**Findings from the Replication of an Evidence-Based Teen Pregnancy Prevention Program**

# Evaluation of CAS-Carrera Program in Georgia

Final Impact Report for

Morehouse School of Medicine

December 30, 2015

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Recommended Citation:

Tucker, T. (2015). Evaluation of the Carrera Program: Findings from the replication of an evidence-based teen pregnancy prevention program. Atlanta, GA: Tressa Tucker & Associates, LLC.

Acknowledgements:

This evaluation report was made possible with the help and support of the Morehouse School of Medicine administrative staff, Morehouse subcontractors, and Boys and Girls Clubs who participated in this study. I would also like to thank Ron Skeete, Carrera Fidelity Monitor and the Tressa Tucker & Associates, LLC. staff for their dedication and hard work.

This publication was prepared under Grant Number TPAH0000039-02-00 from the Office of Adolescent Health, U. S. Department of Health & Human Services (HHS). The views expressed in this report are those of the authors and do not necessarily represent the policies of HHS or the Office of Adolescent Health.

# EVALUATION OF THE CAS-CARRERA PROGRAM IN GEORGIA: FINDINGS FROM THE REPLICATION OF AN EVIDENCE-BASED TEEN PREGNANCY PREVENTION PROGRAM

## I. Introduction

The negative social and economic impact of teen pregnancy and birth for mother and baby are well known. Teen pregnancy and birth are a major cause of school drop-out, single-parent families, and poverty.[1] In 2010, the Georgia teen pregnancy rate was 54 per 1,000 for 15-19 year olds compared to 57.4 per 1,000 for the United States (U.S.)[2]. The Georgia teen birth rate was 41.3 per 1,000 for 15-19 year olds, compared to 34.3 per 1,000 for the U.S.[3] Similar to national trends, teen pregnancy was higher in Georgia in rural areas and among minority groups. For Georgia specifically, the teen birth rate is related to the state's inflated low birth weight and infant mortality rate, the state's low ranking in child well-being, the high school drop-out rate and under-employment, and the high rate of poverty and single-parent families.[4]

### A. Introduction and study overview

To combat the teen pregnancy problem across the country, the Department of Health and Human Services, Office of Adolescent Health (OAH) created the Teen Pregnancy Prevention Program (TPP). In 2010, the OAH-TPP program funded 72 programs in 32 states to replicate evidence-based program models identified to be effective at preventing teenage pregnancy. Of the more than 30 TPP evidence-based programs identified by the HHS evidence review

[1] Center for Disease Control and Prevention, Reproductive Health: Teen Pregnancy, About Teen Pregnancy, May 2015, www.cdc.gov/teenpregnancy/about/index.htm
[2] Georgia Department of Public Health, Office of Health Indicators for Planning, OASIS (Online Analytical Statistical Information System) http://oasis.state.ga.gov
[3] Ibid
[4] GCAPP, Georgia Campaign for Adolescent Power and Potential 2013 www.GCAPP.org

(Goesling et al.)[5], Morehouse School of Medicine (MSM), selected the Children's Aid Society, Carrera Program to serve the needs of Georgia's high-risk target population. The Carrera Program was selected over other evidence-based curricula because of its similarity in program design to the type of programs MSM implements. For the past 15 years, MSM has successfully implemented youth development and prevention programs, similar to the Carrera program, particularly in rural Georgia. It was expected that a Carrera program could impact the teen behavior, attitudes beliefs, risks and resiliencies seen in both the rural and urban communities in Georgia, given the robust and comprehensive program design.

Research has shown that Carrera has had some positive effects among African-American and Hispanic youth in New York City. In a randomized controlled trial study from 1997 to 2003, Philliber Research Associates found the following statistically significant outcomes: (1) female participants were 40% less likely to have ever been pregnant and 50% less likely to have given birth; (2) male participants showed substantial knowledge gains and greater use of some medical care and; (3) male and female participants were 16% more likely to have some work experience, 30% more likely to have graduated from high school or obtain a GED, and 37% more likely to be enrolled in college.[6] This study was found by the HHS Pregnancy Prevention Evidence Review to be a high quality study with sustained impact.

MSM sought to test the effectiveness of this evidence-based curriculum in a rural community, micro-politan community and urban community in Georgia. Tables 1 and 2 show the 2010 teen pregnancy and birth rates for the four counties from which the sample are drawn. Youth in these counties, particularly in Jasper and Fulton, are at a higher risk of teen pregnancy

[5] Programs to Reduce Teen Pregnancy, Sexually Transmitted Infections, and Associated Sexual Risk Behaviors: A Systematic Review. Goesling, Brian et al. Journal of Adolescent Health, Volume 54, Issue 5, 499–507.

[6] Philliber S., Kaye J.W., Herrling S, and West E., Preventing Pregnancy and Improving Health Care Assess Among Teenagers, *Perspectives on Sexual and Reproductive Health* 2002, 34(5):244-251.

than other Georgia youth. White teens have a higher risk in Jasper and Lamar, while Black and Latino teens are at greater risk in Fulton. White teens in Lamar and Black teens in Fulton County are at a higher risk of a teen birth than other Georgia youth.

MSM sought to determine whether the positive effects observed by the developer in a large city (New York) could also be attained in rural, micro-politan and urban Georgia. The grantee implemented the program with both boys and girls; and youth 11-12 years of age or in the 6th grade, based on previous experience with youth development and teen pregnancy programs.

**Table 1. 2010 Teen Pregnancy Rates for Target Counties in Georgia, and the State as a Whole**

| County | Teen Pregnancy Total Rate per 1,000 Females (Ages 15-19) | Teen Pregnancy White Rate per 1,000 Females (Ages 15-19) | Teen Pregnancy Black Rate per 1,000 Females (Ages 15-19) | Teen Pregnancy Hispanic Rate per 1,000 Females (Ages 15-19) |
|---|---|---|---|---|
| Cobb | 35.9 | 17.3 | 46.8 | 95.8 |
| Fulton | 60.0 | 9.9 | 87.1 | 102.9 |
| Jasper | 67.0 | 72.1 | 54.7 | * |
| Lamar | 35.3 | 56.4 | 20.6 | 0 |
| Georgia | 54.0 | 34.7 | 70.2 | 91.2 |

*less than 4 cases

**Table 2. 2010 Teen Birth Rates for Target Counties in Georgia, and the State as a Whole**

| County | Teen Birth Total Rate per 1,000 Females (Ages 15-19) | Teen Birth White Rate per 1,000 Females (Ages 15-19) | Teen Birth Black Rate per 1,000 Females (Ages 15-19) | Teen Birth Hispanic Rate per 1,000 Females (Ages 15-19) |
|---|---|---|---|---|
| Cobb | 24.0 | 10.9 | 29.1 | 69.2 |
| Fulton | 37.1 | 3.4 | 54.2 | 67.6 |
| Jasper | 34.0 | 31.0 | * | * |
| Lamar | 37.5 | 63.7 | 20.0 | 0 |
| Georgia | 41.3 | 28.9 | 49.9 | 71.7 |

*less than 4 cases

The study design is quasi-experimental, with three community-based agencies purposively selected for the intervention group and three regional Boys and Girls Clubs (BGCs) chosen as the comparison group. This report will describe both implementation and impact analyses, and the following primary and secondary research questions frame the impact study.

**B. Primary research question(s)**

1. What is the impact of the Carrera Program (intervention) relative to the BGC (comparison) on sexual initiation (ever had sex) on program youth after three years of the intervention?

2. What is the impact of the Carrera Program (intervention) relative to the BGC (comparison) on recent risky sexual behavior (having sex without condoms or other birth control) of program youth after three years of the intervention?

**C. Secondary research question(s)**

1. Is the effect of the Carrera Program on sexual activity relative to the Boys and Girls Club different for girls compared to boys after three years of intervention?

2. Is the effect of the Carrera Program on risky sexual behavior relative to the Boys and Girls Club different for girls compared to boys after three years of intervention?

3. What is the impact of the Carrera Program relative to the BGC on sexual initiation after two years of intervention?

4. What is the impact of the Carrera Program relative to the BGC on sexual initiation after one year of intervention?

5. What is the impact of the Carrera Program relative to the BGC on recent risky sexual behavior after two years of intervention?

6. What is the impact of the Carrera Program relative to the BGC on recent risky sexual behavior after one year of intervention?

