when attempting to engage the community in an effort to prevent teenage pregnancy.

We first assessed the economic effects of teenage childbearing at the national, state, and local levels (Table 4). To estimate the costs to each of the selected cost categories, we gathered base costs from established studies and surveys. We extracted the national data for costs from the *Kids*

⁵ 25/1000 (Teen birthrate in Waco)*6366 (Total Female Population between 15 to 19 years old)=159

Having Kids dataset. Texas data were from the U.S. Department of Health and Human Services (2013) and The National Campaign (2011). We obtained the Waco data, including the number of teenage mothers, which is 159, by using the demographic information from the U.S. Census (Table 2), and adapting the national and state costs. Since the cost data are based on constant U.S. dollars in 2004, we adjusted costs to the 2010 dollar value (Bureau of Labor Statistics 2014). The costs we generated for each category in Waco are conservative since we are in lack of the Waco data, and we employed the national average cost to calculate them.

Table 3: Comparative Costs for Taxpayers

This table describes costs for taxpayers associated with teenage childbearing at the national, state, and city levels.

	United States (as of Dec. 2013)	Texas (as of June 2011)	Waco (2010 constant dollars)
Health Care <i>Costs associated with a lack of prenatal care, emotional hardships, preterm births, miscarriages, abortions, and dependence on government subsidies</i>	\$2.1 billion	\$221 million	\$1,143,765.25 ⁶
Child Welfare <i>Costs associated with abuse, neglect, foster-care, tax reduction, and dependence on government subsidies</i>	\$3.1 billion	\$111 million	\$574,470.33 ⁷
Incarceration <i>Costs associated with housing, feeding, and educating inmates, increased crime rate, decreased social productivity, and lower age of entry into incarceration system (reflecting higher social costs)</i>	\$2 billion	\$175 million	\$905,696.47 ⁸
Tax Revenue <i>Costs associated with decreased earning and spending potential, lower tax bracket qualifications</i>	\$9.4 billion	\$378 million	\$1,956,304.37 ⁹
Total Cost to Taxpayers	\$16.6 billion	\$785 million	\$4,580,236.42¹⁰

⁶ $221(\text{Health Care Cost to Taxpayers in Texas})/1200 (\text{Total Taxpayers Cost in Texas}) * 6210490.05 (\text{Total Taxpayers Cost in Waco}) = 1143765.25$

⁷ $111 (\text{Child Welfare Cost to Taxpayers in Texas})/1200 (\text{Total Taxpayers Cost in Texas}) * 6210490.05 (\text{Total Taxpayers Cost in Waco}) = 574470.33$

⁸ $175 (\text{Incarceration Cost to Taxpayers in Texas})/1200 (\text{Total Taxpayers Cost in Texas}) * 6210490.05 (\text{Total Taxpayers Cost in Waco}) = 905696.47$

⁹ $378 (\text{Incarceration Cost to Taxpayers in Texas})/1200 (\text{Total Taxpayers Cost in Texas}) * 6210490.05 (\text{Total Taxpayers Cost in Waco}) = 1956304.37$

¹⁰ $1143765.25(\text{Health Care}) + 574470.33(\text{Child Welfare}) + 905696.47(\text{Incarceration}) + 1956304.37(\text{Tax Revenue}) = 4580236.42(\text{Total Cost to Taxpayers})$

In sum, Table 3 indicates a minimum cost of \$4,580,236.42 in taxpayer dollars annually associated with teenage pregnancy in Waco. Taxpayers are required to shoulder the burden of costs associated with teenage pregnancy and childbirth, when the adolescent mother is unable to do so on her own. In terms of specific areas of outlay, this includes education, health, welfare, incarceration, and other government assistance. The greatest annual cost of teen pregnancy lies in the decreased tax revenue collected, due to lower earnings on the part of teenage parents. The second most significant cost is in the health care arena, for costs of care for mother and children that are subsidized by taxpayers.

In addition to the costs to taxpayers detailed in Table 3, we calculated total costs of teen childbearing in Waco in both the short term (e.g. annually) and long term (e.g. 15-year period), with short-term costs highlighting the current annual costs associated with teen pregnancy in Waco. By further disaggregating these costs, as well as projecting them along a 15-year continuum, we found that the problem of teenage pregnancy for the local community, in terms of costs to the taxpayers, is significant. Table 4 below provides a synopsis of these costs by mother, father and child.

As Table 4 shows, the total annual cost of teenage childbearing in Waco is \$6,982,086.84. The costs associated with teenage mothers' care comprise nearly half of the total annual cost of teenage childbirth. The costs associated with fathers are roughly 75% of those associated with teenage mothers. As such, decision makers should prioritize these two categories in order to make the most difference in lowering the costs associated with teenage childbirth.

We also calculated a 15-year long-term cost projection of the 159 annual teenage births in Waco, which will indicate the future impact to the community. The fifteen year projection of total costs to Waco is \$91,508,967.07. The annual costs of teenage childbirth are significant at nearly \$7,000,000, however the increase in costs when projected out to 15 years creates an even greater sense of urgency for addressing the problem of teen pregnancy in the short-term. We discuss the disaggregated costs individually below, to highlight specific costs by sector, which will help the community to prioritize specific interventions. For additional details, please see Appendix G: Calculation of Teen Childbearing Costs.

Table 4: Total Costs of Teen Childbearing in Waco, TX, Annually and 15-Year Projection

The following table describes data collected by the National Campaign, 2013 and qualitative interviews with Dr. Rebecca Maynard.

	Annually	15-Year
Costs and Consequences for Teen Child Bearing Mothers	\$370,376.19	\$4,854,242.48
Costs and Consequences for Fathers	\$284,121.87	\$3,723,771.91
Outcomes for children of teen mothers from kindergarten through adolescence (Welfare)	\$574,470.33	\$7,529,151.05
Children’s Health and Health Care	\$1,143,765.25	\$14,990,471.91
Consequences of Teen Childbearing for Incarceration among Adult Children	\$905,696.47	\$11,870,283.19
Children of Teen Mothers as Young Adults	\$117,098.73	\$1,534,725.09
Consequences of Teen Childbearing for Social Services (Child Abuse, Neglect, and Foster Care Placement, etc.)	\$1,630,253.63	\$21,366,509.75
Tax Revenue Loss Associated with Teen Childbearing	\$1,956,304.37	\$25,639,811.69
Total	\$6,982,086.84	\$91,508,967.07
The information contained in this table was taken as secondary data from the <i>Kids Having Kids</i> book, as well as from qualitative data retrieved in an interview with Dr. Rebecca Maynard, principle investigator for this study (Data adapted from Hoffman and Maynard 2008).		

Costs for Mothers

The costs of early childbearing on teen mothers is significant, both at the individual as well as societal level. Young mothers will lose significant income over the course of the child’s early years if they gave birth before 20, creating a burden on the welfare system and health care. According to Fletcher and Wolfe (2009)’s research, mothers who gave birth before 20 earn labor incomes of \$2,300 less per person on average than if they delayed their birth till 20-21 years old per person.

Beyond the costs for individual mothers, the societal consequences cannot be ignored. In total, teen childbearing in Waco is estimated to cost the community \$370,376.19 per year in lost labor by teen mothers. In the 15-year long term, the reduced labor income would be \$4,854,242.48 to the community.

The *Kids Having Kids* research found that only 70% of the teen mothers earn their high school diploma or General Educational Development (GED). High school dropouts lead to lower future income for these teen mothers. In addition, daughters of teen mothers are 83% more likely to become teen mothers before age 18 (Hoffman and Maynard 2008).

Costs for Fathers

The costs of early childbearing on teen fathers is significant, both at the individual as well as societal level. Young fathers will lose significant occupational income over the course of the child's first fifteen years.

Based on our model, each father of children born to teen mother earns \$1,786.93 annually less than men who delay fathering until age 20 to 21. In total, costs for fathers are \$284,121.87 one year. In a 15-year period, costs for fathers are \$3,723,771.91. This would reduce the tax revenue associated with the earnings loss. The *Kids Having Kids* research suggested that only 70% of the teen fathers earn their high school diploma or GED. Only having a high school diploma could result in lower occupational earnings. Young fathers are typically not financially prepared to support their children under this circumstance.

Costs for Children

According to Hoffman and Maynard (2008), there are several negative consequences and associated costs for children born to teen moms, namely the costs of health care, incarceration, costs incurred as young adults due to decreased rates of education and other associated costs, and costs of social services. The greatest cost to society is associated with the costs of children of teen mothers as adolescents, making this a priority for attention in Waco. The following numbers are calculated on an annual basis as well as over a span of 15 years, equating for inflation.

Costs of Children's Health and Health Care

Children of young teen mothers tend to have more chronic health problems than the children of older mothers, which will decrease their well-being and quality of life (Hoffman and Maynard 2008). According to Maynard (1996), the children of adolescents are more likely to be born prematurely and 50% more likely to be low birth weight babies—of less than five and a half pounds. Low birth weight raises the probabilities of a variety of adverse conditions such as infant death, blindness, deafness, chronic respiratory problems, mental retardation, mental illness, and cerebral palsy (Maynard 1996). Thus, these children entail more health and health care costs. In addition, although the children of young teen mothers visit medical providers less frequently and have lower total medical expenses, a larger percentage of the expenses they incur are paid by others in society than is the case among children of older mothers (Hoffman and Maynard 2008).

In Waco, the cost of annual healthcare for is \$1,143,765.25 for the 159 estimated children. Society shares these costs, and over a span of 15 years would equate to \$14,990,471.91.

