PREP

The Personal Responsibility Education Program Evaluation

Adapting an Evidence-based Curriculum in a Rural Setting:

Implementing *Reducing the Risk* in Kentucky

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Submitted to:
Seth Chamberlain, Project Officer
Caryn Blitz, Project Officer
Kathleen McCoy, Project Monitor
Administration for Children and Families
U.S. Department of Health and Human Services

Submitted by:
Robert G. Wood, Project Director
Mathematica Policy Research
P.O. Box 2393
Princeton, NJ 08543-2393
Telephone: (609) 799-3535
Facsimile: (609) 799-0005

Adapting an Evidence-based Curriculum in a Rural Setting: Implementing *Reducing the Risk* in Kentucky

December 2015

Rachel Shapiro
Robert G. Wood

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Rachel Shapiro
Robert G. Wood

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OVERVIEW

Rural regions have among the highest teen birth rates in the nation. Even so, to date, little research has been done on adolescent pregnancy prevention programming designed to meet the needs of rural youth. To address this research gap, the Administration for Children and Families within the U.S. Department of Health and Human Services directed Mathematica Policy Research to collaborate with the Kentucky Department of Public Health to conduct a rigorous evaluation of an adapted version of *Reducing the Risk* in relatively low-income, mostly rural high schools. This programming was funded through the state's Personal Responsibility Education Program (PREP) grant, which it received in 2010.

For the evaluation, Mathematica partnered with two local health departments that serve a largely rural region with teen pregnancy rates substantially above the national average. Health department staff delivered the *Reducing the Risk* curriculum to students in area high schools as part of a required health class. Health district staff shortened the original 12-hour curriculum to 8 hours to fit within the time allotted by area schools for delivering the program. The revised curriculum the staff developed covers all the topics in the original *Reducing the Risk* curriculum but contains fewer role-play exercises and less repetition of material. This report summarizes the experience that these local health departments had implementing this adapted version of *Reducing the Risk* during the 2013–2014 and 2014–2015 school years.

Health educators implemented the adapted version of *Reducing the Risk* as intended. They received training on the curriculum and had strong support from the program directors in the two health departments. During the study period, health educators covered more than 90 percent of their planned activities. Attendance was high; students in the study sample attended 93 percent of scheduled sessions. Based on classroom observations and focus group reports, students were receptive to the material, especially portions that involved interactive elements. Students and health educators identified a number of ways the curriculum could be strengthened. During focus groups, students indicated that additional role-play exercises and interactive program elements would have kept them more engaged. Students also reported that the curriculum would have benefited from additional time devoted to discussing birth control methods.

This implementation study was conducted in conjunction with a rigorous impact study based on a random assignment research design in which schools were assigned to offer either the adapted curriculum or their regular programming. Most study schools assigned to the control group offered only limited coverage of abstinence, contraception, and sexually transmitted diseases. None of the control group schools provided instruction on skills that would help students refuse or delay sexual activity, a key program element of *Reducing the Risk*. Upcoming impact reports, scheduled for release in 2016 and 2017, will examine the effects of the program on participating students' sexual activity and other outcomes one and two years after they completed the program.

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I. INTRODUCTION

Rural counties have the highest teen birth rates in the United States. In 2010, the teen birth rate in rural counties was 43 births per 1,000 women ages 15 to 19, compared with 36 births per 1,000 women in this age range in large urban counties and 24 births per 1,000 in suburban counties (Ng and Kaye 2015). This pattern of higher rural teen birth rates holds across all racial and ethnic groups. Over time, rates of adolescent pregnancy in rural counties have fallen more slowly than in suburban areas.

Despite the clear need for effective approaches to teen pregnancy prevention among youth in rural areas, these youth are often underrepresented in the research literature. Most of the teen pregnancy prevention programs the U.S. Department of Health and Human Services (HHS) currently recognized as having demonstrated evidence of effectiveness were developed and tested in urban or suburban areas (Goesling et al. 2014). A few prior studies have tested the effectiveness of transferring programs developed for urban youth to more rural or suburban areas (Borawski et al. 2009; Stanton et al. 2005, 2006). However, these studies have generally not found effects on adolescent sexual risk behaviors. The findings of these studies suggest the need to adapt existing programs and approaches to meet the unique needs of rural youth (Bell et al. 2007).

PREP evaluation of *Reducing the Risk* in rural Kentucky – A snapshot

- Part of the evaluation of the Personal Responsibility Education Program
  - Funded by the U.S. Department of Health and Human Services, Administration for Children and Families
  - Conducted by Mathematica Policy Research, with support from its subcontractors Twin Peaks Partners LLC, Child Trends, and Decision Information Resources
  - Kentucky is one of four sites chosen for in-depth implementation and impact analysis as part of the PREP multi-component evaluation
- The 13 participating high schools were recruited and randomly assigned twice: once in summer 2013 and again in summer 2014
  - *Reducing the Risk* curriculum delivered in mandatory health classes at six schools assigned to the treatment group in fall 2013 and seven schools in fall 2014
  - Standard health curriculum delivered in mandatory health classes at seven control schools in fall 2013 and six schools in fall 2014
  - Research sample consists primarily of students in the 9th and 10th grades
  - Follow-up surveys administered 12 and 24 months after program delivery to gather outcomes for impact analysis
- *Reducing the Risk* lesson topics cover abstinence, refusal skills, delaying tactics, obtaining and using contraception, preventing STDs/HIV, and risk behaviors
- *Reducing the Risk* as implemented and tested in Kentucky consists of eight one-hour-long sessions delivered in mandatory health classes by health educators from Barren River and Lincoln Trail District Health Departments
  - Barren River District high schools: once per week over eight weeks, twice per week over four weeks, or five times over two weeks
  - Lincoln Trail District high schools: eight consecutive days over two weeks
  - Curriculum shortened from 12 to 8 hours to fit within the instructional time available in local high schools for curriculum delivery
  - Tailored time spent on various topics (for example, abstinence, HIV facts and risk behaviors, and communication skills) to best meet student needs and reduce repetition.

Recognizing this need, the Administration for Children and Families (ACF) within HHS directed Mathematica Policy Research—along with its subcontractors, Twin Peaks Partners LLC, Child Trends, and Decision Information Resources—to collaborate with the Kentucky Department of Public Health to conduct a rigorous evaluation of an adapted, eight-session version of the *Reducing the Risk* curriculum in relatively low-income, mostly rural high schools. Kentucky is using part of its federal Personal Responsibility Education Program (PREP) funding to implement *Reducing the Risk* in high schools across the state through 12 local health departments. For this evaluation, Mathematica partnered with two of these local departments—the Barren River and Lincoln Trail District Health Departments—which serve high schools in a large, primarily rural area in the central and southwestern portions of the state.

When the Kentucky State Department for Public Health accepted its five-year PREP funding in 2010, the state PREP director selected two curricula—*Reducing the Risk* and the *Teen Outreach Program*—that were already widely implemented in Kentucky, and funded qualified applicants to implement these curricula. The state PREP director selected the two curricula because they could be implemented in schools, where there was a need for comprehensive sex education programming. The curricula do not target any specific race or ethnicity, and the state PREP director considered them appropriate for the largely rural and primarily white population in Kentucky. In addition, after assessing the materials, the state PREP director concluded that the two curricula met the PREP requirements for addressing adulthood preparation subjects. Both programs cover adolescent development, healthy life skills, and healthy relationships. The public health department funded 23 local health departments located in counties with the highest teen birth rates in the state; 12 local health departments implemented *Reducing the Risk* and 11 implemented the *Teen Outreach Program*. The Barren River and Lincoln Trail District Health Departments—the two sub-awardees with which Mathematica is partnering for the evaluation—are targeting high school youth in high-need geographic areas and represent 2 of the 12 Kentucky health departments that implemented *Reducing the Risk* with PREP funding.

Reducing the Risk is one of the most widely implemented comprehensive sex education programs available in the United States. The full 16-session, 12-hour curriculum was originally developed and tested with high school students in northern California in the late 1980s (Kirby et al. 1991). The curriculum is now in its fifth edition and distributed nationally by ETR Associates, a private, nonprofit health education organization based in Scotts Valley, California. *Reducing the Risk* is on the HHS list of evidence-based pregnancy prevention programs based on the results of a 1991 study, conducted by the publisher in 10 school districts in a mix of urban and rural areas of California.[1] *Reducing the Risk* is widely used by program providers receiving federal funding to support adolescent pregnancy prevention programming. For example, federal PREP funding supports the implementation of *Reducing the Risk* by more than 50 program providers across 16 states, primarily in schools.[2]

[1] The evaluation found positive impacts on one outcome—the use of contraception among adolescent girls who were not sexually active at baseline (Kirby et al. 1991).

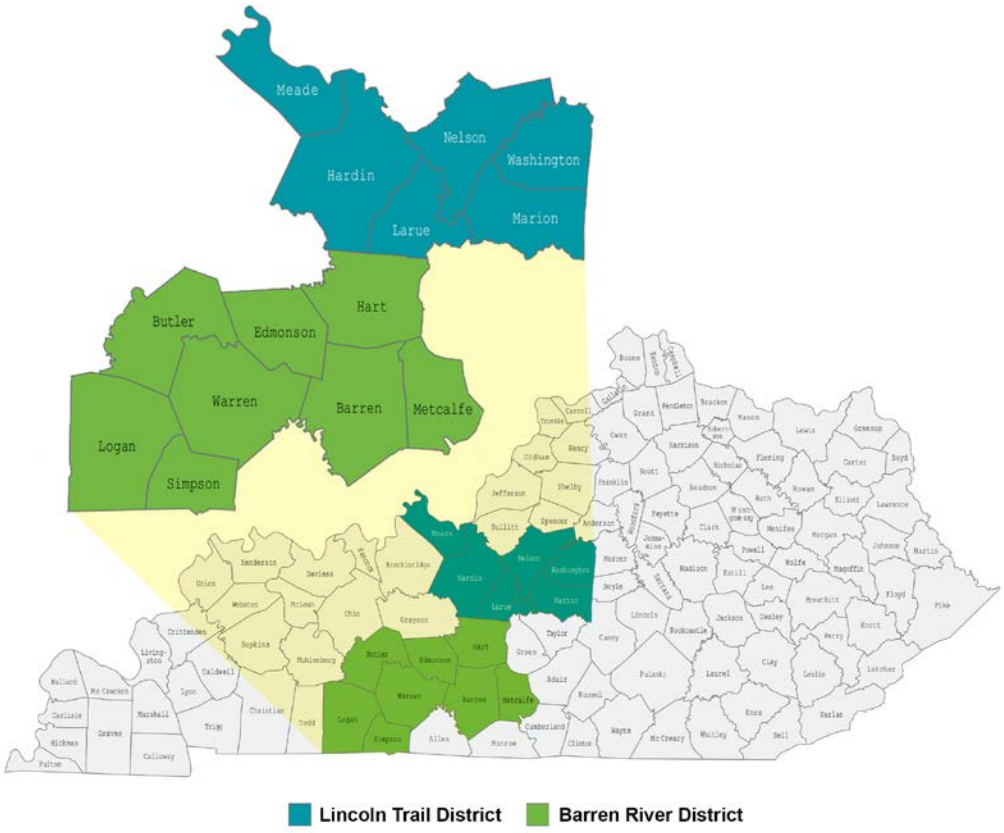
[2] These figures are based on performance measure data reported by state PREP grantees and cover the period of August 2013 through July 2014.

Implementing adolescent pregnancy prevention programs in schools during the regular school day can be an effective way to reach a large number of youth and ensure regular attendance at program sessions. However, implementing programming during the school day can also pose challenges. One common challenge is finding adequate instructional time to complete the curriculum. School schedules are complex, and the many demands school administrators face for their limited instructional minutes often make them reluctant to devote time during the regular school day for additional programming.

The Barren River and Lincoln Trail District Health Departments faced this scheduling challenge. Area high schools would only allow eight hours of instructional time to complete the 12-hour *Reducing the Risk* curriculum. In response, the two district health departments adapted *Reducing the Risk* by shortening the time it takes to deliver the curriculum from 12 to 8 hours. As discussed in Chapter III, their adaptation was guided by their understanding of the youth population they served. They tailored the time spent on various topics to best meet the population's needs.

The two district health departments participating in the evaluation serve multicounty regions in central and southwestern Kentucky (Figure I.1). The Barren River District Health Department provides services in the counties around Bowling Green (Barren, Butler, Edmonson, Hart, Logan, Metcalfe, Simpson, and Warren), and the Lincoln Trail District Health Department covers the counties around Elizabethtown (Hardin, LaRue, Marion, Meade, Nelson, and Washington).

Figure I.1. Map of service area included in the study



Mathematica staff worked with the two district health departments to identify schools in these regions that were interested in receiving this adapted version of *Reducing the Risk* and participating in the evaluation. The schools that were identified included those already receiving *Reducing the Risk* through the health departments and schools that had not yet expressed interest in or had an opportunity to receive the curriculum. Evaluation staff convened telephone meetings and conducted in-person visits with school administrators and staff to assess the level of interest and commitment to the evaluation, including the possibility of assignment to the control condition. During these conversations, many school administrators and staff expressed a strong interest in participating in a rigorous evaluation to test the effectiveness of an adapted version of *Reducing the Risk*.

