

# Sexual Knowledge, Attitudes, and Behaviors of Youth Living in Group Homes

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**Objective:** The purpose of this study was to report sexual knowledge, attitudes, and behaviors of system-involved youth living in group homes, and when appropriate, contrast these data with equivalent national data. **Methods:** Data were collected from a sample of racially/ethnically diverse youth (N= 1036, 79% male, Mean age=16.1 years). **Results:** Nearly all comparisons indicate that persons in this sample were more likely to engage in sexual risk behaviors compared to other youth populations. For example, 90% of the participants reported having had sexual intercourse compared to 54% of youth in the child welfare system and 47% of youth in the general population. **Conclusions:** Youth living in out-of-home care can benefit from programs that provide skills enabling them to reduce sexual risk-taking and prevent pregnancy.

**Key words:** teen pregnancy prevention; foster care youth; adolescent sexuality; group care homes  
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Teen pregnancy rates in the United States (US) remain high despite recent declines.<sup>1</sup> In 1990, the US birth rates for teens aged 15-19 was 59.9 births per 1000.<sup>2</sup> In contrast, the most current national birth rates (2015) for teens aged 15-19 is 22.3 births per 1000.<sup>3</sup> Despite the downward trend, US teen birth rates remain considerably higher than other industrialized countries. For example, the birth rates (2011) for teens aged 15-19 in England, Spain, Switzerland, France, and Norway were 21, 10, 2, 7, and 7 births per 1000, respectively.<sup>4</sup>

Youth living in foster care and other out-of-home placements, such as group homes, are at substantially greater risk for engaging in sexual risk behaviors and having unwanted pregnancy compared to youth in the general population. These youth report having first sexual intercourse at earlier ages and more sexual partners compared with other youth not in care.<sup>5-9</sup> Moreover, teen girls in foster care are 2.5 times more likely to become pregnant by the age of

19 and 1.5 times more likely to have a subsequent teen pregnancy than their peers outside the foster care system.<sup>10,11</sup> Among boys in foster care, by age 21 about 50% reported impregnating someone compared with 19% of their peers not in foster care.<sup>12</sup>

Considerable research has investigated the sexual knowledge, attitudes, and behavior of teens in the general population as well as teens living in foster care,<sup>5-9,13-15</sup> however, much less is known about these factors for system involved youth living in group homes. A group home is considered a congregate care residential facility operated or contracted by a state child welfare agency, a state juvenile justice agency, or by a private care provider. Youth who are involved in the child welfare system may enter the juvenile justice system and vice-a-versa.<sup>16,17</sup> Group homes may contain only youth who are involved in the child welfare system, only youth who are involved in the juvenile justice system, or a mixture of youth involved in either system. Such youth may be at even greater risk for pregnancy and re-

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lated behaviors due to experiencing multiple forms of trauma,<sup>18</sup> and may lack the skills and resources necessary to avoid risky sexual behaviors and teen pregnancy.<sup>19</sup> However, to our knowledge, there is no published research investigating the sexual risk behaviors and related risk factors of youth living in group homes.

The purpose of this study is to present data regarding the sexual knowledge, attitudes, and behaviors of youth living in group homes, and when possible, to compare the data to equivalent national data with the goal of describing the magnitude of risk for system involved youth living in group homes. Data were collected as part of a randomized controlled trial (RCT) designed to test the effectiveness of the POWER Through Choices (PTC) intervention in reducing sexual risk-taking behaviors by increasing sexual knowledge, skills, and positive attitudes among youth ages 13-18 living in out-of-home care. This study presents selected baseline data for all youth participants (intervention and control), and when possible, compares the baseline indicators to national data.

## METHODS

### Background

The PTC project involved a collaborative partnership among several organizations. The Oklahoma Institute for Child Advocacy (OICA) was responsible for developing and implementing the intervention. Two of the authors (Oman and Vesely) designed the study in partnership with OICA (Fluhr) and the Mathematica Policy Research staff. OICA developed the PTC intervention by expanding, modifying, and updating a 15-year-old teen pregnancy prevention program. OICA collaborated with implementation sites in California and Maryland to increase the number of homes and youth in the study and to amplify the sample's racial/ethnic diversity.

### Group Homes/Youth Participants

PTC is designed to be appropriate for youth living in many types of out-of-home care settings; however, the implementation of PTC described in this study is exclusive to youth living in group homes overseen by the child welfare (foster care) and/or juvenile justice systems. The inverse is also true, as youth first involved in the juvenile system

**Table 1**  
**Youth Demographic and Related Data**

Measure	PTC Youth (N = 1036, 80 clusters)
Age, Mean (SD)	16.1 (1.3)
<b>Sex</b>	
Male	78.7
Female	21.3
<b>Race/Ethnicity</b>	
Hispanic	36.6
White, non-Hispanic	20.3
Black, non-Hispanic	19.5
AI/AN, non-Hispanic <sup>a</sup>	3.8
Asian and Pacific Islander, non-Hispanic	1.6
Multi-Racial, non-Hispanic	17.0
Race/ethnicity, not reported	1.3
Age Entering Out-of-Home Care, Mean (SD) <sup>b</sup>	12.3 (4.4)
<b>Last Grade Completed</b>	
8 <sup>th</sup> grade or less	27.8
9 <sup>th</sup> -11 <sup>th</sup> grade	67.8
12 <sup>th</sup> grade	4.4
<b>State, Number Child Welfare/ Juvenile Justice/Mixed</b>	
California	0/287/178
Maryland	0/0/195
Oklahoma	120/256/0

**Note.**

**a:** 20.1% of youth (N = 208) identified AI/AN as one of their races, 65 of the 208 also identified as Hispanic.

**b:** N = 891

Numbers are percentages except where noted.

