Adolescent Pregnancy Prevention Among Youths Living in Group Care Homes: A Cluster Randomized Controlled Trial

Roy F. Oman, PhD, Sara K. Vesely, PhD, Jennifer Green, PhD, Kristen Clements-Nolle, PhD, and Minggen Lu, PhD

Objectives. To determine if the Power Through Choices (PTC) intervention can increase the use of birth control and reduce pregnancy among system-involved youths living in group care homes.

Methods. We performed a 2-arm cluster randomized controlled trial involving group care homes operated by child welfare or juvenile justice systems in California, Maryland, and Oklahoma with assessments immediately before and after the intervention, and at 6- and 12-month follow-up. We collected data from 2012 to 2014 via self-administered questionnaires. Participants (n = 1036) were young (mean age = 16.1 years), predominantly male (79%), racially/ethnically diverse (37% Hispanic, 20% Black, 21% White, 17% multiracial), and sexually experienced (88%).

Results. At 6-month follow-up, participants in the intervention group had significantly lower odds of having recent sexual intercourse without using birth control (adjusted odds ratio [AOR] = 0.72; 95% confidence interval [CI] = 0.52, 0.98). At 12-month follow-up assessment, participants in the intervention group had significantly lower odds of ever being pregnant or getting someone pregnant (AOR = 0.67; 95% CI = 0.46, 0.99).

Conclusions. The results suggest that PTC is an effective sexual health education intervention that can be implemented with system-involved youths who represent a sexually experienced multiracial youth population. (*Am J Public Health.* 2018;108:S38–S44. doi:10.2105/AJPH.2017.304126)

In 2015, an estimated 649 970 persons younger than 18 years were arrested in the United States,[1] and approximately 427 910 youths were in foster care.[2] There is considerable overlap in these 2 populations with an estimated third of foster care youths becoming involved with the juvenile justice system.[3] Youths involved with the juvenile justice system and foster care system report higher rates of early initiation of sexual intercourse, more sexual partners, and lower rates of condom use and other forms of birth control compared with the general adolescent population.[4–9] Such behavioral risk taking puts system-involved youths at high risk for negative sexual health outcomes such as unintended pregnancy.

Approximately one third of female juvenile offenders have ever been pregnant.[7,8] Similarly, nearly 1 in 3 young women in the foster care system are pregnant at least once by age 17 or 18 years, and by age 19 years, more than half have experienced a pregnancy.[10,11] By contrast, nationally representative data indicate that 1 in 4 girls become pregnant before age 20 years.[12] Male adolescents involved with the juvenile justice and foster care systems are also at high risk for getting someone pregnant with 18% to 31% reporting that they have fathered a child.[7,8,13]

System-involved youths often have limited support and may not be prepared for the challenges of adolescent parenting.[13]

Pregnancy in this young population can also have an impact on developmental outcomes during young adulthood. For example, one study found that delinquent girls who became pregnant within 2 years of placement in an out-of-home care setting were at increased risk for subsequent illicit drug use, 1 or more pregnancies resulting in a miscarriage, and being reported to child welfare regarding their parenting.[14]

Despite the elevated rates of sexual risk behaviors and unintended pregnancy among system-involved youths, few studies have evaluated pregnancy prevention interventions for this population. Limited research has shown that behavioral interventions can increase pregnancy knowledge, skills, and attitudes among system-involved youths[11–14]; however, behavioral outcomes have generally not been assessed and long-term effects have not been found.[15–17] One exception is a randomized controlled trial that determined if a delinquency intervention titled Multidimensional Treatment Foster Care could have an impact on pregnancy rates among female adolescents mandated to community-based out-of-home care. The study found significantly fewer postbaseline pregnancies among Multidimensional Treatment Foster Care adolescents (26.9%) compared with the control group (46.9%).[18]

There is a need to develop and rigorously evaluate sexual health interventions for youths in the child welfare and juvenile justice

systems. Youths are typically placed in residential group care because they were removed from a dangerous home environment, failed foster home placement, or were referred by the juvenile justice system.[19] Youths living in group homes have experienced multiple forms of trauma[20] and may lack the skills and resources necessary to avoid risky sexual behaviors and adolescent pregnancy.[21] Furthermore, the group-home setting for foster care and delinquent youths provides a unique opportunity to reach a high-risk population before they transition to young adulthood.