Evaluation team members invited 15 high schools located in the region served by the two district health departments to participate in the evaluation; 13 of these 15 schools—located in eight counties (Hardin, LaRue, Logan, Marion, Metcalfe, Nelson, Simpson, and Warren)—agreed to participate in the study. The schools were randomly assigned in summer 2013 and again in summer 2014 to either a treatment group that offered *Reducing the Risk* or to a control group that offered the school's standard health curriculum; both were delivered in a mandatory health class offered to students primarily in 9th and 10th grade. Six study schools were selected for the treatment group and offered an adapted version of *Reducing the Risk* in the 2013–2014 academic year. Schools were randomized again prior to the start of the 2014–2015 academic year; seven study schools were selected for the treatment group and offered *Reducing the Risk* in the second year of the evaluation. Because of these two rounds of randomization, some schools were assigned to the treatment group in both academic years covered by the evaluation, some were assigned to the control group both years, and some were assigned to the treatment group in one year and the control group in the other year. Because *Reducing the Risk* was offered as part of a mandatory health class that students took only once during high school, students in the control group were not offered the program in years their schools were instead assigned to the treatment group. Chapter III provides more details about the research status of the 13 schools during the two academic years included in the evaluation.

Within each of the 13 schools, the youth who attended their required health class in fall 2013 or 2014 were eligible for the study. More than 2,000 youth in fall 2013 and fall 2014 received parental consent for study participation, 71 percent of those eligible.[3] Although the health educators used PREP funding to deliver *Reducing the Risk* at study schools in multiple cycles throughout the two academic years (2013–2014 and 2014–2015), the Kentucky study is focused on the implementation of the curriculum during the initial cycle of each academic year

[3] Parental consent for student participation in the *Reducing the Risk* program was a distinct process from study consent and was handled by the schools (not the evaluation team). In the ten schools assigned to treatment status in at least one year, schools required either passive (or "opt out") parental consent (at nine schools) or active ("opt in") parental consent (at one school) for their children to participate in the *Reducing the Risk* curriculum. Health teachers at treatment schools reported that only a very small number of parents did not allow their children to participate in *Reducing the Risk*. In addition, almost all (99 percent) of the students in the study sample attended at least one *Reducing the Risk* session (based on fall 2013 and 2014 service use logs completed by health educators). This suggests that almost all parents who consented to their children participating in the study also allowed them to participate in the *Reducing the Risk* classes.

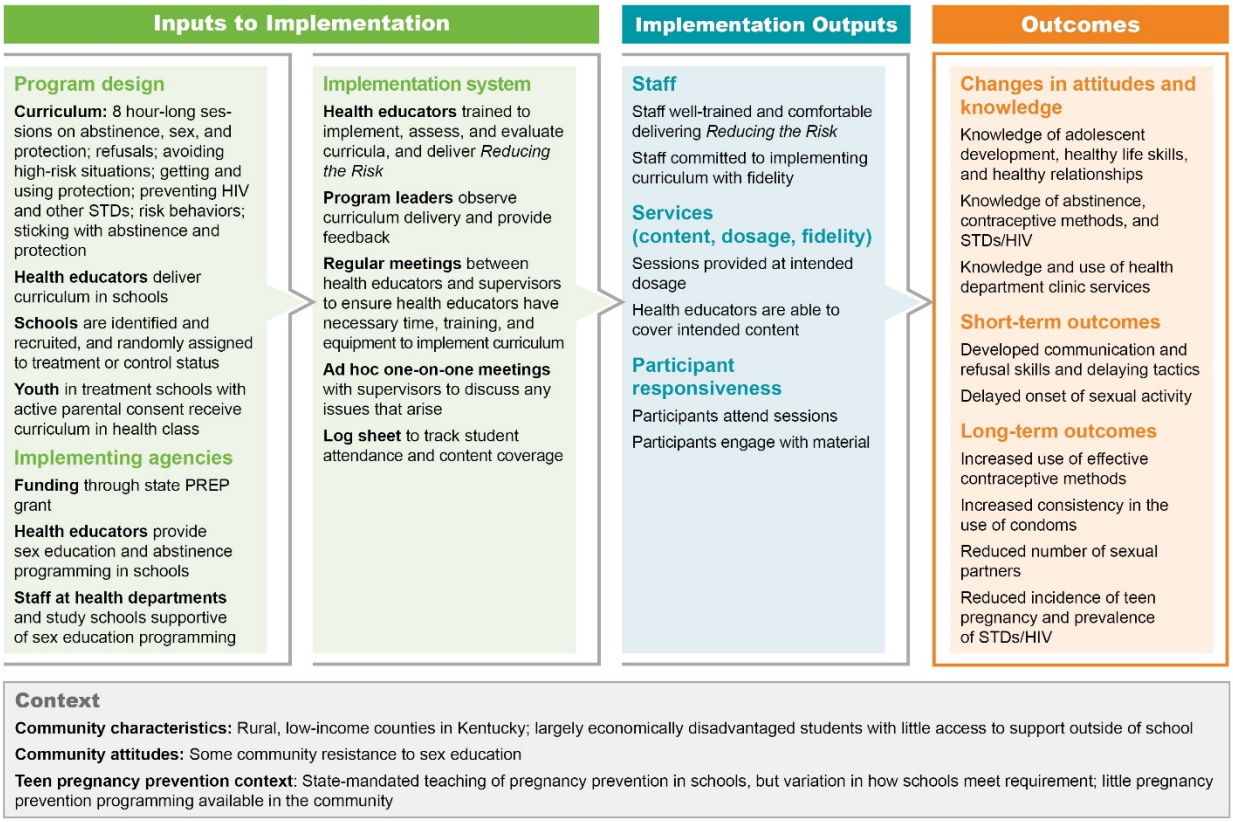
(occurring in fall 2013 and fall 2014), as well as the impact of the curriculum on students who received it during these fall implementation cycles.

The evaluation's primary objectives are to carefully document the implementation of the Barren River and Lincoln Trail Districts' adapted version of *Reducing the Risk* and then test the effectiveness of the adapted curriculum as implemented in Kentucky on sexual initiation, rates of unprotected sex, and other sexual risk behaviors. The study of the implementation of *Reducing the Risk* is guided by the conceptual framework for the PREP in-depth implementation study (presented in Appendix Figure A.1), which defines the key dimensions of program implementation and illustrates the hypothesized relationships among them.[4] The primary implementation hypothesis behind *Reducing the Risk*, as planned in rural Kentucky, is that the eight-hour curriculum, delivered in recruited schools by trained health educators from health departments with sufficient funding and support, will yield: (1) committed and comfortable health educators; (2) coverage of the intended dosage and content; and (3) high youth attendance and engagement. Ultimately, it is expected that youth participating in the curriculum will increase their knowledge of healthy behaviors and consequences, delay sexual activity if they are not yet sexually active, and increase contraceptive use if they are sexually active—thereby leading to reduced incidence of teen pregnancy and prevalence of sexually transmitted diseases (STDs)/HIV (Figure I.2).

The study of the implementation of *Reducing the Risk* is being conducted in conjunction with a rigorous impact study of the program based on a random assignment research design. The impact study will add to the evidence base on *Reducing the Risk* in two key ways. First, it will test whether a shortened version of the curriculum can be effective. Second, it will test whether the curriculum is effective when provided in relatively low-income, mostly rural counties to economically disadvantaged students who have previously received little to no pregnancy prevention programming. Impact reports, scheduled for release in 2016 and 2017, will examine the effects of the program on student outcomes one and two years after participation.

[4] The implementation framework focuses on the importance of understanding and documenting (1) factors that influence a program's implementation, and (2) key aspects of program implementation that are crucial for interpreting intervention impacts. The development of the implementation framework was guided by the implementation factors defined by Damschroder and Hagedorn (2011), Durlak and DuPre (2008), Fixsen et al. (2009), and Berkel et al. (2011).

Figure I.2. Implementation framework for *Reducing the Risk* in rural Kentucky



The findings presented in this report are based primarily on data that members of the PREP in-depth implementation study team collected during site visits conducted in April and November 2014.[5] Before, during, and after the site visits, the study team collected data from the following sources:

- The fifth edition of the *Reducing the Risk* curriculum and Barren River and Lincoln Trail District lesson plans
- One telephone interview with the state PREP director
- One telephone and three in-person interviews with the Barren River and Lincoln Trail District Health Department program directors
- One in-person and five group interviews with Barren River and Lincoln Trail District health educators (N = 14)

[5] The in-depth implementation study team could not conduct a site visit in fall 2013, when programming for study participants was first offered, because the Office of Management and Budget had not provided clearance for the PREP implementation study data collection instruments. Clearance was obtained in late 2013, after the initial round of programming had been delivered.

- Eleven telephone, five in-person, and three group interviews with school staff (physical education and health teachers, youth services center coordinators , and guidance counselor) (N = 21)
- In-person interviews with two community stakeholders (a Lincoln Trail District Health Department outreach director and a mental health center prevention director)
- Focus group discussions with three groups of participating students at three treatment schools (N = 33)
- Observations of 10 *Reducing the Risk* classes to collect qualitative and quantitative implementation data in the field
- A self-administered survey of eight health educators involved in *Reducing the Risk* implementation (89 percent response rate)
- Service use data collected by health educators on dosage and content that participating students received in 48 *Reducing the Risk* classes in fall 2013 and 2014
- A self-administered baseline survey of 2,190 students regarding demographics, education, sexual activity, and knowledge before participation in the intervention

Evaluation team members coded the data using qualitative data analysis software. Site visitors then examined the coded data to identify emergent themes. They then triangulated across all qualitative and quantitative data sources to develop the findings included in this report. Appendix B provides a detailed description of the data collection and analysis methods used for this report.

This report presents findings from the implementation of an adapted version of *Reducing the Risk* in rural Kentucky in the fall semesters of the 2013–2014 and 2014–2015 academic years. First, the report describes the environment in the Barren River and Lincoln Trail Districts. Second, the report provides detail on the adapted curriculum and the plans for its implementation. Third, it describes the supports established to help health educators as they implemented the curriculum. Fourth, it describes adherence to the implementation plan, as well as the level of youth engagement and receptiveness to the curriculum. The report concludes by summarizing the main findings from the implementation of *Reducing the Risk* in Barren River and Lincoln Trail.

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II. THE ENVIRONMENT SURROUNDING YOUTH IN CENTRAL AND SOUTHWESTERN KENTUCKY

The Barren River and Lincoln Trail District Health Departments are implementing an adapted version of *Reducing the Risk* in high schools in a low-income, largely rural area of central and southwestern Kentucky. Health educators from these health departments had been providing pregnancy prevention and adolescent health programming to students in these schools for a number of years before the study period. According to health teachers and youth services center coordinators at the study schools, school administrators welcome the delivery of teen pregnancy prevention programming provided by these health educators. Health department staff and most health teachers reported that many teachers are not comfortable delivering information on contraception and statistics on STDs/HIV, and parents do not discuss such topics with their children. Furthermore, programming that stresses contraception is not available in the community, apart from the local health departments' services.

Study schools are located in low-income, largely rural areas; many students are disadvantaged

The counties in which study schools are located are in a largely rural part of Kentucky and are relatively poor (Table II.1). The largest city in the region is Bowling Green (population of 61,488)[6]; 3 of the 13 study schools are located in or close to this city. The remaining 10 schools are located in or near smaller towns. The counties' average poverty rate is 17.3 percent, above the average national rate of 14.9 percent.[7] The median income in the region—$43,816 in 2013—is almost 20 percent below the national average.[8]

Students in the study schools are socioeconomically disadvantaged. Fifty percent of the youth in these schools are eligible for free or reduced-price lunch (Table II.1), compared with a national average of 40 percent of youth in secondary schools. Similarly, only 46 percent of youth in the study reported living with both their biological parents (Table II.2), compared with 66 percent among all children ages 12 to 17 nationally.[9] Almost three-quarters (72 percent) of the youth were white; most others were African American (9 percent) or Hispanic (10 percent) (Table II.2). Most students were just entering high school, with 82 percent in 9th grade at study enrollment.

[6] Population estimate as of July 1, 2013. Data available at http://quickfacts.census.gov.

[7] Data available at http://quickfacts.census.gov.

[8] Data available at http://quickfacts.census.gov.

[9] Data available at http://www.census.gov/hhes/families/data/cps2014C.html.

Table II.1. Characteristics of study schools

	Health district	Number of 9th grade students	Percentage eligible for free or reduced-price lunch
Treatment schools in 2013 and 2014			
School A	Barren River	237[a]	50
School B	Barren River	259	60
School C	Lincoln Trail	173	50
Treatment schools in 2013; control schools in 2014			
School D	Barren River	79	63
School E	Lincoln Trail	240	51
School F	Lincoln Trail	389	48
Control schools in 2013; treatment schools in 2014			
School G	Barren River	299	38
School H	Barren River	120	65
School I	Lincoln Trail	499	36
School J	Lincoln Trail	242	35
Control schools in 2013 and 2014			
School K	Barren River	313	48
School L	Barren River	272	73
School M	Lincoln Trail	189	58
Total		**3,311**	**50**

Source: 2012–2013 school year data from the National Center for Education Statistics.

[a] School A offered programming to 10th-grade students; in 2012–2013, 226 10th-grade students were enrolled in the school.

Most students were not sexually active when they entered the study. At study enrollment, slightly more than one-third (37 percent) reported that they were in a dating relationship, while 21 percent reported ever having sexual intercourse (Table II.2). The rate of self-reported sexual activity is somewhat lower in this sample than the national average of 30 percent reported by students in 9th grade in the 2013 Youth Risk Behavior Survey (Centers for Disease Control and Prevention 2014).

Although these students reported moderately low levels of sexual activity at the time of study enrollment, the eight counties in which these students live have teen birth rates that are substantially higher than the national average. In 2012, the average teen birth rate in these counties combined was 45.9 births per 1,000 women ages 15 to 19, compared with a national average of 29.4 births per 1,000 women in this age range.[10] The high teen birth rates suggest that higher rates of sexual risk behavior are likely to emerge among these teens in coming years.

