Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

HHS Public Access

Author manuscript

*J Sch Health*. Author manuscript; available in PMC 2023 May 01.

Published in final edited form as:

*J Sch Health*. 2016 August ; 86(8): 595–603. doi:10.1111/josh.12414.

# Effectiveness of an Adaptation of the Project Connect Health Systems Intervention: Youth and Clinic-Level Findings

**Penny S. Loosier, PhD, MPH[a] [Behavioral Scientist], Shelli Doll, MA, CHES[b] [AIDS Drug Assistance Program Coordinator], Danielle Lepar, MPH[c] [Senior Research Associate/ Project Coordinator], Kristin Ward, MSA[d] [Senior Research Assistant], Ginger Gamble, MPH[e] [Research Associate], Patricia J. Dittus, PhD[f] [Lead Behavioral Scientist]**

[a]Centers for Disease Control and Prevention, 1600 Clifton Road, MS-E02, Atlanta, GA 30333.

[b]HIV Care and Prevention Section, Michigan Department of Health and Human Services, Lansing, MI 48913.

[c]Center for Data Management and Translational Research, Michigan Public Health Institute, Okemos, MI 48864.

[d]Center for Data Management and Translational Research, Michigan Public Health Institute, Okemos, MI 48864.

[e]Center for Data Management and Translational Research, Michigan Public Health Institute, Okemos, MI 48864.

[f]Centers for Disease Control and Prevention, 1600 Clifton Road, MS-E44, Atlanta, GA 30333.

## Abstract

**BACKGROUND:** The Project Connect Health Systems Intervention (Project Connect) uses a systematic process of collecting community and healthcare infrastructure information to craft a referral guide highlighting local healthcare providers who provide high quality sexual and reproductive healthcare. Previous self-report data on healthcare usage indicated Project Connect was successful with sexually experienced female youth, where it increased rates of human immunodeficiency virus (HIV) and sexually transmitted disease (STD) testing and receipt of contraception. This adaption of Project Connect examined its effectiveness in a new context and via collection of clinic encounter-level data.

**METHODS:** Project Connect was implemented in 3 high schools. (only 2 schools remained open throughout the entire project period). Participant recruitment and data collection occurred in 5 of 8 participating health clinics. Students completed Youth Surveys (N = 608) and a Clinic Survey (paired with medical data abstraction in 2 clinics [N = 305]).

Address correspondence to: Penny S. Loosier, Behavioral Scientist, (ploosier@cdc.gov), Centers for Disease Control and Prevention, 1600 Clifton Road, MS-E02, Atlanta, GA 30333.

Human Subjects Approval Statement

Institutional review board approval was obtained from the Henry Ford Health System. Approval #: 7711.

The views and conclusions in this paper are those ofthe authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention. We extend our thanks to all participating schools, school staff, and healthcare providers and their office staff.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

**RESULTS:** Students were more likely than nonstudents to report having reached a clinic via Project Connect. Nearly 40% of students attended a Project Connect school, with 32.7% using Project Connect to reach the clinic. Students were most likely to have been referred by a school nurse or coach.

**CONCLUSIONS:** Project Connect is a low-cost, sustainable structural intervention with multiple applications within schools, either as a standalone intervention or in combination with ongoing efforts.

## Keywords

school health; adolescent; healthcare seeking; linkage to healthcare; structural intervention

In the United States, youth carry a disproportionate share of the burden of sexually transmitted diseases (STDs), with rates of chlamydia and gonorrhea highest among those between ages 15 and 24.[1] Likewise, though pregnancy rates among US youth have been declining, they still remain among the highest among industrialized countries.[2] These disparities point to a need for high-quality sexual and reproductive healthcare (SRHC) for youth. Unfortunately, many youth are unable to access this care,[3] do not receive adequate SRHC when accessing general healthcare,[4] or forgo care for a variety of reasons, including stigma and fears regarding the confidentiality of services.[5,6]

For example, data from the Medical Expenditure Panel Survey suggest that only 38% of youth receive the recommended annual preventive visit.[7] However, a study of preventive services offered to youth as measured using the California Health Interview Survey found that physicians only discussed STDs with one third of their youth patients, and when they did, they were more likely to discuss STDs with older rather than with younger youth, with girls more than boys, with youth reporting the lowest level of family income as compared to higher, and with uninsured youth more so than insured.[8] These findings are mirrored for STD testing.[9] Alongside this, one study found that less than half of physicians and only 51% of nurse practitioners routinely screen young women for chlamydia,[10] the predominant reportable infection in the United States. Even among symptomatic youth patients, testing rates may be low.[11]

The Project Connect Health Systems intervention (Project Connect)[12] is designed to overcome these hurdles by linking at-risk youth with high-quality providers of SRHC within their community. Instead of focusing on changing provider behavior, Project Connect uses a systematic approach to identify community providers who are already doing a good job of screening and treating youth. Once identified, these providers are then included on a provider referral guide made available to youth. Project Connect was initially tested as part of a multiyear, multilevel intervention in a large urban school district. Results indicated that Project Connect was most successful with sexually experienced female youth, where it increased rates of human immunodeficiency virus (HIV) and STD testing and receipt of contraception. Results were not significant for male youth.[12]

Although the initial intervention trial provided evidence for proof of concept, the extent to which Project Connect could be replicated in other areas of the country remained unclear.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

The impact of external factors such as the local policy context, healthcare infrastructure, transportation infrastructure, and selected intervention setting could not be determined through intervention in a single area. Likewise, information on healthcare usage at the provider level was not collected in the original pilot of Project Connect. To examine the effectiveness of Project Connect when replicated in a setting varying significantly from that of the original trial and to collect individual-level data on clinical encounters with providers, an adaptation project was undertaken in Detroit, Michigan. This article focuses on those findings.

