

HEALTHY U: A COST ANALYSIS OF IMPLEMENTING A SEXUAL HEALTH EDUCATION APP IN JUVENILE JUSTICE FACILITIES

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Key Findings

WestEd conducted an analysis of the costs of delivering *Healthy U*, a teen pregnancy prevention program designed specifically for young males in a juvenile justice environment. Costs were broken out into five categories: technology setup, tablets, preparation for training relevant staff, training relevant staff, and implementing the intervention. The cost analysis found:

- The average cost to deliver *Healthy U* to youths in juvenile justice facilities during the evaluation was \$850 per youth.
- The costs of *Healthy U* are substantially lower than those of many other evidence-based teen pregnancy prevention approaches when accounting for the different cost-analysis methodologies.
- Implementation costs represented 53 percent of the total

cost to deliver *Healthy U*; these costs included personnel time to distribute the tablets and to oversee the youths while they used the tablets.

- Technology setup costs accounted for 11 percent of the total cost to deliver *Healthy U*, and the tablets accounted for an additional 11 percent of the total cost.
- The average cost to deliver *Healthy U* during the evaluation varied across the facilities based on the number of participating youths; the cost was lowest (\$290 per youth) in the facility with the largest number of eligible youths.

Background

The cost to implement teen pregnancy prevention interventions is a critical consideration for practitioners

and policymakers when they are deciding how and whether to implement a program. There is a small but growing body of research on the costs to implement a range of teen pregnancy prevention interventions in different settings (Schulte & Goesling, 2019; Zaveri et al., 2017). This brief adds to that body of research by sharing results of an analysis of the costs to deliver *Healthy U*, a sexual health education app, to youths in juvenile justice facilities.

What Is *Healthy U*?

Developed and studied through a Teen Pregnancy Prevention grant from the U.S. Department of Health and Human Services,¹ *Healthy U* is a tablet-based app designed specifically for young males in a juvenile justice environment. The program is a collaboration among the WestEd Justice & Prevention Research Center; the Oregon Youth Authority (OYA), known for its rehabilitation model in juvenile

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justice; and Efficacy, a health education company with a history of building media, games, and technology for underserved and high-need populations.

As part of the grant, Efficacy and WestEd developed the *Healthy U* app, which includes video narratives from teens, informational videos, digital games, quizzes, and role-plays. There are seven modules – Pregnancy, Birth Control, Puberty, HIV, STDs, Relationships, and Condom Negotiation – and the layout of the app is modeled on a college campus (see Exhibit 1). Using an app to provide sexual health education was particularly appealing for OYA, which has had difficulty finding consistent and easy-to-implement sexual health programs and qualified sexual health educators to teach in its rural facilities.

Studying the Impact of *Healthy U*

WestEd is implementing a cluster randomized trial to evaluate the impact of *Healthy U*. The study focuses on young males at five OYA facilities and compares the sexual knowledge, attitudes, and behaviors, at six months after the implementation of the program, of those who participate in the *Healthy U* program with those who do not participate. Once the cluster randomized trial is completed, estimates of the program’s impacts will be combined with the results of this cost analysis to conduct cost-benefit or cost-effectiveness analyses.

The young males participating in the study were assigned to either a treatment group or a control group, based on their living unit (the physical structure that they live in while in the closed-custody facility). One of the eligibility criteria was that the

youths needed to be 30 to 90 days from release, to produce a sample of youths who had time for sexual experiences outside of the facilities during the follow-up period. A total of 21 cohorts, including 175 treatment youths, participated in the intervention for four months each.

At the beginning of the study, WestEd purchased tablets, installed the *Healthy U* app on the tablets, and ensured that the tablets were secure for youths in a juvenile justice environment (e.g., disabled access to all other apps and to the Internet). In addition, WestEd and Efficacy developed a training module on *Healthy U* for OYA unit staff who oversaw the use of the tablets and the app in the facilities. Although replicating the interventions would likely require some training, it would be possible to develop a shorter and less costly training for staff.² Before the first “wave” of participation at each OYA facility, WestEd and Efficacy traveled to the facilities to train all of the unit staff who would be implementing *Healthy U*. The levels of support required to fully implement the program varied. Most sites required very little support from WestEd and OYA central office staff, while one facility required frequent and consistent support.