Information from program staff and teachers reinforced the picture of a youth population that was disadvantaged and at risk of teen pregnancy. According to the state PREP director and several teachers, although some students come from stable and supportive families, others lack family support or live in chaotic home environments. Interviewed health teachers described an environment in which limited parental involvement put some students at elevated risk. One teacher commented that many of the students "come from one-parent households, so are left

[10] Data available at http://quickfacts.census.gov.

home unattended, left to make decisions on their own." Another health teacher believed this "poor home life" led to students "wanting to be loved by someone" and "falling victim" to risky sexual behavior. Several health teachers described an environment in which teenage pregnancy seemed to be the norm, at least for the more disadvantaged families, because there is not a lot of adult supervision. According to one teacher, "A lot of [girls] have moms who were teen moms themselves, and they repeat the pattern." Another teacher said the cycle of teen pregnancy has led to youth being "tied down" in the community "instead of finally being able to get above…poverty."

Table II.2. Baseline characteristics of participating students in study schools

Measure	Percentage
Demographics	
Age	
14 or younger	67
15	27
16 or older	6
Race/ethnicity	
White, Non-Hispanic	72
African American, Non-Hispanic	9
Hispanic	10
Other	9
Female	50
Education	
Grade at study enrollment	
9th	82
10th	15
11th and 12th	3
Family relationships[a]	
Lives with biological mother	83
Lives with biological father	53
Lives with biological mother and father	46
Biological parents are married	43
Romantic relationships and risk behaviors	
Currently in a dating relationship	37
Ever had sexual intercourse	21
Smoked in past 30 days	16
Drank alcohol in past 30 days	22
Used marijuana in past 30 days	12
Sample size[b]	**2,190**

Source: Baseline survey administered in fall 2013 and fall 2014.

[a] Students can be in more than one category.

[b] Reported sample size is the number of students who completed the baseline survey. The exact sample size for each baseline measure might be slightly lower due to item nonresponse.

Schools in the region provide varying levels of pregnancy prevention programming to students

The Kentucky Department of Education mandates the teaching of sex education in middle and high schools but does not require a specific curriculum (Kentucky Department of Education 2013). The state requirements specify that middle and high schools should provide information on (1) the reproductive system; (2) the importance of assuming responsibility for sexual and reproductive behaviors; (3) the benefits of abstinence in preventing pregnancy and STDs/HIV and maintaining self-esteem; and (4) the strategies for remaining abstinent (for example, using refusal skills and talking with parents, doctors, and counselors).

Because each school district is self-governed, districts—and even individual schools within districts—independently decide how they will meet the state requirements. Some schools accept the assistance from the Barren River and Lincoln Trail District Health Departments and allow health educators to deliver programming on abstinence, STD prevention, and birth control methods in community middle and high schools. In other schools, health teachers deliver this programming. Health educators provide abstinence education to students at some area middle schools. Barren River health educators offer *Postponing Sexual Involvement* in 11 of the 12 middle schools that feed into the seven study high schools in their district. Lincoln Trail health educators offer *Choosing the Best* in one of the 10 feeder middle schools in their district. According to health teachers in the study schools, the remaining feeder middle schools did not provide abstinence education. Health educators (and nurse educators in the Lincoln Trail District) also provide two days of sex education in some of the study high schools that do not receive *Reducing the Risk*; both health departments have provided such programming in area schools for at least a decade. In addition, they teach about both healthy relationships and bullying at elementary, middle, and high schools.

Study schools provide students with a mix of support services; outside of school, youth services are limited

Study youth have access to some support services their schools provide. At each of the study schools, youth services center coordinators provide dedicated assistance to at-risk youth such as those who live with a single parent or have little financial support. Coordinators provide disadvantaged students with referrals to health and social services, career exploration and development opportunities, summer and part-time job development, substance abuse education and counseling, and family crisis and mental health counseling. In addition, coordinators provide students with food, resources, and financial support. Coordinators also reach out to the larger student population and schedule speakers and programs to raise students' drug- and alcohol-prevention awareness (Kentucky Division of Family Resource and Youth Services Centers 2013).

The study schools offer students the opportunity to participate in after-school activities, such as sports, clubs, and performing arts; however, student participation is limited by the lack of available transportation. Teachers reported that bus service is available only immediately after school and many students do not have other forms of transportation. This prevents many students who live substantial distances from the schools from taking part in after-school activities.

Outside of school-based activities, health educators and school staff reported that the largely rural communities do not offer many youth activities or support services. According to those interviewed during site visits, if services and supports are available, they are provided through area churches. According to one health educator, students from small towns in the Barren River District have supportive communities in which the youth are involved in the churches and community members are involved in one another's lives. One teacher in the Lincoln Trail District reported that students tend to be involved in church youth groups, and a youth services center coordinator in the Lincoln Trail District said churches around Elizabethtown provide youth with abstinence programming.

In addition, few resources are available in the community to support teen pregnancy prevention. The Barren River and Lincoln Trail District Health Departments and their associated county-level health departments offer clinic services to sexually active teens, as well as teens who are pregnant and parenting. One such service is the "brown bag" program for free condom distribution; students can come to the clinic and pick up a few condoms that are dispensed in discrete, unlabeled brown bags. The two health departments also provide information on their websites about preventing teen pregnancy and STDs/HIV. Only one of the eight health educators who responded to the staff survey agreed that other programs exist in the community that address topics that are the same or similar to *Reducing the Risk*. Students in the focus groups and interviewed staff at the schools were unaware of any abstinence or sex education programs other than those offered by the health department. One student said, "If you want to count my dad talking about it a lot with me, that's about it." A youth services center coordinator said, "A lot of churches do abstinence programs, but it is individualized to the churches, and I don't know what programs they use."

Although few dedicated community-based services exist for pregnancy prevention, several services are available for pregnant and parenting teens. The Lincoln Trail and Barren River District Health Departments both offer the Health Access Nurturing Development Service, which uses a home visiting model to deliver parenting skills and help new parents with health services. Several health department staff also mentioned a pregnancy resource center—Clarity Solutions for Women in Elizabethtown—which provides services to pregnant and parenting youth. According to its website (http://clarityky.com), the Clarity center offers pregnancy and parenting education and services, a men's education program, a maternal resource program, education on sexual health, confidential support and mentoring, and support after abortion procedures. Several pregnancy resource centers also operate in the Barren River District.

Student reports on baseline surveys confirm the limited availability of sex education and related services to area youth (Table II.3). In the year before the intervention, relatively low percentages of students reported attending classes or sessions on STDs (33 percent); abstinence (24 percent); relationships, dating, or marriage (17 percent); birth control methods (16 percent); and where to get birth control (9 percent). Most of the students who received this information reported that they did so in a middle school health class.

Program and school staff reported some community resistance to sex education for high school–age youth

According to interviewed health department staff and health teachers, many parents in the community do not talk to their children about sexuality and contraception. At the same time, students are not comfortable talking to their parents about sex. Health teachers reported that there is some denial of teen sexual activity among parents and the broader community. One health teacher commented, "You get into a mindset in this community that [teenage sexual activity] is not something that is talked about—it is ignored and not addressed. The kids don't feel comfortable to go behind their parents' back to get birth control, but they are still having sex, so they are getting pregnant." Another health teacher said, "I think the parents are still ignorant [about sex education] and don't want their kids exposed to it. [They] feel like they are supporting sex" if their children receive sex education in school. In addition, according to one health teacher, "there would be an uproar" from parents if they referred to *Reducing the Risk* as sex education. Consequently, the health departments emphasize the abstinence focus of their programming.

Without much previous conversation or programming about sex education, students in the participating schools reported little knowledge about contraceptive use and effectiveness (Table II.3). On baseline surveys, students reported relatively low levels of knowledge about the effectiveness of birth control methods. At study enrollment, only 52 percent were aware that condoms reduced the risk of pregnancy "a lot" (Table II.3). Only 37 percent were aware that condoms reduced the rate of HIV/AIDS "a lot." Only about half knew that birth control pills were effective in reducing the risk of pregnancy (Table II.3). Fewer than 4 in 10 were aware that birth control pills do not reduce the risk of HIV/AIDS (Table II.3).

School staff recognize that teen pregnancy prevention programming can help improve knowledge and decrease risky behavior

Given the lack of available teen pregnancy prevention programming in the community, school and health department staff reported that school administrations recognize the need to address teen pregnancy in the classroom. The administrations generally support bringing in health educators to provide programming such as *Reducing the Risk*. In general, the health departments and schools work together informally (that is, without a memorandum of understanding) to ensure programming delivery.[11] At one school, when there was a change in the county superintendent and school principal, a health teacher reported that previous resistance to sex education evaporated. School-based decision-making councils—composed of parents, teachers, and a school administrator—are responsible for approving school programming provided by staff from outside organizations. According to the Lincoln Trail District health educators, these councils had previously resisted the implementation of comprehensive pregnancy prevention programming in schools but are now more supportive of such programming. The Lincoln Trail program director speculated this was because of the larger societal trend of increasing conversation about sex and acceptance of programming in schools.

[11] District- and school-level administrators for all study schools signed memoranda of understanding with Mathematica, agreeing to participate in the PREP evaluation in Kentucky.

Table II.3. Participating students' knowledge related to contraceptive effectiveness and risk of pregnancy and STDs/HIV

Measure	Percentage
In the past year, attended classes/sessions on:	
STDs	33
Abstinence from sex	24
Relationships, dating, or marriage	17
Methods of birth control	16
Where to get birth control	9
Any of the above	42
Condoms decrease the risk of pregnancy	
A little or not at all	23
A lot	52
Completely	5
Don't know	19
Condoms decrease the risk of HIV/AIDS	
A little or not at all	28
A lot	37
Completely	6
Don't know	29
Birth control pills decrease the risk of pregnancy	
A little or not at all	24
A lot	45
Completely	6
Don't know	25
Birth control pills decrease the risk of HIV/AIDS	
Not at all	38
A little	13
A lot or completely	11
Don't know	39
Sample size[a]	**2,190**

Source: Baseline survey administered in fall 2013 and fall 2014.

[a] Reported sample size is the number of students who completed the baseline survey. The exact sample size for each baseline measure might be slightly lower due to item nonresponse.

Health and physical education teachers believed students needed to learn about contraception and STDs and appreciated provision of this information by qualified facilitators from outside organizations. The teachers reported that they were happy to have the health educators, who they felt were well trained to cover the material, present factual information to the students. One teacher commented that the health educator is "probably better at [teaching sex education] than me. When she's doing the class, I sit in there, I'll write notes, statistics and information that maybe I wasn't aware of, so I can incorporate it into later lessons [for the broader health education class]. I'm an active participant. I'll ask the tough questions that I think the kids may want to ask but may not be comfortable asking."

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III. DEVELOPMENT OF THE ADAPTED *REDUCING THE RISK* CURRICULUM AND IMPLEMENTATION PLAN

The Barren River and Lincoln Trail District Health Departments planned to implement an adapted version of the *Reducing the Risk* curriculum. Before implementation, several health educators in the two health departments adapted the original curriculum to fit into the eight hours allotted by area high schools to deliver the program and to better meet the needs of the youth living in the region. Health educators planned to deliver this adapted curriculum in treatment schools in the 2013–2014 and 2014–2015 academic years. During this period, students in control schools received substantially less content on pregnancy prevention than students did in *Reducing the Risk* schools.

The *Reducing the Risk* curriculum is focused on developing skills to prevent pregnancy and STDs/HIV

Reducing the Risk is a classroom-based comprehensive sex education curriculum designed to prevent teen pregnancy, STDs/HIV, and associated sexual risk behaviors. The curriculum was one of the first classroom-based curricula to move beyond the traditional approach of providing students with basic factual information on human reproduction and anatomy. It takes a more engaged and interactive approach and supplements classroom instruction with more interactive skill-building activities and role-play exercises. Students actively participate in program activities designed to improve communication, refusal skills, and delaying tactics. *Reducing the Risk* identifies abstinence as the most effective way to avoid STDs and unintended pregnancy, but also provides information on condoms and contraceptive methods.

The current fifth edition of the *Reducing the Risk* curriculum is divided into sixteen 45-minute sessions, for a total of 12 instructional hours. The lesson topics cover abstinence, refusal skills, delaying tactics, obtaining and using contraception, preventing STDs/HIV, and risk behaviors. The sessions use lectures, demonstrations, scripted and semi-scripted role-play exercises, quizzes, and small- and large-group discussions to teach youth about this content. In scripted role-play exercises, two people read from a script that has predefined names and text. In semi-scripted role-plays, one person reads from a script and the second person improvises. Most sessions begin with a review of the topics covered in the previous session and end with a lesson summary.

ETR Associates, the curriculum publisher, expects that after students participate in the curriculum and practice refusal skills and delay tactics, they will be able to:

1. Evaluate the risks and consequences of becoming a teen parent or becoming infected with STDs/HIV,
2. Recognize that they can avoid pregnancy and STDs/HIV only through abstinence or using contraception,
3. Understand the importance of using medically accurate information about conception to guide protection decisions to help avoid teen pregnancy and STDs/HIV, and

4. Demonstrate effective communication skills for remaining abstinent and avoiding unprotected sex (Barth 2011).

The *Reducing the Risk* publisher allows tailoring of activities

ETR recognizes the need to tailor activities to meet school guidelines or to make them more relevant to students. Regarding the *Reducing the Risk* curriculum, ETR encourages teachers to modify role-play dialogue when necessary to make the exercises more applicable to students' regions or cultures (Barth 2011). Teachers can also use alternative approaches to implement role-plays—for example, allowing students to write role-plays as homework assignments and asking students to develop and act out role-plays that cover the lesson topic (Barth 2011). In addition, ETR allows implementing organizations and facilitators to modify the curriculum content on contraceptive use to fit within school district guidelines and policies about discussing and demonstrating methods of protection from pregnancy and STDs (Barth 2011). Teachers do not have to demonstrate proper condom use if it is against school policy. If it is impractical or infeasible for students to visit a clinic, as recommended in the curriculum, the publisher recommends that teachers invite clinic staff to speak in class about how a clinic operates.

