

## **Updated findings from the HHS Teen Pregnancy Prevention Evidence Review: July 2014 through August 2015**

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By Julieta Lugo-Gil, Amanda Lee, Divya Vohra, Katie Adamek,  
Johanna Lacoce, and Brian Goesling  
Mathematica Policy Research

Since 2009, the U.S. Department of Health and Human Services (HHS) has sponsored an ongoing systematic review of teen pregnancy prevention research to identify programs with evidence of effectiveness in reducing teen pregnancy, sexually transmitted infections (STIs), and associated sexual risk behaviors. The HHS Teen Pregnancy Prevention (TPP) Evidence Review was created in response to the 2010 Consolidated Appropriations Act, which indicates that teen pregnancy prevention programs must be “proven effective through rigorous evaluation to reduce teenage pregnancy, behavioral risk factors underlying teenage pregnancy, or other associated risk factors.” Mathematica Policy Research conducts the TPP Evidence Review, which is sponsored by the Office of the Assistant Secretary for Planning and Evaluation (ASPE), the Office of Adolescent Health (OAH) within the Office of the Assistant Secretary for Health, and the Family and Youth Services Bureau (FYSB) within the Administration for Children and Families (ACF).

As of February 2015, Mathematica had identified 37 programs meeting the review criteria for evidence of effectiveness. These criteria require programs to show evidence of at least one favorable, statistically significant impact on at least one sexual risk behavior or reproductive health outcome of interest (sexual activity, number of sexual partners, contraceptive use, STIs, or pregnancy). In addition, the supporting research studies must meet established criteria for the quality and execution of their research designs. The review team follows pre-specified criteria to assess study design, sample attrition, baseline equivalence, reassignment of sample members, and confounding factors. We detail the review procedures later in this brief.

Mathematica has recently updated the review findings to cover research released from July 2014 to August 2015. As part of this update, the review team identified and assessed evidence for 16 new programs that prior rounds of the review did not include. Seven of these 16 programs met the review criteria for evidence of effectiveness, bringing the total number of programs meeting this criteria to 44 (37 programs from earlier rounds of the review plus the 7 newly identified programs). The review team also identified and assessed newly available evidence for 7 programs highlighted in previous rounds of the review. We discuss this evidence later in this brief.

## Newly identified programs

The 16 newly assessed programs (Table 1) ranged from broad classroom-based curricula for middle school students to specialized initiatives to prevent rapid repeating pregnancies among teen mothers. Seven of these 16 programs met the review criteria for evidence of effectiveness, showing evidence of a favorable, statistically significant program impact on at least one sexual risk behavior or reproductive health outcome of interest (as designated by + in Table 1). For 6 other programs, the supporting impact studies met the review criteria for a study quality rating of High or Moderate, but the study findings did not meet the review criteria for evidence of effectiveness (as designated by 0 and – in Table 1). For the remaining 3 programs, the supporting impact studies did not meet the review criteria for a High or Moderate study quality rating.

**Table 1. Newly identified programs: evidence by outcome domain and study rating**

Program	Outcome domains					Study rating <sup>a</sup>
	Sexual activity	Number of sexual partners	Contraceptive use	STIs	Pregnancy	
AIM 4 Teen Moms	0	0	+			Moderate
Generations			+			Moderate
Healthy Futures	+					Moderate
Love Notes	+	0	+		+	Moderate
Positive Potential Be The Exception Grade 6	+					Moderate
Positive Prevention PLUS	+		+		0	Moderate
Teen Options to Prevent Pregnancy (T.O.P.P.)	0	0	+			High
Gender Matters (GEN.M)	0		0			High
HealthTeacher	0					Moderate
It's Your Game-Tech	0					Moderate
mCircle of Life	0					Moderate
Teen Prevention Education Program (TeenPEP)	0	0	0			Moderate
Sexuality Education Initiative (Planned Parenthood of LA)	0	0	–	0		High
Integrated Prevention Intervention for Homeless Youth	n.a.	n.a.	n.a.	n.a.	n.a.	Low
PHAT Life	n.a.	n.a.	n.a.	n.a.	n.a.	Low
South Carolina Parents Involved in Education Abstinence Education Program	n.a.	n.a.	n.a.	n.a.	n.a.	Low

Note: 0, +, and – indicate evidence of null, favorable, and adverse effects, respectively. Empty cells indicate that the study did not examine program impacts on measures within that outcome domain.