PTC = POWER Through Choices

are at risk for involvement in the child welfare system.<sup>11,12</sup> Group homes served in the study included: (1) youth in the child welfare system; (2) youth in the juvenile justice system; or (3) a mixture of youth from both systems (Table 1).

The group home recruitment effort was led by a different organization in each state. Group homes that had the capacity and commitment to support the study were approached to participate in the study; therefore, the sampling was purposive rather than random. Within each site's catchment area,

**Table 2**  
**Baseline Knowledge and Perceptions of Youth Participants**

Item #	Knowledge Measure	% Correct (SD) Response (N = 1036)
<b>Anatomy and Fertility</b>		
1	The body part of the female body where a baby grows during pregnancy	45.5
2	Part of male's body that produces sperm	71.1
3	When is it possible for a female to become pregnant	42.0
4	If a young couple has had unprotected sex a few times and a pregnancy did not occur, then they do not have to worry about her getting pregnant	84.9
<b>HIV and STIs</b>		
5	HIV destroys the immune system's ability to fight off infections and diseases	71.0
6	You cannot tell if a person has HIV by looking at them	72.2
7	HIV is the only STI that is incurable	59.2
8	All sexually active individuals are at risk for HIV	76.0
9	All STIs can be cured	63.9
10	You can get the same STI twice	59.8
11	You can get a STI from having oral sex	76.1
<b>Methods of Protection</b>		
12	Permission and prescriptions needed to access methods of protection	46.1
13	A sexually active girl can become pregnant if she forgets to take her birth control pills for several days in a row	79.8
14	Using a condom can help prevent HIV	73.0
15	A condom can be used more than once	89.1
16	If a condom is used, a young man should be careful how he pulls out	62.0
17	Latex condoms are 100% effective in preventing pregnancy and STIs (including HIV)	67.7
18	Methods offering the most protection against HIV/STIs	56.9
19	Most effective method for avoiding pregnancy and STIs	62.6
20	Most effective method for preventing pregnancy	70.6
21	Least effective method for preventing pregnancy	48.9
<b>Perception of Availability of Methods of Protection</b>		
22	Condoms are pretty easy to get <sup>a</sup>	93.8
23	Birth control is pretty easy to get <sup>a</sup>	70.9
<b>Knowledge Scores</b>		<b>Mean Percentage Correct (SD)</b>
1-4	Anatomy and Fertility	61.0 (27.0)
5-11	HIV and STIs	68.4 (26.1)
12-21	Methods of Protection	65.7 (21.5)

**Note.**

a: Percentage of youth indicating "strongly agree" or "agree."

Baseline data are for all 1036 youth in 80 group care home clusters.

Missing values and "don't know" coded as incorrect responses. Missing values for individual items and constructs ranged from 2-35. Knowledge scores were calculated for youth that answered over half of the items that contributed to the specific knowledge score.

**Table 3**  
**Baseline Attitudes and Self-efficacy of Youth Participants**

Item #	Attitude Measure	Percentage of Youth Indicating “Strongly Agree” or “Agree” (N = 993-1035)
1	Two people having vaginal sex should use some method of protection if not ready for a child	93.5
2	Using a method of protection is very important	95.3
3	Condoms should always be used if a person your age has sexual intercourse	87.0
4	Condoms are important to make sex safer	94.8
5	Birth control should always be used if a person your age has sexual intercourse	80.0
6	Birth control is important to make sex safer	84.5
7	Condoms are a hassle to use	45.8
8	Condoms decrease sexual pleasure	63.5
9	Condoms make sex less exciting	55.2
10	Birth control is a hassle to use	34.1
11	Birth control has too many negative side effects	46.9
<b>Attitude Constructs</b>		<b>Mean (SD)</b>
1-6	Support for Methods of Protection (Range = 0-4)	3.4 (0.5)
7-11	Perceived Barriers to Methods of Protection (Range = 0-4)	2.5 (0.6)
<b>Self-efficacy Items</b>		<b>Percentage of Youth Indicating “Very Sure” (N = 1012-1035)</b>
1	Tell your partner your feelings about what you do and do not want to do sexually	62.0
2	Say “no” if your partner puts pressure on you to be involved sexually, and you do not want to be involved sexually	57.4
3	Talk with your partner about methods of protection if you have sex with him/her	60.7
4	Stop and use a method of protection once you are turned on	39.3
5	Plan ahead to have some method of protection available	54.5
6	Resist having sex with your partner if he/she did not want to use a method of protection	35.2
<b>Self-efficacy Constructs</b>		<b>Mean (SD)</b>
1-3	Ability to Communicate with Partner (Range = 0-4)	3.3 (0.8)
4-6	Plan for Protected Sex and Avoid Unprotected Sex (Range = 0-4)	3.0 (0.8)

**Note.**

Baseline data are from youth in 80 group care home clusters.

Missing values for individual attitude items and constructs ranged from 1-43.

Missing values for individual self-efficacy items and constructs ranged from 1-24.

One attitude item did not load on either attitude construct: Using condoms means you don’t trust your partner.

Self-efficacy item 1 cross-loaded on both constructs and item 2 did not load on either self-efficacy construct:

How sure or unsure are you that you could insist on using a method of protection if you have sex and want to use a method of protection?