The *Reducing the Risk* curriculum was adapted to fit the local context

The Barren River and Lincoln Trail District Health Departments found that effectively implementing *Reducing the Risk* required several adaptations of the full curriculum to fit the local context. To accommodate the schedules of the high schools in their service areas, Barren River and Lincoln Trail health educators adapted their *Reducing the Risk* lesson plans to fit within the eight hours of instruction time the local high schools offered them. The health educators also tailored the content to address the specific needs of the youth in their largely rural, low-income service area. Appendix Table C.1 provides a crosswalk of the original *Reducing the Risk* curriculum and the health departments' lesson plans. As with the original version of the curriculum, the health departments' sessions use lectures, demonstrations, role-play, quizzes, and small- and large-group discussions to teach youth about this content. Woven into the eight sessions are three PREP adulthood preparation topics (a requirement of the PREP grant): adolescent development, healthy life skills, and healthy relationships. Because the original *Reducing the Risk* curriculum already covered the topics, the health departments did not create separate activities to address the topics.

As with the original curriculum, the version implemented in Barren River and Lincoln Trail Districts aims to increase knowledge related to healthy behaviors and consequences of risky behaviors and improve youths' refusal skills and delaying tactics. Health educators expect that after the students receive the curriculum, there will be delayed sexual activity among youth who are not yet sexually active and increased contraceptive use among those who are. In addition, the state PREP director hopes students' participation in the curriculum will lead to a decrease in other risky behaviors—such as drug and alcohol use—and a reduction in bullying, harassment, and sexual assault, although the curriculum does not address these issues directly.

The lesson plans implemented in the Barren River and Lincoln Trail Districts were developed by health educators at the two health departments before the start of the evaluation. Barren River health educators have implemented an adapted version of *Reducing the Risk* in local high schools over the past two decades; the curriculum adaptation was developed and

refined over that period to best meet the interests and needs of the schools in the community. Lincoln Trail District health educators developed and started delivering their own adapted version of the curriculum after receiving PREP funding in 2011.[12]

The adapted lesson plans emphasize abstinence, using contraception if sexually active, and developing skills to avoid risky situations (Table III.1). Barren River District health educators use slides to present all of the material, whereas Lincoln Trail District health educators only use slides to present information on STDs. In many of the lessons, health educators in both health departments also distribute handouts to students.

Table III.1. Overview of adapted *Reducing the Risk* lessons and objectives and Barren River and Lincoln Trail lesson plan variations

Lesson	Objectives	Barren River District	Lincoln Trail District
1. Abstinence, Sex, and Protection	Introduce curriculum, demonstrate refusal skills to help prevent pregnancy, and discuss advantages of abstinence and risks teens face when they engage in unprotected sex	• One-and-a-half sessions with 8 activities (lectures, role-plays, and group discussions) • Discuss pregnancy prevention, HIV prevention, abstinence, and communication skills	• One session with 4 activities (lecture, role-plays, group discussion, and video) • Discuss pregnancy prevention and abstinence
2. Refusals	Introduce verbal and nonverbal communication skills and demonstrate skills important to abstaining and using protection	• Half a session with 5 activities (lecture, role-plays, and group discussions) • Discuss components of a successful relationship, beliefs about sex and protection, communication skills, and refusal skills	• One session with 5 activities (lecture, role-plays, group discussion, and quiz) • Discuss components of a successful relationship, beliefs about sex and protection, communication skills, and refusal skills
3. Avoiding High-Risk Situations	Introduce delay tactics, identify and practice handling situations that can lead to unwanted or unprotected sex	• One session with 7 activities (lecture, role-plays, group discussions, and quiz) • Discuss refusal skills, delay tactics, situations that can lead to unwanted or unprotected sex, and how to protect oneself from pregnancy or STDs/HIV	• One session with 4 activities (lecture and group discussions) • Discuss situations that can lead to unwanted or unprotected sex and how to protect oneself from pregnancy or STDs/HIV
4. Getting and Using Protection I	Provide information on methods of protection against unplanned pregnancy and STDs	• One session with 3 activities (lecture, demonstration, and group discussion) • Discuss types of contraception and which methods are best to avoid pregnancy and STDs/HIV	• One session with 2 activities (lecture and video) • Discuss types and cost of contraception

[12] The Barren River and Lincoln Trail health educators did not collaborate with ETR Associates when adapting the curriculum. Currently, ETR encourages sites wishing to adapt its programs to work with ETR on the process. New guidelines around adaptations are available at http://www.etr.org/ebi/programs/adaptations-policy/. ETR also provides specific adaptation guidelines for *Reducing the Risk* (ETR Associates 2015).

Lesson	Objectives	Barren River District	Lincoln Trail District
5. Getting and Using Protection II	Discuss where to obtain protection and which methods best prevent pregnancy and STDs/HIV	• One session with 4 activities (lecture, role-plays, and group discussion) • Discuss clinic visits, myths and truths related to contraception, and how to handle difficult situations	• One session with 4 activities (lecture and group discussion) • Discuss clinic visits, cost of contraception, which methods are best to avoid pregnancy, and myths and truths related to contraception
6. Preventing HIV and Other STDs	Explore information about transmission and prevention of STDs/HIV	• One session with 1 activity (lecture) • Discuss STDs/HIV transmission and prevention	• One session with 3 activities (lecture, demonstration, group discussion) • Discuss prevention methods, STDs/HIV transmission and prevention, and how HIV would change life
7. Risk Behaviors	Apply knowledge about HIV transmission and identify which behaviors put students at greatest risk for exposure to STDs/HIV	• One session with 2 activities (lecture, group discussion) • Discuss HIV/AIDS transmission and prevention methods, myths and facts about HIV, risk behaviors and statistics on HIV risk	• One session with 5 activities (role-plays, health educator-led and group discussions) • Discuss how HIV would change life, risk behaviors, statistics on HIV risk, and condom use
8. Sticking with Abstinence and Protection	Discuss skills learned for abstinence or avoiding unprotected sex	• One session with 2 activities (group discussions) • Discuss what students have learned about why to delay sex	• One session with 4 activities (role-plays, group discussions) • Discuss refusal skills and delay tactics, why to delay sex, and what students have learned

Source: Barren River and Lincoln Trail District Health Department *Reducing the Risk* lesson plans.

Note: The Barren River and Lincoln Trail District Health Department lessons address three adulthood preparation subjects—adolescent development, healthy life skills, and healthy relationships. See Appendix Table C.1 for more details.

Health departments modified the curriculum to fit into eight hours and meet local teens' needs

According to the program directors at the two district health departments, the health educators who created the *Reducing the Risk* lesson plans used in the study schools made decisions on how to shorten the curriculum based on: (1) their prior experience with the curriculum, (2) the extent to which topics are covered in other programs the students receive, and (3) their assessment of the students' risk levels. For several topics, such as abstinence and STDs/HIV, Barren River and Lincoln Trail health educators adapted the lessons in slightly different manners, as discussed below.

Less time spent on content reviews. Health educators in both health districts spend less time than they do in the full *Reducing the Risk* curriculum reviewing content from previous lessons and summarizing each lesson's content at the end of the class. The lesson plans either do not contain or compress the content reviews at the start and end of the classes because the time

between *Reducing the Risk* classes is typically short (classes are generally held on consecutive days or twice per week) and the health educators believed the content would still be fresh in students' minds.

Less time spent focused exclusively on abstinence. The original *Reducing the Risk* curriculum emphasizes abstinence in the first two lessons and mentions it throughout the rest of the curriculum. The Barren River and Lincoln Trail District Health Department lesson plans cut back somewhat on the time spent exclusively on abstinence. In the first lesson of the adapted curriculum, the lesson plans emphasize abstinence, as specified in the original curriculum. However, although the Barren River District Health Department devotes part of the second lesson to discussing abstinence, the Lincoln Trail District Health Department does not. During the remaining sessions, both lesson plans embed discussion around the importance of remaining abstinent.

Less time spent on HIV in some study schools. Lincoln Trail District health educators do not separate discussions of HIV facts and risk behaviors and those of STD facts and risk behaviors, as called for in the original *Reducing the Risk* curriculum. Instead, they discuss them in a combined lesson. Health department staff indicated that they made this adjustment because, on the basis of their review of available regional data, they concluded that students in their service area are at greater risk for STDs such as chlamydia and gonorrhea than HIV, so a full session on HIV is not warranted. The Barren River lesson plan covers HIV as specified in the original curriculum, devoting one full lesson to discussing HIV statistics, symptoms, treatment, and risk behaviors. In a separate lesson, Barren River discusses other STDs, such as chlamydia and gonorrhea.

Examples of *Reducing the Risk* Lessons

Lesson 2. Refusals (Lincoln Trail District)

At the start of class, the health educator reviews material on abstinence and successful relationships. Then, the health educator discusses verbal and nonverbal types of effective refusals. Students participate in role-play exercises to demonstrate refusal skills. At the end of class, students take a quiz on refusal skills and discuss answers.

Lesson 5. Getting and Using Protection II (Barren River District)

At the start of class, the health educator discusses a typical clinic visit. Students then discuss myths and truths about protection with the health educator. After this, students work in small groups to discuss and decide how to handle difficult situations (to avoid unprotected or unwanted sex). Finally, students participate in semi-scripted role-play exercises to demonstrate how to handle difficult situations.

Fewer role-plays. Barren River and Lincoln Trail District Health Departments omitted role-plays that the health educators found confusing, repetitive, or dated.[13] In particular, health educators limited the number of activities related to refusal skills or delay tactics; these role-plays were delivered in one session in Lincoln Trail and across several sessions in Barren River.

Modified role-plays. The two health departments followed ETR's recommendation in modifying role-plays and other activities as necessary. Health educators adapted how some role-

[13] ETR recommends not removing role-plays when adapting the *Reducing the Risk* curriculum. Of the 17 role-plays in the curriculum, the Barren River lesson plan includes nine role-plays and the Lincoln Trail lesson plan includes seven.

plays are delivered in an attempt to keep the students engaged in the material. For example, rather than acting out a semi-scripted role-play, students might be asked to write down their responses, talk about the role-play in small groups, or discuss their responses in a larger group. Although the delivery method of the role-play was adapted, the original scripts remained intact.

Tailored content to local circumstances. Barren River and Lincoln Trail District Health Departments tailored content relating to contraceptive use on the basis of local circumstances. These adjustments were in keeping with the flexibility that the curriculum publisher envisioned for those implementing *Reducing the Risk*. In particular, participants do not visit a clinic as part of the curriculum. Instead, during class, health educators or health clinic staff describe services available at local health clinics. For example, they tell students about the brown bag program at the clinics.

Health educators worked with school staff to tailor the schedule for program delivery to fit each school's needs

The health departments planned to deliver *Reducing the Risk* to all students scheduled to receive health classes in treatment schools in the 2013–2014 and 2014–2015 academic years. Health classes were generally offered to 9th grade students; however, older students received the classes if they had not yet completed their health class requirement for graduation. Health educators worked with youth services center coordinators and health teachers to coordinate the logistics of curriculum delivery (that is, how often per week and when in fall 2013 and fall 2014 *Reducing the Risk* could be delivered in the health classes). Depending on the school's schedule and the health teacher's preference, health educators planned to deliver the eight sessions in various ways. They planned to deliver the program in the treatment schools during eight class periods (Table III.2). Depending on the school, health educators planned to deliver the curriculum either across eight consecutive school days, once a week for eight weeks, or twice a week for four weeks. Health educators planned to deliver the curriculum across multiple class periods throughout the days that they were in the schools. Barren River District health educators planned to deliver all eight lessons. Lincoln Trail District health educators planned to deliver six of the lessons, and nurse educators who worked in the health department clinics planned to deliver the two lessons on obtaining and using protection. The health teachers planned to remain in the classroom during curriculum delivery to help with classroom management.

Students at control schools received substantially less sex education content than did students in *Reducing the Risk* schools

Students enrolled in schools that were randomly assigned to the control group received less sex education instruction than students in schools assigned to the *Reducing the Risk* group. Control schools typically offered one of two types of sex education instruction for their students: (1) two class periods taught by a health educator from the health department, or (2) four to nine class periods taught by a health teacher using a sex education curriculum the health teachers had developed themselves (Table III.2). One school in the study offered no sex education in the year it was assigned to the control group. On average, the control schools offered four class periods of sex education instruction, half the number of sessions on sex education offered in *Reducing the Risk* schools (Table III.3).

Table III.2. *Reducing the Risk* schedule and control condition at study schools

	Health district	Frequency of *Reducing the Risk*	Average *Reducing the Risk* class length	Control condition
Treatment schools in 2013 and 2014				
School A	Barren River	2 times per week for 4 weeks	55 minutes	n.a.
School B	Barren River	1 time per week for 8 weeks	57 minutes	n.a.
School C	Lincoln Trail	8 consecutive days	55 minutes	n.a.
Treatment schools in 2013; control schools in 2014				
School D	Barren River	1 time per week for 8 weeks	55 minutes	No sex education offered
School E	Lincoln Trail	8 consecutive days	55 minutes	Health educator provides 2 classes on contraception and STDs
School F	Lincoln Trail	8 consecutive days	72 minutes	Health educator provides 2 classes on birth control methods and STDs
Control schools in 2013; treatment schools in 2014				
School G	Barren River	5 days over two weeks	74 minutes	Health educator provides 2 classes on contraception and STDs
School H	Barren River	2 times per week for 4 weeks	55 minutes	Health educator provides 2 classes on contraception and STDs
School I	Lincoln Trail	8 consecutive days	72 minutes	Health educator provides 2 classes on contraception and STDs
School J	Lincoln Trail	8 consecutive days	50 minutes	Health educator provides 2 classes on contraception and STDs
Control schools in 2013 and 2014				
School K	Barren River	n.a.	n.a.	Health teacher provides 1–2 classes on abstinence and 2–3 classes on STDs; no coverage of contraception
School L	Barren River	n.a.	n.a.	Health teacher provides 2 classes on abstinence and contraception and 5 classes on STDs
School M	Lincoln Trail	n.a.	n.a.	Health teacher provides 3 classes on abstinence, 3 classes on contraception, and 3 classes on STDs

Source: Interviews with health teachers and fall 2013 and 2014 *Reducing the Risk* logs completed by Barren River and Lincoln Trail District health educators.

n.a. = not applicable.