<sup>a</sup> The review team established ratings for the supporting impact studies following pre-specified criteria to assess study design, attrition, baseline equivalence, reassignment of sample members, and confounding factors. See Table 3 below for a more detailed description.

n.a. = not applicable; following the procedures specified in the review protocol, the review team did not assess evidence of effectiveness for programs with a supporting impact study that received a Low quality rating.

The seven new programs meeting the review criteria for evidence of effectiveness are as follows:

**AIM 4 Teen Moms.** AIM 4 Teen Moms is a positive youth development program for new teen mothers. The program was adapted from an existing evidence-based teen pregnancy prevention program that features a classroom-based youth development curriculum for middle school students. The adapted AIM 4 Teen Moms program comprises nine sessions administered over 12 weeks (seven one-hour home visits and two 90-minute group sessions at a community-based location). AIM 4 Teen Moms was evaluated in a randomized controlled trial involving 800 low-income, adolescent new mothers in Los Angeles County.<sup>1</sup> The study found that about nine months after the end of the program, teen mothers participating in the intervention were significantly less likely than those in the study control group to report having had sex without using an effective contraceptive method in the past three months. The study met the review criteria for a Moderate quality rating.

**Generations.** Generations is a clinic-based, comprehensive health care program for adolescent parents and their families. The program provides teen mothers and their children with (1) medical care, including access to reproductive health services and individualized consultations on sexual risk behavior, decision making, and contraception; (2) comprehensive social work services, including discussions with a social worker and reminder phone calls or text messages; and (3) mental health screening and treatment. The evaluation of the Generations program<sup>2</sup> used a quasi-experimental comparison group study with a sample of 124 teen mothers and their children in Washington, DC. Teen mothers and children in the comparison group received standard community-based pediatric primary care. The study authors found that teen mothers who participated in the Generations program were significantly more likely to report having used an effective method of birth control and having used a condom the last time they engaged in sexual activity.

**Healthy Futures.** Healthy Futures is a school-based, comprehensive sex education program for middle school students. The three-year program features a relationship education curriculum, Nu-CULTURE, which is delivered in 24 lessons (8 per year in 6th, 7th, and 8th grade). At each grade level, the program also provides access to virtual classrooms, after-school and summer programs, and a website and workshops designed for parents. In a cluster randomized controlled trial involving 2,346 students from 15 middle schools in three cities in northeastern Massachusetts,<sup>3</sup> researchers found that at the end of 8th grade, female adolescents in the schools

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<sup>1</sup> Covington, R. et al. "Interim Impacts of the AIM 4 Teen Moms Program." Princeton, NJ: Mathematica Policy Research, 2015.

<sup>2</sup> Lewin, A., S. Mitchell, and M. Boudreaux. "Improved Contraceptive Use Among Teen Mothers in a Family-Centered Medical Home." Unpublished manuscript. University of Maryland, 2015.

<sup>3</sup> Calise T.V., W. Chow, and K.F. Doré. JSI Research & Training Institute, Inc. "Evaluation of Healthy Futures in Three Northeastern Massachusetts Cities: Findings from an Innovative Teen Pregnancy Prevention Program." Final Impact Report for The Black Ministerial Alliance of Greater Boston, Inc. Prepared for the Office of Adolescent Health, U.S. Department of Health and Human Services, 2015.

that delivered the intervention were significantly less likely to report ever having vaginal sex. The study met the review criteria for a Moderate quality rating.

**Love Notes.** Love Notes is a healthy relationship education curriculum consisting of 13 one-hour sessions. The program educates youth about healthy relationships and preventing dating violence and unprotected sex. The Love Notes program was evaluated in a cluster randomized trial involving 933 adolescents recruited from community-based organizations serving youth in low-income areas of Louisville, Kentucky.<sup>4</sup> The study found that six months after the program, adolescent participants were significantly less likely than youth in the study control group to report ever having had sex, ever having been pregnant, having had sex in the last three months, and having had sex without a condom or without birth control in the last three months. The study found no evidence of statistically significant program impacts on these outcomes for the study follow-ups conducted 3 and 12 months following the program. The study met the review criteria for a Moderate quality rating.