How sure or unsure are you that you could find a place to obtain methods of protection from pregnancy and STIs?

group homes were recruited that had youth residents between the ages of 13 to 18 years. There were no exclusion criteria for individual youth; however, group homes were excluded if they were specifically for pregnant and parenting teens (maternity

homes), youth sexual offenders, or providing therapeutic services to youth with significant mental, emotional, or behavioral issues. Group homes were identified in batches and after youth assent was obtained homes were randomly allocated in a 1:1

**Table 4**  
**Comparison of Youth Participant Data to National Data**

Views and Values on Sexual Intercourse and Pregnancy (Item #)	Percentage of PTC Youth (N = 988-1034, 80 Clusters) (95% CI)	Percentage of Youth in Child Welfare System (SE)	Percentage of Youth in General Population (95% CI)
1 It is against your values for you to have sexual intercourse before marriage <sup>a</sup>	24.9 (22.2-27.5)	-	53.5 <sup>26</sup>
2 Having sexual intercourse is a good thing for you to do at your age <sup>a</sup>	68.9 (66.1-71.8)	-	18.2 <sup>26</sup>
3 Having sexual intercourse would create problems <sup>a</sup>	58.0 (55.0-61.0)	-	26.0 <sup>26</sup>
4 It is okay for you to have sexual intercourse if you use birth control <sup>a</sup>	79.4 (76.9-81.8)	-	30.2 <sup>26</sup>
5 If you got pregnant now or got someone pregnant (very or a little upset)			
Boys	20.1 (17.3-22.9)	-	48.4 of males <sup>36</sup>
Girls	32.1 (25.9-38.3)		58.1 of females <sup>36</sup>
<b>Behavior (Item #)</b>			
6 Age at first sex, Mean	12.9 (12.8-13.0)	-	17.1 <sup>20</sup>
7 Ever had sex	89.5 (87.6-91.3)	53.2 (4.2) <sup>29</sup>	46.8 (43.7-49.8) <sup>21</sup>
Boys	91.3 (89.3-93.2)	58.0 (5.4) (ages 15-17) <sup>27</sup>	47.5 (44.3-50.7) <sup>21</sup>
Girls	82.8 (77.8-87.8)	51.8 (5.6) (ages 15-17) <sup>27</sup>	46.0 (42.5-49.6) <sup>21</sup>
8 Sexual initiation before age 13	33.6 (30.7-36.5)	20.4 (age 13 or less at first sex) <sup>6</sup>	5.6 (4.9-6.5) <sup>21</sup>
Boys	35.8 (32.5-39.1)		8.3 (6.9-9.9) <sup>21</sup>
Girls	25.6 (19.8-31.4)		3.1 (2.6-3.7) <sup>21</sup>
9 Any sexual intercourse in the past 3 months	35.5 (29.1-41.9)		34.0 (31.6-36.5) <sup>21</sup>
Boys	37.3 (34.3-40.3)	46.2 (8.2) (ages 15-17) (last 12 months) <sup>29</sup>	32.7 (30.3-35.3) <sup>21</sup>
Girls	37.8 (34.4-41.2)	43.8(4.9) (ages 15-17) (last 12 months) <sup>29</sup>	35.2 (32.2-38.3) <sup>21</sup>
10 Four or more sexual partners (lifetime)	63.8 (60.9-66.8)	-	15.0 (13.6-16.6) <sup>21</sup>
Boys	67.9 (64.7-71.2)		13.2 (11.7-14.9) <sup>21</sup>
Girls	48.6 (42.0-55.2)		16.8 (14.8-18.9) <sup>21</sup>
11 Used a condom at last sexual intercourse <sup>b</sup>	40.8 (35.8-45.8)	-	59.1 (56.3-61.9) <sup>21</sup>
Boys	43.0 (37.3-48.7)	86.2 <sup>29</sup>	65.8 (62.4-69.1) <sup>21</sup>
Girls	32.5 (22.0-42.9)	48.2 <sup>29</sup>	53.1 (49.5-56.7) <sup>21</sup>
12 Used a pill, implant, shot, patch, ring at last sexual intercourse <sup>b</sup>	28.1 (23.2-32.9)		25.3 (22.4-28.4) <sup>21</sup>
Boys	27.1 (21.7-32.6)	7.7 <sup>29</sup>	20.1 (17.3-23.3) <sup>21</sup>
Girls	31.4 (20.6-42.3)	23.5 <sup>29</sup>	29.8 (26.1-33.8) <sup>21</sup>
11 & 12 Dual method <sup>b</sup>	17.1 (13.0-21.2)	-	8.8 (7.5-10.3) <sup>21</sup>
Boys	16.7 (12.1-21.2)		7.2 (6.1-8.5) <sup>21</sup>
Girls	18.6 (9.5-27.7)		10.2 (8.3-12.4) <sup>21</sup>

(continued on next page)

ratio to the PTC intervention or control. Consent was provided by an appropriate legally authorized representative as identified by the child welfare or juvenile justice system in which the youth resided. The response rate was 98%.<sup>20</sup>

**Measures**

Measures reported in this study included knowledge, attitudes, and self-efficacy regarding contraceptives, condom use and sexual behaviors, sexual intercourse, and limiting the number of sexual part-