Table III.3. Average number of sex education classes offered at study schools

Content	*Reducing the Risk* schools	Control schools
Abstinence	1.0	0.8
Contraception	2.0	1.1
STDs	2.0	2.1
Skills to avoid sexual risk behaviors	3.0	0.0
Total	**8.0**	**4.0**

Source: Interviews with health teachers and Barren River and Lincoln Trail District Health Department *Reducing the Risk* lesson plans

Note: Schools that were in the control group in both years of the evaluation were counted twice when calculating these averages.

When educators from the health department came to the control schools to provide sex education, they provided students one session on contraception and one on STDs. When control school health teachers delivered a curriculum they had developed themselves, the sessions covered a mix of topics including abstinence, STDs, and, in some cases, contraception (Table III.2).[14] On average, control students received one session on contraception, whereas students enrolled in *Reducing the Risk* received two contraception sessions (Table III.3). Students in both research groups received similar amounts of instruction concerning abstinence (about one day on average) and STDs (about two days on average).

One of the most substantial differences in content received by *Reducing the Risk* students relative to students in control schools was instruction on skills for avoiding sexual risk behaviors. The *Reducing the Risk* curriculum in Kentucky devoted three of eight sessions to instruction on these skills, including strategies for refusing sex, delaying sexual activity, and managing situations that can lead to unwanted or unprotected sex. Control schools did not offer instruction on skills for avoiding sexual risk behaviors. As one health teacher who taught sex education in a control school put it, “We talk about abstinence and how sexual activity affects you physically and in other ways. The reproductive parts and conception, STDs. But more on the scientific side than on the practical day-to-day life side.”

[14] The teachers in control schools who developed their own sex education curricula reported that they used a variety of materials, statistics, and resources compiled from health education text books (for example, Pearson Education, Inc.’s *Life Skills Health*) and websites such as the Centers for Disease Control and Prevention (http://www.cdc.gov/) and Sex, Etc. (http://sexetc.org/).

IV. PROVIDING SUPPORT FOR IMPLEMENTATION

To ensure that *Reducing the Risk* was implemented as planned and reached the intended participants, the Barren River and Lincoln Trail Districts put into place a number of supports. In each health department, a program director supervised the health educators who were implementing *Reducing the Risk*. The two program directors ensured that the health educators received the appropriate levels of support, starting with training on the curriculum and continuing with observations and ongoing communication. The program directors also allowed the health educators a degree of freedom in planning curriculum implementation, leaving them to schedule curriculum delivery that worked best for the schools.

Nine health educators—eight women and one man—under supervision of the two program directors, implemented *Reducing the Risk* in study schools across the 2013–2014 and 2014–2015 academic years.[15] The health educators all have at least a bachelor's of science degree in health education. The eight health educators who responded to the staff survey reported varying levels of experience.[16] Four health educators reported working with youth for more than five years; the other four health educators had less experience. The four more experienced health educators also reported that they had worked at the health departments for more than five years in a job that required collaboration with community partners. They also reported facilitating teen pregnancy prevention programs for more than three years. During the site visit interviews, health educators all reported that, through their degrees and work with the health departments delivering pregnancy prevention programming, they had gained the necessary skills to conduct youth health risk prevention and youth development programs, such as *Reducing the Risk*, successfully and confidently.

Collaboration was integral to smooth curriculum delivery

Health educators collaborated with one another and the program directors to ensure smooth delivery of *Reducing the Risk*. Several health educators in each health department developed the lesson plans; the program directors and the state PREP director then reviewed and approved the lesson plans. All eight health educators who responded to the staff survey agreed that the program director, health educators, and support staff collaborated to ensure the implementation of *Reducing the Risk* ran effectively. They also all agreed or strongly agreed that the staff working on implementing *Reducing the Risk* worked well as a team, and that program directors promoted team building to solve problems with implementing *Reducing the Risk*. One health educator commented, "If we have a problem…we usually discuss it with [the program director] and she gives us insight with what we need to do."

[15] In the Lincoln Trail District, two nurse educators assisted two health educators by implementing the two sessions on how to access and use contraception.

[16] The site visit team interviewed the nine health educators who implemented *Reducing the Risk* in the 2013–2014 and 2014–2015 academic years. Eight of the nine health educators also completed a self-administered survey about their experience.

Health educators received and were engaged in training on the curriculum

All nine health educators implementing *Reducing the Risk* received training on the curriculum and classroom management skills before delivering the curriculum. Health educators either attended a two-day statewide training in August 2011 (six health educators) or August 2013 (one health educator) or received a one-day, one-on-one training in fall 2013 (two health educators). The Barren River District Health Department program director, who is certified to provide *Reducing the Risk* training, led the statewide and one-on-one trainings. The training focused on learning the curriculum content, how to implement the curriculum with fidelity, and curriculum delivery methods. Health educators also practiced curriculum delivery by modeling a lesson in front of the trainer and other training participants; the trainer then provided feedback to the health educators. In addition to this training, four of the eight health educators who responded to the staff survey reported that they reviewed the training manual with their supervisor and three reported that they reviewed implementation plans with their supervisor.

The health educators were receptive to the training. The state PREP director reported that the health educators were very engaged in the material at the August 2013 training session she attended. Seven of the eight health educators who responded to the staff survey agreed that the training helped them facilitate the curriculum. All eight health educators disagreed with the statement: "It is too difficult to adapt information and skills learned in trainings so that they will work in *Reducing the Risk*." Only one health educator reported that she wanted additional guidance or coaching to support improvement of program implementation.

Health educators were actively involved in decisions related to curriculum implementation

Program directors tasked the health educators with interacting with the schools and working closely with the health teachers at each school to create a schedule that was compatible with the overall school calendar. Because health educators already had experience with providing health education programming in the schools, the program directors believed that the health educators were in the best position to work with school staff on scheduling. In turn, the health educators believed the supervisors fully supported their programming decisions. Seven of the eight health educators who responded to the staff survey agreed that management trusted their professional judgment; they also agreed that their ideas and suggestions related to implementing *Reducing the Risk* received adequate and fair consideration from the program directors.

Program leaders observed all health educators in the first year of the evaluation

In the initial implementation year for the evaluation (the 2013–2014 academic year), either the state PREP director or the Barren River program director—both of whom were very familiar with *Reducing the Risk*—observed each of the health educators who delivered the curriculum. The state PREP director observed each of the Lincoln Trail District health educators, who were relatively new to facilitating the curriculum. The state PREP director then provided them with targeted feedback, both in person and via email. Because the state PREP director conducted observations and was in direct contact with the health educators, the Lincoln Trail program director did not believe that she needed to conduct additional observations. In the Barren River District, the program director—an experienced certified trainer on the *Reducing the Risk*

curriculum who trained all the health educators participating in the study on the curriculum—observed the first class that each health educator delivered in fall 2013.

Health educators received adequate support and resources for delivery of *Reducing the Risk*

The administration at both health departments supported the implementation of *Reducing the Risk*. The program directors reported that their superiors were supportive of the activities they and the health educators were undertaking as part of the PREP funding. Seven of the eight health educators who responded to the staff survey agreed that the health departments' policies strongly supported implementation of *Reducing the Risk*. In addition, all health educators agreed that health department staff thought that curriculum implementation was important, and six health educators agreed that one of the health departments' main goals was to implement the curriculum effectively.

Frequent meetings with program staff ensured that health educators had the necessary resources to implement *Reducing the Risk*. In preparation for delivery of *Reducing the Risk* and while implementing the curriculum, health educators met with their supervisors either weekly or monthly to ensure they had the necessary time, training, and equipment to implement *Reducing the Risk* as planned. Program directors also held ad hoc one-on-one meetings with health educators to discuss and troubleshoot any issues encountered during curriculum delivery; the frequency of these individual meetings was determined by the level of support the program directors deemed necessary. In addition, during the implementation period, health educators met in a group with their program director every two months in Lincoln Trail and every three months in Barren River.

Throughout implementation, health educators received guidance and support on curriculum delivery methods from the program directors and the health educators who developed the lesson plans. In meetings with the program directors, health educators discussed effective facilitation methods and how to improve curriculum delivery to engage students more fully. In the staff survey, six of the eight respondents reported that they agreed that the program directors provided them with clear, concrete feedback that they could use to improve delivery of *Reducing the Risk*. All eight health educators also agreed that the health departments used clear protocols and channels to communicate about challenges and issues related to *Reducing the Risk*. Throughout curriculum delivery, program directors, the state PREP director, and health educators had open lines of communication with one another through email, telephone, and in-person contacts. One Lincoln Trail health educator commented, "I know personally if I have a question, if [the program director] doesn't know, I ask [the state PREP director]. Or we can check down at Barren River and see what they do. I feel 100 percent supported." Another health educator said, "The first year I [taught *Reducing the Risk*], I leaned on [another health educator] quite a bit. She'd help me through those [challenging] points we'd all run into."

Program directors and health educators reported that they had adequate resources to support delivery of *Reducing the Risk*. Curriculum implementation was financed by PREP funding and supplemental funds provided through the evaluation contract. These funds supported health educators' time and the required travel to the schools in which *Reducing the Risk* was implemented. Six of the eight health educators who responded to the staff survey agreed that

they had the necessary budget or financial resources to implement *Reducing the Risk*. All eight health educators who responded to the staff survey agreed that they had adequate equipment, classroom space, and office space to support implementation of *Reducing the Risk*.

V. ADHERING TO THE IMPLEMENTATION PLAN AND ENGAGING YOUTH

In fall 2013 and 2014, health educators implemented *Reducing the Risk* as planned in Barren River and Lincoln Trail. Almost all of the students attended 75 percent of the sessions, and health educators covered the majority of the planned content. In some cases, health educators adjusted the time allocation on the basis of students' interest or time remaining in the class period. At times, health educators also tailored the mode of curriculum delivery to keep students engaged—for example, allowing students to write down, rather than act out, responses to a role-play exercise. Throughout curriculum delivery, health educators were comfortable delivering the material and appeared to have good rapport with the students. During focus groups, youth reported finding the curriculum helpful. In addition, they recalled the key messages on contraceptive use and prevention of pregnancy and STDs.

Students received more than 90 percent of the intended programming

As would be expected for a curriculum offered as part of regular school programming, attendance rates at *Reducing the Risk* sessions were high. Almost all youth scheduled to attend *Reducing the Risk* at the treatment schools in fall 2013 and 2014 did so (Table V.1). Moreover, 95 percent of these students attended at least 75 percent of these sessions, and 68 percent attended all the sessions. On average, students attended 93 percent of the offered sessions. These rates are similar across the two health districts. Focus group discussions reinforced these findings; most students in the focus groups reported that they attended all the sessions.

Table V.1. Curriculum attendance in fall 2013 and 2014

		Percentage who attended at least:				
Health district	Number in treatment group	One session	50 percent of sessions	75 percent of sessions	100 percent of sessions	Attendance rate (percentage)
Barren River	519	98	96	93	62	90
Lincoln Trail	452	100	100	97	74	96
Overall	**971**	**99**	**98**	**95**	**68**	**93**

Source: Fall 2013 and 2014 *Reducing the Risk* logs completed by Barren River and Lincoln Trail District health educators. These logs contain information on curriculum attendance and content.

In general, health educators delivered *Reducing the Risk* as planned

Most health educators delivered the curriculum according to the schedule they developed for each school. In logs documenting dosage and content that participating students received, health educators reported delivering more than 90 percent of the scheduled content and activities during the *Reducing the Risk* sessions. At times, health educators ran out of time in the class period to cover some of the material; for example, one reported that, of two planned role-play exercises in one class, she was only able to implement one because of lack of time. Another health educator reported that she delivered the curriculum on a slightly modified schedule. She had planned to implement the curriculum twice per week over a four-week period but had to miss a week because of unforeseen personal circumstances; as a result, she delivered the sessions in three weeks, with two sessions one week and three in the final two weeks. She reported that, because

delivery of *Reducing the Risk* was a priority at the school and the health teacher had a flexible schedule, it was easy to reschedule the missed classes.

During the two site visits, evaluation team members observed 10 sessions delivered by five different health educators. These observations confirmed the information reported by health educators in service use logs, indicating that the curriculum appeared to be implemented as planned. During observations, health educators, in general, adhered to their lesson plans. In 9 of 10 observed sessions, health educators covered all of the planned material without rushing through any of the activities. The health educator who did not have enough time during the class period to cover all of the planned material reported that she planned to cover the remaining material during the next class.

Health educators sometimes encountered circumstances that required minor field adaptations

During implementation, health educators made modifications to fit site-specific circumstances. When students' participation was low, several health educators reported that they inserted activities that were not health educator-led to engage the students (for example, instructing students to complete worksheets on related topics). Several health educators also reported that, in a few instances, when students had many comments or questions about the material, they shortened or skipped certain activities to fit the lesson into the class period. According to several health educators, discussions about birth control often led to many questions from students. They believed it was important to answer all questions about contraception fully, even though this occasionally put them behind schedule. In general, if they did not cover all activities in one session, they covered them in the next class. One health educator said, "I tried in the next lesson to just be a little quicker to finish that up, but I didn't cut out anything in the lesson at all because it was just too important." Health educators in the Lincoln Trail District also reported that they shifted the timing of some sessions to accommodate the nurse educator, who came in to deliver the two sessions on obtaining and using protection. One of the health educators also moved the discussion of reproductive anatomy from the third to the first session to "get the most awkward part out of the way" and because he wanted students to use correct terminology in class discussions.