## II. Program and comparison programming

### A. Description of program as intended

The Carrera Program is a holistic, long-term youth development model, inclusive of a comprehensive health and sex education curriculum. There are seven "required" core components offered during an after-school or in-school program: 1. Homework Assistance, 2. Family Life and Sex Education (FLSE), 3. Power Group, 4. Job Club, 5. Life Time Individual Sports, 6. Self-Expression, 7. Health and Dental Services. See Table 3 for description of each component and comparison to the BGC program components. The Carrera Program is highly structured and requires a specific type of location, setting, physical environment, staffing, duration, dosage, and core beliefs for impacting youth behavior. These elements define fidelity for implementing the program.

The Carrera Program is designed to enroll middle school youth and retain them in programming until high school graduation. The program can be implemented in either a school-based or after-school community based setting. In the after-school setting, the physical location must adhere to a set of requirements: a community room/teen room large enough for at least 60 participants, at least 4 classrooms to seat at least 15 participants, and an eating/kitchen area. This structure allows the grantee to operate four components simultaneously to achieve the required weekly dosage. The program operates after school Monday–Friday and some Saturdays. A short summer program is required with flexible days, hours and duration. A logic model for the program is included in Appendix A1.

**B. Description of counterfactual condition**

The counterfactual condition was the BGC. The BGC is a national organization with close to 4,000 affiliates that operates an after-school program during the school year (Monday–Friday) and a summer program. The program enrolls youth 5-17 years of age for the school year. However, there is no expectation for daily attendance like the Carrera Program. There is also no expectation that youth will attend for multiple years. Each Club embraces the national model and curricula; however, each club may differ slightly to meet the needs of its specific community. The intended components are summarized in Table 3. A comparison between Carrera and BGC components is provided in the table.

**C. Comparison of Carrera and BGC Programs**

The Carrera Program and BGC Program are generally similar in structure, design and duration. Both programs offer homework assistance, sports, arts, vocational education/community service, and prevention education. The most significant difference between Carrera and BGC is the emphasis on Family Life and Sex Education (FLSE) for the Carrera Program, compared to the emphasis on substance abuse prevention for the SMART

MOVES curriculum offered in the BGC. FLSE provides a weekly class for 9 months each year. The class focuses on anatomy; human sexuality and reproduction; abstinence and contraception; sexually transmitted infections and diseases; and social, avoidance and life skills related to sexual behavior. The current SMART MOVES curriculum offers 12 sessions on substance abuse prevention and 3 sessions on early sexuality, which was not a part of the original SMART MOVES curriculum.[7]

[7] Harvard Family Research Project (2003 February), OST Evaluation Database, A profile of the evaluation of Boys and Girls Club of America-STAY SMART Program and SMART Leaders Program. www.hfrp.org/outofschooltime/ostdatbase

**Table 3. Comparison of Carrera and BGC Program Components**

| Carrera Components | Content | Delivery | BGC Components and Frequency | Comparison of BGC to Carrera Components |
|---|---|---|---|---|
| Education<br>4 times per week | Homework assistance, tutoring, remediation, Individualized Educational Plans | Class-based instruction delivered by a teacher | Education<br>4 times per week | **Very similar** – almost daily homework assistance |
| Family Life and Sex Education<br>1 time per week | Health and sex education, reproductive counseling and care | Class-based instruction delivered by certified instructor | Healthy Life-Styles<br>1 time per week | **Not very Similar** – provides the SMART MOVES substance abuse prevention education curriculum with 3 sessions on early sexuality |
| Job Club<br>1 time per week | Junior Achievement, bank accounts, stipends, community service | Class-based instruction and field experience led by trained instructor | Character & Leadership<br>1 time per week | **A little similar** – some vocational education sessions and community service projects |
| Life Time Sports<br>1 time per week | 2 experiences: Golf, tennis, swimming, martial arts, horseback riding | Sports activities led by instructor | Sports & Recreation<br>5 times per week | **Somewhat similar** – provides daily group sports activities |
| Self-Expression<br>1 time per week | Creative activities: drama, dance, music, painting, drawing | Creative activities led by instructor | Arts & Culture<br>4 times per week | **Somewhat similar** – provides art activities |
| Power Group<br>As needed<br>1 time per week | Power group with as needed counseling and case management | Group discussion, individual counseling/case management led by M.S. social worker | Group discussion during Smart Moves curriculum (12 sessions); counseling and case-management through referral if needed | **A little similar -** Provides group discussion during 12 week curriculum and referrals. However, discussion is focuses on substance abuse prevention. |
| Medical and Dental<br>As needed | Annual physicals, oral exams and urgent care | Primary health care visits by medical workers | Through referrals if needed | **Not similar -** Through referral if needed |

## III. Study design

### A. Sample recruitment

Study Setting

This study examined the effects of the Carrera Program compared to the BGC in three geographic areas (rural, urban, and micro-politan). In each geographic area, there was a single Carrera intervention site and a single, regional BGC site. Regional BGCs were created by combining smaller satellite clubs or smaller BGCs in close proximity. This is common practice for BGCs. Two or three satellites may comprise one regional club. This practice also assisted the evaluation team in reaching the desired target sample size. Intervention sites and comparison sites were selected from either the same or similar geographic locations, and with similar demographics. See Table 4 for comparison of demographics for the three geographic areas.

The three intervention sites were selected based on their reputation in the community and programmatic history with Morehouse School of Medicine. The three regional BGCs were selected because of their geographic and demographic similarity to the three intervention sites. Additionally, the BGC has a stable history and reputation in the target areas for implementing programs with quality and consistency. Furthermore, they were capable of participating in a longitudinal study.

As can be seen in Table 4, the rural intervention and comparison sites have similar rates of poverty and teen pregnancy. Both teen pregnancy rates far exceed the state (54) and national rate (57.4). The Micro-politan intervention and comparison sites are similar in ethnic and racial demographics, and have similar teen pregnancy rates that fall below the state and national teen pregnancy rate. Finally, the Metropolitan intervention and comparison sites are identical in demographics and rates for teen pregnancy since they are both located in the same area of the county.

**Table 4. Demographics for Geographic Areas in Study**

| | Geographic Location and County | | | | | |
|---|---|---|---|---|---|---|
| | Rural | | Micro-politan | | Metropolitan | |
| **Demographics** | **Intervention Carrera** | **Comparison BGC** | **Intervention Carrera** | **Comparison BGC*** | **Intervention Carrera** | **Comparison BGC** |
| Teen Pregnancy Rate (per 1,000 Females, Ages 15-19) | 67.0 | 80.2 | 35.3 | 35.2–50.0 | 60.0 | 60.0 |
| % Black (total population) | 22.1% | 47.9% | 29.0% | 30.0–50.0% | 44.6% | 44.6% |
| % Hispanic (total population) | 4.2% | 4.4% | 1.0% | 1.0–7.0% | 12.3% | 12.3% |
| % White (total population) | 72.0% | 46.4% | 68.0% | 40.0–80.0% | 48.1% | 48.1% |
| % households in poverty | 21.7% | 26.2% | 15.5% | 30.0% | 14.9% | 14.9% |

Source: 1. Georgia Department of Public Health, Office of Health Indicators for Planning
2. U.S. Census Bureau: State and County Quick Facts

* The ranges represent the minimum and maximum for the satellites sites that comprise the regional BGC sites.

Study Target Population

The target population was males and females enrolled in the Carrera Program (intervention) or a BGC (comparison). The Carrera Program enrolled youth from the target community who were either in the 6th or 7th grade or 11-12 years of age at each of the intervention sites. The evaluation team added an additional criterion for eligibility in the study, academic/cognitive functioning above a 3rd grade level. A total of 220 youth were enrolled in the study as the intervention group.

The BGC identified males and females, in the 6th or 7th grade or 11-12 years of age who were already enrolled in their program, and referred them to the study. A total of 180 youth who met the criteria were enrolled in the study as the comparison group.

The evaluation team recruited all youth for the study who met program eligibility for the Carrera Program or the BGC, and who signed an assent form and whose parent signed a consent

form. Participation in the study for both groups was voluntary. All eligible enrollees in the intervention or comparison group were recruited during parent meetings held at each intervention and comparison site. A member of the evaluation team described the evaluation study, the survey process, consent process and process for incentives. All parents were given $10 for attending a parent meeting. Youth completed the baseline survey within one week of their parents signing consent forms. Youth consent was given during the parent consent process; however, youth assent forms were signed before each survey administration.

## B. Study design

This study is a longitudinal, quasi-experimental design (QED), with clusters serving as the units of assignment. The design includes three intervention sites and three comparison sites. Three community-based organizations were selected for the intervention group. Three regional BGCs were created from existing BGCs for the comparison group.