**Table 4 (continued)**  
**Comparison of Youth Participant Data to National Data**

Views and Values on Sexual Intercourse and Pregnancy (Item #)	Percentage of PTC Youth (N = 988-1034, 80 Clusters) (95% CI)	Percentage of Youth in Child Welfare System (SE)	Percentage of Youth in General Population (95% CI)
13 Did not use any method to prevent pregnancy at last sexual intercourse <sup>b</sup>	53.6 (48.6-58.7)		13.7 (12.2-15.4) <sup>21</sup>
Boys	53.4 (47.7-59.0)	8.5 <sup>29</sup>	11.5 (9.6-13.8) <sup>21</sup>
Girls	54.6 (43.4-65.7)	23.4 <sup>29</sup>	15.7 (13.5-18.2) <sup>21</sup>
14 Ever been pregnant (among girls) <sup>c</sup>	37.7 (31.3-44.1)	50.6 (by age 19) <sup>10</sup>	23.7 (before age 20) <sup>21</sup>
15 Pregnant more than once (among girls ever pregnant) <sup>c</sup>	34.6 (24.2-44.9)	46.4 (by age 19) <sup>10</sup>	(by age 19) <sup>8</sup>

Note.

a: Percentage of youth indicating “strongly agree” or “agree.”

b: Among youth who were sexually active (had sex in the last 3 months).

c: All PTC youth were less than age 19 at time of data collection (mean age = 16.1 years) whereas the other data sources have age limits of 19 or 20 years of age.

Missing values ranged from 2-48.

When available, national data are reported with a 95% CI or standard error (SE). When neither was available the point estimate is reported.

<sup>6</sup> James S, Montgomery SB, Leslie LK, Zhang J. Sexual risk behaviors among youth in the child welfare system. *Child Youth Serv Rev.* 2009;31(9):990-1000.

<sup>10</sup> 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.

<sup>21</sup> Kann L, Kinchen S, Shanklin SL, et al. Youth risk behavior surveillance – United States, 2013. *MMWR Morb Mortal Wkly Rep.* 2014;63(4):1-168.

<sup>29</sup> Casanueva C, Wilson E, Smith K, et al. NSCAW II Wave 2 Report: Child Well-Being. OPRE Report #2012-38, Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, US Department of Health and Human Services; 2012.

<sup>26</sup> Olsho L, Cohen J, Walker D, et al. National survey of adolescents and their parents: attitudes and opinions about sex and abstinence. Cambridge, MA: Abt Associates Inc; 2009.

<sup>36</sup> US Centers for Disease Control and Prevention. National Survey of Family Growth: questionnaires, datasets, and related documentation. Available at: [https://www.cdc.gov/nchs/nsfg/nsfg\\_questionnaires.htm](https://www.cdc.gov/nchs/nsfg/nsfg_questionnaires.htm). Accessed August 4, 2017.

ners. Many of the items were from the Youth Risk Behavior Surveillance System or from the Prevention Minimum Evaluation Data Set.<sup>21,22</sup>

Constructs representing attitudes and self-efficacy were formed using exploratory factor analysis on a polychoric matrix using principal component analysis extraction and varimax rotation.<sup>23</sup> Separate factors analyses were conducted that included all attitude items and all self-efficacy items. Items with a factor loading of 0.4 or higher were included in the construct. Internal consistency of constructs was assessed with Cronbach's alpha using polychoric correlations.

**Knowledge and perceptions (Table 2).** The number of correct responses for the items representing each knowledge domain was summed and divided by the total number of items to create a knowledge score for each domain, with a higher value indicating greater knowledge.

Four items assessed the youths' knowledge of reproductive anatomy and fertility.<sup>22,24</sup> Seven true/false items were used to determine the youths' general knowledge of HIV and STIs.<sup>24</sup> Ten items assessed the youths' general knowledge of condoms and other methods of protection.<sup>22,24</sup> Regarding

perception of the availability of methods of protection, youth indicated their amount of agreement with 2 items such as “Condoms are pretty easy to get.”<sup>25</sup> The 4 response categories ranged from “strongly agree” to “strongly disagree.”

**Attitudes (Table 3).** Twelve items measured youth attitudes toward various methods of protection and using protection.<sup>22,25</sup> Two constructs were created using the methods described above: support for methods of protection (items 1-6, Cronbach's  $\alpha = 0.84$ ) and perceived barriers to methods of protection (items 7-11, Cronbach's  $\alpha = 0.84$ ).

**Self-efficacy (Table 3).** Eight items assessed self-efficacy.<sup>22,25</sup> Two constructs were created using the methods described above: ability to communicate with your partner (items 1-3, Cronbach's  $\alpha = 0.83$ ) and plan for protected sex and avoid unprotected sex (items 4-6, Cronbach's  $\alpha = 0.81$ ).

**Views and values on sexual intercourse and pregnancy (Table 4).** Four individual items assessed youths' views and values on sexual intercourse with a 4-level response set that ranged from “strongly agree” to “strongly disagree.”<sup>26</sup> A fifth item assessed youths' attitudes toward pregnancy with a 5-level response set that ranged from “very

happy” to “very upset.”<sup>27</sup>

**Behavior (Table 4).** Behavioral data were checked for consistency and inconsistent answers were recoded using an algorithm. Youth were instructed to report behaviors in which they chose to participate and exclude behaviors in which they were forced to participate. The item “*The very first time you had sexual intercourse, how old were you?*” was used to determine age at first sex and if first sex was before age 13.<sup>21</sup> The items “*Have you ever had sexual intercourse, Yes/No?*” and “*In the past 3 months, how many times have you had sexual intercourse?*” assessed initiation of sexual intercourse and current sexual activity.<sup>21,22</sup> Having 4 or more sexual partners was assessed by the item: “*How many different people have you ever had sexual intercourse with, even if only one time?*”<sup>21</sup>

The survey included 3 items that assessed use of methods of protection at last sex (including sexual intercourse, oral sex, or anal sex): “*The last time you had sex did you or your partner use a method of protection?*” and “*The last time you had sex did you or your partner use a condom?*”<sup>21</sup> Response categories were “I have never had sex,” “Yes,” and “No” for both questions. Youth were also asked: “*The last time you had sex, did you or your partner use the following methods to prevent pregnancy or STIs?*”<sup>21</sup> Response options were condoms, birth control pills or the patch, Depo-Provera, or other injectable birth control, NuvaRing or the ring, withdrawal or pulling out, not sure, or another method. Youth were able to select as many methods as applied to them. Youth that selected condom and at least one another hormonal contraceptive method (birth control pills, patch, Depo-Provera or NuvaRing) were considered dual method contraception users.