Costs of Teen Childbearing for Incarceration

The cost of incarceration to society can be great. The children of teenage parents have a higher likelihood to suffer from the same consequences as their mothers, including a lower education rate and increased poverty rates. Studies show a delay of a teen birth would decrease the probability of incarceration by 10.6% and years in jail by 13.4% (Hoffman and Maynard 2008). In Waco, the costs of teenage childbearing for incarceration can be estimated as \$905,696.47 annually and \$11,870,283.19 in 15 years. This indicates that if teen childbearing is prevented, the corresponding incarceration fees will be saved.

Costs of Children of Teen Mothers as Young Adults

Like their mothers, children of teen mothers also suffer from lower levels of high school completion (Hoffman and Maynard 2008). Less education leads to a lower income, which leads to poverty, and this leads to significant costs for the welfare system. These linkages have led to an intergenerational impact of a teen birth on outcomes for young adults (Hoffman and Maynard 2008). Impacts do not end with the mother or even the child, but can continue for many generations. The costs to Waco are \$117,098.73 annually and \$1,534,725.09 in 15 years. Since this is the highest cost to society associated with teenage pregnancy, it should be a focus of community efforts. SmartBabies' efforts to improve the quality of life score of children within their community is one method in which these costs can be addressed.

Costs of Teen Childbearing for Social Services Expenses

Children of adolescent moms are far more likely to be physically abused, abandoned, or neglected (Hoffman and Maynard 2008). This will increase the cost of foster care, medical assistance, cash assistance, employment and support services, food stamps, rent subsidies, and administrative costs of delivering public assistance. This is no different in Waco, where the *Early Childhood Quality of Life Report* documented 171 unintentional and 10 intentional injuries of children ages 0-4, and rates of abuse or neglect ranging from 8.51 to 11.28 incidents per 1000 children (Smith, Romero and Alonzo 2009). The costs to Waco are \$1,630,253.63 annually and \$21,366,509.75 in 15 years.

Tax Revenue Loss Associated with Teenage Pregnancy

These aforementioned consequences of teen childbearing decrease children's productivity when they grow up into adults, and increase taxpayers' costs. Since some of the corresponding data for the cost categories above are not available, to calculate costs for children, we employed decreased productivity of adult children and teen childbearing costs to taxpayers. The annual productivity of one child will be decreased by \$736.47, which we acquired from *Kids Having Kids* (2008). According to the National Campaign to Prevent Teen and Unplanned Pregnancy (2011), teen childbearing in Texas cost taxpayers at least \$1.2 billion in 2008. Based on our

model, costs for children are \$1,956,304.37 each year. In a 15-year period, costs for children are \$25,639,811.69.

Table 5: Total Costs for Children of Teen Moms

This table shows the costs for children of teenage mothers in Waco annually, and with a 15-year projection.

	Annually	15-year
Decreased Productivity	\$117,098.73 ¹¹	\$1,534,725.09
Costs to Taxpayers	\$6,210,490.05 ¹²	\$81,396,227.59
Total Costs	\$6,327,588.78	\$82,930,952.68

The information contained in this table was taken as secondary data from the Kids Having Kids book, as well as from qualitative data retrieved in an interview with Dr. Rebecca Maynard, principle investigator for this study (Data adapted from Hoffman and Maynard 2008).

In sum, the annual total costs of teen childbearing in Waco based on 2010 dollars is \$6,982,086.84, including \$370,376.19 of costs for mothers, \$284,121.87 of costs for fathers, and \$6,327,588.78 of costs for children. As mentioned above, the costs associated with mothers are the highest and needs to be a priority in strategies to address teenage pregnancy. The cost for fathers is also significant, and a large area of concern for Waco. It will be especially important for the Waco community to focus on engaging adolescents to reduce the rates of teenage pregnancy. The 15-year total cost of teen childbearing in Waco is \$91,508,967.07, including \$4,854,242.48 of costs for mothers, \$3,723,771.91 of costs for fathers, and \$82,930,952.68 of costs for children (see Appendix G).

Table 6: Total Costs of Fewer Earnings Associated with Teen Childbearing

This table shows the compiled costs of fewer earnings associated with teen childbearing in Waco annually, and with a 15-year projection.

	Annually	15-year
Costs for mothers	\$370,376.19	\$4,854,242.48
Costs for fathers	\$284,121.87	\$3,723,771.91
Costs for children	\$117,098.73	\$1,534,725.09
Total Costs	\$771,596.79	\$10,112,739.48

The information contained in this table was taken as secondary data from the Kids Having Kids book, as well as from qualitative data retrieved in an interview with Dr. Rebecca Maynard, principle investigator for this study (Data adapted from Hoffman and Maynard 2008).

As you can see from Table 6, the annual costs for mothers, fathers and children are not huge, but the 15-year long term costs alarming, which will have significant impacts on healthcare and

¹¹736.47 (decreased productivity of one child)*159 (number of children born to teen moms)=117098.73

¹² 1.22 billion (annual teen childbearing costs to taxpayers in Texas) * $\frac{79,875.2}{15,690,830.064}$ ($\frac{\text{number of employees in Waco}}{\text{number of employees in Texas}}$) = \$6,210,490.05

education sectors. Among these costs, costs for children account for the largest proportion of the total costs, since taxpayers need to pay for the associated social services. The two biggest costs to the taxpayers are tax revenue loss associated with decreased earning, spending potential, and lower tax bracket qualifications and health care costs. Thus, the priority for the Waco community is to help solve problems related to children born to teen mothers. In addition, it is also important to improve teenage mothers' and fathers' education levels to increase their earnings accordingly and decrease the tax revenue loss. In doing so, health care costs could also be decreased while teenage pregnancy rate is decreasing. The following chapter provides examples of best practice community-based initiatives that can help to prevent teen pregnancy, and thus alleviate some of the costs the Waco community currently bears. Additional specific recommendations based on this cost analysis will be discussed in our conclusion in Chapter 5.

Table 7: Costs to Taxpayers Associated with Teen Childbearing in Waco

This table shows the breakdown costs to taxpayers of teen childbearing in Waco annually, and with a 15-year projection.

	Annually	15-year
Tax Revenue <i>Costs associated with decreased earning and spending potential, lower tax bracket qualifications</i>	\$1,956,304.37	\$25,639,811.69
Health Care <i>Costs associated with a lack of prenatal care, emotional hardships, preterm births, miscarriages, abortions, and dependence on government subsidies</i>	\$1,143,765.25	\$14,990,471.91
Incarceration <i>Costs associated with housing, feeding, and educating inmates, increased crime rate, decreased social productivity, and lower age of entry into incarceration system (reflecting higher social costs)</i>	\$905,696.47	\$11,870,283.19
Child Welfare	\$574,470.33	\$7,529,151.05
Total Cost to Taxpayers	\$4,580,236.42	\$60,029,717.85

Chapter 4: Opportunities for Success

After analyzing the cost of teen pregnancy not only to the mothers, fathers, and children, but also to the community as a whole, it is evident that the teen pregnancy challenge for the Waco community is significant. With the total cost to tax payers being \$4,580,236.42 a year to react to teen pregnancy, the Waco community has an opportunity to significantly reduce the cost of teen pregnancy to their community, as well as raise the quality of life of all citizens, by continuing to create their community-based teen pregnancy initiative. This chapter provides insights from a range of best practice initiatives in order to present evidence-based recommendations for the Waco community as they consider future activities to address the teen pregnancy challenge. The chapter concludes by synthesizing key learning “takeaways” from these programs.

Community-based initiatives, like that of Waco’s SmartBabies, are growing in import as collaborative, community-driven conduits to successfully address both preventative and reactive programming in a comprehensive manner. This chapter provides findings from a review of a set of such initiatives’ best practices, identified during the second stage of this research, through qualitative interviews with leadership from the City of Chicago, The United Way of Greater Milwaukee, and the University of Texas Health Science Center’s UTTeenHealth (Appendix B).

We chose these initiatives based on their national recognition for excellence in teen pregnancy prevention, as well as their status as recipients of national funding for their prevention efforts. Although these cities’ demographics differ from each other (Appendix H), each of these initiatives has proven to be successful using similar techniques, despite their differences. These programs are described based on their program structure, program costs (as outlined by initiative leadership), and the benefits or successes of their programs, as identified in interviews with each initiatives’ leadership.

The City of Chicago

We selected the City of Chicago’s Teen Pregnancy Prevention Initiative as a best practice initiative due to their innovative approaches to preventing teen pregnancy and the national recognition they have received through a grant given by the U.S. Department of Health and Human Services. Established by The Chicago Department of Public Health’s Office of Adolescent and School Health in 2010, the Teen Pregnancy Prevention Initiative aims to reduce teen pregnancies and improve care for teens in Chicago (Elder 2013). After it was found that Chicago had an alarmingly high teen pregnancy rate that was almost twice as much as the national average, the City of Chicago knew something must be done. This led the start of a community-wide initiative to not only decrease teen pregnancy, but also increase the availability of adolescent care and as a result improve the health of adolescents in Chicago.

This initiative is funded by a \$19.7 million grant from the U.S. Department of Health and Human Services and is in its first stages of implementation. The majority of the grant, approximately \$12 million, is being used in schools that are identified as high need, with another \$5 million is being used to pay evaluators of the program to ensure that CDPH is operating effectively. Evaluating the effectiveness of this approach is crucial to the future of pregnancy prevention due to the

emerging nature of this field. Approaching teen pregnancy prevention through community-wide initiatives, as already stated, is a new approach; therefore there is little research on the subject. The health department uses the remaining \$1.5 million to implement their programming. This initiative was established due to the high rate of teen births in Chicago. This program has three different focuses: the city, schools, and students. By utilizing these three different populations, CDPH hopes to establish a strong community foundation that will be effective in preventing teen pregnancy (Elder 2013).