## C. Data collection

### 1. Impact evaluation

An instrument was developed to collect the outcomes of interest, the demographic variables and other risk variables. The instrument is a combination of the CDC Youth Risk Behavior Survey (Centers for Disease Control and Prevention, Youth Risk Behavior Surveillance System, 2010) and other outcomes of interest. Data was collected from intervention and comparison group members with this instrument at each site in a group administration format that took approximately 60 minutes at baseline and 30 minutes at subsequent follow-ups. During the group administration, a research assistant would read the questions aloud and instruct the participants to read along silently and then select an answer. This was done to ensure all study participants understood the questions and choices, and eliminated reading level as a factor that

might interfere with test-taking. Group survey administration was conducted in the same manner for the intervention and comparison groups.

Survey administration was conducted in the fall of each year, beginning in the first implementation year (baseline). Data collection was conducted at the same time with significant overlap for the intervention and comparison groups every year, except for the first year at baseline, which had a smaller overlap. At baseline, data collection for the intervention group occurred from September to November, and for the comparison group from November to February. This gap occurred because we had to recruit additional BGCs. (See Appendix A2. Data Collection Timetable)

Youth participants received incentives for participation in the study. Youth received $10 after the baseline survey (2011), $10 after first follow-up (2012), $20 after second follow-up (2013) and $30 after the final follow-up (2014).

Incentives were also given to the intervention and comparison sites to encourage their continued participation in this longitudinal study. Between 1 and 4 netbooks were given to each site for use in the Homework Assistance Component, depending on the number of youth participating at each site.

**2. Implementation evaluation**

The evaluation team assessed adherence to fidelity to the Carrera model, quality of implementation of the Carrera program, experiences of the comparison group (counterfactual), and the context of the study/program. (See Appendix B1, Data Used to Address Implementation Research Questions, for more details.)

Adherence

Adherence to the Carrera Program was measured by collecting daily program attendance and component attendance (or dosage), content delivered, and the qualifications of staff

implementing the program. Program and component attendance was documented by program staff when the participant arrived at the program and for each component session. The summer program and summer attendance was not included in the analysis. Although a required component, the summer program was not a core component with a structured curriculum or activities. Content (topics and activities) was documented by staff at the time of component delivery. Staff delivering each component session was documented by the program coordinators.

Quality

The quality of implementation was measured by collecting data on staff/participant interactions and participant engagement with program. Data was collected through observation of component sessions and recorded on a program observation form. Observations were conducted monthly by a member of the evaluation team, usually a research assistant, throughout each program year. The research assistants observed component sessions for the duration of the session. They recorded observations on a 5-point scale for two items on the observation form, staff/participant interaction and participant engagement. Over a four year time period, component sessions were selected randomly, on a monthly basis, for observation. Sixty-nine (69) component sessions were selected out of a pool of 869 component sessions during that four year period.

Experience of Counterfactual

The experience of the comparison group was assessed by collecting data on BGC attendance, annual Program Coordinator interviews, and annual focus groups at each site. Program attendance was documented daily by Program Coordinators. The BGC summer program was also not included in the analysis because it was unstructured like the Carrera program. Focus groups conducted in the fall assessed why participants attended their BGC and

what participants liked about the BGC. The percentage of participants receiving sex education outside the BGC was collected through a survey item on the baseline survey and final follow-up survey.

Context

The context included other programs available to study participants, external events and substantial unplanned adaptations. This information was collected through interviews with Program Coordinators. A survey item also assessed other related services youth had received. Interviews with intervention and comparison Program Coordinators were conducted each program year by the lead evaluator.

## D. Outcomes for impact analyses

Primary Research Questions

Sexual initiation and recent risky sexual behavior are the outcomes of interest being examined in the primary research questions. Sexual initiation is defined as "ever had sex." Recent risky sexual behavior is defined as had "sex without a condom or other birth control." Specifically, respondents who record "yes" to either sex without a condom or sex without birth control are coded as "1" on the recent risky sexual behavior variable, while respondents who report either never having sex, or both never engaging in sex without a condom and never engaging in sex without birth control are coded as "0" for the recent risky sexual behavior outcome.

Secondary Research Questions

The secondary research questions concern the same outcomes as the two primary research questions, except they focus on outcomes measured after two years and one year of intervention (rather than three years) and examine impacts separately for boys and girls to see if the impacts differ by gender.

## E. Study sample

The study sample for this QED cluster design consisted of three intervention clusters and three comparison clusters. All six clusters participated in all data collection events.

The initial youth sample size was 400—220 youth in the intervention group and 180 youth in the comparison group agreed to participate in the study and completed a baseline survey. At three year follow-up, of the 400 youth initially enrolled, 119 intervention youth (54% response rate) and 85 comparison youth (47% response rate) had responses for the key outcomes. These 204 youth with non-missing data comprise the analytic sample for the primary research questions – that is, there were no missing data for any variables for these 204 observations. Group specific response rates ranged from 44% - 63% across the follow-ups. See Appendix C1a. Cluster and Youth Sample Sizes by Intervention Status.

## F. Baseline equivalence

A hierarchical logistic regression model, which acknowledges the clustered nature of the design, was used to assess baseline equivalence for the final analytic sample used to assess impacts for the primary research questions. We assessed baseline equivalence on demographic variables: age, grade, gender and race; and the behavioral measure "sexual initiation." We found no statistically differences between the intervention and comparison groups for the demographic variables or the measure of ever had sex; however, there was a 4 percentage point difference in sexual initiation rates at baseline (see Table 5). Tables showing baseline equivalence for the secondary research questions are available in Appendix C2. The analysis samples for the secondary research questions are also equivalent at baseline.

**Table 5. Summary statistics of key baseline measures for youth completing third-year post-intervention follow-up (2015)**

| | Intervention | Comparison | Intervention verse comparison | |
|---|---|---|---|---|
| **Baseline measures** | **Mean or % (standard deviation)** | **Mean or % (standard deviation)** | **Mean difference** | **p-value of difference** |
| Age | 11.28 (0.45) | 11.21 (0.71) | 0.07 | 0.73 |
| Grade | 6.06 (0.23) | 6.38 (0.63) | -0.33 | 0.12 |
| Gender (female) | 52% | 44% | 0.09 | 0.14 |
| Race/ethnicity | | | | |
| White | 8% | 9% | | |
| Black | 92% | 91% | | 0.60 |
| Ever had sex | 7% | 11% | 4 percentage points | 0.33 |
| Sample size | 119 | 85 | | |

Hierarchical Logistic Regression Modeling with SAS PROC GLIMMIX, which incorporates the clustered nature of design and logit model. Adjusted mean proportions are reported.

## G. Methods

### 1. Impact evaluation

We used hierarchical logistic regression modeling, using SAS PROC GLIMMX, to estimate impacts. This statistical procedure adjusts the standard errors to account for the clustered nature of the design (i.e., youth groups at each site) and uses a logit model for the dichotomous (yes/no) outcome variables. The models controlled for demographic variables (age, grade, gender, and race) and sexual initiation at baseline. The primary outcome variables were 1) sexual initiation (ever had sex), and 2) recent risky sexual behavior (sex without a condom or other birth control). A two-tailed test ($p < 0.05$) was used to determine statistical significance,

and a Bonferroni adjustment was used to correct for multiple comparisons in the analysis of the two primary research questions.

The methods used to answer the secondary research questions were the same as those for the primary research questions with one exception—no Bonferroni correction was applied as these analyses were more exploratory.

**2. Implementation evaluation**

The evaluation examined implementation by measuring adherence to Carrera model, the quality of the intervention, experiences of the comparison group, and the context of the study. Details of how these concepts were operationalized are shown in appendix D1.

*Adherence:* Adherence to the model was comprised of four elements: 1) percentage of the program offered (in days, component hours, and frequency of components), 2) percentage of content delivered, 3) percentage of intervention received by participants, and 4) percentage adherence to number and type of staff. Percentage of program and content delivered was calculated by the number of days, hours, and activities offered divided by the number intended to be offered. Percentage of intervention received was calculated as the number of participants receiving at least 50% and 75% of the intervention in program days and component hours divided by total number of participants.

*Quality:* Quality was measured via staff-participant interactions and participant engagement with program. Staff-participant interaction was measured by a score 5-point scale for item "staff rapport with students" on the program observation form. Similarly, participant engagement was measured by two items, "participant understood the material being presented" and "participated in discussion and activities" on the same rating scale.

