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## Cost of Talking Parents, Healthy Teens: a Worksite-based Intervention to Promote Parent-Adolescent Sexual Health Communication

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### Abstract

**Purpose**—To examine the cost and cost-effectiveness of implementing *Talking Parents, Healthy Teens*, a worksite-based parenting program designed to help parents address sexual health with their adolescent children.

**Methods**—We enrolled 535 parents with adolescent children at 13 worksites in southern California in a randomized trial. Time and wage data from employees involved in implementing the program were used to estimate fixed and variable costs. Cost-effectiveness was determined with nonparametric bootstrap analysis. For the intervention, parents participated in eight weekly one-hour teaching sessions at lunchtime. The program included games, discussions, role plays, and videotaped role plays to help parents learn to communicate with their children about sex-related topics, teach their children assertiveness and decision-making skills, and supervise and interact with their children more effectively.

**Results**—Implementing the program cost \$543.03 (SD=\$289.98) per worksite in fixed costs, and \$28.05 per parent (SD=\$4.08) in variable costs. At 9 months, this \$28.05 investment per parent yielded improvements in number of sexual health topics discussed, condom teaching, and communication quality and openness. The cost-effectiveness was \$7.42 per new topic discussed using parental responses and \$9.18 using adolescent responses. Other efficacy outcomes also yielded favorable cost-effectiveness ratios.

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**Implications and Contribution:** Our research shows that a worksite-based health promotion program for parents of adolescents can have significant short and medium term effects on parent-adolescent communication related to sexual health. It is also cost-effective across several measures of quality and quantity of communication between parents and their children.

Conflicts of interest: None.

**Conclusions**—*Talking Parents, Healthy Teens* demonstrated the feasibility and cost-effectiveness of a worksite-based parenting program to promote parent-adolescent communication about sexual health. Its cost is reasonable and unlikely to be a significant barrier to adoption and diffusion for most worksites considering its implementation.

### Keywords

adolescent sexual behavior; cost; cost-effectiveness; communication; health promotion; parent-child relations; sex education; workplace

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## Introduction

Increasing parental involvement in the sexual health education of their children can delay intercourse, increase use of contraception, reduce risk-taking behavior, and decrease sexually-transmitted infections (STIs).<sup>1-4</sup> However, many parents do not talk to their children about sexual matters.<sup>5</sup> Parents often cite feeling poorly informed, embarrassed, or unsure of what to say or how to begin.<sup>6,7</sup> Programs that teach parents how to communicate about sexual health with their children have been demonstrated to improve parental confidence in initiating conversations with their children about sex,<sup>8-10</sup> but parents often have difficulty enrolling in these programs because of scheduling and location issues.<sup>11</sup> This is particularly true for employed parents.<sup>8</sup>

We developed *Talking Parents, Healthy Teens*—a worksite-based parenting program—to address these challenges,<sup>12</sup> and we assessed its efficacy in a randomized controlled trial in public and private worksites.<sup>13</sup> Parents who enrolled in the program reported improved ability to communicate with their children about sexual matters, more openness in communication with their children, and a greater number of sexual health topics discussed, all of which were outcomes they valued. Adolescent children of these parents reported similar findings. Although these findings indicate that the program is beneficial for working parents and their families, worksites considering adoption of such a program would require information not only about its effectiveness but also about its cost and cost-effectiveness. In both public and private organizations, decisions about whether to adopt a program are likely to depend on information about economic value and resource requirements. To address this economic evidence gap, we performed an analysis of the fixed and variable costs associated with implementing *Talking Parents, Healthy Teens* at public and private worksites in the United States.