Exhibit 1. Map of the *Healthy U* Modules



Findings from the Cost Analysis

WestEd conducted a cost analysis in order to better understand the costs associated with preparing for and delivering *Healthy U*. Findings from this cost analysis may be helpful for other juvenile justice facilities, as well as for a range of other organizations, that may be considering

2 The grant funding allowed for more training support than is typically provided under routine budget conditions.

implementing a sexual health education program.

Categories of Costs to Deliver *Healthy U*

WestEd’s analysis of the costs to deliver *Healthy U* to a sample of cohorts found that the costs could be broken down into the following five categories:³

- **Technology setup:** WestEd personnel time to ensure that the tablets were secure, and OYA personnel time to set up the Wi-Fi networks to upload participant progress to the *Healthy U* server
- **Tablets:** Samsung Galaxy S2 models with protective cases and headphones
- **Preparation for training OYA unit staff:** WestEd and Efficacy

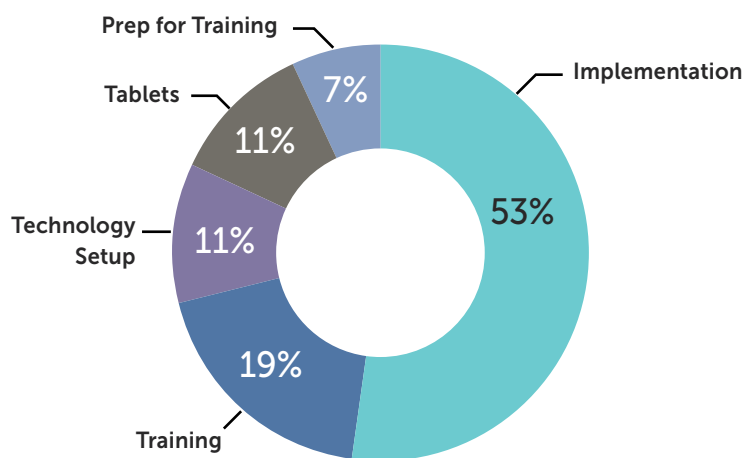
personnel time to develop the training module

- **Training OYA unit staff:** WestEd, Efficacy, and OYA personnel time; food provided at the trainings; and travel costs
- **Implementation:** WestEd and OYA personnel time; travel costs related to ongoing implementation; and tablet shipping

As shown in Exhibit 2, the largest percentage of costs was for implementation, which represented 53 percent of the total cost. Technology setup and tablets each represented 11 percent of the total cost. Preparation for training (7 percent) and training of OYA unit staff (19 percent) accounted for the remainder of the total cost.

Breakdown of Costs

Exhibit 2. Distribution of the Costs to Implement *Healthy U* in Juvenile Justice Facilities



Note: Due to rounding, the percentages do not add up to 100 percent.

The cost analysis focused on the first nine cohorts, which included 71 youths.⁴ In Exhibit 3 on the following page, the total cost to deliver *Healthy U* for these nine cohorts was \$60,010, with an average cost per youth of \$850. The average cost per participant varied across the cohorts and across the facilities.

Cohorts with low costs per youth.

The cohorts with lower costs per youth were in facilities that had larger numbers of youths with shorter sentences. As a result, these facilities had more youths in the eligibility window of 30 to 90 days from release. Although the implementation costs were somewhat higher in these facilities, due to OYA unit staff spending more time distributing and overseeing the use of the tablets, the larger number of youths who completed *Healthy U* in these cohorts, compared to the cohorts with higher costs per youth, more than made up for these costs.

Cohorts with high costs per youth.

There were two types of cohorts with higher costs per youth. The first type (including the cohort with the highest costs per youth, as shown in Exhibit 3) was cohorts in facilities that had many youths with longer sentences, which resulted in these facilities having few youths who were eligible to complete *Healthy U*. The second type was cohorts in facilities with high staff turnover and lack of staff engagement. Costs were higher for this second type because WestEd and OYA central office staff had to spend additional time traveling to the

³ The researchers only tracked costs associated with preparing for and delivering the program. The cost analysis excluded any costs associated with evaluating the program and its impact (e.g., having youths complete baseline surveys).