*Counterfactual experience:* To evaluate the counterfactual experience, we calculated the percent of the comparison group that received 50% and 75% of the BGC program offered.

*Context:* The study examined whether other programming was available or offered to study participants, and whether any external events and unplanned adaptations affected implementation of the program. The percentage of participants involved in related programming was assessed by a "yes/no" survey item. Annual interviews with Program Coordinators identified whether external events and unplanned adaptations occurred that could have impacted the implementation.

## IV. Study findings

### A. Implementation study findings

In general the Carrera Model was implemented with fidelity and quality, particularly with program components and staffing; however, attendance was a challenge. See details of all implementation findings in appendix D2. Dosage is shown in Tables 6 & 7 below. The majority of participants received over half of this daily, year-long program for the first year. However, attendance and documentation of attendance dropped significantly in years 2 and 3.

Adherence

MSM implemented the recommended number of days and implemented 84% of the recommended number of component sessions, with adherence to the required frequency. MSM met the requirement for program days and sessions by beginning the program on time each year, operating a regular daily program and offering make-up sessions on the weekend.

During the first program year, 41-51% of participants across the three intervention sites (metropolitan, 50%; micro-politan, 41%; rural, 51%) received 75% of the program days. During year two, the percentage of participants receiving 75% dropped to a low of 4% at one site and averaged 26% at the other two sites. Attendance increased slightly in the third year with 12-31% of participants across sites receiving 75% of the program. (See Table 6 for dosage received by participants in program days.)

Reporting for component hours was less consistent than reporting for program days, especially during years 2 and 3. According to staff and MSM management, confusion over which reporting database to track data caused some data to be lost or not recorded. (See Table 7 for dosage received by participants in component sessions.) Data for year one shows an average of 36% of participants across components received 75% of component sessions. A range of 4-63% of all participants across components received 75% of component sessions. For the FLSE component, 36% of participants received 75% of those component hours. Data that was reported for years 2 and 3 are not shown in Table 7, because we have no confidence in this data due to inconsistent reporting during those years.

The 75% adherence was an identified benchmark for OAH. However, we believe it is important to also describe how many youth received at least 50% or half of the program given the long-term and daily time commitment required of participants. A range of 67-74% (or 70%) of participants across the three sites received at least half of the program in days during the first year. During years two and three, this dropped to 35% and 38% of participants who received half of the program in days. By component, over 60% of participants received half of power group, job club, life-time sports, and FLSE sessions during the first year, with 68% of participants receiving half of FLSE session hours.

**Table 6. Percent receiving 75% and 50% of days in Years 1, 2 and 3**

| | Metropolitan | Rural | Micropolitan |
|---|---|---|---|
| **Y1** | | | |
| 75 Percent Adherence | 50% | 51% | 41% |
| 50 Percent Adherence | 74% | 68% | 67% |
| **Y2** | | | |
| 75 Percent Adherence | 4% | 28% | 24% |
| 50 Percent Adherence | 12% | 58% | 36% |
| **Y3** | | | |
| 75 Percent Adherence | 12% | 31% | 16% |
| 50 Percent Adherence | 30% | 50% | 34% |

**Table 7. Percent receiving 75% and 50% of component hours in Year 1**

| | Year 1 | | | | | |
|---|---|---|---|---|---|---|
| | 75 Percent Adherence | | | 50 Percent Adherence | | |
| | Metropolitan | Rural | Micro-politan | Metr opolitan | Rural | Micro-politan |
| FLSE | 12% | 63% | 32% | 64% | 74% | 66% |
| Power Group | 10% | 63% | 37% | 61% | 79% | 68% |
| Job Club | 6% | 63% | 37% | 51% | 72% | 66% |
| Lifetime Sports | 32% | 63% | 29% | 64% | 74% | 62% |
| Self-Expression | 4% | 53% | 29% | 4% | 72% | 66% |

Each component was provided fully with 100% of topics for all components being delivered at each site. The oversight and technical assistance provided by the Fidelity Manger assisted in achieving this and many other goals. Staffing was implemented with fidelity to the Carrera model; however one of the three sites had excessive turnover. This turnover was significant, with four (4) different program coordinators, six (6) different education coordinators, and three (3) different FLSE instructors being hired over the course of the four year program. Significant turnover was also experienced among the other component staff.

Quality

Staff bonded well and built relationships with participants. Across all sites, quality of the instructional staff on "rapport with participants" was rated high, with 87% receiving a score of "4" (above average) or higher. Similarly, participants were engaged, with 83% of staff receiving a "4" or higher on "participant understood material being presented." On "participated in discussions and activities," 81% of staff received a "4" or higher.

Experience of the Counterfactual Condition

The BGC offered a youth development program similar to Carrera, although less rigid. BGCs offered a similar number of days (155 each program year), which is common for after school programs. The majority of the BGC group (65%) received 75% of the program (in days) in year one. The BGC maintained more consistent attendance data than the Carrera program during years two and three. However, attendance data was provided for only 59% of BGC youth, and therefore, we interpret these results with some caution.

Finally, comparison group youth did not participate in and had little access to other teen pregnancy programs except what was taught in school to both groups in the middle school Health class. The responses to the survey indicated that 100% of comparison youth respondents did not participate in other similar services outside of their program or school.

Context

We are confident that study participants had no other competing program that interfered with impact of the program, since 100% of treatment and comparison respondents reported that they did not participate in similar services. The lack of program services was confirmed by Program Coordinators.

One external event did have an impact on implementation. At the end of implementation year 1, MSM removed one of the site Program Coordinators for administrative reasons and subsequently moved the physical location of the site to within a mile of the original location. We believe this had a moderate negative impact on program retention and attrition for this site. A second external event may have had a slight impact on implementation during year 3. Another site moved to a new location because the city "reclaimed" the facility. Although the re-location

was less than a mile away from the original site and transportation was still provided, this event had a slight impact on program retention and attrition for this site.

Staff attempted to combat attrition and non-attendance around these events and general attendance issues by implementing various retention strategies. These strategies included phone calls after an absence, hosting make-up sessions on Saturdays, luring back non-attendees with pizza parties and other incentives, and implementing minor changes based on feedback from focus groups and satisfaction surveys. One minor change that seemed to increase attendance slightly was the transition to the Teen Center concept as the participants reached high school. The Teen Center provided the same dosage and services, however staff created an environment that would be more appealing to older youth. For example, the facility was redecorated and the schedule was restructured so that fellowship activities now reflected teenage interests.

Another issue that likely affected attendance was long bus rides to and from the program for non-auto commuting youth. Approximately 60% of youth commuted to the program by bus, due to lack of, or limited access to, a car. The average commute across the three sites was approximately 38 minutes.

There were no planned or unplanned adaptations of the Carrera Program.

**B. Impact study findings**

No statistically significant program impacts were identified for the primary research questions. One statistically significant finding was identified when examining the six secondary research questions. (See Table 8 for post intervention estimated effects for the two primary and four secondary research questions that applied to all students.)

## Table 8. Post Intervention Estimated Effects for Primary and Secondary Research Questions

| | Intervention | Comparison | Intervention Compared with Comparison | Differential effect of program for gender effects – Boys vs. Girls |
|---|---|---|---|---|
| **Outcome Measure** | **Mean or % (standard deviation)** | **Mean or % (standard deviation)** | **Mean difference (*p*-value of difference)** | |
| **Year 3-Primary Research Question** | **N=119** | **N=85** | | |
| Ever had sex | 14.2 (0.41) | 15.6 (0.43) | -1.4 (0.85) | |
| Sex without a condom or other birth control | 6.6 (0.27) | 7.2 (0.31) | -6 (.91) | |
| **Year 2-Secondary Research Question** | **N=112** | **N=79** | | |
| Ever had sex | 12.4 (0.34) | 25.6 (0.42) | -13.2 (0.11) | |
| Sex without a condom or other birth control | 5.2 (0.26) | 5.9 (0.25) | -7 (0.90) | |
| **Year 1-Secondary Research Question** | **N=129** | **N=108** | | |
| Ever had sex | 11.7 (0.30) | 28.3 (0.43) | -16.6 (0.02) | |
| Sex without a condom or other birth control | 4.9 (0.19) | 3.7 (0.17) | +1.2 (0.74) | |
| **Impact by Gender Year 3 Secondary Research Question** | | | | |
| Ever had sex | | | | |
| Girls | 7.8% (0.44) | 8.5% (0.96) | -0.7% (0.09) | . |
| Boys | 24.5% (0.37) | 26.6% (0.79) | -2.1% (0.86) | 0.99 |
| Sex without a condom or other birth control | | | | |
| Girls | 3.3% (0.26) | 2.3% (0.17) | 1.0% (0.78) | |
| Boys | 9.1% (0.69) | 11.7% (0.55) | -2.6% (0.73) | 0.63 |

After three years, youth who received the Carrera Program have similar outcomes to youth from the BGC. Carrera youth were no different than BGC youth for "ever having sex" and "sex without a condom" (there were no statistically significant differences for either outcome). The percentage of Carrera youth who "ever had sex" was 14.2% compared to 15.6% for BGC youth ($p$ = .85). Carrera youth were not significantly different on having risky sex, with 6.6% of youth having "sex without a condom or other birth control" and 7.2% of BGC youth having "sex without a condom or other birth control" ($p$=.91).