Power Through Choices (PTC) is an age-appropriate and medically accurate sexual health education intervention for youths living in group-home foster-care settings and other out-of-home placements. The PTC intervention is also sensitive to the issues of abuse and other trauma that may be part of the youth's life story and it addresses these issues that may motivate system-involved youths to become pregnant or engage in sexual risk-taking behavior. The PTC curriculum provides opportunities for youths to examine how those experiences might influence feelings and behaviors related to sexual decision-making.[22]

The PTC intervention was delivered to youths living in group homes operated or contracted by child welfare (foster care) or the juvenile justice agencies. The purpose of this cluster randomized controlled trial was to test the effectiveness of the PTC intervention in this understudied and underserved population. Specific outcomes included increased use of birth control and decreased adolescent pregnancy.

METHODS

The study design was a cluster randomized controlled trial involving youths (n = 1036) recruited from 44 residential group homes located in California (n = 19), Maryland (n = 10), and Oklahoma (n = 15).[23] Within each state, half the group homes were randomly assigned to a treatment group that offered the PTC program (n = 40 clusters) and the other half were assigned to a control group that offered "usual care" (n = 40 clusters).

Recruitment of Homes

The PTC intervention was developed for youths living in various out-of-home care settings. However, the population and setting in this study is youths living in group homes. A group home is a congregate care residential facility operated or contracted by a state child welfare agency (foster care), state juvenile justice agency, or private care provider.

Homes were approached to participate in the study if they had the capacity and commitment to support the study; therefore, sampling was purposive rather than random. Within each site's catchment area, we recruited every group home that was willing to participate and that had youth residents between the ages of 13 and 18 years. Exclusion criteria were group homes specifically for pregnant and parenting adolescents (maternity homes), group homes for adolescent sexual offenders, and group homes providing therapeutic services to youths with significant mental, emotional, or behavioral issues.[23] There were 72 eligible homes, which led to a home response rate of 61%. An administrator at each group home completed a memorandum of agreement before randomization agreeing to participate regardless of randomization assignment.

Sample and Randomization

All youths aged 13 to 18 years who resided in the recruited group homes were eligible for participation. We did not enroll youths leaving the intervention or control group home before the first session of the intervention. We obtained consent for each youth from a legally authorized representative and youth assent. As shown in Figure 1, we assessed 1183 youths for eligibility and the response rate for eligible youths was 98%. We randomized 80 clusters (1037 youths with a mean of 10.7 youths per home) to the PTC or control group. One youth did not assent to participate, resulting in a final sample size of 1036 youths (517 intervention and 519 control group). Youth participants were living in homes operating in the juvenile justice system (n = 543), mixed homes that included youths who were in either the child welfare or juvenile justice systems (n = 373), or homes operating only in the child welfare system (n = 120). No group homes withdrew from the study, no adverse events were reported,

and the 6-month and 12-month response rates were high and similar between groups.

Group homes were the unit of randomization. We stratified and clustered homes according to state, recruitment date, number of youths served, and gender of youths served. We typically grouped homes into matched pairs of 2 clusters for random assignment. We assigned an equal number of homes to the treatment and control groups and the randomized homes contained a nearly equal number of youths. To encourage participation by the group home administrators, we allowed group homes to be re-randomized after all of the original youths had left the home. The biostatistician (SKV) randomized 20 homes once, 13 homes twice, 9 homes 3 times, and 2 homes 4 times over the course of the trial by using a computer program (SAS version 9.4; SAS Institute, Cary, NC).

Data Collection

Each site (state) had a team of intervention facilitators as well as 2 data collectors. We conducted annual in-person trainings for all data collection personnel to standardize the data collection protocol and maintain standardization for the duration of the study.