Involvement at the city level focuses on the production of Chicago's Action Plan for Healthy Adolescents that will be distributed to key stakeholders, providers, and partners that serve adolescents. By distributing this report it will allow the city to involve more people in their fight against teen pregnancy and will alert the community to their plan. The city also works to collect and publish healthy measures through a newly established website that makes it easier for students, parents, and researchers to gain information on adolescent health (Elder 2013). To raise public awareness of teen pregnancy, CDPH launched a campaign utilizing traditional and new media to reach their targeted population. This included the use of social websites such as Twitter, Facebook, and Pandora. The media campaign focused on engaging students through participation and not on shaming their actions. The goal of the initiative is to get the students included in this process and create a safe environment. Including adolescents in the initiative and giving them an outlet for their participation will strengthen the initiative by growing their audience and allowing them to be more effective by determining what the teens need.

To engage schools in their efforts, the Chicago Public Schools Board introduced a new policy that requires comprehensive sexual health education for all students, grades K-12. The education has been established as age appropriate and aligns with the National Sexuality Education Standards (Elder 2013). The Public Schools Board enacted this policy after CDPH pushed the importance of sexual education and raised awareness of this issue within their community. Although the new sexual health education emphasizes abstinence, it also includes information on contraceptives. Director of Teen Pregnancy Prevention, Suzanne Elder, explains the importance of sexual education that includes contraceptive use so that students who choose to be sexually active are prepared prior to making that decision. Contraceptives will become available to students through condom dispensers that will be installed in various schools in the next year. Incorporating the school system into these types of initiatives is crucial to the success of the organization because it gives the initiative access to their target audience.

The Teen Outreach Program, a youth development program that has shown to reduce teen pregnancy by 50%, engages students (Elder 2013). The program curriculum includes lessons on healthy relationships and values, communication and assertiveness, goal setting and decision-making, human development and sexuality, and community service learning (Elder 2013). Although this program reaches out to all students, it focuses on students in the ninth grade in schools that have high rates of teen births and sexually transmitted infections (Elder 2013).

Because this is a newer initiative, the success of their efforts has yet to be measured. The City of Chicago will continue monitoring the rates of teen pregnancy and evaluating their processes to increase their chances of success within this community.

United Way of Greater Milwaukee

In 2005, teen births represented 18.7% of all births in Milwaukee, making it the second highest percentage of teen births in the nation (Angresano and Rourke 2011). United Way was looking for a way to reduce poverty within their community and found a strong link between teen pregnancy and the role this plays in poverty. This situation led to the creation of the ten-year Teen Pregnancy Prevention Initiative (TPPI) by the United Way of Greater Milwaukee. The main goal of the initiative was to reduce the teen birth rate by 46% by 2015 through a community-based initiative (Teen Pregnancy Prevention 2014). Establishing concrete goals is useful because it gives the community a concrete goal to work towards and establishes a way to measure success and effectiveness. In order to meet this goal, United Way knew they would have to garner support from the whole community and build a case that would resonate with everyone from the business owners, to the healthcare providers.

After the launch of TPPI, the Teen Pregnancy Prevention Oversight Committee was established to help lead the community in reaching its goal to reduce teen pregnancy. The committee consists of approximately 45 people that include business leaders, health care providers, and representatives from various organizations and agencies. Establishing a diverse group of individuals invested in this cause is one reason this initiative proved to be so successful. In addition to the oversight committee there are multiple subgroups that meet monthly and focus on various issues within the topic of teen pregnancy such as access to contraceptives, adolescent health, and outreach to certain populations. The purpose of the subgroups is to collaborate on ways in which the initiative can continue to expand and improve.

The United Way works closely with the school system, faith community, business community, and media outlets to ensure that all integral stakeholders are being included in this initiative. Through the use of the subgroups and the Teen Pregnancy Prevention Oversight Committee, United Way is able to bring everyone together and make suggestions and create opportunities for improvement and investment within the community. The United Way's main goal in the initiative is to influence these stakeholders to act in the best interest of the community to reduce teen pregnancy. Because volunteers and community members run this initiative, this is a very low cost initiative, compared to that of the City of Chicago, spending approximately \$2-3 million a year for this initiative. By utilizing the resources available to them through the various members of the initiative and committees, the United Way is able to drastically reduce their costs.

In 2012, it was reported that teen pregnancy in Milwaukee had seen a 50% decrease since 2006; TPPI had surpassed their goal three years early (Angresano and Rourke 2011). The United Way Worldwide and the White House Council for Community Solutions recently recognized this initiative as a national model for community collaboration for their success in decreasing teen pregnancy (Teen Pregnancy Prevention 2014). Although this initiative has already reached their goal of decreasing teen pregnancy, this initiative will continue to expand in an effort to further decrease teen pregnancy.

University of Texas Health Science Center San Antonio

To combat teen pregnancy within the United States, the Centers for Disease Control and Prevention partnered with the federal Office of the Assistant Secretary for Health (CDC-Teen Pregnancy Prevention, 2010-2015). The University of Texas Health Science Center in San Antonio was selected to receive a grant from the CDC to help reduce teen pregnancy in South San Antonio by 2015 by utilizing a community-based initiative. The UT Health Science Center is using the grant to expand their UT Teen Health-San Antonio Program, currently in middle schools to include high schools in south San Antonio (CDC-Teen Pregnancy Prevention, 2010-2015). To receive this grant, UTTH based their program model on the five key components outlined by the CDC:

- *Community Mobilization and Sustainability*: Engaging multiple sectors of the population to encourage and sustain the pregnancy prevention campaign. This is through the use of education events, social media, and community teams such as the Youth Leadership Team and Community Action Team.
- *Evidence-Based Programs*: Utilizing evidence-based programs, meaning program models that have been identified as successful in preventing teen pregnancy. This includes programs focused on youth development, and curriculum-based programs that reduce teen pregnancy.
- *Increasing Youth Access to Contraceptive and Reproductive Health Care Services*: Ensuring that teens are able to access effective reproductive health care services including family planning, sexual health, general wellness, and immunizations.
- *Stakeholder Education*: Educating other service providers, educators, community members and leaders to ensure that the needs of the community are being met.
- *Working with Diverse Communities*: Advocate for diverse communities to ensure that culturally appropriate programs and services are available.
(CDC-Teen Pregnancy Prevention, 2010-2015).

Through this program, UTTH works with school administrators, teachers, counselors, and others to educate students on the risks associated with sexual activity (UTTeenHealth Projects). The program works with five school districts on the South Side of San Antonio and includes more than 85 campuses (UTTeenHealth Projects). One organization UTTH works closely with is the Healthy Futures Alliance (HFA), an organization in San Antonio that works to reduce teen pregnancy within the city through collaboration. UTTH is a member of the coalition set up by HFA, which allows them to network with other organizations within the community.

This initiative works closely with these stakeholders within the community to ensure that they meet each of their objectives. The goal of UTTH is to reduce the teen birth rate by 10% as well as to reduce the repeat teen birth rate by 10%, both by September 2015, through the mobilization of the community. Because this initiative is still in the early stages of development, the effectiveness of this model is still unclear.

What We Can Learn

Although these initiatives are in diverse communities that differ from each other, they have used many similar strategies that have proven to be effective¹³ in reducing teen pregnancy. Table 8 below outlines some of the different activities of the initiatives, overlaying them to show the similar efforts employed by each.

Each approach taken by these initiatives may have been slightly different, due to sociopolitical differences between the communities as well as differing strategies amongst initiative leadership, but by using the various methods, these initiatives were able to influence their community to fight against teen pregnancy.

Table 8: Common Factors of Success in Best Practice Community Initiatives

This table provides a comparison of methods used by best practice community initiatives to engage their communities and reduce the rates of teenage pregnancy in their areas. It is important to note that all outreach methods were not only focused on teen mothers, but teen fathers. The costs and consequences highlighted in Chapter 3 clearly reflect the need to address both parties involved in the sexual activity.

	Use of Social Media, Websites, Multi-Media Campaign	Advocacy	Contraceptive Availability	High School Sex Education Programs (Evidence Eased)	Diverse Stakeholders
Chicago Department of Health	X	X	X	X	X
Milwaukee United Way	X		X	X	X
UTTeenHealth	X		X	X	X

- Use of Social Media, Websites, Multi-Media Campaign (Tools for Parents, Teens, and Educators):* Each of the initiatives described utilized some kind of social media, website, or media campaign. By using communication that resonated with students, parents, and educators, these initiatives were able to connect with diverse audiences. The Chicago Department of Health wanted to ensure that their campaign spoke to students, so they focused their attention on social network sites such as Facebook, Twitter, and Pandora. The language of the campaign launched by the Chicago Department of Health was geared towards students and aimed to speak to them at their level, as opposed to talking down to

¹³ Assessing the specific indicators of effectiveness is beyond the scope of this report, however, the national recognition, substantial funding, and reduction in teen pregnancy within the communities of these initiatives indicate they have been successful.

them. The United Way of Greater Milwaukee utilized the key stakeholders involved in their initiative to disseminate information to broader audiences to ensure their message was heard. By utilizing the local media and other providers, they were able to reach many different populations. San Antonio uses a similar approach to that of the United Way and uses their various stakeholders to reach the students, parents, and educators.