## Methods

### Participants

We enrolled 535 parents with children in 6<sup>th</sup>-10<sup>th</sup> grade (about ages 11-16-years-old) at 13 worksites in southern California in a randomized controlled trial evaluating the *Talking Parents, Healthy Teens* program. There were 269 parents in the intervention group and 266 in the control group. The worksites comprised a mix of medium-to-large public and private (for-profit and nonprofit) institutions. Cost data were available for 12 of the 13 worksites, and program efficacy data were available for all worksites. Parents were recruited at their

worksites and participated in eight weekly one-hour teaching sessions at lunchtime. The program included games, discussions, role plays, and videotaped role plays to help parents learn to communicate with their children about sex-related topics, teach their children assertiveness and decision-making skills, and supervise and interact with their children more effectively. Each group included approximately 15 parents and was led by a trained health educator and assistant with backgrounds in adolescent health promotion. Outcome measures included discussion of sexual topics, whether parents taught their adolescents condom use skills, and quality and openness of parent-adolescent communication. Additional details about the program's design and parent and adolescent outcomes are available elsewhere.<sup>6,12,13</sup> The institutional review boards of RAND and the University of California, Los Angeles approved the study protocol.

### Data collection

Program coordinators at each worksite reported detailed information on employees involved in implementing the *Talking Parents, Healthy Teens* program, including job title, tasks performed for the program, time spent on each task, and wages. We used the time employees spent planning and implementing the *Talking Parents, Healthy Teens* program to estimate cost. To make the data more generalizable, we normalized employees' job titles, tasks, and wages with analogous occupation and industry categories and average national wages using data from the United States Bureau of Labor Statistics.<sup>14</sup>

### Employee Task Categories

We classified employees' tasks into six categories using detailed task descriptions provided by the worksite. The categories were (1) *Program Approval and Endorsement*, including meetings and presentations held to obtain formal legal or other regulatory approval for the program and support from institutional leadership and regulatory bodies; (2) *Communications and Program Facilitation*, including emails, phone calls, and other correspondence between the institution and our research staff, who assisted with program logistics and planning; (3) *Facility Management*, including reserving rooms and other physical space for program activities; (4) *Marketing*, including development and production of publications, fliers, and other communications used to recruit parents at the worksite for program enrollment; (5) *Media Services*, including obtaining video equipment and facilitating recording of videotaped role play sessions; and (6) *Health Educator Support*, including arranging security clearance for health educators and their assistants and escorting them within the institution.

### Fixed and Variable Cost Classification

Employee tasks were further categorized as *fixed cost inputs* (costs that do not change with the number of parents enrolled in the program) or *variable cost inputs* (costs that increase with the number of parents enrolled in the program). For example, activities related to obtaining program approval and endorsement or communicating with the study staff were generally considered fixed costs. Activities related to room reservations or videotaping role play sessions were generally considered variable costs, as the time they consumed generally increased proportionally with the number of parents enrolled in program. However, the

relationship between variable costs and number of enrolled parents was not strictly linear in theory because sessions typically comprised groups of ~15 parents. Our research group categorized tasks that did not clearly fall into either a fixed or variable cost group. For example, we assigned an executive assistant who spent 8 minutes sending emails to secure an additional room for the program after a shortage was identified to the fixed-cost group; a managerial assistant who spent 40 minutes obtaining security passes for health educators to the variable-cost group; and a human resources specialist who spent 1 hour looking at conference rooms for the program to the variable-cost group.

### Fixed and Variable Cost Estimation

We estimated the cost of *Talking Parents, Health Teens* by multiplying employees' wages (based on US Bureau of Labor Statistic values) by the time they spent on each task (because time spent implementing the program theoretically replaced other productive employee activities).<sup>14</sup> We did not assign any cost to employers for parents participating in weekly program sessions because the program was held during lunchtime and should therefore not have reduced work productivity. For variable costs, we divided the time spent on each task by the number of parents enrolled in *Talking Parents, Healthy Teens* at the worksite. The average wage for health educators from the United States Bureau of Labor Statistics was \$24 per hour (occupational group “social services,” occupation “health educator”). The average wage for health educator assistants, whom we considered to be research assistants, was \$17 per hour (occupational group “life and physical sciences,” occupation “research assistants”). We also included the cost of pre-program preparation, estimated at 8 hours for health educators and 4 hours for their assistants. Our base case analysis assumes that the *Talking Parents, Healthy Teens* curriculum would be obtained from an outside vendor/consultant and administered by trained health educators employed by the vendor. For these reasons, we did not include the curriculum's cost in our analysis. However, the program could be administered by onsite health educators who would draw on the program's standardized, scripted manual, and these costs would contribute to overall program costs.