After two years, youth who engaged in sex appeared to be less prevalent among the Carrera youth (12.2%) than those in the BGC clubs (25.6%), however, this difference was not statistically significant ($p$ = .11). There were also no differences between Carrera and BGC youth for having "sex without a condom or other birth control" ($p$ =. 90).

After one year, Carrera youth were significantly lower in "ever had sex" than BGC youth. After one year, 11.7% of Carrera youth "ever had sex" compared to 28.3% of youth in the BGC program ($p$=.02).

Looking across these three different analytic samples, the trend for "ever had sex" for Carrera youth increases every year, as one would expect, from 11.7% to14.2%, while the trend for the BGC youth decreases from 28.3% to 15.6%. The decreasing trend in sexual initiation among the BGC youth was a surprising finding, as we would have expected rates of initiation to increase as the sample got older. The decrease in initiation rates was therefore assumed to be due to (1) changes in the composition of the samples at each time point (with youth initiating sexual initiation in year 1 not responding in subsequent years), (2) inconsistent survey responses over time (e.g., youth indicating sexual initiation in year 1 and not engaging in sex in follow-up surveys), or (3) a combination of the two. Understanding the decreasing rate of sexual initiation

was especially important in this study, given the high rate of sexual initiation observed in the control group at Year 1 where a statistically significant program impact was observed.

To assess compositional changes in the samples, and how this might have influenced the findings, we examined a "stable sample" of youth who responded to all three surveys (78 in the intervention condition, and 43 in the comparison condition) as a sensitivity analysis. In this sample, we see the more expected increase in sexual initiation rates over time for both conditions (Table 9), suggesting compositional differences in the samples over time may have been the cause of the curious decreasing rates of sexual initiation among the control group over time. Thus, this result helps to illustrate that there were indeed a number of youth in the comparison condition who responded that they had sex at the end of Year 1, but then did not respond to subsequent surveys. The Carrera program actively implemented retention strategies and possibly retained a cross-section of sexually active and non-sexually youth. The BGC did not actively implement retention strategies to retain the same youth year to year and likely lost greater numbers of that older, sexually active population. Notably, in this stable sample sensitivity analysis, none of the program impacts showed statistically significant impacts (and the Year 1 results for sexual initiation actually show that the intervention group had higher sexual initiation rates than the comparison group, 13.1% vs. 11.1%), although not significant. While this may have been due to a loss of statistical power (as only 121 youth contribute to the analyses), we also see a marked decrease in the number of youth in the comparison condition who reported ever having sex at the end of Year 1 (11.1% instead of 28.3% reported in Table 8).

**Table 9. Post Intervention Estimated Effects for Primary and Secondary Research Questions for those who responded to all of the surveys (stable sample)**

| | Intervention (n=78) | Comparison (n=43) | Intervention Compared with Comparison |
|---|---|---|---|
| **Outcome Measure** | **Mean or % (standard deviation)** | **Mean or % (standard deviation)** | **Mean difference (*p*-value of difference)** |
| **Year 3** | | | |
| Ever had sex | 22.0% (0.43) | 26.3% (0.45) | -4.3% (0.66) |
| Sex without a condom or other birth control | 8.1% (0.29) | 9.9% (0.32) | -1.8% (0.74) |
| **Year 2** | | | |
| Ever had sex | 10.7% (0.34) | 20.8% (0.43) | -10.1% (0.23) |
| Sex without a condom or other birth control | 6.3% (0.27) | 2.4% (0.15) | +3.9% (0.50) |
| **Year 1** | | | |
| Ever had sex | 13.1% (0.36) | 11.1% (0.35) | +2.0% (0.74) |
| Sex without a condom or other birth control | 6.0% (0.25) | 2.3% (0.15) | +3.7% (0.37) |
| **Baseline** | | | |
| Ever had sex | 3.4% (0.22) | 3.0% (0.26) | +0.4% (0.87) |

We tested to see if impacts of the intervention differed across gender. There were no differences in the effectiveness of the intervention for boys and girls after 3 years of the program. This may be due in part to the low sample size for the study and sub-groups (see Table 8).

## V. Conclusion

Findings

After three years, the Carrera Program had no effect on youth's behavioral outcomes relative to the BGC. A similar set of findings is observed at the end of two years of the program (non-significant program impacts). However, after one year of the program, Carrera youth were significantly lower in "ever had sex" than BGC youth. This positive program impact in year 1 was not sustained into years 2 and 3, perhaps due to implementation issues (low attendance) in years two and three. In addition, the positive program impact appears in part to have been due to youth in the control group who were sexually experienced at Year 1 and did not respond to subsequent follow-up surveys, as highlighted in a sensitivity analysis that followed a stable sample of youth (in this stable sample analysis, no statistically significant program impacts were observed).

We suspect the sample of comparison youth who took the year one survey was different compositionally and behaviorally than the sample of comparison group youth who took the year two and three surveys, which caused different impacts (or effects) in years one, two and three. At baseline, both the treatment and comparison groups were equivalent demographically and behaviorally. Initially, from baseline to year one, there was an expected increase for both the treatment and comparison group youth in sexual initiation, with the comparison group youth seeming significantly more sexually active than the treatment group in year one, and, oddly, more active than the comparison group youth in years two and three as well. The unexpected decreasing trend started after year one however. As explained in the findings, the Carrera program actively retained youth, causing a cross section of sexually active and non-sexually active youth to return annually, whereas the BGC did not.

In subsequent years, it is foreseeable that more sexually active youth dropped out of the BGC leaving a larger group of non-sexually youth in the program and completing the follow-up surveys in years two and three. In subsequent program years, the BGC youth completing the survey were likely non-sexually active youth which may explain the downward trend.

Lastly, although we believe that youth responded truthfully to survey items, it is possible that a differential monitoring or surveillance between the Carrera and BGC youth might explain the large discrepancy between the Carrera and BGC youth at year one. Carrera youth were acutely aware of the goals and mission of Carrera, to prevent teen pregnancy and postpone early sexuality in youth, while they also took a weekly health and sex education class. There may have been a desirability effect on the part of the Carrera youth that was not present for the BGC youth. BGC youth were only aware that they were enrolled in an afterschool program for academic enrichment and/or adult supervision after school. However, we cannot dispute the possibility that the difference between the treatment and comparison youth during year one is due to a significant impact of the Carrera Program.

In this study, implementation issues did occur in years two and three. Program staff struggled with daily program attendance as participants grew older, and were able to stay home, unaccompanied by a parent. It was also difficult to compete with sports and other after-school activities in a "mandatory" five days per week program, especially in the 8$^{th}$ and 9$^{th}$ grades. As youth approached high school, attendance issues were confounded by the external events discussed regarding implementation. The administrative changes, including moving locations, may have had a negative impact on attendance and sample retention during years two and three.

The lack of statistically significant results in years two and three does not mean that the Carrera Program was ineffective after two years. It simply shows that the BGC may also be

effective at reducing early sexual behavior and increasing protective factors for teen pregnancy, and therefore, the programs are both providing valuable services to youth (and that they are potentially, equally effective). For example, both groups had lower rates of "ever having sex" than same age/grade peers surveyed on the CDC's national Youth Risk Behavior Surveilance System (YRBSS). On the 2013 national YRBSS, 30% of 9th grade respondents had "ever had sex" (CDC, Morbidity and Mortality Weekly Report June 13, 2014) compared to 14.2% for Carrera youth and 15.6% for BGC youth who would have been in 9th grade when these rates were measured.