**Positive Potential Be The Exception Grade 6.** Positive Potential Be The Exception (Positive Potential) is a school-based, youth development program developed primarily for adolescents attending middle school in rural communities. The Positive Potential program is provided as a supplemental program to the health and physical education curricula adolescents receive as part of their middle school education. The program offers five 45- to 50-minute classroom sessions on consecutive days during the 6th grade and one class assembly at the end of 6th grade. The program was evaluated in a randomized controlled trial involving 1,438 6th grade students in 14 public middle and elementary schools in northwestern Indiana.<sup>5</sup> The study found that in schools that delivered the program both the full sample of students and the subgroup of males were significantly less likely to have had sexual intercourse (ever and in the last three months) at the beginning of the 7th grade. The study met the review criteria for a Moderate quality rating.

**Positive Prevention PLUS.** Positive Prevention PLUS is a school-based, sex education program for high school students. The program consists of 11 lessons of 45 minutes each, provided during the school day in science, health, or physical education classes. Positive Prevention Plus was evaluated in a randomized controlled trial involving 3,490 9th grade students in 21 public high schools in southern California.<sup>6</sup> The study found that six months after the end of the program, students in the schools that offered the program were significantly less likely to initiate sexual activity and to have had sex in the last three months without using birth control. The study met the review criteria for a Moderate quality rating.

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<sup>4</sup> Cunningham, M.R., M.A. van Zyl, and K.W. Borders. "Evaluation of Love Notes and Reducing the Risk in Louisville, Kentucky." Final Evaluation Report to the University of Louisville Research Foundation. Louisville, KY, 2016.

<sup>5</sup> Piotrowski, Z.H., and D. Hedeker. "Evaluation of the Positive Potential Be The Exception Grade 6 Program in Predominantly Rural Communities: Findings from an Innovative Teen Pregnancy Prevention Program." Report to the Office of Adolescent Health, U.S. Department of Health & Human Services, August 2015.

<sup>6</sup> LaChausse, R. "Evaluation of the Positive Prevention PLUS Teen Pregnancy Prevention Program." Washington, DC: U.S. Department of Health and Human Services, Office of Adolescent Health, 2015. TP2AH000007.

**Teen Options to Prevent Pregnancy (T.O.P.P.)** T.O.P.P. is a clinic-based intervention for pregnant and parenting adolescent females. The T.O.P.P. program is delivered individually to program participants over 18 months through telephone calls from trained nurse educators. The program promotes healthy birth spacing and use of effective contraception, and it provides direct access to contraceptive services through a program clinic and access to a program social worker. The program was evaluated in a randomized controlled trial involving 493 low-income expectant or adolescent new mothers in the Columbus, Ohio area.<sup>7</sup> The evaluation found that six months after study enrollment, adolescents participating in the intervention were significantly less likely to report having had sex without using birth control in the past three months. The study met the review criteria for a High quality rating.

### **New evidence for previously reviewed programs**

The recent update to the review findings also sought to identify and assess any new evidence for programs highlighted in previous rounds of the review. To date, most teen pregnancy prevention programs have been evaluated only once. However, a growing number of studies have sought to test how these programs perform when implemented on a broader scale, in different settings, or with different populations.<sup>8</sup> As part of the update to the review findings, the review team identified and assessed newly available evidence for seven programs highlighted in previous rounds of the review: (1) Children’s Aid Society (CAS)–Carrera program, (2) *iCuidate!*, (3) Horizons, (4) It’s Your Game, (5) Reducing the Risk, (6) Safer Sex, and (7) Teen Outreach Program (TOP). Table 2 summarizes the evidence for these programs, which we further detail in the remainder of this section.

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<sup>7</sup> Smith, K., et al. “Interim Impacts of the Teen Options to Prevent Pregnancy Program.” Princeton, NJ: Mathematica Policy Research, 2015.