Finally, the survey included 2 questions about pregnancy: “*To the best of your knowledge, have you ever been pregnant or gotten anyone pregnant, even if no child was born?*”<sup>22</sup> and “*To the best of your knowledge, how many times have you been pregnant or gotten someone pregnant?*” Youth who had a written response greater than one were considered to have had more than one pregnancy.<sup>21</sup> Responses to the pregnancy items are from the female youth participants only.

### National Data

We searched the literature for nationally repre-

sentative surveys that included similar or identical measures to those used in the PTC study. The search identified the Youth Risk Behavior Surveillance System, the National Campaign to Prevent Teen and Unplanned Pregnancy, the National Survey of Family Growth, the National Survey of Adolescents and Their Parents, Attitudes and Opinions about Sex and Abstinence, the National Survey of Child and Adolescent Well-Being, and the Midwest Study (see Supplement Tables for further information). Selected data from these national surveys were used to compare to PTC data.

### Data Collection

Although data were collected at multiple timepoints as part of the RCT designed to test the effectiveness of the PTC intervention, only baseline data are reported in this study. The baseline surveys were administered onsite by trained data collectors as paper-and-pencil questionnaires approximately one week before the program began in the treatment group homes. Data collectors read the questions and possible responses aloud to minimize any problems with reading comprehension or missing data due to skipped questions.

### Data Analysis

Descriptive analyses of the combined data from the intervention and control groups were performed to characterize the PTC study sample. We calculated 95% binomial confidence intervals (CI) around the study data. Statistical analysis was performed using SAS version 9.3.<sup>28</sup> When available, national data are reported with a 95% CI or standard error (SE). When neither was available the point estimate is reported.

## RESULTS

### Descriptive

As Table 1 shows, the study included a racially/ethnically diverse sample of 1036 youth in 97 group homes (median participants per home = 9 (range 1 to 44)). Most participants were boys and in the 9th, 10th, or 11th grade. The mean age at which a youth entered an out-of-home care system was 12.3 years. Youth had lived in their current group home a median 3.2 months prior to study participation and just 10% lived in the current home for one year or longer prior to study participation.

## Knowledge and Perceptions

The percentage of correct responses to each knowledge item is presented. As Table 2 shows, the participants' sexual risk behavior knowledge was lowest for female anatomy and fertility (Item 3, 42% correct and Item 1, 46% correct) and for methods of protection (Item 12, 46% correct and Item 21, 49% correct). The participants' knowledge was highest with respect to condom use (Item 15, 89% correct) and pregnancy risk (Item 4, 85% correct). The mean knowledge score was 61% regarding anatomy and fertility, 68% regarding HIV and STIs, and 66% regarding methods of protection. Finally, most youth perceived that condoms were "pretty easy to get" (94%), although fewer youth perceived that birth control was "pretty easy to get" (71%).

## Attitudes

Table 3 reports the participants' attitudes regarding methods of birth control and STI protection, as well as perceived barriers to using methods of protection. Participants almost universally agreed or strongly agreed that using a method of protection is very important (95%) and that condoms are important to decrease risk (95%). Conversely, only 34% agreed or strongly agreed to the statement that birth control is a hassle to use. The mean score for the construct regarding support for methods of protection was 3.4, indicating the youth typically had a positive attitude towards methods of protection. In contrast, the mean score for attitude regarding perceived barriers to the methods of protection was 2.5, indicating the youth typically had a neutral attitude toward the perceived barriers to using methods of protection.

## Self-efficacy

Table 3 reports the participants' self-efficacy related to their ability to communicate with a partner regarding sexual behavior and for self-efficacy related to planning for protected sex and avoiding unprotected sex. Most participants had high self-efficacy that they could communicate with their partner as indicated by responses to items 1 to 3 with 57% to 62% indicating that they were very sure about their ability to communicate with their partner given various scenarios. The participants had lower self-efficacy overall about their belief

to plan for protected sex as suggested by their responses to items 4 to 6 with 35% to 55% indicating they were very sure in their ability to plan given various scenarios. The mean scores for the 2 self-efficacy constructs suggest a modest level of self-efficacy (3.3 and 3.0; 3.0 = "somewhat sure") about participants' belief in their ability to communicate and plan to avoid unprotected sexual intercourse.

## Comparison to National Data

Table 4 compares data related to views, values, and sexual risk behaviors of the PTC participants to similar national data. All views and values items indicated higher risk-taking for the participants, except for item 3. For example, nearly 70% of the PTC participants strongly agreed or agreed with the statement that having sexual intercourse is a good thing to do at your age compared to 18% of general population youth. Just 20% of the boys and 32% of the girls who were PTC participants indicated they would be very or a little upset if they got pregnant or got someone pregnant, compared to 48% of boys and 58% of girls in the national sample.