While we chose to use a structured after-school prevention program as the comparison group for our study, the comparison program may have been too similar and robust to find significant differences between the groups. Future evaluation studies of evidence-based programs such as Carrera may be better served to compare program effects to youth in a more typical setting, for example receiving no intervention or in a less structured, drop-in or tutoring program, as was done in the original Philliber Study. They used control groups run by agencies also operating a Carrera Program. Control groups were generally the agencies' regular youth program that may or may not include various activities and was drop-in, with a shorter time commitment.[8] The BGC comparison sites in Georgia were more robust with greater dosage than the original control sites.

We did not see differences for boys and girls as a result of being in the program. This is contrary to the Philliber Study of the CAS – Carrera Program that found a gender effect. For this study, lack of gender effects may be due to the small sample size for the study and subgroups.

[8] Philliber S., Kaye J.W., Herrling S, and West E., Preventing Pregnancy and Improving Health Care Assess Among Teenagers, *Perspectives on Sexual and Reproductive Health* 2002, 34(5):244-251.

We also did not see any significant differences in the effect of this intervention for any other subgroups (geographic area or sexual initiation status at baseline).

Lessons Learned for Carrera implementation

One of the lessons learned from this study is that given the long-term and intensive nature of the Carrera program design, stable community-based organizations must be selected with the potential for minimal or no organizational and administrative disruptions. For the MSM Carrera program, these administrative changes may have had an impact on implementation, in particular, attendance. This may occur even when the program is implemented with fidelity and quality.

Another lesson learned is that the Carrera program must be able to adapt to the culture of the population and community served. Specifically in Georgia, the Carrera program competed with a major source of entertainment for both youth participants and the community. Youth sports, particularly basketball and football are a major part of the identity of a school-aged male in Georgia. According to the CDC, almost 60% of boys (57.9) and 50% (46.9) of girls in the state of Georgia played at least one sport in 2011.[9] Georgia ranked 12th out of 51 states for high school sports participation with 197,537 student athletes playing high school sports in the 2014-2015 school year.[10] A significant number of school-age males start playing one of these sports by middle school. Sports are also now a growing focus for females in Georgia. For the Carrera program to succeed in a community such as this, they must offer a flexible schedule for youth to receive dosage while participating in their sport.

In addition to the culture of sports, the geography of the targeted Georgia cities made daily commuting to and from the Carrera Program a hardship. Whereas youth in New York City can travel to and from agencies by walking and public transportation, this was not an option for

[9] Center for Disease Control and Prevention, Youth Risk Behavior Surveillance United States 2011, Morbidity and Mortality Weekly Report 2012, 61, No. 4.
[10] National Federation of High Schools, www.nfhs.org, High School Athletics Participation Survey 2013-2014.

the Georgia youth in this study. Although MSM provided bussing, youth were subject to long commutes and late evening drop-off (even traveling from school to neighborhood CBO and to home). As youth aged, it became easier to drop out and attend other competing interests that were more easily accessible than attend a 5-day-per-week program, with long commutes. Again, a flexible schedule would assist in this regard, especially as youth enter high school with a variety of attractive extra-curricular activities. If youth could receive the required dosage without attending daily, they might commit to the long-term nature of the program. Many evidence-based programs now include a practice called "pairing" or combining similar components such as power group and sex education. This would reduce the number of required sessions and hours while still receiving the same required content.

## VI. References


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9. National Federation of High Schools, www.nfhs.org, High School Athletics Participation Survey 2013-2014.

## VII. Appendices

Appendix A1. CAS-Carrera Logic Model

Appendix A2. Data Collection Timetable

Appendix B1. Data Used to Address Implementation Research Questions

Appendix C1a. Cluster and Youth Sample Sizes by Intervention Status – Cluster Designs

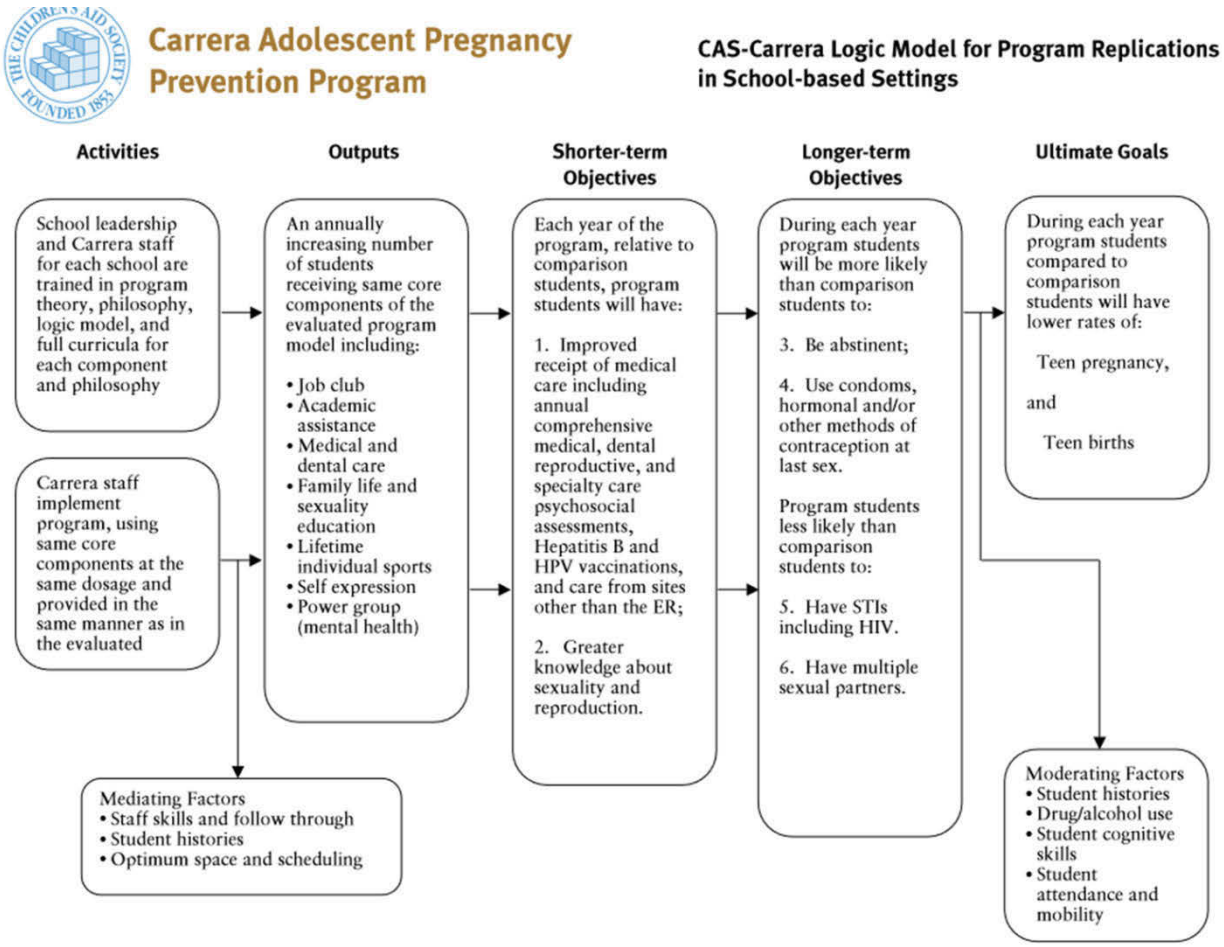
Appendix C2. Baseline Equivalence for Secondary Research Questions

Appendix D1. Methods Used to Address Implementation Research Questions

Appendix D2. Implementation Findings

## Appendix A: Data collection efforts

### Appendix A1. Carrera Logic Model



**Appendix A2. Data Collection Timetable**

| Data Collection Event | Intervention Group – Carrera | | Comparison Group – BGC | |
|---|---|---|---|---|
| | Date | Number Completed | Date | Number Completed |
| Baseline | 9/26/11-11/3/11 | 220 | 11/10/11-2/1/11 | 180 |
| First Follow-up (12 months) | 10/15/12-12/15/12 | 138 | 10/15/12-12/15/12 | 105 |
| Second Follow-up (24 months) | 10/15/12-12/20/13 | 111 | 10/15/12-12/20/13 | 79 |
| Final Outcome (36 months) | 9/15/14-11/15/14 | 119 | 9/15/14-11/15/14 | 91 |