We collected data at baseline, after the intervention, and at 6-month and 12-month follow-up from intervention and control group homes from 2012 to 2014. We collected data via self-administered questionnaires. We administered the baseline survey approximately 1 week before the program began in the treatment group homes. We administered a posttest survey upon completion of the 10-session curriculum (approximately 6 weeks later). We administered the baseline surveys in the group homes in a group setting by using paper-and-pencil questionnaires. We administered the post-intervention and 6-month and 12-month follow-up surveys in groups or individually depending on whether the participants were still residing in the group homes. The data collectors read the questions and possible responses aloud to minimize any problems with reading comprehension or missing data because of skipped questions. Each state implemented the PTC intervention on a rolling basis in years 2, 3, and 4, and therefore the evaluation procedures and activities were repeated over the 3 years.
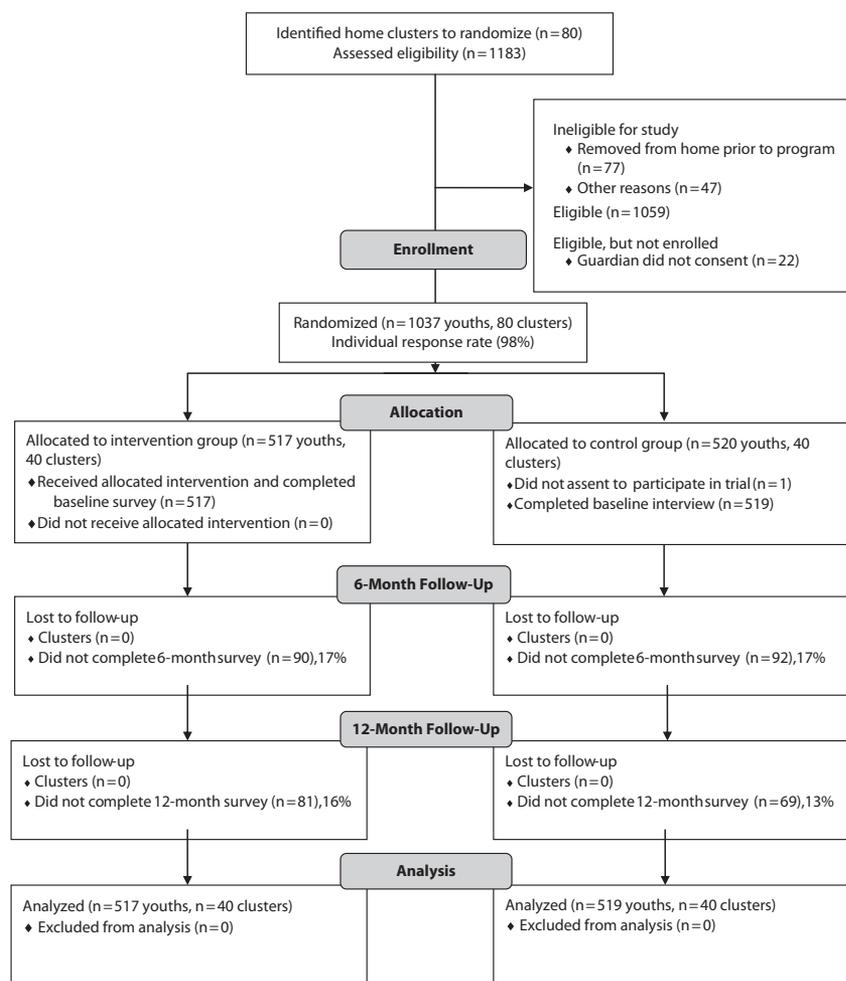
FIGURE 1—CONSORT Diagram for the Randomized Clinical Trial of the Power Through Choices Adolescent Pregnancy Intervention

We conducted process evaluation to assess intervention implementation and fidelity. Data collectors randomly selected and observed 1 of the 10 intervention sessions each time the intervention was implemented in a home. The purpose was to monitor and record curriculum fidelity, evaluate facilitator characteristics, provide corrective oversight when appropriate, and document any corrective actions. In addition, program facilitators were provided with curriculum manuals and attended initial curriculum trainings and annual refresher trainings. Program facilitators also completed program implementation checklists following each session to record intervention adherence, and they kept youth attendance records as a measure of dosage. Youths attended a mean of 87% of the sessions, and 87% of the youths indicated that the PTC intervention was extremely or very helpful to them.

Power Through Choices Intervention

The Family Welfare Research Group originally developed PTC in response to the lack of available rigorously evaluated programs for youths in out-of-home care.[21] The PTC intervention is an adolescent pregnancy prevention program for this high-risk and high-need population. The Oklahoma Institute for Child Advocacy substantially updated and revised the original PTC program content by using feedback from focus groups consisting of youth participants as well as input provided by experts in the field of sexuality education and adolescent pregnancy prevention. Program revisions included adding 2 sessions (reproductive health and HIV and other sexually transmitted infection transmission and prevention), expanding skill building and critical thinking activities, updating data and resource information, and making the curriculum more inclusive to lesbian, gay, bisexual, and transgender youths.[24]

The intervention was developed by using Social Cognitive Theory and the Health Belief Model as guiding behavioral theories.[25,26] For example, the PTC intervention includes modules that focus on skills building, role modeling, identification and reduction of barriers to change, goal setting, benefits and self-efficacy regarding postponing initiation of sexual intercourse, and benefits and self-efficacy regarding contraceptive and condom use for those who are sexually active. The PTC curriculum also addresses specific characteristics that may motivate system-involved youths to engage in sexual risk-taking behavior such as an intense need for affection or belonging, absence of a dependable family or social support network, exposure to sexual abuse or violence, and limited skills in identifying and securing resources to support their present and future needs.