### Program Cost-effectiveness

Cost-effectiveness analysis is a method for assessing the relative value of health programs.<sup>14,15</sup> We derived the cost-effectiveness of *Talking Parents, Healthy Teens* using the ratio of variable costs to program efficacy outcomes [(change in cost)/(change in effectiveness)], as compared to parents in the control group.<sup>14</sup> We used variable costs rather than fixed costs because variable costs reflect the marginal cost of providing *Talking Parents, Healthy Teens* to one additional parent, though fixed costs also contribute to economic decision-making<sup>15</sup>. In particular, because our analysis targeted program implementation and dissemination, it was economically appropriate to analyze fixed costs and variable costs separately.<sup>15</sup> Cost data were unavailable for one worksite, but this worksite fully reported efficacy outcomes. To address this, we imputed its variable costs using the mean variable costs from all other worksites.

Parents and adolescents completed surveys at baseline before the program started and at nine months after the start of the program. The efficacy outcomes, reported in detail elsewhere,<sup>13</sup> included (1) number of new sexual topics discussed (reported by both parents and

adolescents; e.g., how girls' and boys' bodies change physically as they grow up, how women become pregnant and have babies, homosexuality, sexually transmitted diseases, how to make decisions about whether to have sex); (2) number of repeated sexual topics discussed (reported by both parents and adolescents); (3) whether parents taught their adolescents how to use a condom (reported by adolescents); (4) ability to communicate about sex (reported by both parents and adolescents on an ordinal scale; respondents selected “poor” or worse; “fair”; “good”; or “very good” or better); and (5) openness of communication, which assessed parent-adolescent communication about sexual topics (such as, “My child [mother/father] and I talk openly and freely about sexual topics” on a scale ranging from “strongly disagree” to “strongly agree”). We calculated the mean increase relative to the control group for items (1) to (3), and the proportion of respondents reaching the “very good” and “agree/strongly agree” thresholds, respectively, for items (4) and (5). Outcomes were summed across families: a parent with one adolescent child could report up to  $n$  new sexual topics discussed, whereas a parent with two adolescent children could report up to  $2n$ .

### Statistical Analysis

We estimated standard deviations for time inputs and costs after stratifying program implementation inputs by employee occupation and employee task. We performed nonparametric bootstrapping to estimate confidence intervals for our cost-effectiveness ratios using a bias-corrected percentile method described by Efron and others.<sup>16,17</sup> The unit of analysis was the parent. We drew 10,000 random samples with replacement of variable costs, as assessed at the worksite level, and efficacy outcomes, which were reported at the adolescent level but summed across families to account for parents with more than one child. Parents in the control group were ascribed a cost of 0. Because incremental program costs were always positive in the treatment group, negative cost-effectiveness ratios, meaning that incremental costs were higher while incremental outcomes were lower or negative, were considered dominated.<sup>14</sup> The analysis was restricted to the 94% of parents ( $n=535$ ) or 92% of adolescents ( $n=627$ ) who responded to all four surveys, in keeping with a prior analysis.<sup>13</sup> Because rates of missing data across items were low (mean 1.1%), we used a single Markov chain Monte Carlo imputation from PROC MI (SAS 9.1) to impute missing items within surveys.