## Appendix B: Implementation evaluation data collection

### Appendix B1. Data Used to Address Implementation Research Questions

| Implementation element | Types of data used to assess whether the elements of the intervention were implemented as intended | Frequency/Sampling of data collection | Party responsible for data collection |
|---|---|---|---|
| **Adherence** | | | |
| How many program days were offered? | Program dates offered entered into CMIS | Program days open entered daily | Program staff |
| How many component hours were offered? | Each component session offered entered into CMIS | Component hours offered entered at the time of session | Program staff |
| How often were sessions offered? | Dates of program days and component sessions entered into CMIS | Data entered into CMIS daily | Program staff |
| What and how much was received? | Number of program days per youth and component hours per youth entered into CMIS | Data entered into CMIS daily | Program Staff |
| What content was delivered? | Audit of component sessions | Daily and monthly | Program and evaluation staff |
| Who delivered material to youth | Staff chart with length of employment | Monthly | Program and evaluation staff |

| Implementation element | Types of data used to assess whether the elements of the intervention were implemented as intended | Frequency/Sampling of data collection | Party responsible for data collection |
|---|---|---|---|
| **Quality** | | | |
| Quality of staff participant interactions | Observation rating by the evaluation staff on OAH Program Observation Form item 6d. "Implementers' rapport with participants". | Twice per month | Evaluation staff |
| Quality of youth engagement with program | Observation rating by the evaluation staff on OAH Program Observation Form items 4. & 5. "To what extent did participant understand and participate in discussions and activities" | Twice per month | Evaluation staff |

| Implementation element | Types of data used to assess whether the elements of the intervention were implemented as intended | Frequency/Sampling of data collection | Party responsible for data collection |
|---|---|---|---|
| **Counterfactual – Experiences of counterfactual condition** | | | |
| How many program days were offered? | Number of days open documented by Program Coordinators on monthly BGC report | Daily and monthly | Program staff |
| What and how much was received? | Daily attendance and documentation on monthly BGC report of components offered | Daily and monthly | Program staff |
| Other program experiences | Survey item 46 on YRBS, "ever been taught about HIV/AIDS/STI/Ds, and item 47, "ever participated in any other teen pregnancy prevention services." | Collected annually pre/post on intervention and comparison | Evaluation staff |
| Other experiences: Focus Group | Focus group of comparison group members | Collected annually of convenience sample of comparison youth | Evaluation staff |

| Implementation element | Types of data used to assess whether the elements of the intervention were implemented as intended | Frequency/Sampling of data collection | Party responsible for data collection |
|---|---|---|---|
| **Context** | | | |
| Other TPP Programming offered or available | Interviews with intervention and comparison Program Directors | Annually | Evaluation staff |
| External events affecting implementation | Interviews with intervention and comparison Program Directors | Annually | Evaluation staff |
| Substantial unplanned adaptations | Interviews with intervention and comparison Program Directors | Annually | Evaluation staff |

## Appendix C: Study sample

### Appendix C1a. Cluster and Youth Sample Sizes by Intervention Status – Cluster Designs

| | Time period | Total sample size | Intervention sample size | Comparison sample size | Total response rate | Intervention response rate | Comparison response rate |
|---|---|---|---|---|---|---|---|
| **Number of Clusters** | | | | | | | |
| 1. At beginning of study | | 6 | 3 | 3 | | | |
| 2. Contributed at least one youth at baseline | Baseline | 6 | 3 | 3 | 100% | 100% | 100% |
| 3. Contributed at least one youth at follow-up | 1 year into intervention | 6 | 3 | 3 | 100% | 100% | 100% |
| 4. Contributed at least one youth at follow-up | 2 years into intervention | 6 | 3 | 3 | 100% | 100% | 100% |
| 5. Contributed at least one youth at follow-up | 3 years into intervention | 6 | 3 | 3 | 100% | 100% | 100% |
| **Number of Youth** | | | | | | | |
| 6. In non-attriting clusters/sites at time of assignment | | 400 | 220 | 180 | | | |
| 7. Who consented | | 400 | 220 | 180 | 100% | 100% | 100% |
| 8. Contributed a baseline survey | | 400 | 220 | 180 | 100% | 100% | 100% |
| 9. Contributed a follow-up survey (1) | 1 year into intervention | 243 | 138 | 105 | 60% | 63% | 58% |

| | Time period | Total sample size | Intervention sample size | Comparison sample size | Total response rate | Intervention response rate | Comparison response rate |
|---|---|---|---|---|---|---|---|
| 10. Contributed a follow-up survey (2) | 2 years into intervention | 190 | 111 | 79 | 48% | 50% | 44% |
| 11. Contributed a follow-up survey (3) | 3 years into intervention | 210 | 119 | 91 | 53% | 54% | 51% |
| 12. Contribute to impact analysis (3) | 3 years into intervention | | 119 | 85 | 51% | 54% | 47% |

**Appendix C2. Summary statistics of key baseline measures for youth completing second-year post-intervention follow-up (2014)**

| | Intervention | Comparison | Intervention versus comparison | |
|---|---|---|---|---|
| Baseline measure | Mean or % (95% CI) | Mean or % (95% CI) | Mean difference | *p*-value of difference |
| Age | 11.28 (.+/-0.45) | 11.21 (+/-0.66) | 0.07 | 0.86 |
| Gender (female) | 53% (43-62%) | 46% (34-57%) | 0.07 | 0.34 |
| Race/ethnicity | | | | |
| White | 4% (+/-0.8) | 10% (+/-3.0) | | |
| Black | 96% (+/-20.2) | 90% (+/-.27.0 | | 0.15 |
| Hispanic | | | | |
| Asian | | | | |
| Ever had sex | 6% (+/-1.4) | 9% (+/-2.5) | -3 percentage points | 0.50 |
| Sample size | 112 | 79 | | |

**Appendix C2. Summary statistics of key baseline measures for youth completing first-year post-intervention follow-up (2013)**

| | Intervention | Comparison | Intervention versus comparison | |
|---|---|---|---|---|
| Baseline measure | Mean or % (95% CI) | Mean or % (95% CI) | Mean difference | *p*-value of difference |
| Age | 11.27 (+/-.46) | 11.36 (+/-.69) | 0.09 | 0.25 |
| Gender (female) | 53% (+/-26.5) | 44% (+/-22.0) | 0.09 | 0.21 |
| Race/ethnicity | | | | |
| White | 9% +/-2.6 | 6% (+/-1.5) | | |
| Black | 91% (+/-26.3) | 94% (+/-23.5) | | 0.43 |
| Hispanic | | | | |
| Asian | | | | |
| Ever had sex | 7% (+/-1.8) | 10% (+/-3.0) | -3 percentage points | 0.38 |
| Sample size | 129 | 108 | | |

## Appendix C2 . Summary statistics of key baseline measures for girls completing all 3-year post-intervention follow-up

| | Intervention | Comparison | Intervention versus comparison | |
|---|---|---|---|---|
| Baseline measure | Mean or % (standard deviation) | Mean or % (standard deviation) | Mean difference | *p*-value of difference |
| Age | 11.27 (0.45) | 11.37 (0.50) | -0.10 | 0.44 |
| Grade | 5.95 (0.38) | 6.00 (0.91) | -0.05 | 0.73 |
| Race/ethnicity | | | | |
| White | 0% | 11%(0.31) | | |
| Black | 100% | 89%(0.31) | | 0.10 |
| Ever had sex | 0% | 5%(0.22) | 5 percentage points | 0.32 |
| Sample size | 41 | 19 | | |

Hierarchical Logistic Regression Modeling with SAS PROC GLIMMIX, which incorporates the clustered nature of design and logit model. Adjusted mean proportions are reported.

## Appendix C2 . Summary statistics of key baseline measures for boys completing all 3-year post-intervention follow-up

| | Intervention | Comparison | Intervention versus comparison | |
|---|---|---|---|---|
| Baseline measure | Mean or % (standard deviation) | Mean or % (standard deviation) | Mean difference | *p*-value of difference |
| Age | 11.22 (0.42) | 11.29 (0.81) | -0.08 | 0.86 |
| Grade | 5.86(0.42) | 5.63 (0.65) | 0.24 | 0.21 |
| Race/ethnicity | | | | |
| White | 11%(0.31) | 8%(0.28) | | |
| Black | 89%(0.31) | 92%(0.28) | | 0.88 |
| Ever had sex | 11%(0.31) | 8%(0.28) | 3 percentage points | 0.75 |
| Sample size | 37 | 24 | | |

Hierarchical Logistic Regression Modeling with SAS PROC GLIMMIX, which incorporates the clustered nature of design and logit model. Adjusted mean proportions are reported.