<sup>8</sup> Goesling, Brian. “Making Sense of Replication Studies: Guidance for the Field of Teen Pregnancy Prevention Research.” Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, 2015.

**Table 2. Previously reviewed programs: evidence by outcome domain and study rating**

Program/study	Outcomes					Study rating <sup>a</sup>
	Sexual activity	Number of sexual partners	Contraceptive use	STIs	Pregnancy	
<b>Children's Aid Society (CAS)–Carrera</b>						
Philliber et al. (2002)	+				+	High
Tucker (2015)	+		0			Moderate
<b>¡Cuidate!</b>						
Villarruel et al. (2006)	+	+	+			High
Abt Associates (2015c)	0		--			High
<b>Horizons</b>						
DiClemente et al. (2009)			+	+		High
DiClemente et al. (2014)		+	+	+		High
<b>It's Your Game</b>						
Tortolero et al. (2010)	+					Moderate
Markham et al. (2012); Markham et al. (2014)	+	--	+			Moderate
Coyle et al. (2015a)	--		0			Moderate
Coyle et al. (2015b)	0					Moderate
<b>Reducing the Risk</b>						
Kirby et al. (1991)	0		+		0	Moderate
Zimmerman et al. (2008)	+					Moderate
Reyna and Mills (2014)	0	0	0			Moderate
Abt Associates (2015a)	0		0			High
Cunningham et al. (2016)	+	0	+		0	High
<b>Safer Sex</b>						
Shrier et al. (2001)		+	0			Moderate
Abt Associates (2015b)	+	+	+			High
<b>Teen Outreach Program (TOP)</b>						
Allen et al. (1997)					+	High
Daley et al. (2015)	+				+	Moderate
Francis et al. (2015)	0		0			Moderate

Note: 0, +, and – indicate evidence of null, favorable, and adverse effects, respectively. Empty cells indicate that the study did not examine program impacts on measures within that outcome domain.

<sup>a</sup> The review team established the rating of the supporting impact studies following pre-specified criteria to assess study design, attrition, baseline equivalence, reassignment of sample members, and confounding factors. See Table 3 for more details.

**Children’s Aid Society (CAS)–Carrera program.** The CAS–Carrera program is a comprehensive, multi-component youth development program for middle and high school students. The efficacy of the program was first established in a 2002 study involving 484 adolescents recruited from community-based agencies in New York City.<sup>9</sup> The study found that three years after study enrollment, female adolescents participating in the program were less likely to be pregnant or report being sexually active. In a more recent study, researchers evaluated the Carrera program using a quasi-experimental design involving 204 students in 6th and 7th grade in Georgia.<sup>10</sup> Researchers found that 12 months after enrollment, adolescents participating in the Carrera program were less likely than those in the study comparison group to report having initiated sexual activity. The study met the review criteria for a Moderate quality rating.

**¡Cuidate!** *¡Cuidate!* is a six-lesson culturally tailored sexuality education program for Latino adolescents. The efficacy of the program was first established in a 2006 study involving 684 adolescents in an after-school setting in northeast Philadelphia.<sup>11</sup> The study found favorable impacts of the program on measures of sexual activity, number of sexual partners, and contraceptive use. A more recent study evaluated the program with a randomized controlled trial in three study sites involving 2,022 adolescents attending grades 8 to 12 in middle and high schools in Arizona, California, and Massachusetts.<sup>12</sup> In two of the study sites, *¡Cuidate!* was delivered in public school classrooms during the regular school day. In the third study site, the program was delivered in a variety of settings, including public school classrooms during the regular school day or after school, and in summer programs offered by community-based organizations. The study pooled data across the three study sites and found no evidence of positive, statistically significant program impacts on measures of sexual risk behavior. In addition, the study authors found evidence of one adverse effect: six months after study enrollment, adolescents in the treatment group who were sexually active at baseline were more likely to report they had sexual intercourse without a condom in the last 90 days, as compared with adolescents in the control group who were also sexually active at baseline. The study met the review criteria for a High rating.