## Results

### Worksite Characteristics

Thirteen worksites enrolled 569 parents (288 parents in intervention group, 281 in control group) in the *Talking Parents, Healthy Teens* evaluation, and these parents had 710 eligible adolescent children (683 participating). The worksites included six public, one private nonprofit, and six private for-profit institutions. Worksites reported involvement of an average of 3.75 employees ( $SD = 1.5$ ) in the implementation of the program (in addition to health educator time). The most frequently reported occupations of these employees were managers/supervisors (47% of employees) and administrative assistants (44% of employees); nurses (2%), computer specialists (2%), and media specialists (4%) were

involved much less frequently. Mean wages varied by industry and occupation, and their distribution (Table 1).

### Program Fixed Costs

Fixed costs by employee task, along with the cost of pre-program preparation for health educators and their assistants, are summarized in Table 2. Total fixed costs averaged \$543.03 (SD = \$289.98). Tasks requiring the greatest amount of time included communications and program facilitation (4.5 hours per worksite, SD = 5.2 hours), program approval and endorsement (2.4 hours per worksite, SD = 5.3 hours), and marketing (2.2 hours per worksite, SD = 3.3). These three activities also generally required more involvement by employees at managerial levels (2.1, 1.5, and 0.3 hours, respectively); because these employees generally had higher wages, these tasks contributed primarily to program costs (\$133, \$84, and \$45, respectively).

### Program Variable Costs

The program cost an average of \$28.05 per parent (SD = \$4.08), including the cost of the health educator and his or her assistant (Table 3). These two occupations also comprised the largest share of the program's variable costs, and were \$12.76 and \$9.36 per-parent, respectively. Because the health educators and assistants led sessions of ~15 parents per session, the time they spent per parent was 8.3 hours/15 parents = 0.55 hours. The only other task requiring a significant amount of time per parent was facility management (0.23 hours, SD = 0.31 hours), translating into an average cost \$4.29 per-parent (SD = \$4.84). Tasks contributing to variable costs were disproportionately performed by administrative personnel, health educators, and their assistants.

### Cost-effectiveness

We evaluated the cost-effectiveness of *Talking Parents, Healthy Teens* by calculating the ratio of incremental variable costs to incremental program efficacy outcomes at 9 months, as compared to the control group (Table 4). The investment of \$28.05 per parent (variable cost per parent) resulted in simultaneous mean increases of 3.73 new parent-reported topics discussed, 3.01 new adolescent-reported topics discussed, 6.75 repeated parent-reported topics discussed, 5.48 repeated adolescent-reported topics discussed, 0.29 more adolescents taught condom use, 0.17 more adolescent-parent dyads with very good sexual communication, and 0.40 more adolescent-parent dyads with good communication openness.

These simultaneous improvements in communication between parents and children were also analyzed on a per-outcome basis, with costs calculated for each outcome as if it were the only one achieved by the program. In this case, a given incremental cost was associated with a given improvement in outcome; because there are multiple outcomes, that same incremental cost was associated with improvements in multiple outcomes. At 9 months, the cost effectiveness of the program per new sexual health topic discussed was \$7.42 using parental survey responses and \$9.18 using adolescent survey responses, and \$4.10 per repeated sexual health topic discussed using parental survey responses and \$5.04 using adolescent survey responses. Communication quality measures had higher cost-effectiveness

ratios and cost \$282.90 and \$419.40 to achieve a sexual communication rating of “very good” or better and \$243.30 and \$232.69 to achieve good communication openness, using parental and adolescent survey responses, respectively. The cost-effectiveness of the program in terms of instruction in condom use was \$94.47 per adolescent reporting that this instruction had been performed. Cost-effectiveness ratios are summarized in Table 4, along with bootstrapped 95% confidence intervals. The overall probability of negative cost-effectiveness ratios in the bootstrapped samples was low (<1.1% on average).