- *Advocacy:* Only the Chicago Department of Health has utilized direct lobbying as a method of reducing teen pregnancy. This initiative worked within the community to engage the Chicago Public Schools Board to require comprehensive sexual health education for all students, grades K-12. The school board passed this new policy after great efforts by the Department of Health. The initiative continues to work closely with the school to ensure this is enacted effectively. The United Way of Greater Milwaukee and UTTeenHealth focus on educating those involved in the policy process and implementation in order to influence policy.
- *Contraceptive Availability:* Each of the initiatives described above has worked to increase the availability of contraceptives to teens. This has been through various methods such as installing condom dispensers in schools, establishing a mail-order system for students to request condoms, or just encouraging providers to educate teens on safe sex practices and provide contraceptives.
- *High School Sex Education Programs (Evidence Based):* As already described, the Chicago Department of Health has done a lot to encourage high school sex education programs and to provide these within the school system. UTTeenHealth has taken a similar approach and has partnered with educators within San Antonio to implement age appropriate sex education. The United Way of Milwaukee, although not directly involved in implementing sex education, works with their stakeholders to educate the educators on how best to teach sex education within the school system.
- *Diverse Stakeholders:* One of the greatest assets of these initiatives is their group of stakeholders. These initiatives all have diverse groups that they work with, which increases their chance of success by including various populations within the community.

These various preventative methods allowed the initiatives to effectively reduce teen pregnancy within their communities. By focusing community efforts on preventing teen pregnancy, as opposed to reacting to it, these initiatives will not only save taxpayers money, but they will also increase the quality of life for their citizens. The Waco community is advised to work to increase their use of social media, websites and local media to reach out. . By utilizing these methods, targeting their messaging and branding for different audiences, Waco will be able to increase participation from their diverse group of stakeholders. Increasing the participation of students in this process will be greatly beneficial to in that it will give direct access to educate this group. In an effort to move to best practice-based programming, it is recommended that providers within the community are educated on these different methods to help with this transition.

Community-wide initiatives aim to work with the key providers within the community and increase communication with the different organizations, although each of the initiatives interviewed employed different strategies to achieve this. The United Way of Greater Milwaukee mainly worked to recruit members for their coalition, connect different providers, and then influence stakeholders to act in the best interest of the movement to reduce teen pregnancy. This approach was slightly different from the City of Chicago, where the main goal of the initiative

was to increase awareness of teen pregnancy and then work with stakeholders to implement specific programs to reduce teen pregnancy. UTTeenHealth uses similar strategies to both the United Way and the City of Chicago. Although UTTeenHealth works with other providers within San Antonio they also work to implement sex education programs within the school system in south San Antonio. This is one of the benefits of community-wide initiatives. Community initiatives allow these organizations to ensure that the beneficiaries of these various programs, such as the mothers, fathers, and children, are getting the attention that they require. Allowing the providers to work together gives them chances to not only collaborate on ways to prevent teen pregnancy but to also fill any service gaps.

The following chapter will analyze the different methods utilized by the above initiatives and apply insights to the Waco case. We make our recommendations on long-term and short-term actions Waco can take to increase the effectiveness of their efforts to reduce teen pregnancy and raise quality of life for children within Waco.

Chapter 5: Recommendations

While trends in teenage pregnancy indicate that rates are falling nationwide (National Campaign, 2013), the persistence of the problem in the Waco community remains. This has raised concerns as it has large negative consequences on the teens and on society as a whole. As of 2010, Waco teen pregnancy has resulted in the following trends: 2.5% of their teenage, female population ages 15-19 became pregnant, 8.81 infant deaths per 1000 live births, 171 unintentional and 10 intentional injuries of children ages 0-4, and rates of abuse or neglect ranging from 8.51 to 11.28 incidents per 1000 children (Smith, Romero and Alonzo 2009).

The implications of such outcomes for a community like Waco are profound both for the loss of individual quality of life and productivity. However, the costs to the community as a whole are substantial, both through lost economic opportunities and resources devoted to reactive support. The community must lower the long-term costs by providing preventive teen pregnancy programming now.

This study has calculated the costs of teen pregnancy to Waco at a total of \$6,982,086.84 annually, based on estimates using 2010 U.S. Census data. If education-based, preventative teen pregnancy measures are not taken, Waco has the potential to see a total cost of \$91,508,967.07 by 2029 (See Table 4). As the detailed cost assessments have shown (See Table 4), the costs of teen pregnancy not only affect this generation's productivity, economic standing, and social well-being, but they affect future generation's health, dependence on government subsidies, incarceration rates, and educational attainment.

The fight for teen pregnancy must be one fought as a union of resources from experts and systems in health, education, and prevention working together to produce youth who are capable of making safe, healthy, responsible choices. If taxpayers wish to reduce the current costs associated with teen pregnancy, then they must make the necessary inputs to provide preventative programming. A coordinated, collaborative effort engaging the breadth of stakeholders around the teen pregnancy issue is required to ensure the kinds of drops in teen pregnancy rates necessary to improve the quality of life for Waco's population.

Although assessing costs provides a starting point for a community-based conversation around prioritizing interventions to reduce teen pregnancy in the short and long-run, the implications for enhancing the quality of life for individual teen mothers and fathers, and of course their children and families, is exponential. To address these challenges, the following recommendations for the Waco community are drawn from qualitative research of national best practice models the Chicago Department of Public Health, The United Way of Greater Milwaukee, and UTTeenHealth, as well as an extensive review of teen pregnancy programming studies and evaluations (see Chapter 4 for full details).

To this point, this study has been framed as a policy-specific analysis, not addressing the political dimensions of the issues and costs raised in Chapter 3 or feasibility of implementation of the best practice programming highlighted in Chapter 4. This chapter attempts to incorporate these two dimensions, making recommendations for the Waco community based on their current political atmosphere, socioeconomic characteristics of the lowest quality of life scoring zip

codes, and the environmental factors present in their community (e.g. drugs, alcohol, peer pressure, abuse, poverty, education or lack thereof, violence, and low self-esteem). The analysis incorporates a range of long-term and short-term actions that can be taken to support future programming.

Long-Term

Within the next 10-20 years, SmartBabies has an opportunity to align with some of the nation's best practice teen pregnancy prevention initiatives. The best practice organizations interviewed in the qualitative research for this paper showed similar qualities in their ability to establish a national presence through internal strategic planning and external networking. It is not about establishing national recognition for the namesake, but rather utilizing the national network and resources to further motivate local moral and efforts. Establishing a national presence opens doors to new, proven, successful programs and initiatives. It benefits the community in networking, resource availability and overall knowledge of best practices in preventative programming. Emulating these best practices aligns Waco with the national goal to reduce teen pregnancy. They utilized education-based, preventative programming to address their teen and parent audiences. The Chicago Department of Public Health, The United Way of Greater Milwaukee, and UT Teen Health all noted the challenges they faced in the politics of their communities. However, uniting community programs to serve a larger purpose opened doors to new, innovative solutions to teen pregnancy prevention, as well as proved to be a more efficient allocation of resources and community-wide expertise.

The following section outlines potential steps Waco can take to better align their programs and community efforts with national best practice preventative programming. It summarizes recommendations made by experts from all three initiatives interviewed and presents the Waco community with solutions tailored to their demographic and political environment.

A Shift to Best Practices

Although there are a number of organizations in Waco that aim to prevent teen pregnancy, the political climate within the Waco community makes a complete shift from abstinence-only to comprehensive sex education a challenge. According to the CRS report (2013), Waco is a politically conservative, religious community; however, San Antonio's Healthy Futures Alliance, a program currently working with the UTTeenHealth Initiative, noted a similar challenge. Throughout all of their public outreach, directors interviewed in this study revealed their confrontation with an exemplar challenge, abortion, an aspect of reactive support that they do not typically address. Directors noted media questioning their stance on abortion. Although the programming provided does not focus on this portion of reactive care, the staff of Healthy Futures Alliance goes through training programs to educate them on abortion and how to navigate this controversial issue.

Waco faces a very similar issue with the prevalence of church life and livelihood acting as a base to the community. There is an opportunity to facilitate media training and advising for the programs providing health, education, and home visitation in order to prepare them for public push back. Chapter 4 highlighted the pushback San Antonio and Chicago saw in addressing this controversial issue within their community. We asked both groups questions regarding their

stance on abortion or their political, religious affiliations. Both initiative directors noted that they took their role as a community-based initiative as a place to train their supporting programs in how to respond to media and how to keep stakeholders focused on positive messaging (promoting safe, healthy decisions for youth).

“It takes a community to raise a child,” Healthy Futures Alliance’s Director said. In the same sense, it takes a community to make a change. The messaging being publicized on all fronts (preventative and reactive) must read as a united effort to produce youth who are capable of making safe, healthy, responsible choices. Political questions regarding abortion or religious stances on teen pregnancy must be answered with a simple, “Our programming does not address these aspects of teen pregnancy.” The shift to programs, curricula, and activities that more closely align with best practices must be one seen in a positive light and one that will lead to a decreased cost to tax payers.

Being Knowledgeable About Best Practices and Designing a Community-Driven Model

Although we have a nation made up of varying political ideals, religious affiliations, and economic ranks, each community must do its due diligence to address local issues in order to complete the goal of reducing teen pregnancy. Finding similarities in initiatives and programs across state and city borders allows the Waco community to more efficiently use resources, to show their community how it ranks on a state or national level, and sets the stage for the Waco community to become a leader in teen pregnancy prevention.

Waco leadership is very knowledgeable and has the social and technical capacity to make these national networking efforts possible. Although Waco is a very small population compared to Chicago, they face an issue with teen pregnancy just as large. In essence, SmartBabies has the opportunity to take advantage of national resources and experts in order to diminish their issue on a small scale and move one step closer to solving a national issue. Milwaukee United Way, for example, was able to become a leader in preventing teen pregnancy, reducing teen pregnancy by more than 50% in seven years, with a relatively small budget (\$2-\$3 million) compared to Chicago with a budget of \$19 million. This was possible because of their national contacts. It made running campaigns and providing public services for teens much more affordable according to directors of the Milwaukee United Way interviewed in this study.