Similar results were found for the behavior items comparisons. For instance, approximately 91% of the boys and 83% of the girls who were PTC participants reported ever having had sex, compared to 58% of boys and 52% of girls in the child welfare system (ages 15 to 17), and 48% of boys and 46% of girls in the national sample (ages 12 to 18). In addition, 36% of the boys and 26% of the girls who were PTC participants reported initiation of sexual intercourse (ISI) before age 13, compared to 8% of boys and 3% of girls in the national sample, and 20% of youth in the child welfare system ( $\leq 13$  years old). Fifty-three percent of the boys and 55% of the girls who were PTC participants reported using no method to prevent pregnancy at last sexual intercourse, compared to 9% of boys and 23% of girls in the child welfare sample, and 12% of boys and 16% of girls in the national sample. Finally, 38% of the female PTC participants reported ever being pregnant compared to 24% of youth in the general population.

There were a few indicators for which the PTC participants were not at higher risk. For example, approximately 37% of the PTC participants reported having had sexual intercourse in the past 3



months compared to 46% of boys and 44% of girls in the child welfare system and 34% of youth in the general population.

## DISCUSSION

This study presented baseline sexual risk behavior epidemiology data for a youth population for which little is known. The study population, which was system-involved youth living in group homes, was drawn from California, Oklahoma, and Maryland.

An examination of the individual items indicated that youths' knowledge was lowest about female anatomy and reproductive facts, as well as about methods of protection. Also, less than 50% of the youth were able to identify the least effective method for preventing a pregnancy or possible sources and avenues for acquiring methods of protection. As nearly 80% of the participants were boys, it was not surprising that less than 50% of the sample correctly answered the 2 female anatomy and fertility items, or that they lacked knowledge about methods of protection, which are predominately for use by girls. In contrast, youth knowledge was highest in the areas of understanding that a condom cannot be reused, that unprotected sex can result in a pregnancy, and that sexually active individuals are at risk for HIV. Overall, youth reported considerable knowledge in some areas and limited knowledge in other areas. These inconsistencies underscore the need for programs that provide a foundation of medically accurate information to address potential gaps in youth understanding of sexual health facts.

The participants' attitudes were positive regarding their support for methods of protection. For example, they were very supportive of the importance of using a method of protection and of using a condom to avoid STIs and pregnancy. The youth were more neutral in their attitudes toward perceived barriers for using methods of protection. For instance, most youth agreed or strongly agreed with the statements that "condoms make sex less exciting" and "condoms decrease sexual pleasure." These results suggest positive attitudes related to the idea of using a method of protection; however, attitudes regarding specific perceived barriers to a method of protection were neutral.

Most of the participants had high self-efficacy about communicating their feelings with a partner

about sexual behavior, and moderate self-efficacy about being able to plan for protected sex. However, the participants had lower self-efficacy overall for the ability to stop and use a method of protection once they were sexually aroused, or to resist having sex if their partner did not want to use a method of protection.

The attitudinal and behavioral data for which comparisons could be made to youth in the child welfare system or in the general population clearly indicate that youth living in foster care and other out-of-home placements have poorer attitudes toward sexual risk-taking, engage substantially more frequently in sexual risk behaviors, and are at greater risk for outcomes such as pregnancy and STIs. Among the comparisons, youth in the current study were much more likely to have initiated sexual intercourse, initiated sexual intercourse before age 13, had multiple sex partners, not used any method to prevent pregnancy at last sexual intercourse, and not be upset if they became pregnant or impregnated someone.

A unique contribution of this study to the literature is the focus on youth living in group homes. Past research involving youth living in foster care typically included youth living in all foster care environments with none or only a small minority of the youth living in group homes. All youth in the current study resided in group homes and a substantial number also were involved in the juvenile justice system. In contrast, less than 1% of youth in the child welfare comparison sample resided in group homes and none were in the juvenile justice system.<sup>29</sup> These factors may partially explain why youth in the present study compared unfavorably, not only to youth in the general population, but also to youth in the child welfare system.

These data provide an objective characterization of this understudied and underserved area of teen pregnancy prevention. Programs that address the unique needs of this high-risk population should focus on empowering youth to make responsible choices regarding sexual activity. Specifically, our results illustrate the importance of programs that allow youth to learn about the variety of male condom products available, potential benefits of male condom use, strategies to reduce barriers to male condom use, and negotiating male condom use with a partner. Further, programs should help

youth learn effective communication skills and planning for protected sex rather than primarily emphasizing abstinence.

A study limitation is that the sexual risk behavior questions ascertained both recent and lifetime history; therefore, it is unknown if these events happened before or after entry into the foster care system. However, no matter where the youth participated in risky sexual behaviors, these results suggest that youth living in group homes participate in more risky behaviors than youth in the general population. Another limitation is that the sample was mostly male; therefore, it may not adequately represent the knowledge, attitudes, and behaviors of a female group home population. The sample did, however, represent the typical sex distribution of system involved youth living in group homes. Finally, sampling for the study was purposive; therefore, the results may not be representative of all youth living in group homes.

In conclusion, our findings suggest that youth living in group homes, defined as congregate care residential facilities operated or contracted by a state child welfare agency, a state juvenile justice agency, or by a private care provider, are substantially more likely to engage in sexual risk behaviors compared to other youth populations. These young people require reproductive and sexual health education programming that enables them to gain knowledge, attitudes, and skills to delay initiation of sexual intercourse and to protect themselves from STIs and unintended pregnancies when they do initiate sexual intercourse.