**Horizons.** Horizons is a clinic-based STI/HIV prevention intervention for African American adolescent females, delivered through two four-hour small group sessions and 15-minute booster phone calls over the following year. The efficacy of Horizons was first established in a 2009

<sup>9</sup> Philliber, S., J. Williams Kaye, S. Herrling, and E. West. “Preventing Pregnancy and Improving Health Care Access Among Teenagers: An Evaluation of the Children’s Aid Society–Carrera Program.” *Perspectives on Sexual and Reproductive Health*, vol. 34, no. 5, 2002, pp. 244–251.

<sup>10</sup> Tucker, T. “Evaluation of the Carrera Program: Findings from the Replication of an Evidence-Based Teen Pregnancy Prevention Program.” Atlanta, GA: Tressa Tucker and Associates, 2015.

<sup>11</sup> Villarruel, A.M., J.B. Jemmott, and L.S. Jemmott. “A Randomized Controlled Trial Testing an HIV Prevention Intervention for Latino Youth.” *Archives of Pediatrics & Adolescent Medicine*, vol. 160, no. 8, 2006, pp. 772–777.

<sup>12</sup> Abt Associates. “*¡Cuidate!*: Interim Impact Report, Teen Pregnancy Prevention Replication Study.” Report prepared for the Office of Adolescent Health and the Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, September 2015c.

study involving 715 African American adolescent females in Atlanta, Georgia.<sup>13</sup> The study found favorable impacts of the program on measures of STIs and condom use. In a more recent study, researchers examined the effectiveness of supplementing the Horizons program with a telephone counseling prevention maintenance intervention (PMI).<sup>14</sup> PMI consists of 10-minute tailored phone calls provided by health educators every eight weeks over 36 months, for a total of 18 calls. In the study, researchers conducted a randomized controlled trial involving 429 African American female adolescents recruited from health clinics in Atlanta, Georgia. The study authors report that at the 36-month follow-up, female adolescents who received the supplemental PMI were more likely to have condom-protected sex and less likely to test positive for chlamydial infection in the last 90 days and in the last six months. In addition, the study authors report that female adolescents in the treatment group had fewer sexual partners than study participants in the control group in the last 6 months. The study met the review criteria for a High rating.

**It's Your Game...Keep It Real (IYG).** IYG is a 24-lesson, school-based program for middle school students. The efficacy of the program was first established in a 2010 study involving 3,007 7th-grade students in Southeast Texas.<sup>15</sup> In a subsequent study, the same group of researchers conducted a cluster randomized controlled trial involving 1,258 students from 15 urban middle schools in a large south-central U.S. school district. The study findings for the 9th-grade follow-up replicated the findings produced in the initial study: students in the treatment schools were less likely than those in the control schools to report having initiated sexual activity.<sup>16</sup> In a more recent study conducted by a separate group of researchers, IYG was evaluated in a cluster randomized controlled trial involving 2,487 students from 24 rural middle schools in South Carolina. The study found no evidence of favorable program effects for the 8th grade follow-up. In addition, for the 9th grade follow-up, the study reports evidence of an adverse effect: students in the treatment schools were more likely than those in the control schools to report having initiated sexual activity.<sup>17</sup> The study met the review criteria for a

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<sup>13</sup> DiClemente, R.J., G.M. Wingood, E.S. Rose, J.M. Sales, D.L. Lang, A.M. Caliendo, J.W. Hardin, and R.A. Crosby. "Efficacy of Sexually Transmitted Disease/Human Immunodeficiency Virus Sexual Risk-Reduction Intervention for African American Adolescent Females Seeking Sexual Health Services." *Archives of Pediatric & Adolescent Medicine*, vol. 163, no. 12, 2009, pp. 1112–1121.

<sup>14</sup> DiClemente, R.J., G.M. Wingood, J.M. Sales, J.L. Brown, E.S. Rose, T.L. Davis, D.L. Lang, A. Caliendo, and J.W. Hardin. "Efficacy of a Telephone-Delivered Sexually Transmitted Infection/Human Immunodeficiency Virus Prevention Maintenance Intervention for Adolescents: A Randomized Clinical Trial." *JAMA Pediatrics*, vol. 168, no. 10, 2014, pp. 938–946.