The intervention (Table 1) consists of ten 90-minute sessions delivered twice per week to groups of 6 to 20 youths. The intervention is delivered by pairs of facilitators that typically included 1 female and 1 male facilitator. The intervention sessions feature an interactive approach that engages youths in practicing critical thinking, communication, negotiation, and sexual decision-making skills through a variety of learning strategies such as group discussion, brainstorming, role playing, identifying risky and risk-reduction behaviors, hands-on exploration of contraceptive methods, and practice accessing reproductive health services.

Youths in the homes randomized to the control condition received "usual care," which was no programming related to reproductive health, but in some instances they may have received educational information on topics such as healthy eating.

TABLE 1—Overview of Power Through Choices Adolescent Pregnancy Intervention Objectives by Session

Session	Name	Objectives
1	Introduction	Learn about the content and themes of the Power Through Choices curriculum. Understand the reasons for setting ground rules. Understand the uniqueness of this program for youths in out-of-home care. Identify reasons some adolescents choose to have sex or to abstain (not have sex). Practice communication skills through role play.
2	Adolescent Reproductive Health Basics	Learn the name and functions of male and female reproductive anatomy. Understand the process of fertilization and conception. Learn about the female menstrual cycle.
3	Create the Future You Want	Identify the planning involved in practicing healthy sexual behavior. Outline some of the individual choices in the sexual decision-making process. Recognize abstinence as a viable option and choice.
4	Make Clear Choices	Practice the important elements of assertive communication and distinguish among assertive, passive, and aggressive communication styles. Demonstrate (through role playing) knowledge of the reasons why it is important to use a condom and other forms of protection to protect against HIV and other sexually transmitted infections (STIs). Demonstrate (through role playing) condom use negotiation. Identify techniques for effective communication with a partner. Identify how miscommunication can lead to potentially dangerous situations. Demonstrate (through role playing) effective communication techniques with a foster parent, guardian, or group-home staff member regarding contraception.
5	Understand STIs and HIV and How to Reduce Your Risk	Identify the most common STIs, related symptoms, outcomes, and treatment. Gain clearer understanding of the examination process for STI checks and pelvic examinations. Demonstrate basic knowledge of HIV and STI transmission and prevention, with an emphasis on condoms. Demonstrate the steps in correct condom usage.
6	Increase Contraceptive Knowledge	Become familiar with various methods of contraception. Demonstrate a basic understanding of how the various contraceptive methods function.
7	Practice Makes Perfect	Identify the degree of risk associated with various sexual behaviors. Demonstrate (through role playing) knowledge of the reasons why it is important to use a condom in addition to other forms of protection to help prevent HIV and other STIs. Experience, through simulation, the effects of drug and alcohol use, as well as darkness, on effective contraceptive use. Gain a realistic understanding of the amount of time required to put on a condom.
8	Use Resources to Support Your Choices	Identify adults who can serve as resources in locating sexual health information. Identify at least 1 resource in their area that provides free or low-cost adolescent sexual and reproductive health services. Identify at least 1 resource in their area where they can obtain free or low-cost contraceptives. Learn the steps involved in accessing a local family planning resource. Identify adolescents' rights in accessing family planning resources.
9	Make Choices That Fit Your Lifestyle	Demonstrate an understanding of how personal lifestyle affects contraceptive choices. Develop plans for avoiding an unplanned pregnancy and for avoiding STIs. Identify short-term or long-term goals. Identify series of choices that must be made to attain a goal.
10	Plan + Prepare + Practice = Power	Develop a plan to protect oneself from unplanned pregnancy, HIV, and other STIs. Review key concepts presented in the curriculum. Identify skills and information learned from the curriculum.

Measures

Primary outcomes reported in this study included contraceptive use and pregnancy assessed at 6 and 12 months. We included responses to 3 items—ever had sex, had sex in the past 3 months, and had sex in the past 3 months without using condoms—to provide additional descriptive data. Items used to measure the variables were from the Youth Risk Behavior Surveillance Study, Prevention Minimum Evaluation Data Set, or from the All About Youth Study.[27–29] We checked data for consistency and recoded inconsistent answers with an algorithm.