## Discussion

Sexual health promotion in adolescents remains a controversial issue in the United States and other countries,<sup>18-20</sup> but many agree that adolescents would benefit from increased parental involvement in educating them about sexual matters.<sup>8,21,22</sup> We developed *Talking Parents, Healthy Teens* as an intervention to promote parent-adolescent communication about sexual health, while addressing commonly-encountered barriers to parental involvement by offering the program at parents' worksites. Our intervention demonstrated efficacy across several dimensions of sexual health education and communication between parents and their adolescent children.<sup>13</sup> However, policy makers at public and private organizations considering implementing a program similar to *Talking Parents, Healthy Teens* for their employed parents require not only information on efficacy but also estimates of cost and value to facilitate decision-making about program investment and resource allocation. We provide an initial assessment of these economic variables in our current analysis.

We found that implementing *Talking Parents, Healthy Teens* at a worksite would cost \$543.03 in fixed costs and \$28.05 per-parent enrolled in the program in variable costs. This investment resulted in simultaneous improvements in sexual health topics discussed, condom teaching, and ratings of communication quality and openness. On a per-outcome basis, with each outcome treated as if it were the only outcome of the program, the cost-effectiveness of the program ranged from \$4.10 per additional repeated sexual health topic discussed to \$419.40 for each additional parent-child dyad achieving “very good” sexual health communication. These estimates may be considered to be reasonable fixed and variable costs for most medium-to-large public and private worksites considering implementing the program, and for government bodies or foundations considering subsidizing its cost.

While, to our knowledge, no prior studies have evaluated the cost-effectiveness of a worksite intervention to promote child sexual health education, a number of studies have used school- or community-based settings to achieve similar objectives. In a 2010 review of the cost-effectiveness of school-based behavioral interventions to encourage safer sexual behavior and prevent STIs, estimated variable costs of U.S. interventions ranged from \$26 to \$440 per participant (compared to our estimate of about \$28 per parent), depending on the number and type of staff members involved in program implementation.<sup>23</sup> The review also found a wide range of cost-effectiveness estimates, largely driven by model assumptions and choice of endpoints. For example, a cost-effectiveness analysis of *Safer Choices*, a school-based education program focused on the prevention of HIV, STIs, and pregnancy among

high school students found that the program was cost-saving,<sup>24</sup> while a separate analysis of the same intervention that focused only on HIV prevention found an estimated cost-effectiveness ratio exceeding \$39 million per case prevented.<sup>25</sup> An economic evaluation of a school-based STI screening program for chlamydia and gonorrhea used pelvic inflammatory disease (PID) as an outcome and found that the program resulted in a savings of \$1,524 per case of PID prevented.<sup>26</sup>

In the context of worksite-based health interventions, the findings of our economic evaluation of *Talking Parents, Healthy Teens* are in-line with findings from other studies with a similar design, though most have focused on the health of employees rather than the health of employees' families. In a review of the economic impact of worksite health promotion programs, all studies that reported absenteeism found that absenteeism fell after introduction of the health promotion program, and the six studies that performed cost-benefit analyses reported average savings of \$5.07 for each dollar invested.<sup>27</sup> For example, a health and wellness intervention at GlaxoSmithKline was associated with savings of \$613 per participant when compared with controls, and these savings were primarily attributable to lower disability.<sup>28</sup> However, we are unaware of evidence that directly links employee absenteeism adolescents' sexual behavior and health or poor communication about these topics.

Considering the potential negative impact of family issues on employee performance, employers may have an inherent interest in helping parents balance their overlapping responsibilities in their work and family lives. According to some estimates, only 34% of employee absenteeism is related to employee illness, while 22% is attributable to family issues.<sup>29</sup> Because absenteeism accounts for a significant portion of payroll costs, many employers may be receptive to programs that help parents balance work and family demands, particularly when competitive advantages in the workplace can be gleaned, including improvements in recruitment, retention, and employee morale.<sup>12,30</sup> A 2008 review found that organizations may benefit from offering a wide range of work-family practices that can accommodate employees with diverse personal and family needs.<sup>30</sup> From this perspective, the *Talking Parents, Healthy Teens* program could complement other work-family programs within an organization.