The Chicago Department of Public Health (CDPH) has a team dedicated to communication, one for lobbying, and another for curricular development (Elder 2013). By having these specialized teams, CDPH is able to find national partners in the field and get a better understanding for what is working in their community and what is not (Elder, 2014). This initiative has reached out to other best practice programs and initiatives to expand their knowledge, their network and their impact (Elder 2013).

SmartBabies should continue to lead the community in their efforts to decrease teen pregnancy within the Waco community. It is necessary for community stakeholders to work together within Waco to combat the issue of teen pregnancy and use their networks to communicate and empower their community. There must be enough resources provided to have such positions and roles created to focus attention on the priority activities of preventative care in Waco.

Community leaders such as the SmartBabies Steering Committee, Waco Foundation Trustees, Waco Independent School District, and elected officials should continue to work together to decrease teen pregnancy by creating community-driven, politically feasible messaging youth find relevant and applicable in this specific context. By utilizing SmartBabies and their expertise on this issue, the Waco community will increase their chances of being successful in raising the quality of life of children between the ages of 0-3 years old.

Establishing a Strategic Plan to Prevent Teen Pregnancy

Strategic planning is by no means a little task. This can take 3-5 years of planning in advance to establish set goals and measurable outputs. Establishing a strategic plan for the Waco community would include consideration of reasonable outputs, building on relationships already established in Texas, and growing their network and presence to a national front Waco's ability to tap into such networks, and thus resources and innovative and successful activities, will greatly enhance Waco's capacity to address the TP problem. Chicago, for example, spent time outlining a strategic plan and evaluating the gaps in their supportive programs' outreach efforts. Individual goals and measures need to align with national goals as well. Establishing a strategic plan allows for community participants and programs to be accountable for their steps towards reducing teen pregnancy in their community and aligning programming efforts with those outlined as national best practices in prevention methods and outreach.

SmartBabies must act as a driver in facilitating this plan, but all programs supporting the goal of reducing teen pregnancy must also outline realistic, measurable goals for community-wide programming and activity. The power of identifying such opportunities is substantial. For instance, findings from this study reveal the need for increased education not only in sexual practices and contraceptive use, but also in the potential health consequences of sex. Thus, it would be important to establish a goal within the strategic plan that allows each current community program to use its strength to collaborate in the area of community gaps and to build the most effective, efficient use of educational resources. Schools in Waco ISD, for example, have the greatest access to youth, while other entities have other strengths and, together, various organizations can complement each strength but need support in their outreach methods, messaging, and audience recognition. SmartBabies can help to facilitate the coordination of resources and information to bear on such activities. This will allow short-term outreach methods to become more successful to reach a broader audience.

Short-Term

Politics & Policy

As previously noted, the demographic and socioeconomic differences in the communities observed versus those of Waco must be considered when looking at the political feasibility of a move towards teen pregnancy prevention. Representatives from the Chicago Department of Health described their experience with a number of community members and programs who strongly opposed their plan of action to reduce teen pregnancy. However, by presenting their community with research relevant to their own children, schools, and programs, they were able to turn many of their opposition into strong supporters. Evidence-based research, relevant to local contexts, is an important tool to help create dialogue and action to substantively and successfully address teen pregnancy.

The political feasibility of any policy or community-wide initiative plays a huge role in its success. Recognizing this challenge in a historically conservative community (CRS report 2013) like Waco means addressing the issue with effective mediums of communication, which the following section describes in more detail.

Product: Messaging, Branding, Audience Recognition

Designing “effective” communication to support a policy initiative such as this one means appropriately defining the audience and goals for messaging, according to best practice initiatives interviewed. All three observed organizations focused on their messages and branding in relation to the following key audiences: youth ages 13-19, policy makers (teachers, administrator, city representatives, elected officials on the city, state and national level), and parents. Their messaging and brand identity was different for each group, getting as creative as necessary to engage each target group. Chicago, for example, produced an ad campaign to be featured on Pandora, an online music application popular with youth ages 15-19. Their choice of messaging came from research, trending topics, and even mediums they (researchers) saw their own children using the most.

Messaging from initiatives and curricula for all initiatives was based on comprehensive sex education with an emphasis on not shaming the child, but rather producing youth who are capable of making safe, healthy, responsible choices. By using messaging that serves as a white flag for multiple religious and political views, all three initiatives reviewed in this study have been able to surpass their original pregnancy prevention goals and expand their sample. Branding this idea of making a national change, one city at a time, is one that appeals to a number of demographic and socioeconomic backgrounds.

The shift to comprehensive sex education could incur additional expenses, but the number of funders and potential funding for teen pregnancy programming has already increased with the 2006 spike in teen pregnancy throughout the U.S. (National Campaign 2014). Further, emulating national best practices puts Waco in line for larger, national funders. Building a strategy based on best practices and in line with national funding streams could bring significant resources to the Waco community in the long-term. As well, imitating low-cost strategies like social media will allow for a massive number of teens to be reached at a small price and will also serve as an “effective medium” for youth.

The Waco community has an opportunity to increase its audience reach by branding itself as a national partner in the fight for reducing teen pregnancy. This is can be controversial issue in the community according to the CRS report because of the political climate in Waco, but by presenting their audience (through the most effective mediums) with the valuable messaging that effects each of their daily lives, Waco can begin their message of improving quality of life for youth ages 0-3.

Short-term goals for Waco include social media and web campaigns. In reviewing the website and social media presence of UTTeenHealth, it is apparent it is important to have resources for parents, teens, and educators readily available. For example, information on various topics such as healthy relationships, sexual education, college opportunities, and other information, allows

teens to learn about different issues related to them. Parents who may not always have access to a computer or to Internet should be educated through school outreach. Outreach in schools can include informational flyers and brochures regarding “how to talk about sex with your child,” and “how to promote sexual awareness in your child.” These are both themes that all three initiatives interviewed shared with their communities’ parents. To integrate this message in a politically conservative climate, it is important to promote youth making safe, healthy, responsible choices. This is a message that multiple demographic and political backgrounds can agree with.

Outreach mediums must be determined based on daily use of the audience. For example, teens spend a huge amount of time listening to music, texting, and skimming social media sites. By focusing messaging on these mediums, sexual awareness and self-worth becomes “cool” or a “trending topic.” It is important to be creative with all outreach methods, messages, and posts, to ensure the goal of producing youth who are capable of making safe, healthy, responsible choices. The goals of communicating with other programs and initiatives are to maintain this same messaging, regardless of political, geographic, religious differences in a community

Summary of Long-term and Short term Recommendations

- Shift to evidence-based curricula, in which comprehensive sex education programming is adopted.
- Increase knowledge of national best practice initiatives and programs. Utilize these as models for designing a community-driven initiative to reduce teen pregnancy in the Waco community
- Establish a strategic plan to evaluate the current gaps in teen pregnancy prevention outreach in the Waco community
- Shift product messaging and branding to read, “Producing teens who are capable of making safe, healthy, responsible choices.”

Chapter 6: The Future of Teen Pregnancy Prevention in Waco

SmartBabies commissioned this report to provide evidence-based insights into the Waco community's effort to shape a community-based teen pregnancy prevention effort. By providing the costs to the community of the current situation, a clear gap in comprehensive programming has emerged. By reviewing national best practices, we have provided examples of a range of activities to support preventative activities to decrease the chance of teen pregnancy.

This study has calculated the costs of teen pregnancy to Waco taxpayers to total \$6,982,086.84 annually, based on estimates using 2010 U.S. Census Bureau data. If education-based, preventative teen pregnancy measures are not taken, Waco has the potential to see a total cost of \$91,508,967.07 by 2029 (See Table 4).

Based on our model, the annual total costs of teen childbearing in Waco is \$6,982,086.84, including \$370,376.19 of costs for mothers, \$284,121.87 of costs for fathers, and \$6,327,588.78 of costs for children. In a 15-year period, costs for mothers are \$4,854,242.48, fathers, \$3,723,771.91, and children are \$82,930,952.68.

As the detailed cost assessments have shown (see Table 4), the costs of teen pregnancy not only affect this generation's productivity, economic standing, and social well-being, but they affect future generation's health, dependence on government subsidies, incarceration rates, and educational attainment. Further, the Waco community must also recognize the costs associated with teen fathers, increased incarceration rates, decreased educational attainment, and decreased earnings potential. Contextualizing these numbers with a few key insights from national studies, although not replicable to the local level based on limited data availability, further enhances the urgency of the teen pregnancy issue and call to action for the Waco community:

- It is estimated that the effect of adolescent childbearing on foster-care placement results in a taxpayer burden as high as \$900 million a year nationally (Hoffman and Maynard 2008).
- Studies show a delay of a teen birth would decrease the probability of abuse and neglect that spark child welfare placement and would also decrease incarceration by 10.6% and years in jail by 13.4% (Hoffman and Maynard 2008).
- The *Kids Having Kids* research found that only 70% of the teen mothers earn their high school diploma or General Educational Development (GED). In the long term, the reduced labor income would be a cost of \$4,854,242.48 to the community.
- Our analysis has also attempted to identify potential savings to Waco if teenage pregnancy is prevented. In Waco, the annual productivity of one child will be decreased by \$736.47 for a one year time period if preventative, evidence-based programming is not adopted (Hoffman and Maynard 2008).