## Appendix D: Implementation evaluation methods

### Appendix D1. Methods Used to Address Implementation Research Questions

| Implementation Element | Methods used to address each implementation element |
|---|---|
| **Adherence** | |
| How many program days were offered? | The total number of days offered was the count of open days entered into CMIS. This was compared to Carrera Guidelines for program days. Percent adherence was number of days actually offered/planned compared with what they were supposed to offer. |
| How many component hours were offered? | The total number of component hours offered was the count of component sessions entered into CMIS. This was compared to Carrera Guidelines for component hours. Percent adherence was number of hours offered/planned. |
| How often were program and sessions offered? | Frequency was the number of times per week the program operated and the number of times per week each component was offered. This was compared to the Carrera guidelines. Percent adherence was the number of weeks the program operated 5 times per week/Carrera guideline; and number of weeks each component operated 1 time per week/Carrera guideline. |
| What and how much was received? | The percent of participants attending 75% of program and each component was calculated as number of participants attending the number days (and component hours) that equal 75% program attendance/total number participants. |
| What content was delivered? | Percent adherence was the number topics offered/Number Carrera mandated topics for each component. |
| Who delivered material to youth | A staff chart with positions and length of employment show percent adherence for staffing. |

| Implementation Element | Methods used to address each implementation element |
|---|---|
| **Quality** | |
| Quality of staff participant interactions | Percent adherence for quality was calculated as the number of items scores at 4 or above /total number of observations. |
| Quality of youth engagement with program | Percent adherence for quality was calculated as the number of items scores at 4 or above /total number of observations. |
| **Counterfactual – Experiences of counterfactual condition** | |
| How many program days were offered? | Percent adherence was the number of days offered/number of days required by Carrera. |
| What and how much was received? | Adherence was defined as the percentage of participants receiving 75% of program (number of participants meeting 75% of program/total number participants). |
| Other program experiences | The percent of the counterfactual attending any other teen pregnancy or related services was calculated as number of participants not attending outside teen services/total number of participants. |
| Other experiences: Focus Group | Data from the focus group was calculated as frequency counts and percentages. |

## Appendix D2. Implementation Findings

| Implementation Element | Findings |
|---|---|
| **Adherence** | |
| How many program days were offered? | All three intervention sites operated 155 days each program year (100% adherence.) |
| How many component hours were offered? | All three intervention sites offered an average of 27 component hours each year (84% adherence). |
| How often were program sessions offered? | All sites implemented all program sessions as intended (i.e., there was 100% implementation of each component in each site in each year. The following indicates the frequency with which sites implemented each component:<br><br>**Home Work** 4/wk; **Job Club** 1/wk; **Power Group** 1/wk; **FLSE** 1/wk; **Sports** 1/wk; **Self-Expression** 1/wk |
| What and how much was received? | During the first program year, 41-51% of participants across the three intervention sites received 75% of the program in days. During year two, the percent of participants receiving 75% dropped to a low of 4% at one site and 24% and 28% at the other two sites. In the third year, 12-31% of participants across the intervention sites received 75% of the program.<br><br>Reporting for component hours was less consistent than reporting program days. Reporting during program year one was more consistent than during years two and three. According to staff and MSM management, confusion over which reporting database to track data caused some data to be lost or not recorded. However, data for year one shows a range of 4-63% of participants across components received 75% of component sessions. That is an average of 36% of participants across components receiving 75% of component sessions. |
| What content was delivered? | All three intervention sites implemented 100% of the content and activities for FSLE, Job Club, Power Group, Lifetime Sports, and Self Expression every program year. |

| Implementation Element | Findings |
|---|---|
| Who delivered material to youth? | Job Club Instructor – 100% of staff across all three sites met the qualification criteria for hiring. (Teaches vocational education, opens and monitors participant bank accounts. Qualifications include college degree and experience teaching vocational education.)<br><br>Teacher – 100% of staff across all three sites met the qualification criteria for hiring. (Leads the education/homework assistance session and monitors participant progress. Qualifications include B.A. or M.A. in Education and experience teaching middle school.)<br><br>Group Leader/Tutor – 100% of staff across all three sites met the qualification criteria for hiring. (Assists the teacher with educational duties in the classroom. Qualifications includes B.A. or GED, and experience as teacher assistant, tutor or group facilitator with middle school youth. )<br><br>Licensed Mental Health Specialist – 100% of staff across all three sites met the qualification criteria for hiring. (Conducts the power group sessions. Provides as needed counseling or referrals for counseling. Qualifications include M.S. in Social Work or Counseling and license with clinical experience with youth.)<br><br>FLSE Instructor – 100% of staff across all three sites met the qualification criteria for hiring. (Teaches the Family Life and Sex Education sessions. Qualifications include college degree or GED and experience teaching health and sex education.)<br><br>Sports Instructor – 100% of staff across all three sites met the qualification criteria for hiring. (Teaches individual sports to participants. Qualifications include college degree or GED and experience in teaching sports to youth.)<br><br>Self-Expression Instructor – 100% of staff across all three sites met the qualification criteria for hiring. (Develops and engages participants in self-expression activities. Qualifications include college degree or GED and experience teaching creative arts to youth.)<br><br>Implemented with 100% adherence to the prescribed staffing model, however, extensive turnover occurred at one of the three sites. |

| Implementation Element | Findings |
|---|---|
| **Quality** | |
| Quality of staff participant interactions | Out of 69 component sessions observed equally across the three Carrera sites, on the program observation form, 53% of staff received a score of 5/5 on a 1-5 point-scale measuring "staff rapport with students," 34% received a score of 4/5, 8% received a score of 3/5, and 5% received a score of 2/5. |
| Quality of youth engagement with program | Out of 69 component sessions observed (divided equally) across the three Carrera sites, on the program observation form, 46% of staff received a score of 5/5 on a 1-5 scale measuring the extent to which "participant understood material being presented," 37% received a score of 4/5, 14% received a score of 3/5, and 3% received a score of 2/5. On the item "participant participated in discussions and activities," 47% of staff received a score of 5/5, 34% received a score of 4/5, 14% received a score of 3/5, 3% received a score of 2/5, and 2% received a score of 1/5. |
| **Counterfactual – experiences of counterfactual condition** | |
| How many program days were offered? | All three comparison sites operated 155 days each program year. |
| What and how much was received? | In program days: Program wide Y1 75% attendance (65%) Y2 75% attendance (49%), Y3 75% attendance (35%). Program attendance data was submitted for 107 participants for years one and two, program attendance data for 119 participants was submitted for year three, however, only 91 completed the year 3 follow-up. |
| Other program experiences: Survey | At fall 2014 survey administration, youth were asked on YRBS item 48, "Have you participated in any other teen pregnancy prevention services outside of BGC and school?" 100% BGC respondents had not. |

| Implementation Element | Findings |
|---|---|
| Other program experiences: Focus Group | From a convenience sample of 80 participants who participated in four focus groups during program years 2011-2014, responses to three questions were tallied. 1. "Why do you come to the program? For yourself or does someone make you come?" 64/80 (80%) responded that they attend for themselves and 12/80 (15%) responded that they attend because a parent makes them attend. 2. "What do you like most about the program?" 49/80 (61%) responded that they come for the food, 20/80 (25%) said they attend for the homework assistance, and 11/80 (14%) said they attend because there is nothing else in the community. 3. "Do you think the program works? Are you learning anything?" 73/80 (91%) responded "yes." |
| **Context** | |
| Other TPP Programming available or offered | Interviews were conducted with BGC and Carrera Program Coordinators annually from 2011-2014. According to the Coordinators, no other competing community programs were offering services other than BGC and Carrera in the immediate community to reach program participants. All Georgia public middle schools offer health education classes. At fall 2014 survey administration, both intervention and comparison youth were asked on YRBS item 48, "Have you participated in any other teen pregnancy prevention serves outside of this program and school?" All respondents (100%) said they had not. |
| External events affecting implementation | Information regarding external events was gathered from interviews with Carrera Program Coordinators, MSM Administrative staff, and the Carrera Fidelity Monitor. The believed the following are external events affected aspects of implementation.<br><br>1. End of implementation year 1 – removing one of the site Coordinators and moving the physical location (although within a mile of the original location). It is believed this had a moderately negative impact on program retention and attrition for this site.<br>2. End of implementation year 2 – Another site moving to a new location when the city "reclaimed" the facility, although it relocated less than a mile away. This had a slight negative impact on program retention and attrition for this site. |
| Substantial unplanned Adaptations | None |