The value that parents place on effective communication with their children also contributes to the economic value of the intervention.<sup>31</sup> A national survey of parents and teenagers aged 12-19-years-old reported that 73% of parents want their children to have more information about refraining from intercourse and using contraception, but the majority of parents (82%) and adolescents (66%) feel that parents have difficulty talking about sexual health topics with their children.<sup>32</sup> This leaves both parents and adolescents dissatisfied with the quality and quantity of sexual communication.<sup>33-35</sup> Importantly, research also shows that parental knowledge (or self-perceived knowledge), confidence, and comfort, as well as the quality of general parent-child communication, appear to be key factors in predicting high-quality communication about sexual health topics.<sup>36</sup> Some parents also report that their children may block attempts to talk about sexual topics by claiming to already be informed, becoming irritated or annoyed, or ridiculing their parents' attempts at sex education.<sup>37</sup>

Because our outcomes are fairly heterogeneous (discussions, condom instruction, communication ability, and communication openness), variations in cost-effectiveness primarily reflect variations in effectiveness, and the cost-effectiveness ratios we calculate underscore this finding. However, we believe that program implementation should be primarily driven by the program's effectiveness, cost, and cost-effectiveness; despite the variation by outcome, most of the cost-effectiveness ratios fall within a reasonable range, and employers should consider them in the context of the program's favorable overall impact on communication between parents and adolescents about sexual health.

## Limitations

The principal limitations of our study are the small number of worksites enrolled and the fact that we limited our worksites to southern California. These limitations affect the precision of our cost estimates and the degree to which our sample is representative of other worksites in the country. This was partially mitigated by normalizing occupations and wages using US Bureau of Labor Statistics categories for occupations and industries and corresponding estimates of national wages. However, it is noteworthy that the worksites were quantitatively similar in terms of their individual estimated variable costs, and that the distribution of fixed costs across the multiple worksites generally fell within a range that would not be likely to sway the decision to implement or not implement the intervention. We also imputed cost data for one of the 13 worksites, and we were unable to account for time in videotaped role-play sessions because of missing data.

Another important limitation is that our study does not provide estimates of the potential effect of the intervention on the incidence of teenage pregnancy or incidence of STIs in adolescents. While other studies suggest that parental involvement in sexual health education reduces the incidence of both of these adverse events,<sup>38-40</sup> we cannot estimate the magnitude of impact from our study. To our knowledge, no parent worksite interventions have established a direct relationship between the intervention and sexual behavior or outcomes.

It is also important to note that our results may not be fully applicable to worksites that afford less than one hour for lunch. For example, if employees received a 30-minute lunch block, they might be allowed to make up at the end of the day the additional time spent in the program. However, if they were simply excused from work for the additional time, the cost of this lost productivity would need to be incorporated into the cost-effectiveness analysis.

## Conclusion

*Talking Parents, Healthy Teens* demonstrated the feasibility and sustained efficacy of a worksite-based parenting program to promote parent-adolescent communication about sexual health. The fixed and variable costs of the intervention are unlikely to be prohibitive barriers to its adoption and diffusion for most worksites considering its implementation. The program also appears to be cost-effective across several measures of quality and quantity of communication about sexual matters between parents and their adolescent children.

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**Table 1**  
**Occupation of Employees Involved in Program Implementation at Worksites**

Occupation	Number of Employees per Worksite	Percent	Mean Hourly Wage, \$	Minimum Wage, \$	Maximum Wage, \$
Manager/Supervisor	1.75	46.7	43.64	34.59	56.96
Administrative support	1.67	44.4	15.82	12.55	19.57
Media specialist *	0.17	4.4	21.57	-	-
Computer specialist *	0.08	2.2	24.88	-	-
Healthcare practitioner *	0.08	2.2	22.09	-	-

\* Range for wage not reported because occupation represents employee(s) from a single industry