<sup>15</sup> Tortolero, S.R., C.M. Markham, M. Fleschler Peskin, R. Shegog, R.C. Addy, S.L. Escobar-Chavez, and E. Baumler. "It's Your Game: Keep It Real: Delaying Sexual Behavior with an Effective Middle School Program." *Journal of Adolescent Health*, vol. 46, no. 2, 2010, pp. 169–179.

<sup>16</sup> Markham, C.M., S.R. Tortolero, M. Fleschler Peskin, R. Shegog, M. Thiel, E.R. Baumler, R.C. Addy, S.L. Escobar-Chaves, B. Reininger, and L. Robin. "Sexual Risk Avoidance and Sexual Risk Reduction Interventions for Middle School Youth: A Randomized Controlled Trial." *Journal of Adolescent Health*, vol. 50, 2012, pp. 279–288.

<sup>17</sup> Coyle, K., S.C. Potter, J.R. Glassman, and L. McDade-Montez. "Process and Impact Evaluation of Keep It Real South Carolina: Reducing Teen Pregnancy Among Middle School Youth." ETR Associates, Report prepared for the Office of Adolescent Health, U.S. Department of Health & Human Services, August 2015a.

Moderate quality rating. In a separate recent study, researchers conducted a cluster randomized controlled trial involving 1,912 students from 20 urban middle schools in Harris County, Texas. The study found no evidence of favorable effects on student sexual risk behaviors at the end of the 9th grade.<sup>18</sup> The study met the review criteria for a Moderate quality rating.

**Reducing the Risk (RtR).** RtR is a 16-lesson comprehensive sex education program primarily for high school-aged students. The efficacy of the program was first established in a 1991 study involving 758 high school students in northern California.<sup>19</sup> The study found that female adolescents participating in the program who were sexually inexperienced at baseline were significantly less likely to report having had unprotected sex. Two separate subsequent studies<sup>20,21</sup> examined the effectiveness of the original RtR program and of modified versions of the program. In a more recent study, researchers conducted a cluster randomized trial involving 2,689 students in 150 classrooms in public middle, junior high, and high school in three study sites in Missouri, Texas, and California, respectively.<sup>22</sup> The study examined program impacts based on the pooled data across the three study sites and found no statistically significant RtR program impacts on student sexual risk behaviors. Although site is not a subgroup included in the TPP Evidence Review, the study also examined program impacts in each of the study sites separately. From the analyses by site, the study found evidence of a statistically significant program impact in the Missouri site: significantly fewer students in the treatment group than in the control group engaged in sexual intercourse in the last 90 days. The study met the review criteria for a High quality rating. In a separate recent study, researchers conducted a cluster randomized controlled trial involving 939 students who were offered the RtR curriculum in community-based organizations located in Louisville, Kentucky.<sup>23</sup> The study found that three months after the program ended, adolescents in the treatment group were significantly less likely to report ever having had sex or having been pregnant in the last three months. In addition, six months after the program ended, adolescents in the treatment group were significantly less likely to report having had sex without birth control in the last three months. The study found no statistically significant program impacts on sexual behavior outcomes for the follow-up

<sup>18</sup> Coyle, K., P. Anderson, B.A. Laris, T. Unti, H. Franks, and J. Glassman. "Evaluation of It's Your Game...Keep It Real in Houston, TX" Final report. Scotts Valley, CA: ETR Associates, 2015b.

<sup>19</sup> Kirby, D., R.P. Barth, N. Leland, and J.V. Fetro. "Reducing the Risk: Impact of a New Curriculum on Sexual Risk-Taking." *Family Planning Perspectives*, vol. 23, 1991, pp. 253–263.

<sup>20</sup> Zimmerman, R.S., P.K. Cupp, L. Donohew, C.K. Sionean, S. Feist-Price, and D. Helme. "Effects of a School-Based, Theory-Driven HIV and Pregnancy Prevention Curriculum." *Perspectives on Sexual and Reproductive Health*, vol. 40, no. 1, 2008, pp. 42–51.