⁴ Rather than investigating the costs for all of the study’s cohorts, WestEd opted to examine the costs for only the first nine cohorts, in order to reduce the burden of the data collection while still allowing for the estimation of costs across a broad range of implementation situations.

Exhibit 3. Costs to Implement Healthy U in Juvenile Justice Facilities

Cost category	Average per cohort	Cohort with lowest costs per youth	Cohort with highest costs per youth	Total for all cohorts
Technology setup	\$710	\$710	\$710	\$6,390
Tablets	\$710	\$600	\$240	\$6,360
Preparation for training	\$470	\$470	\$470	\$4,230
Training	\$1,240	\$1,070	\$1,110	\$11,170
Implementation	\$3,540	\$2,130	\$650	\$31,860
Total	\$6,670	\$4,980	\$3,180	\$60,010
Number of youths	7.9	17	1	71
Cost per youth	\$850	\$290	\$3,180	—

Note: Costs are shown in 2017 dollars and rounded to the nearest \$10.

facility to implement the program, incurring travel costs that were not necessary for the other cohorts.

Technology Cost Considerations

Tablets were used to implement *Healthy U* because the portable nature of the tablets meant that youths could learn about sexual health topics in a more private manner than if they were using desktop computers. Additionally, the novelty of accessing *Healthy U* on a tablet made the intervention more engaging for the youths in a juvenile justice setting. However, when considering replicating the program, it should be noted that *Healthy U* can be implemented in different ways. For example, after the start of the study, Efficacy developed a version of *Healthy U* that can be used on desktop or laptop computers. Accordingly, multiple youths could access this version of *Healthy U* from a single computer that is connected to the Internet.

As part of the evaluation, WestEd sent varying numbers of tablets to the facilities, based on the projected number of eligible youths at each facility, with the goal of having one tablet on hand for each youth. Due

to the restricted nature of the Wi-Fi access at the facilities, the *Healthy U* progress data needed to be stored on the tablet, which meant that only one youth could use a given tablet while completing the program. If a juvenile justice facility had greater access to Wi-Fi, it would be possible to reduce technology costs by assigning more than one youth to each tablet.

Comparisons with Other Teen Pregnancy Prevention Interventions

Zaveri et al., (2017) calculated the cost per participant to implement 10 evidence-based teen pregnancy prevention interventions, such as *Cuidate!* and *Making a Difference!*. The costs per participant in Zaveri et al.'s (2017) study ranged from \$68 to \$11,541, and the median per participant cost was \$927 (as cited in Schulte & Goesling, 2019). When using a similar cost analysis methodology as Zaveri et al. (2017), the average costs to implement *Healthy U* was \$540 per youth, which was substantially lower than the median cost to implement the 10 programs. The programs implemented outside of schools, such as those in juvenile justice

facilities and community-based locations, had higher costs (Zaveri et al., 2017). Not surprisingly, programs reviewed by Zaveri et al. (2017) that served more youths had lower per-participant costs because they created cost savings through scale.

One of the most comparable interventions to *Healthy U* is *Seventeen Days*, an interactive film developed by Carnegie Mellon University's Center for Risk Prevention and Communication through a prior Teen Pregnancy Prevention grant. Like *Healthy U*, *Seventeen Days* is technology-based and designed to be delivered individually. Although a cost analysis is not available, some information about the intervention's costs is available on the film's website. Specifically, the DVD costs \$200 per copy, and the trainings are \$300 per person (Carnegie Mellon University, n.d.). The total cost for delivering this interactive film as an intervention would be higher than just those two costs, since personnel time for training and implementation would need to be included in the total cost.