**Table 2**  
**Employee Tasks Contributing to Fixed Costs of Program Implementation**

Task Category	Total Time Per Worksite, hr	Manager Time, hr	Administrative Support Time, hr	Mean Hourly Wage, \$	Total Fixed Cost Per Worksite, \$
	<b>Mean ± SD</b>				<b>Mean ± SD</b>
Communications/ program facilitation	4.5 ± 5.2	2.1	2.2	29.73	132.53 ± 119.41
Facility management	0.1 ± 0.3	0.1	0.1	29.92	3.24 ± 8.34
Health educator preparation *	8.0 -	-	-	23.36	186.88 -
Health educator assistant preparation *	4.0 -	-	-	17.14	68.56 -
Health educator support	0.3 ± 0.6	0.0	0.3	16.76	4.54 ± 9.19
Marketing	2.2 ± 3.3	0.3	1.5	20.45	45.02 ± 67.84
Media services	0.3 ± 0.7	0.1	0.1	33.37	9.73 ± 26.82
Not provided	0.4 ± 1.1	0.1	0.3	19.54	8.38 ± 19.79
Program approval/ endorsement	2.4 ± 5.3	1.5	0.9	35.12	84.14 ± 215.22
<b>Total</b>	<b>22.2 ± 9.3</b>	<b>4.2</b>	<b>5.3</b>		<b>543.03 ± 289.98</b>

\* Based on pre-program preparation for single health educator or health educator assistant

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**Table 3**  
**Employee Tasks Contributing to Variable Costs of Program Implementation (All Costs and Times Reported Per-Parent)**

Task Category	Total Time, hr Mean ± SD	Manager Time, hr	Administrative Support Time, hr	Mean Hourly Wage, \$	Total Fixed Cost, \$ Mean ± SD
Communications/program facilitation	0.01 ± 0.04	0.00	0.01	19.94	0.29 ± 0.70
Facility management	0.23 ± 0.31	0.02	0.20	18.78	4.29 ± 4.84
Health educator	0.55 ± 0.02	0.00	0.00	23.36	12.76 -
Health educator assistant	0.55 ± 0.02	0.00	0.00	17.14	9.36 -
Health educator support	0.04 ± 0.99	0.00	0.03	15.51	0.55 ± 0.30
Marketing	--	-	-	-	--
Media services	0.01 ± 0.03	0.00	0.01	18.95	0.21 ± 0.49
Not provided	0.04 ± 0.1	0.00	0.04	13.96	0.60 ± 1.39
Program approval/ endorsement	--	-	-	-	--
<b>Total</b>	<b>1.4 ± 0.28</b>	<b>0.03</b>	<b>0.3</b>		<b>28.05 ± 4.08</b>

**Table 4**  
**Cost-effectiveness of Program Based on Main Clinical Outcomes**

	Incremental Change in Outcome, per-family	Cost-effectiveness, \$/outcome	95% CI	Prob. of a dominated CE ratio, %
<b>Parent reporting</b>				
New topics discussed	3.73 topics	7.42	6.21 to 9.29	0
Repeated topics discussed	6.75 topics	4.10	2.87 to 7.50	0
Sex communication "very good" or better	0.1 parents agreeing with rating	282.90	140.62 to dominated	2.9
Communication openness good ("agree" or "strongly agree")	0.11 parents agreeing with rating	243.30	124.67 to 7779.02	2.1
<b>Adolescent reporting</b>				
New topics discussed	3.01 topics	9.18	7.01 to 13.19	0
Repeated topics discussed	5.48 topics	5.04	3.38 to 9.70	0
Sex communication "very good" or better	0.07 adolescents agreeing with rating	419.40	190.25 to dominated	4.6
Communication openness good ("agree" or "strongly agree")	0.11 adolescents agreeing with rating	232.69	136.36 to 712.91	0.2
Condom teaching performed	0.29 adolescents agreeing	94.47	74.93 to 127.73	0