A Review of Quantitative Findings

This evidence, both the current projected costs due to the scope of the teen pregnancy problem in the Waco community as well as potential projected savings if teen pregnancy rates are reduced, highlights the need for urgent and comprehensive action. Our two priority recommendations are below and both focus on preventative education for male and female teenagers alike.

Preventative Educational Curricula to Teen Mothers

The largest costs to tax payers associated with teen pregnancy come from the consequences for teen child bearing mothers. Waco can reduce the \$370,376,19 cost by increasing preventative programming for teen women 13-19 to educate them on the overall consequences of sexual activity, to establish awareness of the protection against pregnancy and lack thereof in the case of STDs that contraception can account for, and to teach them how to use condoms. Further, reactive programming that supports teen mothers finishing high school and secondary education, finding jobs, and raising children will decrease the overall effects that a lack of education and healthcare and dependence on social services causes.

Teen Mothers v. Teen Fathers

The second largest cost to tax payers associated with teen pregnancy comes from the consequences for fathers of children born to teen mothers. These consequences include an increased rate of incarceration, increased dependence on social services and government provision, and decreased educational attainment leading to decreased tax earning and spending rates. To address this issue, preventative programs have an opportunity to educate teen fathers on the use and availability of contraceptive, the consequences to their sexual activity and their monetary duty to care for the child, and their potential decreased earnings as a teen father. Reactive programs can establish a networking or job finding service for these fathers to support their children, a non-traditional school program that allows teen fathers (and mothers) to complete a GED and pursue technical or other secondary degrees. Further, mentoring programs should be established to show teen fathers their earnings potential and lifestyle opportunities with an education (with or without a child) versus that without.

A Review of Qualitative Findings

The study of national best practice models provide a pathway to achieving the kinds of outcomes needed to make a significant impact on current rates of teen pregnancy in Waco.

In particular, adopting successful outreach methods based on appropriate, proven effective mediums for each audience (teen, parent, educator) creating community-driven, politically feasible messaging youth find relevant and applicable in this specific context, will help to engage the community in a manner that creates buy-in, empowerment, and most importantly, a sustainable pathway forward.

SmartBabies has laid a solid foundation for developing a long-term, community-driven initiative, through the dedication of resources, as well as employment of dedicated and knowledgeable staff

to support the strategic planning process. At this stage in the process, four priority recommendations require urgent attention:

- Teen pregnancy rates are dropping, but this must remain a key political and social concern in Waco where it is an increasing rate.
- Evidence-based preventative programming is the most effective method of preventing teen pregnancy.
- The Waco community has an opportunity to emulate national best practice programming to increase future funding opportunities, which would bring significant resources to the teen pregnancy problem.
- Waco should continue to support objective, evidence-based studies to provide the community with the kind of data that will help inform politically feasible, yet successful programming to support the community’s goals.

These initial steps will also place Waco well for attaining larger pots of funding in the future, allowing even more radical impacts such as aligning their media messaging with that of national leaders, increasing their lobbying presence, and developing their own set of best practice, preventative programming methods relevant to their community. The Waco community has an opportunity to reduce the costs of teen pregnancy to their local tax payers, to reduce the health and incarceration consequences of teen pregnancy, and to increase the quality of life their future generations’ experience.

Table 9: Costs to Taxpayers Associated with Teen Childbearing in Waco

This table shows the breakdown costs to taxpayers of teen childbearing in Waco annually, and with a 15 year projection.

	Annually	15-year
Tax Revenue <i>Costs associated with decreased earning and spending potential, lower tax bracket qualifications</i>	\$1,956,304.37	\$25,639,811.69
Health Care <i>Costs associated with a lack of prenatal care, emotional hardships, preterm births, miscarriages, abortions, and dependence on government subsidies</i>	\$1,143,765.25	\$14,990,471.91
Incarceration <i>Costs associated with housing, feeding, and educating inmates, increased crime rate, decreased social productivity, and lower age of entry into incarceration system (reflecting higher social costs)</i>	\$905,696.47	\$11,870,283.19
Child Welfare	\$574,470.33	\$7,529,151.05
Total Cost to Taxpayers	\$4,580,236.42	\$60,029,717.85

Conclusion

The implications of success in these areas for the Waco community are profound, both for the increases in individual quality of life and productivity as well as for the decreased costs to the community as a whole, resulting from recovered economic opportunities and resources previously devoted to reactive care. The community must lower the long-term costs by providing preventive teen pregnancy programming now.

The fight for teen pregnancy must be one fought as a union of resources from experts and stakeholders as well as programs in health, education, and prevention working together to produce youth who are capable of making safe, healthy, responsible choices. If taxpayers wish to reduce the current associated with teen pregnancy, they must make the necessary inputs to preventative programming. A coordinated, collaborative effort engaging the breadth of stakeholders around the teen pregnancy issue is required to ensure the kinds of drops in teen pregnancy rates necessary to improve the quality of life for Waco's population.

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Appendix A: Texas Costs of Teen Pregnancy

State	Population estimates among women aged 15-19, 2008	Number of pregnancies among women younger than 15, by state of residence, 2008	Number of pregnancies among women aged 15-19, by state of residence, 2008	Number of births among women younger than 15, by state of residence, 2008	Number of births among women aged 15-19, by state of residence, 2008
Texas	894,736	1,250	76,400	843	54,284
U.S. total	10,805,148	13,530	733,010	5,764	434,758
Source:	See source 2	See source 1	See source 1	See source 1	See source 1
1. Abortions among women aged 15-19 were apportioned between 15-17 and 18-19 according to the proportions in neighboring states.					
2. Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age in neighboring states.					
3. Rounded to the nearest 10.					
4. Estimates based on the number of abortions to all women in the state and the proportion of abortions obtained by women of the same age nationally.					
Sources: 1. U.S. Teenage Pregnancies, Births and Abortions, 2008: State Trends by Age, Race and Ethnicity, Kost K and Henshaw S					
2. NCHS, Intercensal estimates of the July 1, 2000, July 1, 2009 United States resident population from by year, county, age, sex, bridged race, and Hispanic origin, file icen_2000_09_y00_04.sas7bdat and icen_2000_09_y05_09, Oct. 26, 2012					

Appendix B: Ten Steps in a Cost Analysis

In the *Handbook of Practical Program Evaluation*, Wholey, et al. (2010) presents a ten-step process to completing a Cost Analysis. His ten steps are detailed as follows:

1. **Set the framework for the analysis.** Specify the program or policy change and the current status quo, or the state of the world before implementation compared to after. After establishing the status quo, researchers count the incremental changes in costs and other benefits that could reasonably be attributed to the program
2. **Decide whose costs benefits should be recognized.** You need to determine the geographic scope of the analysis in order to limit the groups impacted by the policy. These categories are generally obtained by determining who bears the cost burden in a status quo environment and who provides the funding for the implementation of a program.
3. **Identity and categorize costs and benefits.** It is important to label costs and benefits as direct (intended costs/benefits)/indirect (unintended costs/benefits), tangible (easy to measure and quantify)/intangible (hard to identify and measure), and real (anything that contributes to the bottom line net-benefits)/transfer (money changing hands) in order to ensure that you understand the effects of each cost and benefit.
4. **Project costs and benefits over the life of the program.** Assess how costs and benefits will change each year, if applicable. It is important to do this even before you begin to place numbers on things.
5. **Monetize costs.** Make sure to place all costs in the same unit (dollars).
6. **Monetize benefits.** Make sure to place all benefits in the same unit (dollars).
7. **Discount costs and benefits to obtain present values.** This means converting future costs and benefits into present value. This is also known as the social discount rate, or the rate at which society makes tradeoffs over time. Every agency tends to have a different discount rate. It generally ranges between 2-7%.
8. **Compute net present values.** This is done by subtracting costs from benefits. The policy is considered efficient if a positive result is produced; however, it is important to think about the policy's feasibility and social justice.
9. **Perform sensitivity analysis.** This step allows you to check the accuracy of your estimates and assumptions. This is normally done by altering the social discount rate utilized, by increasing it and decreasing it. If you still get a positive number during this step, then the policy should be accepted. If you get a negative number during this step, then you should calculate where the balancing point is zero.
10. **Make a recommendation.** Assess all results and account for other qualitative considerations

Appendix C: Qualitative Survey Questions

Questionnaire for Dr. Rebecca Maynard, *Kids Having Kids*

1. What variables went into calculating each cost? Is it possible to provide us with an equation for the costs outlined in our data chart? (see examples below)
 - a. How did you calculate mother's earnings in a projected time period (15 years), and in the current time period?
 - > What measures of income were included?
 - > What demographic was measured and how?
 - b. In the data, you list mother's earnings, spouse's earnings and father's earnings. Who does the "spouse" refer to, the father of the child or the spouse the mother marries after having the child (in reference to section 10.2 Framework)?
2. What factors play a role in the lower income of teen moms who have delayed first birth to ages 18-19 as compared to those who have their first child before 18?
 - a. Our current sample reviews teens between the ages of 15 and 19. Do we need to change our sample to teen moms 18 years and younger, or do we need to break our current sample into two groups (as you have done in your sample)?
3. Did you have corresponding data specifically for Texas when you collected data for *Kids Having Kids*?

Questionnaire for Initiative Interviews

Questions for all initiatives

1. What is the overall goal of your work?
2. How does your initiative define success?
3. What are your current initiative outputs? And outcomes?
4. What are your teen pregnancy prevention program costs? What are the cost associated with implementing this work?
5. Can you provide the costs of teen pregnancy in your community? Has your community equated to cost of teen pregnancies/births?
 - a. If so, how did you all define the long-term costs of teen child bearing?