Health educators were supportive of and comfortable delivering the curriculum

Health educators appeared to be comfortable delivering the curriculum in area schools. They reported that they believed in teaching students the value of abstinence, as well as understanding how to use contraception correctly. Two health educators thought the curriculum helped improve students' knowledge about STDs by teaching them about facts, myths, transmission, and prevention. The health educators also appreciated the emphasis in the curriculum on development of communication skills. One commented, "The refusal skills are very important in all aspects of life, not just sex," because they teach students how to act responsibly. In addition, the health educators believed the *Reducing the Risk* curriculum fulfills an unmet need. In middle school, health educators and health teachers reported that youth typically receive either no programming or programming only on abstinence. According to one health educator, "These

kids are active already—some of them are—and they just have no clue about this stuff, so it is good to give them this information."

Although health educators seemed comfortable delivering *Reducing the Risk*, comfort levels with specific topics varied. During sessions the evaluation team observed, health educators were organized, dealt with the content in a very direct manner, and kept the students engaged. They readily fielded students' questions about STDs, anatomy, and contraception. When they did not know an answer, the health educators reported that they would research the question after class and provide students with the answer during the next session. One reported that he would occasionally text the program director to get an answer in real time. Health educators in the Barren River District attributed their comfort level to their previous experience teaching high school students about STDs and birth control methods. As one said, "We do so much of the birth control and STDs, we could do it in our sleep." In the Lincoln Trail District, two of the health educators believed they lacked in-depth knowledge and did not always believe they would be able to provide students with the most accurate and up-to-date information on the proper use and effectiveness of various contraceptive methods. However, they reported that they appreciated having the nurse educators lead the two lessons on obtaining and using protection, as they believed the nurses—who worked in the health department clinics—were best positioned to describe how to effectively use and access various types of contraception and access contraception and related clinic services.

Students found health educators to be straightforward:

- "She didn't try to avoid anything and she didn't just act awkward about it and start trying to play it off and change the subject; she kept going, explain[ed] it to people who were confused."
- "She didn't really sugarcoat anything. She just stuck it out there."

Health educators worked to create a comfortable and safe environment for students

Health educators worked to create an environment in which they and students could have open discussions about the *Reducing the Risk* subject matter. Students reported that they enjoyed the classes and felt like they were valued by the health educators. One student reported that she liked "how [the health educator] involved us in everything she did." Health teachers who were sitting in the class found the environment very open and conducive to learning. One commented that the students "are appreciative that someone is giving [sex education] to them straight." Another health teacher noted that students seemed to be more at ease discussing contraceptive use with the health educators than with their parents. He commented, "A lot of the girls may not feel comfortable talking to their parents about birth control, may not even want to tell their parents they are sexually active at all. So, they like being able to ask questions [of the health educator]. They ask lots of questions about what they have to do to get birth control."

During the 10 classroom observations the site visit team conducted, students appeared to be comfortable with the health educators. In one session, which was typical of what was observed, students were very engaged and unafraid to ask questions or call out answers throughout the class. During this class, which involved lecture and large- and small-group discussions, the health educator encouraged the students to participate by eliciting questions and responding with "good job" when students shared ideas with the group. The students offered answers during the large-group review of refusal skills and delay tactics and also asked questions during the lecture

portion. The health educator reported that she allowed students to select their own small group; she found that it was easier to elicit responses from students when they were allowed to work with friends rather than being assigned to a group.

Students typically became more engaged with the material over time and were most responsive to interactive elements of the curriculum

According to health educators, student responsiveness to the materials appeared to increase over the sequence of program sessions. Students were less engaged at the beginning of the program, which health educators attributed to the start of the school year, when students can have trouble settling into a classroom routine. In focus groups, students also reported that they were initially uncomfortable with the subject matter and the vocabulary; one student said that it was difficult to participate at first because he found the words to be "embarrassing to say." However, after a few days of class, one student commented, "Everybody was comfortable."

Health educators reported that students were more likely to respond to the role-play exercises than to health educator-led lectures. Some curriculum content, such as specific information on birth control methods and STDs, did not allow for as much student involvement and required the students to sit still and listen. During these lessons, according to health educators, students seemed less attentive and engaged with the material. Other content, such as practicing refusal skills or tactics for delaying sex, were well suited for direct student involvement through role-plays and small group discussions. Health educators reported that students seemed to enjoy these more interactive program elements. In addition, health educators generally found students willing to participate in these interactive elements. One health educator commented, "Kids want to volunteer to role-play or answer a question if it's not too embarrassing for them to say it."

Students also reported that they enjoyed the more interactive elements of the curriculum, such as role-play exercises and small-group activities. Students in focus groups reported that the lectures were monotonous or just too much information to take in at one time. One student said, "It was easy to lose your attention…I'd see a lot of people just falling asleep and [the health educator] not noticing." Another student said, "Sometimes it was just a lot thrown at us, diseases and stuff, a lot thrown at us in one sitting." When the exercises were more interactive, students found the curriculum to be more "fun" and "interesting." One student commented, "I liked them a lot. They gave really good examples; like, I could actually relate to some of them happening." In addition, the students appeared to retain the key messages of the role-plays and other interactive exercises. Regarding an activity in which students demonstrated how quickly STDs could be spread, one student said, "I was the person [in the activity] who gave herpes to everyone, which was not funny; it was kind of sad." Most students in the focus groups expressed interest in increasing the number of role-play exercises. One student said, "I think there was about one [role-play]…every two days. I would've liked one every day." However, not all students were as comfortable with the role-plays; several students said they found it difficult to talk about refusing or delaying sex in front of their peers.

Health educators used several approaches to keep the role-play exercises interactive and inclusive of all students—ranging from those who were not comfortable acting in front of class to those who were. Some health educators allowed students to work in small groups and then

read their responses aloud. In one class observed by the evaluation team, students working in small groups (ranging from two to six students) were visibly engaged as they collectively drafted responses; the students from each group who read the role-plays were not shy in reading their responses aloud (even if the two actors were of the same gender). Several health educators reported that they called willing participants to the front of the room to act out the scripted or semi-scripted role-plays. When health educators believed that neither of these approaches would work—either because they found the students too disruptive or because the majority of students were uncomfortable with speaking in front of the class—they reported that they distributed the role-play exercises and instructed students to write their answers. The health educators would then read some of the responses aloud or would ask a willing student to read them.

Still, a few health educators thought students were not yet mature enough to approach the situations presented in some of the role-plays in a serious manner. The health educators commented that students did not seem to take the time to think through how they would actually respond to a situation, such as being alone with another person who wants to have sex, and wrote responses that were not realistic (for example, saying they would jump out of a window to get away from the person asking to have sex). The health educators suggested that, in acting out the role-plays, some students were not yet ready to "put themselves in that situation."

Visual aids helped connect some students to the content

Visual aids appeared to help some students learn about the curriculum content, especially with relation to STDs. The health educators used PowerPoint slides with photographs of STDs when presenting information on STDs and how to prevent them. Although some students in focus groups reported that they found some of the photographs to be too graphic, they also clearly connected with and remembered the material. Several students commented that pictures helped visual learners internalize the information, and mentioned that they would appreciate having more visual materials to help guide the curriculum. One health educator commented, "When the STD lesson comes up and there are photos to go along with that…they're paying attention, but otherwise, I think you get lost when talking and there are no visuals."

Despite varying engagement, students appeared receptive to material on contraception and STDs

Although students sometimes appeared relatively less engaged with program material delivered through lectures, students tended to pay close attention when health educators discussed the proper use of contraception and the consequences of having sex. Several health educators reported that when they discussed birth control, the students asked a lot of questions and were more eager to participate in the activities. One health teacher commented, "The kids are very engaged. They are at a very curious age." Students in focus groups commented that they learned a lot from the sessions on birth control methods and would have appreciated more time devoted to them. One student commented that the sessions were "kind of rushed. We needed it to be a little longer to take it all in and actually learn [about birth control]." Students also appeared to welcome the information on STD transmission and prevention, which was new to them. One health educator reported the students were "shocked" by the photographs of STDs (shown during the session on preventing STDs/HIV) and hearing what could happen after a person is infected with an STD. During an observed class, while a health educator delivered a lecture on STDs, students were visibly uncomfortable with the material, but also very attentive. In the focus

groups, students reported that they now understood that STDs could be spread easily and could negatively affect their future. One student commented, "I didn't know how easy it was to get most of the STDs and how bad they can be."

After participating in *Reducing the Risk*, students reported having a better understanding of contraception, STDs, and how to refuse and delay sex

After completing the curriculum's eight sessions, students indicated during focus groups that they understood how to protect themselves from pregnancy and STDs and the importance of doing so. Students reported that, before participating in *Reducing the Risk*, although they knew about condoms as a form of protection, they were not aware of the other contraceptive options available (for example, Nuvaring® and long-acting reversible contraception). Students repeatedly commented on how, after participating in *Reducing the Risk*, they were much more aware of the risks that come with having sex and the methods to protect themselves, with abstinence being the most effective. One student said, "Before the class, I was planning on abstaining for a long time, and now I want to abstain as long as possible. I think I will abstain a lot longer than I would have." Another student said, "I learned [how sexual activity] affects me, how to protect myself from getting pregnant. I'll just remember those things when the time comes."

What students liked about *Reducing the Risk*:

- "The different types of birth control. I didn't know what the options were."
- "How [the health educator] gave us a bunch of options about what's at the health department. What's available without your parents knowing."
- "How to prevent STDs and pregnancy. You can't prevent them the same way, necessarily."
- "The refusal skills. You can just walk away. Ways to say no. Just saying no works sometimes; you might have to change the subject or walk away."

Students also left the class with knowledge of where to access contraception and what services were available to them at area health clinics. Before participating in the class, students reported that they were unaware of the services provided at the local health departments or, if they were, they had thought they needed a parent to accompany them. One health educator commented that students knew the health department existed, but "I don't think they even knew what we did [at the clinic]; even STD testing was a hidden secret." After taking the class, students realized what services they could receive at the clinic—and, specifically, that they could go to the clinic to pick up free condoms through the health departments' brown bag program. A health educator reported that students were "blown away" that they could go by themselves (without parents) to pick up free condoms at the health department. Another health educator said that some students asked her after class how to set up appointments at the clinic.

Students also appeared to recall the skills to refuse and delay sexual activity. Several students mentioned during focus groups that they had learned how to say "no" and "how to move yourself away" from a dangerous situation. After hearing facts about STDs and contraception, students appeared to connect the ability to refuse or delay sex or unprotected sex with the prevention of STDs and pregnancy. One student said, "When you know the risks and stuff, it helps people be more cautious before they act."

Overall, students reacted positively to the curriculum

Students in focus groups were very supportive of *Reducing the Risk*. One student said that the curriculum "affected us personally. Other classes, you're just learning because you have to, but this actually relates to our lives in a big way." After participating in the curriculum, students in focus groups felt strongly that their peers should also take the class. They appreciated the frankness of the health educators and the information they received about how to protect themselves from pregnancy and STDs. One student said, "I think everyone needs to participate in something like this….You learn about all the different dangers, all the different complications that go into sex. You definitely get a positive outcome, positive reward." Students believed the information was essential and would help them if and when they found themselves in risky situations. One student commented, "It's a really good experience, really good information and you need to know it. Also, it's good to know your options for reducing the risk." One student viewed the skills to refuse and delay sexual activity as paramount, saying that *Reducing the Risk* "helps you decide what you really want to do; [it] makes you think."

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VI. CONCLUSION

Rural regions have among the highest teen birth rates in the United States. These areas typically offer few adolescent pregnancy prevention services. Relatively little research has been done on the implementation of these services in rural settings. This report helps address that gap by examining the experiences of two local Kentucky health departments implementing a comprehensive sex education curriculum in relatively low-income, mostly rural high schools during the 2013–2014 and 2014–2015 school years.

During the study period, health educators from the Barren River and Lincoln Trail District Health Departments successfully delivered an adapted version of the *Reducing the Risk* curriculum in high schools in their service region. Staff at these health districts shortened the original 12-hour curriculum to 8 hours to fit within the time allotted by area schools to deliver the program. Health educators in both health districts determined how to shorten the curriculum drawing on their knowledge of the content already covered in these schools and their assessment of the specific risks facing youth in these schools. The revised *Reducing the Risk* curriculum they developed covers the full set of topics covered in the original curriculum, including abstinence, using contraception if sexually active, and developing skills to avoid high-risk situations. Health educators shortened the curriculum by using fewer role-play exercises and having less repetition of material. In addition, health educators tailored the content to local circumstances. For example, instead of visiting a health clinic as suggested by the original curriculum, health educators or health clinic staff describe services available at local health clinics during regular class time.

The program was implemented in a high-need, rural area. The study schools serve a region with a teen pregnancy rate almost twice the national average and a median income 20 percent below that of the nation as a whole. School and program staff reported that area youth have few resources or services available to them related to sex education, contraception, and STDs. Moreover, the large distances and limited public transportation in the region can make it difficult to access the few services that are available. Staff also described an environment in which teenage pregnancy was the norm among many families and part of a cycle of poverty that limited the prospects of area youth. In addition, they indicated that many parents in the community did not talk to their children about sexuality and contraception. At study enrollment, students in the research sample reported limited knowledge of methods of contraception and STDs. According to school and program staff, school administrators recognized the need to address teen pregnancy prevention with their students and were generally supportive of having *Reducing the Risk* implemented in their schools.