Appendix: Methods

WestEd used the ingredients method (Levin et al., 2018) to identify all of the resources or ingredients needed to implement *Healthy U*; obtain prices for the resources; and calculate the costs per participant and per cohort. The team collected the ingredients data from 2016, 2017, and 2018 for the technology, training, and implementation of *Healthy U* for the first two cohorts of participants in the treatment units at each facility. Costs were expressed in 2017 U.S. dollars because the majority of the costs were incurred in that year. WestEd examined the costs for only the first nine cohorts in order to reduce the burden of the data collection while still allowing for the estimation of costs across a broad range of implementation situations.

Identifying and Categorizing Costs

WestEd identified all of the resources necessary to deliver *Healthy U* at the juvenile justice facilities, by interviewing project staff and by reviewing the project's accounting records. After identifying these resources and placing each of them in one of five categories, WestEd assigned prices to all of the resources. To track costs, WestEd used Excel to create cost worksheets modeled after the ones outlined by Levin et al. (2018), which include rows for each resource and columns for the quantities, prices, and overall costs. Separate cost worksheets were created for each cost category: technology setup, tablets, preparation for training, training at each facility, and implementation for each cohort and at each facility. WestEd used prices, such as the actual salaries of the employees who participated in the implementation, that were site-specific and specific

to the implementation of *Healthy U* in OYA's facilities during the three years under study. Using site-specific prices means that the cost estimates are relevant to the local contexts and that fewer assumptions need to be estimated, but site-specific prices are less generalizable to other settings (Levin et al., 2018).

WestEd used accounting records to identify the actual costs for the tablets and for other items used in the study, such as headphones and protective cases for the tablets. WestEd also used accounting records to identify the actual costs of the travel by WestEd, OYA, and Efficacy staff to the facilities, including mileage, airfare, hotels, rental cars, and per diems, and the actual costs for food provided to OYA staff during the training. WestEd did not include the cost of the space in the facilities when the youths were completing *Healthy U* on the tablets, because the treatment and control youths were occupying equivalent space (e.g., the dining hall and their living units) when the treatment youths used the tablets. However, we did include the small costs of the rooms (i.e., approximately \$10) where the trainings took place, based on the estimated square footage of the rooms, the estimated cost to build a juvenile justice facility (RSMean Data from Gordian, n.d.), and the lengths of the trainings.

Personnel. WestEd listed all of the individuals involved in the implementation of *Healthy U* in the cost worksheets, and conducted interviews to determine the number of days that each individual spent on the project. WestEd obtained salaries for OYA staff from a publicly available listing of state employees' salaries (OpenTheBooks.com, n.d.) and used Levin et al. (2018)'s estimate

to calculate fringe benefits, which, for this cost analysis, amounted to 30 percent of the salaries of all OYA staff. Payroll records were used to identify the salaries and fringe benefits for WestEd employees. Accounting records were used to identify the cost for a WestEd subcontractor who programmed the tablets so they were secure for the youths. In addition, Glassdoor (n.d.) was used to estimate the salary and fringe benefits for Efficacy staff. To calculate the personnel costs for each component of the project, WestEd multiplied the number of days each individual spent on the project by their fully loaded daily costs, which included salary and fringe benefits.

Tablets. Given that the expected lifespan of computer equipment is typically three years, WestEd annualized the cost of the tablets across three years, with a 5 percent interest rate (i.e., an annualization factor of 0.3672; Levin et al., 2018). When the tablets were purchased, in 2016, the total cost per tablet was \$510 (including taxes, protective cases, and headphones), which equated to \$60 per wave (i.e., the cost for a participant to use the tablet for four months). By the beginning of 2020, the total cost of a comparable tablet and associated gear had dropped to \$270, including taxes. Sensitivity analyses that examined changes in the assumptions of the cost analysis showed that reducing the cost of the tablets per wave to \$30 decreased the cost per youth to \$800. WestEd did not pay the *Healthy U* license fee for the study, and this was excluded from the technology costs.

Training. The training was designed to be used for the entire three years of the project, and the total training costs for each facility were annualized

using the same annualization factor as was used for the tablets. Each wave was assigned half of the annual costs associated with its facility's trainings, because the facilities generally had two waves per year.

Note

For more information about WestEd's work with *Healthy U*, contact Staci Wendt at 562.799.5432 or swendt@wested.org. For more information about *Healthy U*, visit www.healthyucampus.org.

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