## IMPLICATIONS FOR HEALTH BEHAVIOR OR POLICY

Our results provide compelling evidence for increased federal funding to implement pregnancy prevention programming for system involved youth living in group homes. Reducing teen pregnancies and child births is a priority of federal agencies such as the US Centers for Disease Control and Prevention (CDC) and other divisions within the US Department of Health and Human Services, such as the Office of Adolescent Health and the Administration for Children and Families.<sup>3,30</sup> For example, in 2010 the CDC selected reducing teen pregnancies and births as 1 of 6 “winnable battles.”<sup>31</sup> Policy approaches include disseminating

information about the effectiveness of Long Acting Reversible Contraception (LARC), identifying barriers to Medicaid payment for LARC, giving healthcare providers access to comprehensive evidence-based information for adolescent reproductive health, and supporting information sharing among states to develop practices to reduce barriers to payment and access to LARC as well as to other contraceptives.<sup>31</sup>

The significant reductions in teen birth rates are attributed primarily to increased access and use of contraceptives, and not to increased abstinence.<sup>32</sup> Providing evidence-based comprehensive sexuality education to teens, which includes information about effective contraceptive methods and how to obtain LARC, is critical for teen pregnancy prevention.<sup>30</sup> The challenge is that teen reproductive health is enmeshed in the “culture wars” between liberals and conservatives with liberals generally favoring comprehensive sexuality education programs that have proven effectiveness and conservatives generally favoring abstinence only programs that have little or no evidence to suggest effectiveness.<sup>24,32,33</sup> Therefore, funding for teen pregnancy prevention programming often is driven by cultural norms and religious doctrine, as well as by which political party is in power at the state or federal level, rather than by scientific evidence.<sup>32,33</sup>

After several years of funding to support research for the development and implementation of evidence-based teen pregnancy prevention programming, it appears that, at least at the federal level, there has been a reversal of policy. Abstinence based programming is now favored and funding for evidence-based teen pregnancy prevention programming is being eliminated. For example, federal funding to support research for the development, evaluation, and implementation of effective medically accurate comprehensive sexuality education programs was available until funding totaling \$213.6 million was cut from 81 funded programs that will be forced to terminate their projects 2 years earlier than planned.<sup>34</sup>

US taxpayers saved an estimated \$12 billion dollars annually from the early 1990s to 2010 when the teen birth rate was reduced by half.<sup>35</sup> However, US teen births remain higher than other industrialized countries and teen births still cost US taxpayers an estimated \$9.4 billion in 2010.<sup>4,35</sup> Considering the

economic and social consequences of teen pregnancy and child birth, it is imperative that all US teens receive effective, medically accurate, comprehensive sexuality education programming, much like teens in other industrialized countries have been receiving for years. For this to occur, strong and sustained efforts are needed to advocate for effective teen pregnancy programming for teens living in group homes as well as for all teens.

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### Human Subjects Approval Statement

The Institutional Review Board at the University of Oklahoma Health Sciences Center reviewed and approved this study.

### Conflict of Interest Disclosure Statement

There are no conflicts of interest to report.

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**Supplement Table 1**  
**Sexual Knowledge, Attitudes, and Behavior of Youth Living in Group Homes:**  
**Description of National Data Sources**

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**Youth Risk Behavior Surveillance System**

The Youth Risk Behavior Surveillance System (YRBSS) monitors youth sexual risk behaviors including age at sexual initiation, current sexual intercourse, condom and contraception use. The 2013 YRBSS includes a nationally representative sample of 13,583 high school students in grades 9-12 that was 50% male.<sup>21</sup>

**The National Campaign to Prevent Teen and Unplanned Pregnancy**

The National Campaign to Prevent Teen and Unplanned Pregnancy used 2010 nationwide data on teen pregnancy and teen birth rates from the Guttmacher Institute and the National Center for Health Statistics to estimate the percentage of teen girls who become pregnant before age 20.<sup>1</sup>

**The National Survey of Family and Growth**

Data regarding attitudes towards pregnancy were obtained from the 2011-2013 the National Survey of Family Growth (NSFG).<sup>36</sup> The NSFG includes a nationally representative sample of men and women age 15-44 (5601 women and 4815 men). Responses were limited to those never married and who were 15-19 years of age.

**National Survey of Adolescents and Their Parents: Attitudes and Opinions about Sex and Abstinence**

In 2009, the Administration for Children and Families (ACF) funded Abt Associates Inc to conduct the National Survey of Adolescents and Their Parents.<sup>26</sup> Olsho et al<sup>26</sup> interviewed a sample of 1000 matched adolescent-parent pairs to examine current attitudes and options regarding sex and abstinence. The sample was nationally representative, included adolescents age 12-18, and was 51% male.

**National Survey of Child and Adolescent Well-Being**

The National Survey of Child and Adolescent Well-Being (NSCAW) is a longitudinal study that examined the characteristics of youth referred to the child welfare system. Data collection for wave 1 began in 1999. James et al used data from Wave 4 (collected 36 months after baseline) to examine sexual risk behaviors among 877 youth in the child welfare system.<sup>6</sup> The nationally representative sample was 54% female and included youth ages 14 and older (mean age = 15.3 years).