Youths were instructed to report behaviors in which they chose to participate and exclude behaviors in which they were forced to participate.

Youths were asked whether they had ever engaged in sexual intercourse and if they did so in the past 3 months. Responses categories

for both variables were "Yes" or "No." Two items assessed methods of protection used in the past 3 months during sexual intercourse: "In the past 3 months, how many times have you had sexual intercourse without using any of these methods of protection?" A list of birth control methods (including condoms) was provided and we coded youths who reported not using birth control method 1 or more times as engaging in sex without birth control. Youths were also asked "In the past 3 months, how many times have you had sexual intercourse without you or your partner using a condom?" We coded youths who selected 1 or more times as engaging in sex without using condoms. We assessed lifetime pregnancy by asking youths, "To the best of your knowledge, have you ever been pregnant or gotten anyone pregnant, even if no child was born?" Response categories were "Yes" or "No."

Statistical Analyses

We compared the baseline characteristics between intervention and control groups by using 2-sample t test and χ^2 test. We used an intention-to-treat approach for all analyses (we included all randomized participants regardless of program participation levels) and the results are reported according to the CONSORT statement.[30] To evaluate the effectiveness of the intervention and take into account the cluster effect, we used random intercept logistic regression models (SAS PROC GLIMMIX) to compare the behavioral outcomes at 6 and 12 months. The 6-month models controlled for baseline demographics (age, race/ethnicity, and gender), baseline levels of the dependent variable, and living in the group home at 6-month follow-up. The 12-month models controlled for baseline demographics, baseline levels of the dependent variable, and living in the group home at 12-month follow-up. Adjusted odds ratios (AORs) and 95% confidence intervals (CIs) are reported, and P values are 2-sided. We evaluated interactions with group and demographic variables based on an α of 0.01. We performed all analyses with SAS version 9.4 for Windows.

Initial calculations indicated that a sample size of 1080 youths (20–30 homes/540 youths in each condition) was needed to detect a significant difference in the primary study outcome, which was having sex in the past 3 months without using birth control. We conservatively anticipated a 33% loss to follow-up; therefore, the evaluable number of youths would be 360 in each group. Assuming an intracluster correlation of 0.010 and an α of 0.05, we would have 80% or more power to detect differences of 12.5% or greater in the primary outcome with a sample size of 720 youths. Final numbers indicated more homes were enrolled (80 total) and slightly fewer youths.

RESULTS

A total of 1036 youths participated in the study. There were no significant differences between the intervention and control groups in regard to demographic or sexual behavior variables at baseline (Table 2). The mean age of the participants was 16.1 years (SD = 1.3; range = 13–18). The majority of the participants were male (79%) and the sample was racially/ethnically diverse: 37% Hispanic, 21% non-Hispanic White, and 20% non-Hispanic Black. Most youths (88%) reported that they had had sexual intercourse and 38% had had sex in the past 3 months. Greater than one quarter (27%) of participants reported having sex without using any form of birth control and 31% had sex without using a condom in the past 3 months. Approximately 36% of the participants reported that they had been pregnant or had gotten someone pregnant.

Eighty-two percent of the participants (n = 853) completed the 6-month assessment and 85% (n = 885) completed the 12-month

---

TABLE 2—Demographic and Sexual Behavior Characteristics of Participants (n = 1036) at Baseline: California, Maryland, and Oklahoma, 2012–2014

Characteristics	All Participants, Mean ±SD or No. (%)	Intervention Group, Mean ±SD or No. (%)	Control Group, Mean ±SD or No. (%)	P^a
Age, y	16.1 ±1.3	16.1 ±1.3	16.1 ±1.2	.32
Male	815 (78.7)	408 (78.9)	407 (78.4)	.85
Race/ethnicity				.95
Non-Hispanic White	213 (20.6)	105 (20.3)	108 (20.8)	
Hispanic	381 (36.8)	189 (36.6)	192 (37.1)	
Non-Hispanic Black	207 (20.0)	106 (20.5)	101 (19.5)	
Non-Hispanic Asian or Pacific Islander	17 (1.6)	8 (1.5)	9 (1.7)	
Non-Hispanic Native American/Alaska Native	39 (3.8)	19 (3.7)	20 (3.9)	
Non-Hispanic multiracial	178 (17.2)	90 (17.4)	88 (17.0)	
Ever had sex	912 (88.3)	456 (88.4)	456 (88.2)	.93
Had sex (past 3 mo)	376 (37.8)	188 (38.5)	188 (37.2)	.69
Had sex without using birth control (past 3 mo)	264 (27.0)	131 (27.2)	133 (26.8)	.87
Had sex without using condoms (past 3 mo)	304 (30.9)	146 (30.2)	158 (31.5)	.64
Ever been or gotten someone pregnant	362 (35.5)	177 (34.6)	185 (36.4)	.55