Health educators implemented the adapted curriculum as intended. They received training on the curriculum and had strong support from the program directors in the two health departments. They delivered the curriculum as part of a mandatory health class offered to students primarily in 9th and 10th grade. During the study period, health educators covered more than 90 percent of their planned activities. Attendance was high; students in the study sample attended 93 percent of scheduled sessions. Based on classroom observations and focus group reports, students were receptive to the material, especially that which involved interactive elements.

Students and health educators identified a number of ways the curriculum could be strengthened. During focus groups, students indicated that additional role-play exercises and interactive program elements would have kept them more engaged. Students also reported that the curriculum would have benefited from additional time devoted to discussing birth control methods. Both students and health educators agreed that visual aids (such as photographs and diagrams) are useful in helping youth understand the curriculum content.

This study of the implementation of an adapted version of *Reducing the Risk* in rural Kentucky was conducted in conjunction with a rigorous impact study based on a random assignment research design. Schools were randomly assigned to offer either the adapted curriculum or their regular programming. When assigned to control group status, most study schools offered only limited coverage of abstinence, contraception, and STDs. None of the schools provided instruction on skills that would help students refuse or delay sexual activity, a key program element of *Reducing the Risk*. Upcoming impact reports, scheduled for release in 2016 and 2017, will examine the effects of the program on participating students' sexual activity and other outcomes one and two years after they completed the program.

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APPENDIX A

IMPLEMENTATION FRAMEWORK FOR THE PREP IN-DEPTH IMPLEMENTATION STUDY

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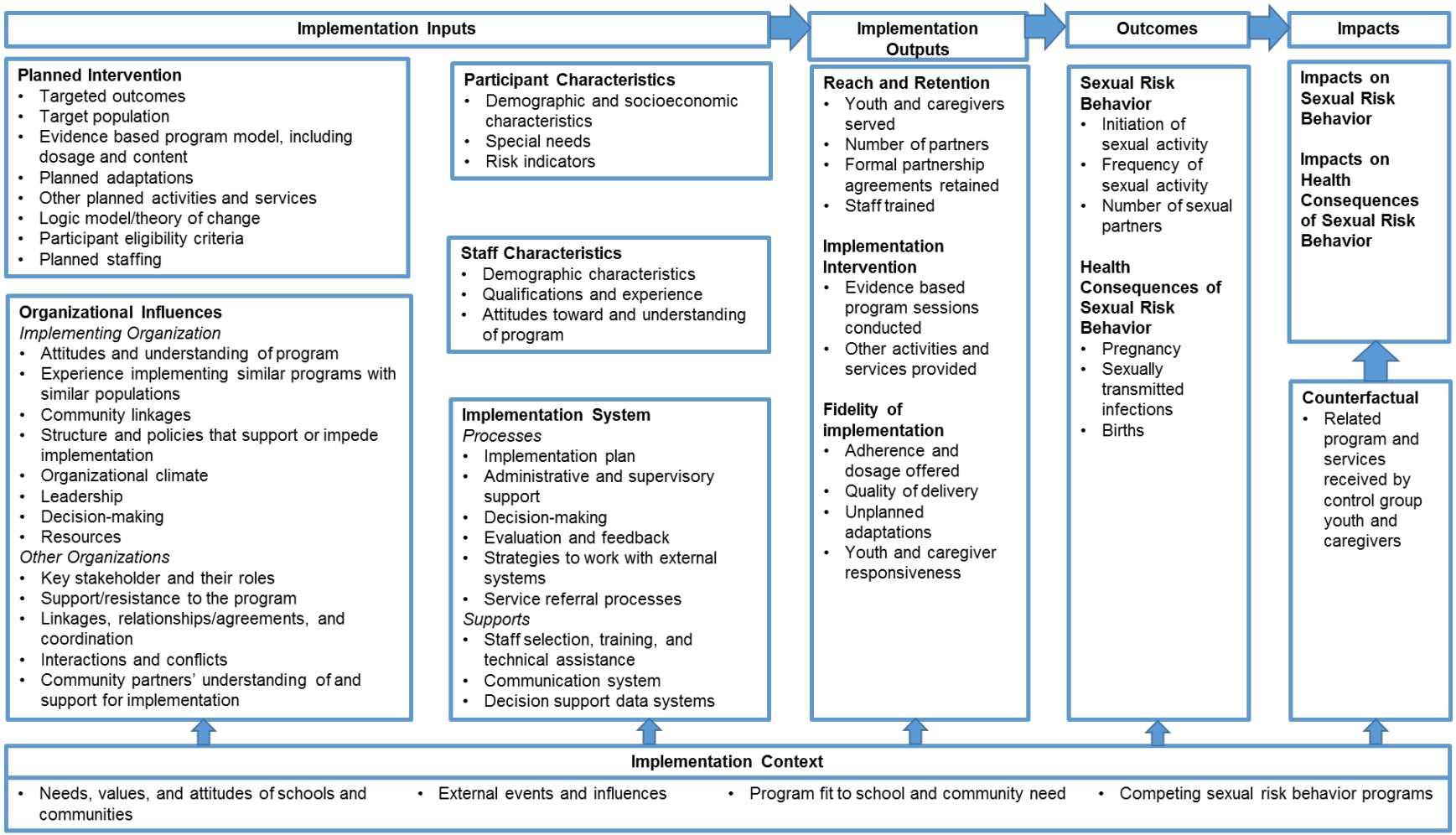
Figure A.1. Implementation framework for the PREP in-depth implementation study



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APPENDIX B

METHODOLOGICAL APPROACH

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This appendix describes the methods we used to collect and analyze data about the implementation of an adapted version of *Reducing the Risk* in the Barren River and Lincoln Trail Districts, Kentucky for the Personal Responsibility Education Program (PREP) in-depth implementation study. It also discusses the limitations of the data and analysis.

Data Collection

In April and November 2014, the in-depth implementation study team collected data on the planned and implemented intervention and counterfactual as well as organizational capacity, implementation system, and context for the implementation of *Reducing the Risk*. Before, during, and after the site visits, the study team collected data from the following sources:

- The fifth edition of the *Reducing the Risk* curriculum and Barren River and Lincoln Trail District lesson plans
- One telephone interview with the state PREP director
- One telephone and three in-person interviews with the Barren River and Lincoln Trail District Health Department program directors
- One in-person and five group interviews with Barren River and Lincoln Trail District health educators (N = 14)
- Eleven telephone, five in-person, and three group interviews with school staff (physical education and health teachers youth services center coordinators, and guidance counselor) (N = 21)
- In-person interviews with two community stakeholders (a Lincoln Trail District Health Department outreach director and a mental health center prevention director[1]
- Focus group discussions with three groups of participating students at three treatment schools (N = 33)
- Observations of 10 *Reducing the Risk* classes to collect qualitative and quantitative implementation data in the field
- A self-administered survey of eight health educators who delivered the *Reducing the Risk* curriculum (89 percent response rate)
- Service use data collected by health educators on dosage and content that participating students received in 48 *Reducing the Risk* classes in fall 2013 and 2014
- A self-administered baseline survey of 2,190 students regarding demographics, education, sexual activity, and knowledge before participation in the intervention

Study participants were drawn from among all staff involved with *Reducing the Risk* who were available during the data collection period. Focus group participants were drawn from

[1] The Lincoln Trail District Health Department outreach director and the mental health center prevention director provided information on available community-based pregnancy prevention education programming and services.

students who participated in *Reducing the Risk* classes at three treatment schools in fall 2014. All participation in the study was voluntary.

Staff from Mathematica, Child Trends, and Decision Information Resources conducted the interviews, focus groups, observations, and document collection. The study team collected data using Office of Management and Budget (OMB) and institutional review board-approved semi-structured interview and focus group protocols developed for the PREP implementation study. Interviews ranged from 30 to 90 minutes in length. The focus groups took place during a class period (approximately 45 minutes). The study team collected relevant source materials and documents from the Barren River and Lincoln Trail District Health Departments by email and in person.

Telephone and in-person interviews, as well as the focus groups, included the following key themes: (1) overview of the purpose of the interview or focus group; (2) informed consent process (oral for interviews, written for the focus groups); and (3) a facilitated discussion of key topics related to the development, implementation, operation, challenges, and successes of designing and supporting *Reducing the Risk*. Following in-person interviews, Barren River and Lincoln Trail health educators were asked to complete a paper survey on key elements of implementation. Focus group participants completed written consent, participated in a facilitated discussion about their participation in *Reducing the Risk*, and received gift cards for their participation.

Data Analysis

During the interviews and focus groups, the site visit team took detailed notes on all responses and used probes to capture and clarify views and perspectives. The notes were then typed, cleaned, and cross-checked against site documents. These notes were imported into the qualitative data analysis software. The study team then systematically reviewed and assessed the data by (1) developing a set of site- and respondent-level attributes and a hierarchy of conceptual categories and classifications linked to the research questions and conceptual framework of the study; (2) generating a set of hierarchical codes to classify the data; (3) establishing a process to guide data coding and identification of new key themes and patterns that emerged from the data; (4) piloting the codes; and (5) conducting informal inter-coder reliability testing.

An independent, trained team of coders used the qualitative data analysis software to assign codes to the data. The primary topic areas used to code the interview, focus group, and observation documents followed the implementation study framework and included (1) planned intervention and control condition, (2) implementation context, (3) organizational influences, (4) participant and staff characteristics, (5) implementation system, (6) reach and retention, (7) implemented intervention, and (8) fidelity of implementation. The coding scheme also included subtopics under each primary code to support more nuanced coding of the data within many of the primary topic areas. Coding the data in this way enabled the team to access data on a specific topic quickly and to organize information in different ways to identify themes and compile evidence supporting them.

After all site-specific qualitative data were coded, the software was used to retrieve data on the research questions and subtopics to identify themes and triangulate across data sources and individual respondents. All retrieved data were assessed relative to (1) an estimated relative

frequency of mention by topic (without collecting a strict frequency), (2) an estimated relative amount of data devoted to a specific topic or issue, (3) triangulation and assessment of primary patterns and trends within the topic and across data sources, (4) identification of illustrative quotations, and (5) summation of primary themes in the data. Descriptive statistics were generated from the staff survey and service use data. Using these themes and descriptive statistics, the study team developed a descriptive summary of the primary patterns, trends, and themes across respondent and data types. Patterns and trends related to key aspects of program implementation that were highly consistent across respondents and documents are highlighted as key findings in this report.

Study Limitations

The study design and methods for this site visit and report have two primary limitations. First, interview and focus group participants represent a convenience sample of participants drawn from the site based on their roles in *Reducing the Risk*. Barren River and Lincoln Trail District staff must have worked on *Reducing the Risk* during its implementation, and focus group participants must have recently participated in *Reducing the Risk*. Respondents participated voluntarily in the interviews, focus groups, and observations, and may not have been drawn from the entire population of staff and participants, creating the potential for self-selection bias. It is possible that those who chose to participate in the site visit differed in important ways from those who did not. For example, students who agreed to participate in focus groups may have felt more positively or negatively about *Reducing the Risk* and/or the health educators who delivered the curriculum than those who did not. Second, self-reported data could be subject to a social desirability bias. Social desirability is the tendency for study participants to respond in a way they believe will be pleasing to others (for example, exaggerating their positive reactions to a program to please program staff).

In spite of these limitations, the research yielded compelling data from which to draw findings about the implementation of an adapted version of *Reducing the Risk*. In particular, the opportunity to explore themes and trends across diverse respondents and data collection activities increased the evidence for findings and the study team's understanding of them.

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APPENDIX C

COMPARISON OF ORIGINAL *REDUCING THE RISK* CURRICULUM WITH THE BARREN RIVER AND LINCOLN TRAIL DISTRICT LESSON PLANS

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Table C.1. Comparison of original *Reducing the Risk* curriculum with the Barren River and Lincoln Trail District lesson plans

Activity	Description	Length (in minutes)[a]	Material	Barren River District lesson plan[b, c]	Lincoln Trail District lesson plan	Additions/ modifications
1A. Abstinence, Sex, and Protection: Pregnancy Prevention Emphasis[d]						
Introduce Curriculum and Model Role-Play, Version 1	Teacher models a role-play to demonstrate refusal skills to help prevent pregnancy	10	Lee and Lee #1A (teacher role-play)	✓ (1.1)	✓ (1.1)	
Pregnancy Risk Activity, Parts 1 and 2	Students participate in a two-part pregnancy risk activity to personalize their vulnerability to pregnancy	25	My Risks (worksheet) Pregnancy Risk Chart (teacher reference)	✓ (1.2)	✓ (1.2)	
Model Role-Play, Version 2	Teacher models a role-play to demonstrate refusal skills to help prevent pregnancy	10	Lee and Lee #2A (teacher role-play)	✓ (1.5)	✓ (1.3)	
Lesson Summary	Teacher reminds students of topics they will be studying in *Reducing the Risk*	5	n.a.			
1B. Abstinence, Sex, and Protection: HIV Prevention Emphasis[e]						
Introduce Curriculum and Model Role-Play, Version 1	Teacher models a role-play to demonstrate refusal skills to help prevent HIV	10	Lee and Lee #1B (teacher role-play)			
STD/HIV Risk Activity	Students participate in a simulation that illustrates the increased risk of having multiple and concurrent sexual partners	20	Signature Sheet (handout)	✓ (1.3)		
Personalizing Risks	Students discuss how getting HIV might affect their lives	5	My HIV Risks (worksheet)	✓ (1.4)		
Model Role-Play, Version 2	Teacher models a role-play to demonstrate refusal skills to help prevent HIV	10	Lee and Lee #2B (teacher role-play)			
Lesson Summary	Teacher reminds students of topics they will be studying in *Reducing the Risk*	5	n.a.			
2. Abstinence: Not Having Sex						
Review Previous Lesson	Teacher asks students what they learned from previous lesson(s) about risk of getting pregnant and/or HIV	5	n.a.	✓ (2.1)		
Communicating About Abstinence	Students practice identifying successful elements of communication in the role-play from Class 1	15–20	Lee and Lee #2 (worksheet)	✓ (2.2)		
Facts About Abstinence	Teacher presents statistics on abstinence among teens	10	Facts About Abstinence (statements written on a chalkboard)	✓ (2.3)		
Reasons That Many Teens Don't Have Sex	Students discuss the advantages of abstinence	10	What Abstinence Means to Me (worksheet)		✓ (1.4)	Lincoln Trail District: • Health educator shows students part of an ABC News video about teen pregnancy and discusses it with students, if time allows
Lesson Summary	Teacher reminds students of reasons to stay abstinent	2	n.a.			