Baseline data for a second cohort of youth enrolled into NSCAW II were collected in 2008-2009. Follow-up data (Wave II) data were collected from 2009-2011. Wave II interviews included 4750 youth ages 16 months to 19 years, 51% male. The data presented by Casanueva et al are limited to youth ages 15-17.<sup>29</sup>

**Midwest Study**

The Midwest Study is a longitudinal study of youth in foster care to explore how youth fared as they transitioned out of foster care. Although not nationally representative, youth from three states (Illinois, Iowa, and Wisconsin) were included. Baseline data were collected in 2002-2003 from 732 youth ages 17-18 who were in contact with a public welfare agency. The baseline sample was 48% male.<sup>10</sup>

**Supplement Table 2**  
**Full Wording of Items, Response Sets, and References for Comparison Items**

Item	Measure	PTC Youth	Child Welfare Youth	General Youth Population
1	Views and Values	It is against your values for you to have sexual intercourse before marriage? (Agree or strongly agree)	-	It is against your values for you to have sexual intercourse before marriage? (Somewhat agree or strongly agree) <sup>4</sup>
2	Views and Values	Having sexual intercourse is a good thing for you to do at your age? (Agree or strongly agree)	-	Having sexual intercourse is a good thing for you to do at your age? (Somewhat agree or strongly agree) <sup>4</sup>
3	Views and Values	At your age, having sexual intercourse would create problems? (Agree or strongly agree)	-	At your age, having sexual intercourse would create problems? (Somewhat agree or strongly agree) <sup>4</sup>
4	Views and Values	At your age, it is okay for you to have sexual intercourse if you use birth control? (Agree or strongly agree)	-	At your age, it is okay for you to have sexual intercourse if you use birth control? (Somewhat agree or strongly agree) <sup>4</sup>
5	Views and Values	If you got pregnant now or got someone pregnant how would you feel? (Very or a little upset)	-	If you got pregnant now/got a female pregnant now, how would you feel? (Very or a little upset) <sup>3</sup>
6	Age at first sex	The very first time you had sexual intercourse, how old were you? (I have never had sexual intercourse, 9 years old, 11 years old or younger, 12 years old, 13 years old, 14 years old, 15 years old, 16 years old, 17 years old, 18 years old, 19 years or older)	-	How old were you when you had sexual intercourse for the first time? (I have never had sexual intercourse, 11 years old or younger, 12 years old, 13 years old, 14 years old, 15 years old, 16 years old, 17 years old or older) <sup>1</sup>
7	Ever had sex	Have you ever had sexual intercourse? (Yes or No)	Consensual sexual intercourse (lifetime) <sup>6</sup>	Have you ever had sexual intercourse? (Yes or no) <sup>1</sup>
8	Sexual initiation before age 13	Included youth that had sex before age 13, denominator includes youth who have never had sex	Age at first consensual intercourse (younger than 13; 13 or older) <sup>5</sup>	Included youth that had sex for the first time before age 13 <sup>1</sup>
9	Any sexual intercourse in the past 3 months	In the past 3 months, how many times have you had sexual intercourse? (Youth response)	Had sex in the past 12 months <sup>6</sup>	During the past 3 months, with how many people did you have sexual intercourse? (I have never had sexual intercourse, 1 person, 2 people, 3 people, 4 people, 5 people, 6 or more people) <sup>1</sup>
10	Four or more sexual partners (lifetime)	How many different people have you ever had sexual intercourse with, even if only one time? (Youth response)	-	During your life, with how many people have you had sexual intercourse? (I have never had sexual intercourse, 1 person, 2 people, 3 people, 4 people, 5 people, 6 or more people) <sup>1</sup>
11	Used a condom at last sexual intercourse	The last time you had sex did you use a condom? (Yes or No)	What methods of protection did you or your partner use the last time you had sex? You may check more than one thing if that's what you used (Nothing, condom or rubber, pill, withdraw penis before coming something else) <sup>6</sup>	The last time you had sexual intercourse, did you or your partner use a condom? (Yes or No) <sup>1</sup>
12	Used a pill, implant, shot, patch or ring at last sex	The last time you had sex did you or your partner use the following methods to prevent pregnancy or STIs? (Condoms, birth control pills or the patch, Depo-Provera or other injectable birth control, NuvaRing or the ring, withdrawal or pulling out, not sure, another method)	What methods of protection did you or your partner use the last time you had sex? You may check more than one thing if that's what you used (Nothing, condom or rubber, pill, withdraw penis before coming something else) <sup>6</sup>	The last time you had sexual intercourse what one method did you or your partner use to prevent pregnancy? (I have never had sexual intercourse, no method was used to prevent pregnancy, birth control pills, condoms, an IUD (such as Mirena or ParaGard) or implant (such as Implanon or Nexplanon), a shot (such as Depo-Provera), patch (such as Ortho Evra), or birth control ring (such as NuvaRing), withdrawal or some other method, not sure) <sup>1</sup>
11 & 12	Dual method	Among currently sexually active youth, youth reporting that either they or their partner had used both a condom during last sexual intercourse and birth control pills or the patch, Depo-Provera or other injectable birth control, NuvaRing or the ring	-	Among currently sexually active students nationwide, youth reporting that either they or their partner had used both a condom during last sexual intercourse and birth control pills; an IUD or implant; or a shot, patch or birth control ring <sup>1</sup>
13	Did not use any method to prevent pregnancy	The last time you had sex did you or your partner use a method of protection? (Yes or No)	What methods of protection did you or your partner use the last time you had sex? You may check more than one thing if that's what you used <sup>6</sup>	The last time you had sexual intercourse what one method did you or your partner use to prevent pregnancy? (Yes or No) <sup>1</sup>
14	Ever been pregnant or gotten a partner pregnant	To the best of your knowledge, have you ever been pregnant or gotten anyone pregnant, even if no child was born? (Yes or No)	Have you ever been pregnant? (Yes or No) <sup>7</sup>	Ever pregnant before age 20 <sup>3</sup>
15	Pregnant more than once	To the best of your knowledge, how many times have you been pregnant or gotten someone pregnant? (Youth response)	How many times have you been pregnant? (Youth response) <sup>7</sup>	How many times have you been pregnant? (Youth response) <sup>7</sup>

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