[a]P values based on χ^2 test for categorical variables and t test for age.

assessment. There were no significant differences in baseline characteristics between those who completed all assessments (75.5%) and those who did not (24.5%). In addition, the proportion of youths in the intervention and control group completing all assessments (76.6% vs 74.4%) was not significantly different. The percentages of youths living in the group homes for the intervention and control groups, respectively, were 25.2% and 34.3% (*P* = .004) at 6 months and 20.2% and 24.3% (*P* = .14) at 12 months.

At the 6-month assessment, participants in the intervention group had significantly lower odds of having sexual intercourse in the past 3 months without using birth control than did participants in the control group (AOR = 0.72; 95% CI = 0.52, 0.98), although this effect did not remain significant at the 12-month assessment (Table 3). At the 12-month assessment, participants in the intervention group had significantly lower odds of ever being pregnant or getting someone pregnant compared with those in the control group (AOR = 0.67; 95% CI = 0.46, 0.99). There were no significant interactions.

DISCUSSION

System-involved youths living in group care settings are at significantly greater risk for sexual risk behaviors and outcomes including pregnancies.[4–9] Despite this substantial public health problem, very little intervention research has been conducted to investigate how to effectively prevent sexual risk behaviors and related outcomes in this population. This cluster randomized controlled trial found that a 10-session intervention delivered over a 5-week period resulted in significant long-term improvements in youths' contraceptive behaviors and pregnancy compared with youths in the control group. Youths who received the PTC intervention had 28% lower odds of having had sex without using birth control in the past 3 months at the 6-month postintervention assessment and had 33% lower odds of ever having been pregnant or getting someone pregnant at the 12-month postintervention assessment.

To our knowledge, this is the first published randomized controlled trial to demonstrate that a pregnancy prevention intervention designed specifically for youths living in group care settings can reduce sexual risk behavior and pregnancy. The results are particularly compelling because most of the youths were sexually experienced. Approximately 91% of the male PTC participants and 83% of the female PTC participants reported ever having had sex compared with 58% of boys and 52% of girls in the child welfare system (aged 15–17 years) and 48% of boys and 46% of girls in a national sample (aged 12–18 years).[27,31] The fact that the intervention significantly improved long-term risk behaviors of sexually experienced youths is noteworthy as it is a generally accepted belief that adolescent pregnancy programs are most effective if they are delivered to youths before first sexual intercourse.[27] Furthermore, our study demonstrated a significant impact on pregnancy outcomes among male adolescents, whereas previous research primarily focused on female adolescents.[32] There is reason for caution despite the promising results. Although it was significant, the intervention impact on behavioral outcomes was not as strong as the impact we observed for psychosocial outcomes,[33] and the significant improvements in contraceptive use at 6-month follow-up were not maintained at 12-month follow-up.

Future research with larger samples should be conducted to investigate potential differential intervention effects by gender, age, race/ethnicity, or by the type of system (i.e., child welfare or juvenile justice) in which the youths were involved. Also, it is unclear why youths in the intervention group were more likely to have left the group home setting 6 months and 12 months after the intervention compared with youths in the control group. Although we controlled for this potentially important confounding variable, it may be worthwhile to explore if the intervention effects may have been different for youths who had left the group home setting because those youths may have had more opportunity to engage in sexual risk behaviors as well as to apply the knowledge and skills acquired in the intervention.

Limitations of the study include that the behaviors and outcomes were self-reported, which is typical in studies that include very sensitive and personal activities. However, there is little reason to believe there was a difference between the intervention and control groups in regard to the validity of the self-report data, so such nondifferential misclassification would only lead to an underestimate of effects. Although we controlled for previous self-reports of lifetime pregnancy in our postintervention analyses, it would have been preferable to objectively measure pregnancy incidence.