Activity	Description	Length (in minutes)[a]	Material	Barren River District lesson plan[b, c]	Lincoln Trail District lesson plan	Additions/ modifications
3. Refusals						
Review Previous Lesson	Teacher reminds students that abstinence is the most common choice for teens, reviews lessons for abstinence, and discusses three parts of a successful relationship	5	n.a.	✓ (2.4)	✓ (2.1)	
Talk to Your Parents	Students indicate what they believe about sex and protection and what they think their parents believe. After class, students talk to their parents about their ideas. Parents verify that the students completed the assignment.	15	Talk to Your Parents (homework)	✓ (2.5)	✓ (2.5)	Barren River District: • Health educators modify activity to include trusted adults, as some students do not live with their parents
Introduce Refusals	Teacher introduces verbal and nonverbal communication skills.	10–15	Refusals poster	✓ (2.6)	✓ (2.2)	
Demonstrate Role-Plays	Students use role-plays to practice and examine five characteristics of effective refusals	10–15	Your Friend's Ex-Partner (role-plays) Trying to Slow Down (role-plays) Observer Checklist (form)	✓ (2.7)	✓ (2.3)	
Lesson Summary	Teacher reminds students that they can use refusal skills in a variety of situations	2	n.a.	✓ (2.8)		
4. Using Refusal Skills						
Refusals Quiz	Students take a quiz on refusal skills	10	Refusals (quiz)		✓ (2.4)	
Difficult Refusals	Students provide ideas of what friends might say to make refusals difficult	5	n.a.			
Demonstrate Role-Play	Two students act out scripted role-play, and other students document verbal and nonverbal skills actors use	5	At a Party (scripted role-play) Observer Checklist (form)			
Role-Play in Small Groups	Students use role-plays to practice using refusal skills in difficult situations	15–30	At a Party (role-play) Observer checklist (form) Role-play cards (optional)			
Lesson Summary	Teacher reminds students that effective refusals involve nonverbal and verbal skills	3	n.a.			
5. Delay Tactics						
Review Class 4	Teacher reviews elements of an effective refusal	5	n.a.	✓ (3.1)		
Introduce Delay Tactics	Teacher introduces delay tactics	20-40	Possible Delay Tactics (handout) Delay Tactics poster	✓ (3.2)		
Demonstrate and Practice Role-Play	Students practice delay tactics in role-plays	5–15	Presents and Flowers (role-play) Observer Checklist (form) Role Play cards (optional)	✓ (3.3)		Barren River District: • Health educator can ask students to fill out response categories for the role-play instead of acting it out

Activity	Description	Length (in minutes)[a]	Material	Barren River District lesson plan[b, c]	Lincoln Trail District lesson plan	Additions/ modifications
Quiz and Skills Review	Students take quiz on delay tactics	10–20	Refusal or Delay Quiz	✓ (3.4)		Barren River District: • Health educator shows students a diagram of a box divided into squares and asks how many squares the students see to convey that there are often more answers to any problem than what can be seen at first • Health educator either reads the quiz aloud or asks students to complete it as a worksheet
Lesson Summary	Teacher reminds students to use delay and refusal skills to help them in peer pressure situations	2	n.a.			
6. Avoiding High-Risk Situations						
Discuss Homework	Teacher and students discuss Talk to Your Parents homework from Class 3.	15	Completed Talk to Your Parents (homework)		✓ (3.1)	
Signs of Sex and Caution Mini-Lecture	Students identify situations that can lead to unwanted or unprotected sex	10	Signs of Sex, Signs of Caution (teacher reference, posters)	✓ (3.5)	✓ (3.2)	
Handling Crisis Situations	Students practice dealing with sex alert situations	10	Handling Crisis Situations (worksheet)	✓ (3.6)	✓ (3.3)	
Protection: Myths and Truths, Round 1	Students begin activities related to protecting themselves from pregnancy or HIV/STDs	10	Protection: Myths and Truths (worksheet)	✓ (3.7)	✓ (3.4)	Lincoln Trail District: • Health educator distributes copies of Appendix E from *Reducing the Risk* curriculum, which presents reproductive anatomy and physiology • Health educator asks students to complete anatomy worksheet
Lesson Summary	Teacher reviews class activities	5	n.a.			
7. Getting and Using Protection I[d]						
Ways to Prevent Pregnancy: Lecture	Teacher uses lectures and visual aids to provide information on methods for protection against unplanned pregnancy and STDs	30	Ways to Prevent Pregnancy (teacher notes) Birth Control Choices pamphlet	✓ (4.1)	✓ (4.1)	Barren River District: • Health educator presents the range of birth control methods and shows how to use condoms properly • Health educator passes types of birth control around the classroom
Shopping Information Homework	Students research prices and description of nonprescription products.	10	Shopping Information Form (homework)		✓ (4.2)	Lincoln Trail District: • Health educator shows students birth control choices video
Lesson Summary	Teacher reminds students that there are various methods of protection, and each has its own advantages and disadvantages	5	n.a.			

Activity	Description	Length (in minutes)[a]	Material	Barren River District lesson plan[b, c]	Lincoln Trail District lesson plan	Additions/ modifications
8. Getting and Using Protection II[d]						
Condom Demonstration	Teacher describes how condoms are used and demonstrates proper use of condoms	15	Latex Barriers for Preventing HIV and STD (teacher notes) 1 latex condom			
Visit or Call a Clinic	Students locate and prepare to contact clinics in their area to get information about protection. Teachers might bring in a speaker from a clinic or take students on a field trip to a clinic.	10	Visit or Call a Clinic (homework) The Way to the Clinic (homework)	✓ (5.1)	✓ (5.2)	Barren River and Lincoln Trail Districts: • Health educator discusses what happens at a clinic and tells students how to get condoms from the clinic. (The health educator explains that, at the clinic, condoms are distributed to individuals in brown bags.)
How Will You Avoid Pregnancy	Students decide which method(s) might be best for them to avoid pregnancy	10	How Will You Avoid Pregnancy (worksheet)	✓ (4.3)	✓ (5.3, 6.1)	
How Is STD/HIV Prevented	Students decide which method(s) might be best for them to avoid STD/HIV.	5	How Is STD/HIV Prevented (handout)	✓ (4.2)		
Lesson Summary	Teacher reminds students that it is important to know where to go and who to talk to about protection, and how to protect oneself before having sex	5	n.a.			
9. Knowing and Talking About Protection: Skills Integration I						
Protection: Myths and Truths, Round 2	Students return homework from Class 6 and review answers	15	Protection: Myths and Truths (teacher key)	✓ (5.2)	✓ (5.4)	
Demonstrate and Practice Role-Play	Students use role-plays to demonstrate ways friends talk to each other about issues related to sex. Students discuss ways to handle similar situations.	60	An Important Discussion (role-play) A Lunchtime Chat (role-play)			
Lesson Summary	Teacher encourages students to think about how communication skills play an important role in avoiding pregnancy and HIV/STDs	2	n.a.			
10. Skills Integration II						
Review Refusals	Teacher reviews refusal and delay tactics	5–10	Refusals and Delay Tactics posters			
Generating Alternatives	Students in small groups decide how to handle difficult situations	15–25	Situations A and B (group handouts)	✓ (5.3)		Barren River District: • Health educator reminds students that there are many options to solve a problem
Role-Play in Small Groups	Students participate in semi-scripted role-plays to demonstrate how to handle difficult situations	15-25	Two Hours to Kill (role-play) A Small Party (role-play) Observer Checklist (form) Refusal and Delay Tactics posters Role-Play cards (optional)	✓ (5.4)		Barren River District: • Health educator presents three optical illusions to show that there is more than one way to see a situation

Activity	Description	Length (in minutes)[a]	Material	Barren River District lesson plan[b, c]	Lincoln Trail District lesson plan	Additions/ modifications
11. Skills Integration III						
My Kid Sister	Students complete and discuss worksheet on communication skills	10–25	My Kid Sister (worksheet)			
Role-Play in Small Groups	Students use role-plays to practice handling situations that might otherwise lead to unprotected sex	20–30	Time for a Condom (role-play) Observer Checklist (form) Role-Play cards (optional)			
12. Preventing HIV and Other STDs						
Facts About STD, Including HIV	Students work in small groups to explore information about transmission and prevention of five STDs	40–80 (up to two classes)	STD Facts and HIV Facts Background Information About HIV (teacher notes)	✓ (6.1)	✓ (6.2)	Barren River District: • Health educator shows pictures and descriptions of various STDs and discusses the impact of STDs on men and women and STD prevention methods Lincoln Trail District: • Health educator does additional demonstrations on STDs (for example, cup/water STD activity to illustrate the risk of multiple partners)
Assign Homework	Teacher assigns students homework on how HIV would change their lives	5	How HIV Would Change My Life (homework)		✓ (6.3)	
Lesson Summary	Teacher emphasizes that all STDs can be treated but can have serious health consequences if left untreated	3	n.a.			
13. HIV Risk Behaviors						
Risk Continuum	Students place behaviors on a continuum of risk, from no risk to risky, and discuss why some behaviors are more risky than others	25	Risk Behaviors (teacher reference) Traffic Light and Risk Behavior cards	✓ (7.1)	✓ (7.2)	Barren River District: • Health educator discusses HIV/AIDS transmission and prevention methods • Health educator reads story of Bill and Monica (*Who's Been Sleeping in My Bed* from *Game Plan*, an abstinence curriculum), using volunteers to demonstrate the spread of HIV in the story • Health educator quizzes students on myths and facts about HIV
Personal Risks	Teacher distributes statistics on HIV risk	5	Risk Behaviors Answer Sheet (handout)	✓ (7.2)	✓ (7.3)	
Lesson Summary	Teacher reminds students that they need to make decisions about how to avoid HIV before they get into a potentially risky situation	5	n.a.			

Activity	Description	Length (in minutes)[a]	Material	Barren River District lesson plan[b, c]	Lincoln Trail District lesson plan	Additions/ modifications
14. Implementing Protection from STD and Pregnancy						
The Steps to Protection	Students develop plans for using condoms at a time in their lives when they might need them	10–25	The Steps to Protection (worksheet)		✓ (7.4)	
Role-Plays	Students develop and read aloud role-plays that address one of the steps of preparation for using condoms	15–25	n.a.		✓ (7.5)	
Lesson Summary	Teacher tells students that plans can help them make good choices and protect themselves	5	n.a.			
15. Sticking with Abstinence and Protection						
Review *Shopping Information* and *Visit or Call a Clinic* Homework	Students discuss what they learned from the homework assignments that required them to find information about protection	10–20	Completed Shopping Information Form (homework) Visit or Call a Clinic (homework)		✓ (5.1)	
Sticking with Abstinence and Protection	Students discuss and practice the *self-talk* method to help them plan and then stick with the plan to avoid sex or unprotected sex	20–35	Sticking with Abstinence and Protection (worksheet)		✓ (8.1)	
16. Skills Integration IV						
Review HIV Homework	Students discuss ways HIV would require them to act differently, harm them, or make their lives more difficult	5–10	How HIV Would Change My Life (homework)		✓ (7.1)	
Chris and Pat	Teacher reads story about two teens who care about each other, and students answer questions about the characters as well as themselves related to why to delay sex	15–25	A Love Story (handout) Chris and Pat (worksheet)	✓ (8.2)	✓ (8.2)	
Role-Play in Small Groups	Students use role-plays to extend skills learned about abstinence and avoiding unprotected intercourse	20–25	Being Careful on the Couch (role-play) Observer Checklist (form) Refusals and Delay Tactics posters Role-Play cards (optional)		✓ (8.3)	
I Learned Statements	Students write what they have learned in *Reducing the Risk*	5–15	Incomplete statements on the board	✓ (8.1)	✓ (8.4)	Barren River District: • Health educator reviews the takeaways from the previous seven classes Lincoln Trail District: • Health educator shows students the rest of the ABC News video on teen pregnancy (shown in the first lesson), if time allows

Source: *Reducing the Risk* curriculum (Barth 2011), Barren River and Lincoln Trail District Health Department lesson plans.

[a] The length of time is the approximate time needed for each activity. Each *Reducing the Risk* class is designed for 45-minute periods but can be expanded to fill more time by increasing time to practice skills and discuss activities.

[b] At the start of each class, Barren River District health educators post slides to review the ground rules. Barren River District health educators use PowerPoint slides in each class to review curriculum goals, introduce students to curriculum topics, quiz students about what they learn in each class, and walk students through worksheet and role-play activities.

[c] A check mark (✓) indicates that the activity is included in the lesson plan. The number in parentheses, such as 1.1, indicates the session number (1) and activity placement (1) in that session.

[d] The *Reducing the Risk* curriculum has two options for the first class: Class 1A, which focuses on pregnancy prevention, and Class 2A, which focuses on HIV prevention. According to the curriculum publisher, ETR Associates, facilitators can lead one or both of the lessons, depending on the program's goals and the school's policies.

[e] ETR allows activities in the two sessions on getting and using protection to be modified or not implemented, based on school district guidelines and policies about discussing and demonstrating methods of protection from pregnancy and sexually transmitted diseases (STDs). ETR asks that parents are informed if the teacher demonstrates methods of protection in class.

n.a. = not applicable.

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