Questions for individual initiatives

For Chicago:

1. How do you define success in your organization?
2. What outputs do you count on in this “success”
3. Your grant expires in 2015, what are your goals for outcomes and outputs and how to you plan on continuing these efforts? Future funding methods?

For San Antonio:

1. How much of your program deals with CDC outlined qualifications?
2. What data must you provide to CDC and are there any stipulations that effect your initiative goals included in this grant?

For Milwaukee:

1. How often do you communicate with the Milwaukee constituents and initiative members?
2. What does that communication look like?

Appendix D: Control Variables in Each Category

This table shows the control variables accounted for in the *Kids Having Kids* study and the cost categories to which they were applied.

	Consequences of teen childbearing for:						
	Mothers	Fathers	Children: kinder through teen years	Children's health and health care	Abuse, neglect, foster care	Jail time among adult children	Children as adults
Demographic Characteristics							
Marital Status		✓		✓			
Race/ethnicity	✓	✓	✓	✓	✓	✓	✓
AFQT score	✓	✓					
Child's age			✓	✓		✓	
Birth order				✓	✓	✓	✓
Mother's age at birth	✓	✓	✓	✓	✓	✓	✓
Family background							
Living arrangements as teen	✓	✓	✓				✓
Mother's education	✓	✓	✓				✓
Father's education	✓	✓					✓
Mother's achievement test score							✓
Family income	✓						
Years lived in poverty							✓
Mother on welfare/family in poverty	✓						✓
Religion		✓					✓
Number of children				✓		✓	
Home resources		✓					
Mother's nativity			✓				
Mother's home language not English			✓				
Mother's number of siblings			✓				
Mother grew up in city, town, rural			✓				
Grandmother's education			✓				
Grandmother's age at first birth			✓				
Other							
Region of residence				✓	✓	✓	
Child's health			✓				
Birth year					✓	✓	
State spending on family planning							✓
Neighborhood unemployment rate							✓
State maximum welfare benefits							

AFQT = Armed Forces Qualifying Test

Appendix E: Analytic Framework for the Cost Analysis

This table indicates the four perspectives from which costs and consequences are measured and whether their impacts are a gain, loss, or no change for the sections of society indicated.

	Impact of a Positive Difference between the Predicted Outcome if Adolescent Childbearing Were Delayed and the Observed Outcome for:		
	Teen Mothers	Taxpayers	Society
Productivity			
Mother's earnings	Gain	Neutral	Gain
Spouse's earnings	Gain	Neutral	Neutral
Father's earnings	Neutral	Neutral	Gain
Earnings of young adult children	Neutral	Neutral	Gain
Private transfers and taxes			
Child support	Gain	Neutral	Neutral
Mother's income and consumption taxes	Loss	Gain	Neutral
Spouse's income and consumption taxes	Loss	Neutral	Neutral
Father's income and consumption taxes	Neutral	Gain	Neutral
Income and consumption taxes of adult children	Neutral	Gain	Neutral
Public assistance			
Cash assistance	Gain	Loss	Neutral
Employment and support services	Neutral	Loss	Loss
Food stamp benefits	Gain	Loss	Neutral
Rent subsidies	Gain	Loss	Neutral
Medical assistance for parents	Gain	Loss	Neutral
Medical assistance for children	Neutral	Loss	Loss
Administrative costs of public assistance programs	Neutral	Loss	Loss
Other consequences			
Out-of-pocket cost of children's health care	Loss	Neutral	Loss
Foster care of minor children	Neutral	Loss	Loss
Incarceration of adolescent and adult children	Neutral	Loss	Loss

This framework assumes that changes in spouses' earnings, as distinct from those of fathers of children born to teen mothers, represent shifts in the allocation among families rather than net changes in the productivity and tax revenues. That portion of the spouses' earnings difference that is linked to productivity effects associated with teen childbearing is assumed to be picked up in the estimated changes to the fathers' earnings and taxes.
(Hoffman and Maynard 2008, 371)

Appendix F: Model: Teen Pregnancy Costs and Consequences by Category

Mothers

Mothers				
Individual	Societal Consequences (Short Term/Long Term)	Evidence (Source)		
		United States	Texas	Waco
Less likely to graduate from high school	Less education leads to a lower income which leads to poverty; can lead to a bogged down welfare system	High school dropout numbers of mothers caused by teen pregnancy (30% teen parents don't have High school diploma/GED)	Texas females aged 15-19 pregnant: 46.9% (1) Texas tax payer cost of increased incarceration: \$175 mil (2) Texas tax payer cost due to decreased earning and spending: \$378 mil (2)	Total population 15-19 Waco women: 6,366 (5.1%) Number of Pregnant teens 15-19 Waco: 2.5%
More likely to birth more children after first birth which leads to continued cycle of poverty	Costs to welfare; Health costs for mother	Number of teen moms that have more than one child (Teen moms have 2.36 children on average).	N/A	
More likely to experience complications during pregnancy	This leads to greater costs in health care and an unhealthy future work force; mothers miss work and are unable to provide for their current families	Number of mothers that experience complications and the severity of those complications.	Texas Females under 20 years with low birthweight: 9.5% (1) Texas Teen abortion rate: 11 (1)	
Lower earnings(Under age 18)	Families rely on governmental assistance more which leads to a higher cost for the welfare system or reliance on their families	\$259 annually/\$3,885 15-yr more than if delayed until age 20-21	Texas tax payer cost to CHIP and Medicaid: \$221 mil (2) Texas tax payer cost to child welfare: \$111 mil (2)	
<p>Notes:</p> <p>Source:</p> <p>U.S. Data:</p> <ol style="list-style-type: none"> Hoffman, Saul D., and Maynard, Rebecca A. 2008. Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy U.S. Department of Health and Human Services, Office of Adolescent Health. (2011). http://www.hhs.gov/ash/oah/adolescent-health-topics/reproductive-health/states/tx.html. Shuger, Lisa. (2012). The National Campaign to Prevent Teen and Unplanned Pregnancy. http://www.thenationalcampaign.org/resources/pdf/teen-preg-hs-dropout.pdf. <p>Texas Data:</p> <ol style="list-style-type: none"> U.S. Department of Health and Human Services, Office of Adolescent Health. (2011). http://www.hhs.gov/ash/oah/adolescent-health-topics/reproductive-health/states/tx.html. The National Campaign. (2011) "Counting it Up: The Public Costs of Teen Childbearing in Texas in 2008." http://www.thenationalcampaign.org/costs/pdf/counting-it-up/fact-sheet-texas.pdf. <p>*the total cost figure above reflects costs for both the children and their parents</p> <p>Waco Data:</p> <ol style="list-style-type: none"> U.S. Census Bureau. (2012).http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml. 				

Fathers

Fathers		
Individual	Societal Consequences (Short Term/Long Term)	Evidence (United States)
May dropout of high school to gain a job to help pay for childcare costs	Less education leads to a lower income which leads to poverty; can lead to a bogged down welfare system; fathers are not able to pay child support	High school dropout rates of fathers caused by teen pregnancy (30% teen parents don't have High school diploma/GED)
Lower Occupational Income	Families rely on governmental assistance more which leads to a higher cost for the welfare system or reliance on their families	Number of teen parents families who rely on the welfare system or their parents (\$1,548 annually/\$23,227 15-yr less than if delayed until age 20-21); Absent fathers pay less than \$800 annually for child support
Fewer hours worked in the labor market	Unreliable employees which leads to unsteady jobs. This means that fathers are not able to develop working skills.	Number of employees in blue collar or minimum wage paying jobs that are teen fathers; teen fathers suffer earning losses of 10-15% annually
Most teen fathers are not living with a partner at the time their child is born	Children without involved fathers are twice as likely to drop out of school, abuse alcohol or drugs, and end up in jail	66% of teen fathers were not living with a spouse or partner
Creates cycle of poverty by not offering support for the mother and child	Children of teen fathers are more likely to engage in sexual behavior early on and therefore increase their chances of becoming a teen parent	Teen girls with absentee fathers are two times more likely to initiate sexual activity early and are seven time more likely to get pregnant
Notes: The costs to Texas and Waco are calculated from the national data (Costs to U.S./Number of National Population*Texas or Waco pop Source: U.S. Data Hoffman, Saul D., and Maynard, Rebecca A. 2008. Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy		

Children

Children		
Individual	Societal Consequences (Short Term/Long Term)	Evidence (United States)
Decreased well-being and quality of life; In 2009 infant mortality rates were highest for infants of teenage mothers (9.05 per 1000 live births)	10% of children born to mothers age 15-19 in 2006 had low birthweights (http://www.cdc.gov/nchs/data/nvsr/nvsr57/nvsr57_07.pdf)	Quality of life factors discussed by SmartBabies that have led to a decreased quality of life score. Talk about how the counties differ greatly within Waco. (\$638 annually/\$9,567 15-yr less than if delayed until age 20-21)
More likely to be plagued by chronic health problems	More reliance on governmental assistance and increase in health care costs	Number of children born with ailments that cannot be cured. (\$261 annually/\$3,908 15-yr more medical assistance for children than if delayed until age 20-21) \$1,647: The average annual cost to taxpayers associated with a child born to a teen mother (http://www.thenationalcampaign.org/costs/pdf/counting-it-up/key-data.pdf)
More likely to be abused, abandoned or neglected	Increased cost in mental health care, may lead to an inability to function in the school system; leads to an inefficient CPS system	Number of children that are treated for mental health issues causes by abuse and neglect inflicted by teen moms; number of CPS visits/calls that are made to teen parents compared to parents over 19 years old.
Greater chance of entering into foster care system	Burdens the foster care system making it inefficient	Number of children in foster care system that were born to teen mothers. (\$3,794 15-yr more foster care of minor children than if delayed until age 20-21)
Increase in probability of incarceration	Greater burden on taxpayers and prison system	Number of children born to teen mothers that eventually become incarcerated. (\$3,490 15-yr more incarceration of young male children than if delayed until age 20-21)
Greater chance of becoming a teen parent	Creates system of poverty that is hard for a community to break	Percentage of children born to teen moms that eventually become teen parents themselves.
High School Incompletion	Less education leads to a lower income which leads to poverty; can lead to a bogged down welfare system	If childbearing is delayed until age 20-21, high school incompletion rate for children can be reduced by 5% from 27% to 22%.
<p>Notes: The costs to Texas and Waco are calculated from the national data (Costs to U.S./Number of National Population*Texas or Waco Source: U.S. Data Hoffman, Saul D., and Maynard, Rebecca A. 2008. Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy</p>		

Appendix G: Calculation of Teen Childbearing Costs

Costs for Mothers

To calculate costs for mothers, we calculated lower earnings of teen mothers caused by teen childbearing. In Waco, number of teen mothers is 159 in one year based on U.S. Census 2010.