Strengths of the study included the cluster randomized controlled trial design, recruitment in 3 states, and a high response rate and follow-up data collection rates. The results indicated that an age-appropriate and medically accurate sexual health education

TABLE 3—Intervention and Control Group Differences in Behavioral Outcomes at 6-Month and 12-Month Follow-Up: California, Maryland, and Oklahoma, 2012–2014

Behavioral Outcomes	6-Month Follow-Up			12-Month Follow-Up		
	Intervention Group, No. (%)	Control Group, No. (%)	AOR (95% CI)[a]	Intervention Group, No. (%)	Control Group, No. (%)	AOR (95% CI)[a]
Had sex without using birth control (past 3 mo)	133 (32.5)	156 (37.8)	0.72 (0.52, 0.98)	158 (37.9)	165 (38.0)	0.92 (0.67, 1.25)
Ever been or gotten someone pregnant	199 (47.4)	199 (47.3)	0.95 (0.61, 1.48)	220 (50.5)	250 (56.2)	0.67 (0.46, 0.99)

Notes. AOR = adjusted odds ratio; CI = confidence interval.
[a]Generalized linear mixed models were used to assess intervention effects on behavioral outcomes at 6- and 12-month follow-up. Gender, race/ethnicity, age, and behavioral baseline score were adjusted at 6 and 12 months. Living in the group home at 6 months was controlled for in the 6-month analysis. Living in the group home at 12 months was controlled for in the 12-month analysis.

intervention designed specifically for youths living in group-home foster-care settings and other out-of-home placements significantly improved contraceptive behaviors at 6-month follow-up and reduced pregnancies at 12-month follow-up. The results are particularly notable because the youth study population was sexually experienced, mostly male, and diverse in regard to race/ethnicity. This study demonstrates that group homes can be a feasible and efficient setting for delivering pregnancy prevention programming to system-involved youths. AJPH

HUMAN PARTICIPANT PROTECTION
The study was approved by the institutional review board at the University of Oklahoma Health Sciences Center.

REFERENCES
1. US Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Division. Crime in the United States 2015: Current year over previous year arrest trends. Available at: https://ucr.fbi.gov/crime-in-the-u.s/2015/crime-in-the-u.s.-2015/tables/table-36. Accessed May 24, 2017.

2. US Department of Health and Human Services. AFCARS Report. Preliminary FY 2015 Estimates as of June 2016. Washington, DC: Administration on Children, Youth and Families, Children's Bureau; 2016: 23.

3. Smith CA, Ireland TO, Thornberry TP. Adolescent maltreatment and its impact on young adult antisocial behavior. *Child Abuse Negl*. 2005;29(10):1099–1119.

4. Leslie LK, James S, Monn A, Kauten MC, Zhang J, Aarons G. Health-risk behaviors in young adolescents in the child welfare system. *J Adolesc Health*. 2010;47(1): 26–34.

5. Carpenter SC, Clyman RB, Davidson AJ, Steiner JF. The association of foster care or kinship care with adolescent sexual behavior and first pregnancy. *Pediatrics*. 2001;108(3):E46.

6. Casanueva C, Wilson E, Smith K, Dolan M, Ringeisen H, Horne B. NSCAW II wave 2 report: child well-being. Washington, DC: Office of Planning, Research, and Evaluation, US Department of Health and Human Services; 2012. OPRE report #2012-38.

7. Bryan AD, Schmiege SJ, Magnan RE. Marijuana use and risky sexual behavior among high-risk adolescents: trajectories, risk factors, and event-level relationships. *Dev Psychol*. 2012;48(5):1429–1442.

8. Kelly PJ, Lesser J, Paper B. Detained adolescents' attitudes about pregnancy and parenthood. *J Pediatr Health Care*. 2008;22(4):240–245.

9. Teplin LA, Elkington KS, McClelland GM, Abram KM, Mericle AA, Washburn JJ. Major mental disorders, substance use disorders, comorbidity, and HIV-AIDS risk behaviors in juvenile detainees. *Psychiatr Serv*. 2005;56(7): 823–828.

10. Courtney ME, Dworsky AL, Cusick GR, Havlicek J, Perez A, Keller TE. Midwest evaluation of the adult functioning of former foster youth: outcomes at age 26. Chicago, IL: Chapin Hall Center for Children at the University of Chicago; 2011.

11. Dworsky A, Courtney ME. The risk of teenage pregnancy among transitioning foster youth: implications for extending state care beyond age 18. *Child Youth Serv Rev*. 2010;32(10):1351–1356.

12. Briefly: How is the "roughly 1 in 4" statistic calculated? Washington, DC: The National Campaign to Prevent Teen and Unplanned Pregnancy; 2015.

13. Oshima KM, Narendorf SC, McMillen JC. Pregnancy risk among older youth transitioning out of foster care. *Child Youth Serv Rev*. 2013;35(10):1760–1765.