<sup>21</sup> Reyna, V.F., and B.A. Mills. "Theoretically Motivated Interventions for Reducing Sexual Risk Taking in Adolescence: A Randomized Controlled Experiment Applying Fuzzy-Trace Theory." *Journal of Experimental Psychology*, vol. 143, no. 4, 2014, pp. 1627–1648.

<sup>22</sup> Abt Associates. "Reducing the Risk: Interim Impact Report, Teen Pregnancy Prevention Replication Study." Report prepared for the Office of Adolescent Health and the Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, September 2015a.

<sup>23</sup> Cunningham, M.R., M.A. van Zyl, and K.W. Borders. "Evaluation of Love Notes and Reducing the Risk in Louisville, Kentucky." Final Evaluation Report to the University of Louisville Research Foundation, Louisville, KY, 2016.

conducted 12 months after the program ended. The study met the review criteria for a High quality rating.

**Safer Sex.** Safer Sex is an individual intervention for female adolescents and young adults that is delivered one-on-one through a 30- to 50-minute session with a health educator, followed by three 10- to 30-minute follow-up sessions over the following six months. The efficacy of the program was first established in a 2001 study involving women younger than 24 who sought treatment for cervicitis or pelvic inflammatory disease at an urban children's hospital adolescent clinic and who were not pregnant at the time of the visit.<sup>24</sup> In a more recent study, researchers conducted a randomized controlled trial involving 1,809 young women who sought treatment in one of three study sites (health clinics) in Florida, Minnesota, and Tennessee.<sup>25</sup> The study pooled the data across the three study sites and reports that nine months after baseline, young women who were assigned to the treatment condition were less likely to report having sexual intercourse without birth control in the last 90 days than young women assigned to the control condition. In addition, nine months after baseline, the study reports that among the subgroup of young women who were sexually inexperienced at baseline, those assigned to the treatment condition were less likely to report having initiated sexual activity or having had more than one lifetime sexual partner. The study also examined program impacts by study site, and found that in the Minnesota site, significantly fewer adolescents in the treatment group than in the control group reported engaging in oral sex in the last 90 days. The study met the review criteria for a High quality rating.

**Teen Outreach Program (TOP).** TOP is a youth development program that incorporates weekly curriculum-guided lessons, community service learning, and positive adult guidance and support. TOP is provided in school, after-school, and community settings to adolescents 12 to 17 years old. The efficacy of this program was first established in a 1997 study involving 695 high school students attending grades 9 to 12 in high schools in 25 cities across the United States.<sup>26</sup> The study found that female adolescents participating in the program were significantly less likely to report a pregnancy during the academic year of the program. In two more recent studies, researchers examined the effectiveness of TOP based on cluster randomized trials. In the first study, involving 2,058 students in grades 9 to 12 in 26 high schools in Florida, researchers found that immediately after the intervention, students in the schools that provided TOP were less likely to report ever having sex or ever getting pregnant (or getting someone pregnant) than

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<sup>24</sup> Shrier, L.A., R. Ancheta, E. Goodman, V.M. Chiou, M.R. Lyden, and S.J. Emans. "Randomized Controlled Trial of a Safer Sex Intervention for High-Risk Adolescent Girls." *Archives of Pediatrics & Adolescent Medicine*, vol. 155, no. 1, 2001, pp. 73–79.

<sup>25</sup> Abt Associates. "Safer Sex Intervention: Interim Impact Report, Teen Pregnancy Prevention Replication Study." Report prepared for the Office of Adolescent Health and the Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, September 2015b.

<sup>26</sup> Allen, J.P., S. Philliber, S. Herrling, and G.P. Kuperminc. "Preventing Teen Pregnancy and Academic Failure: Experimental Evaluation of a Developmentally Based Approach." *Child Development*, vol. 68, no. 4, 1997, pp. 729–742.

students in schools assigned to the control condition.<sup>27</sup> The study authors also found that the favorable impacts on pregnancy persisted 10 months after the intervention ended. The study met the review criteria for a Moderate quality rating. The second study involved 1,196 students attending 61 middle and high schools in Hennepin County, Minnesota.<sup>28</sup> For the two follow-ups conducted 3 and 15 months after the program ended, the study authors found no evidence of statistically significant program effects on student sexual risk behaviors. The study met the review criteria for a Moderate quality rating.