Annually:

$$\text{Costs for Mothers} = \$2,329.41 \text{ (lower earnings)} * 159 \text{ (number of teen moms in Waco)} = \$370,376.19$$

15-year:

Costs for Mothers =

$$\begin{aligned} & \$370,376.19 + \frac{\$370,376.19}{1+2\%} + \frac{\$370,376.19}{(1+2\%)^2} + \frac{\$370,376.19}{(1+2\%)^3} + \frac{\$370,376.19}{(1+2\%)^4} + \frac{\$370,376.19}{(1+2\%)^5} + \frac{\$370,376.19}{(1+2\%)^6} + \\ & \frac{\$370,376.19}{(1+2\%)^7} + \frac{\$370,376.19}{(1+2\%)^8} + \frac{\$370,376.19}{(1+2\%)^9} + \frac{\$370,376.19}{(1+2\%)^{10}} + \frac{\$370,376.19}{(1+2\%)^{11}} + \frac{\$370,376.19}{(1+2\%)^{12}} + \\ & \frac{\$370,376.19}{(1+2\%)^{13}} + \frac{\$370,376.19}{(1+2\%)^{14}} = \$4,854,242.48 \end{aligned}$$

Based on our model, earnings for each teen mother is annually \$2,329.41 less than those who delay mothering. Annually, mothers who gave birth before 19 earn about \$370,376.19 less than if they delayed their birth. In 15 years, costs for mothers would be \$4,854,242.48.

Costs for Fathers

To calculate costs for fathers, we calculated lower occupational income of fathers caused by teen childbearing. We assume that the number of fathers of children born to teen mothers in Waco is the same as the population of teen mothers, which is 159 per year.

Annually:

$$\text{Costs for Fathers} = \$1,786.93 \text{ (lower occupational income)} * 159 \text{ (number of fathers of children born to teen moms in Waco)} = \$284,121.87$$

15-year:

Costs for Fathers =

$$\begin{aligned} & \$284,121.87 + \frac{\$284,121.87}{1+2\%} + \frac{\$284,121.87}{(1+2\%)^2} + \frac{\$284,121.87}{(1+2\%)^3} + \frac{\$284,121.87}{(1+2\%)^4} + \frac{\$284,121.87}{(1+2\%)^5} + \\ & \frac{\$284,121.87}{(1+2\%)^6} + \frac{\$284,121.87}{(1+2\%)^7} + \frac{\$284,121.87}{(1+2\%)^8} + \frac{\$284,121.87}{(1+2\%)^9} + \frac{\$284,121.87}{(1+2\%)^{10}} + \frac{\$284,121.87}{(1+2\%)^{11}} + \\ & \frac{\$284,121.87}{(1+2\%)^{12}} + \frac{\$284,121.87}{(1+2\%)^{13}} + \frac{\$284,121.87}{(1+2\%)^{14}} = \$3,723,771.91 \end{aligned}$$

Based on our model, earnings for each father of children born to teen mother is annually \$1,786.93 less than men who delay fathering until age 20 to 21. Annually costs for fathers are \$284,121.87. The long-term cost for teen fathers is \$3,723,771.91.

Costs for Children

Annually:

Costs for Children =

\$736.47 (decreased productivity of one child) * 159 (number of children born to teen moms)

+

\$1.22 billion (annual teen childbearing costs to taxpayers in Texas) * $\frac{79,875.2}{15,690,830.064}$

$\left(\frac{\text{number of employees in Waco}}{\text{number of employees in Texas}}\right) = \$6,327,588.78$

15-year:

Costs for Children =

$$\begin{aligned} & \$6,327,588.78 + \frac{\$6,327,588.78}{1+2\%} + \frac{\$6,327,588.78}{(1+2\%)^2} + \frac{\$6,327,588.78}{(1+2\%)^3} + \frac{\$6,327,588.78}{(1+2\%)^4} + \frac{\$6,327,588.78}{(1+2\%)^5} + \\ & \frac{\$6,327,588.78}{(1+2\%)^6} + \frac{\$6,327,588.78}{(1+2\%)^7} + \frac{\$6,327,588.78}{(1+2\%)^8} + \frac{\$6,327,588.78}{(1+2\%)^9} + \frac{\$6,327,588.78}{(1+2\%)^{10}} + \frac{\$6,327,588.78}{(1+2\%)^{11}} + \\ & \frac{\$6,327,588.78}{(1+2\%)^{12}} + \frac{\$6,327,588.78}{(1+2\%)^{13}} + \frac{\$6,327,588.78}{(1+2\%)^{14}} = \$82,930,952.68 \end{aligned}$$

According to *Kids Having Kids* (2008), teen childbearing will decrease children's well-being and quality of life, which can be monetized by the decreased productivity of adult children times the number of children born to teen moms in Waco. The annual productivity of one child will be decreased by \$736.47, and the annual number of children born to teen moms in Waco is 159. Thus, the annual total decreased productivity is $\$736.47 * 159 = \$117,098.73$.

The other costs to children born to teen moms mainly come from taxpayers, including medical assistance, foster care expenses, incarceration expenses, child support, cash assistance, employment and support services, food stamp services, rent subsidies, and administrative costs of public assistance, etc. As shown in the formula above, the costs for one taxpayer annually is equal to total teen childbearing costs to taxpayers in Waco divided by number of children born to teen moms, while the teen childbearing costs to taxpayers in Waco is equal to childbearing costs to taxpayers in Texas * $\frac{\text{number of taxpayers in Waco}}{\text{number of taxpayers in Texas}}$.

Based on the National Campaign to Prevent Teen and Unplanned Pregnancy (2011), teen childbearing in Texas cost taxpayers at least \$1.2 billion in 2008, which is adjusted as \$1.22 billion in 2010. We suppose that taxpayers in Waco are between 18 and 65. In 2010, persons who were under 18 years accounted for 24.7%, and persons who were 65 years and over accounted for 11.3% in Waco (U.S. Census Bureau 2014). Thus, the number of taxpayers in Waco was $124,805 * (1 - 24.7\% - 11.3\%) = 79,875.2$. In 2010, persons who were under 18 years

accounted for 27.3%, and persons who were 65 years and over accounted for 10.3% in Texas (U.S. Census Bureau 2014). Thus, the number of taxpayers in Texas was $25,145,561 * (1 - 27.3\% - 10.3\%) = 15,690,830.064$. So the teen childbearing costs to taxpayers in Waco is equal to \$1.22 billion * $\frac{79,875}{15,690,830} = \$6,210,490.05$. So the annual costs for children is $\$117,098.73 + \$6,210,490.05 = \$6,327,588.78$.

For the calculation of children's cost in 15 years, we need to discount it to the present value with the U.S Treasury interest rate 2%, which is \$82,930,952.68.

Total Cost Associated with Teen Childbearing in Waco

Annually:

Total Costs of Teen Childbearing in Waco =
 Costs for Mothers + Costs for Fathers + Costs for Children = $\$370,376.19 + \$284,121.87 + \$6,327,588.78 = \$6,982,086.84$

15-year:

Total Costs of Teen Childbearing in Waco =
 Costs for Mothers + Costs for Fathers + Costs for Children = $\$4,854,242.48 + \$3,723,771.91 + \$82,930,952.68 = \$91,508,967.07$

The total cost associated with teen pregnancy in Waco is \$6,982,086.84 in one year. And the 15-year cost is \$91,508,967.07.

Appendix H: Demographics of Community-Based Initiative Locations

	Chicago	Milwaukee	San Antonio	Waco
Population	2,695,598	955,205	1,327,605	124,799
Living in same house 1 year and over, percent	83.50%	81.40%	80.80%	73.30%
Foreign born persons	21.20%	8.80%	13.90%	10.70%
High School Graduate or Higher of persons age 25+	80.50%	85.50%	80.00%	76.90%
Persons per household	2.57	2.44	2.78	2.6
Median household income	\$47,408	\$43,599	\$44,937	\$32,239
Persons below poverty level	22.10%	20.90%	20.10%	30.10%

Race	Chicago	Milwaukee	San Antonio	Waco
White, Non-Hispanic	31.70%	53.60%	26.60%	45.80%
African American	32.90%	27.20%	6.90%	21.50%
Asian	5.50%	3.70%	2.40%	1.80%
Pacific Islander	0.00%	0.10%	0.10%	0.10%
Hispanic or Latino	28.90%	13.90%	63.20%	29.60%

U. S. Census Bureau. 2014. State & County QuickFacts. Retrieved from: <http://quickfacts.census.gov/qfd/states/48/4876000.html>