14. Leve LD, Kerr DC, Harold GT. Young adult outcomes associated with teen pregnancy among high-risk girls in an RCT of multidimensional treatment foster care. *J Child Adolesc Subst Abuse*. 2013;22(5): 421–434.

15. Cronin J, Heflin C, Price A. Teaching teens about sex: a fidelity assessment model for making proud choices. *Eval Program Plann*. 2014;46:94–102.

16. Smith T, Clark JF, Nigg CR. Insights in public health: building support for an evidence-based teen pregnancy and sexually transmitted infection prevention program adapted for foster youth. *Hawaii J Med Public Health*. 2015; 74(1):27–32.

17. McGuinness TM, Mason M, Tolbert G, DeFontaine C. Becoming responsible teens: promoting the health of adolescents in foster care. *J Am Psychiatr Nurses Assoc*. 2002;8(3):92–98.

18. Kerr DC, Leve LD, Chamberlain P. Pregnancy rates among juvenile justice girls in two randomized controlled trials of multidimensional treatment foster care. *J Consult Clin Psychol*. 2009;77(3):588–593.

19. Ryan JP, Marshall JM, Herz D, Hernandez PM. Juvenile delinquency in child welfare: investigating group home effects. *Child Youth Serv Rev*. 2008;30(9):1088–1099.

20. Pane Seifert HT, Farmer EM, Wagner HR, Maultsby LT, Burns BJ. Patterns of maltreatment and diagnosis across levels of care in group homes. *Child Abuse Negl*. 2015;42:72–83.

21. Becker MG, Barth RP. Power through choices: the development of a sexuality education curriculum for youths in out-of-home care. *Child Welfare*. 2000;79(3): 269–282.

22. Oman RF, Vesely SK, Green J, Fluhr J, Williams J. Short-term impact of a teen pregnancy-prevention intervention implemented in group homes. *J Adolesc Health*. 2016;59(5):584–591.

23. Oman RF, Vesely SK, Green J, Fluhr J, Williams JW. Knowledge, attitudes, and behavior related to sexual behaviors in youth residing in group homes. *Health Behav Policy Rev*. 2018;5(2):74–87.

24. Meckstroth A, Barry M, Keating B, Kisker E, Andrews K. Addressing teen pregnancy risks for youth living in out-of-home care: implementing Power Through Choices 2010. Mathematica Policy Research. 2014. Available at: https://www.hhs.gov/ash/oah/sites/default/files/ash/oah/oah-initiatives/evaluation/Evaluation%20Reports/implementation-powerthroughchoices.pdf. Accessed September 27, 2017.

25. Bandura A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Atlanta, GA: Prentice-Hall Inc; 1986.

26. Becker MG. *The Health Belief Model and Personal Health Behavior*. Vol 2. Thorofare, NJ: Slack; 1974.

27. Kann L, Kinchen S, Shanklin SL, et al. Youth Risk Behavior Surveillance—United States, 2013. *MMWR Suppl*. 2014;63(4):1–168.

28. Brindis C, Mallari A. *Prevention Minimum Evaluation Data Set (PMEDS): A Minimum Data Set for Evaluating Programs Aimed at Preventing Adolescent Pregnancy and STD/HIV/AIDS*. Los Altos, CA: Sociometrics Corporation; 1996.

29. Markham CM, Tortolero SR, Peskin MF, et al. Sexual risk avoidance and sexual risk reduction interventions for middle school youth: a randomized controlled trial. *J Adolesc Health*. 2012;50(3):279–288.

30. Schulz KF, Altman DG, Moher D. CONSORT 2010 statement: updated guidelines for reporting parallel group randomised trials. *BMC Med*. 2010;8:18.

31. Ng A, Kaye K. Why it matters: teen childbearing and child welfare. Washington, DC: National Campaign to Prevent Teen and Unplanned Pregnancy; 2013.

32. Manlove J, Terry-Humen E, Ikramullah E, Holcombe E. Sexual and reproductive health behaviors among teen and young adult men: a descriptive portrait. Research brief. Child Trends. 2008. Available at: https://www.childtrends.org/wp-content/uploads/2008/10/Teen-Sexual-Health.pdf. Accessed September 6, 2013.

33. Green J, Oman RF, Lu M, Clements-Nolle K. Long-term improvements in knowledge and psychosocial factors of a teen pregnancy prevention intervention implemented in group homes. *J Adolesc Health*. 2017; 60(6):698–705.