### **Review procedures**

This update to the review findings followed procedures similar to those used for prior rounds of the review. In July 2015, the review team released a public call for studies requesting new research to consider. The team also identified studies through a comprehensive literature search that entailed keyword searches of electronic databases and manual searches of relevant academic journals. The identified studies were then screened against pre-specified eligibility criteria.

For studies that met the eligibility criteria, the Mathematica review team assessed the quality and execution of each study's research design. The reviewers assigned each study a quality rating of High, Moderate, or Low according to the risk of bias in the study's impact findings. A more detailed description of these ratings is provided in the review protocol available online at the review website.<sup>29</sup>

For studies that achieved a Moderate or High quality rating, the review team extracted information on the program tested, evaluation setting, study sample, and research design, as well as detailed information on the program impact estimates. The review team then identified programs with evidence of effectiveness, defined as having a statistically significant favorable impact (and no adverse effects) on at least one priority outcome measured for either the full analytic sample or a subgroup defined by (1) gender or (2) sexual experience at baseline. The priority outcomes include sexual activity, number of sexual partners, contraceptive use, STIs, and pregnancy.

Within these general procedures, this update to the review findings introduced two changes to the review criteria:

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<sup>27</sup> Daley, E.M., E.R. Buhi, W. Wang, A. Singleton, R. Debate, S. Marhefka, et al. "Evaluation of Wyman's Teen Outreach Program® in Florida: Final Impact Report for Florida Department of Health." Findings from the Replication of an Evidence-Based Teen Pregnancy Prevention Program, 2015.

<sup>28</sup> Francis, K., M. Woodford, and M. Kelsey. "Evaluation of the Teen Outreach Program in Hennepin County, MN: Findings from the Replication of an Evidence-Based Teen Pregnancy Prevention Program." Cambridge, MA: Abt Associates, 2015.

<sup>29</sup> The review protocol is available at <http://tppevidencereview.aspe.hhs.gov/ReviewProtocol.aspx>.

- 1. New eligibility criteria.** To remain eligible for the review, programs must have at least one impact study conducted within the last 20 years. For any program that meets this requirement, evidence from all studies related to the program are considered for the review. However, programs for which the only impact study is more than 20 years old will now be excluded from the review. This “moving window” is designed to keep the review findings current and encourage continued research on established programs.
- 2. Outcome-specific assessments of program effectiveness.** Starting with this current update to the review findings, the review team is modifying the way in which the research evidence is presented. This update to the review findings will specifically indicate each program’s impact for each of five outcome domains: (1) sexual activity, (2) number of sexual partners, (3) contraceptive use, (4) STIs, and (5) pregnancy. As before, for each program eligible for review, the review team first assesses the program’s effects on measures of sexual activity, then conducts a separate assessment of the program’s effects on measures of number of sexual partners, then conducts a separate assessment for contraceptive use, and so on. Using this approach, a program may be identified as having favorable impacts on one type of outcome but null or no evidence for other outcomes. What is new is that these outcome-specific assessments will be available on the review website to help users of the review better understand the nature of the evidence supporting different programs.

More detailed information on the review process and criteria is available on the review website.

**Table 3. Summary of study quality ratings**

Criteria category	High study rating	Moderate study rating	Low study rating
Study design	Random or functionally random assignment	Quasi-experimental design with a comparison group; random assignment design with high attrition or reassignment	Does not meet criteria for High or Moderate quality rating
Attrition	What Works Clearinghouse standards for overall and differential attrition	No requirement	Does not meet criteria for High or Moderate quality rating
Baseline equivalence	Must control for statistically significant baseline differences	Must establish baseline equivalence of research groups and control for baseline outcome measures	Does not meet criteria for High or Moderate quality rating
Reassignment	Analysis must be based on original assignment to research groups	No requirement	Does not meet criteria for High or Moderate quality rating
Confounding factors	Must have at least two subjects or groups in each research group and no systematic differences in data collection methods	Must have at least two subjects or groups in each research group and no systematic differences in data collection methods	Does not meet criteria for High or Moderate quality rating