## The Project Connect Methodology

Developing and implementing Project Connect within a community requires fidelity to 4 core components: (1) completing an environmental scan; (2) completing a healthcare infrastructure scan; (3) developing a provider referral guide;and (4) disseminating the provider referral guide and training key touchpoints (ie, trusted adults or other sources to which youth may turn for information about SRHC).[13] The environmental scan is used to identify areas within the community with high rates of STDs, HIV, and/or teen pregnancy and can be completed using data provided by the local or state health department or from other available sources providing information on morbidity. Within selected areas, venues that reach at-risk youth may also be identified by assessing the presence of schools, youth serving organizations, or other organizations serving the target population.

A healthcare infrastructure scan is a standardized method for determining both the density and spread of local providers as well as, and perhaps most importantly, for providing the starting point for identifying providers who are already doing a good job of providing SRHC to youth. If data are available from the health department identifying those providers who have reported cases of chlamydia in youth within the targeted age range, this list of providers may be used to form an initial pool from which further inquiries may be made. Once this initial pool of providers is gathered, each clinic is contacted so that information on services offered, types of payment accepted, procedures for assuring confidential provision of services, and youth-friendly features can be gathered. At this point, providers/clinics which do not meet preset criteria (eg, does not provide free services; does not see youth without parent present; does not screen all sexually active youth for STDs) are excluded. Preset criteria reflect the characteristics prioritized by the implementing agency and/or driven or limited by the existing characteristics of the healthcare community or policy context in that area.

Once a core list of high-quality providers is assembled, a provider referral guide is created which includes information on SRHC services offered, payment types accepted, and logistical information (eg, public transportation routes). This guide can be disseminated via tear away handouts, posters, pocket guides, or online. For physical distribution of the guide, key touchpoints are trained on the intent behind Project Connect, provided with information on youth confidentiality within their state as well as other applicable laws and policies, and given tips for talking with youth about sexual health.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

## Key Differences and Similarities Between Original Implementation in Los Angeles and Adaptation in Detroit

Original implementation of Project Connect was as part of a multilevel, multiyear intervention in select schools in the Los Angeles Unified School District (LAUSD). To examine the effectiveness of the Project Connect model and to gather information about needed adaptations to the implementation process, Project Connect was replicated in Detroit, MI. With the highest rates of chlamydia in the state[14] and nearly half of the state′s morbidity for gonorrhea among 15-to 19-year-olds,[14] as well as a teen pregnancy rate almost double that of the state of Michigan,[14] Detroit is home to a number of youth at risk for poor sexual and reproductive health outcomes.

In LAUSD, the study population was primarily Latino.[12] In Detroit, the study population was primarily African American. In both LAUSD and Detroit, the intervention targeted youth in high school (grades 9-12). Initially, implementation in Detroit was intended to occur in schools with 3 levels of existing healthcare infrastructure: 1 with a school-based health center (SBHC), 1 with a school nurse but no SBHC, and 1 with neither an SBHC nor a school nurse. However, during study implementation, changes within the school system necessitated alteration (Figure 1).

Much as with the educational infrastructure, the healthcare infrastructure in Detroit was similarly distressed. Provider data shared by the state health department proved ineffective at developing a usable initial list of potential SRHC providers. Data were often incomplete, and the ongoing economic recession stretched to the healthcare infrastructure, with a number of providers having shuttered their clinics in the year preceding the scan. Instead, a networking approach was used wherein a trusted few healthcare providers, including school nurses and SBHC staff, linked project staff to other community providers who they felt delivered high-quality SRHC. In both LAUSD and Detroit, provider referral guides were school specific, in that they included distance to the provider and transportation information using the school as a starting point. Whereas provider guides in LAUSD boasted 43 distinct providers, Detroit offered only 8 providers. Although this disparity is attributable, in part, to the pilot of Project Connect being offered in 2 geographically distinct areas within LAUSD, a focus on each individual area still reveals roughly 2.5 providers in LAUSD for each one in Detroit. Each provider referral guide also provides information on the distance to be traveled from a youth′s school to reach a provider. In Detroit, the average distance from a youth′s school to a provider was 7.76 miles. In LAUSD, this distance was 4.54 miles. When focusing on the 8 closest clinics on each LAUSD provider referral guide for a direct comparison to the 8 clinics able to be listed on the Detroit guide, this distance shrank to 1.80 miles.

Finally, the policy context in LAUSD was much more supportive of youths′ access to SRHC services. Section 46010.1 of the California Education Code in combination with Student Health & Human Services Bulletin, BUL-2060.0 allows for students to leave school during the school day for confidential receipt of healthcare services without being counted absent and without parental consent or notification. Detroit has no such policy in place; providers who were unwilling to see youth without parental notification and/or consent were not included on the Detroit provider referral guide. In addition, through the California Family

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Planning, Access, Care, and Treatment (Family PACT) program, essentially all sexually active youth in the state of California were able to receive SRHC services without co-pay or other cost sharing.[15] At the time, Family PACT was separate from the California Medicaid program, and so did not require youth to meet Medicaid eligibility standards or to enroll in Medicaid to receive benefits, thus eliminating the need for parental consent. This was not true in Detroit, where youth must be enrolled in Medicaid or have private health insurance coverage to allay costs. As a result, providers who did not provide free services to youth were not included on the Detroit provider referral guide.

In both LAUSD and Detroit, the provider referral guide was provided to students by school staff. In LAUSD, school nurses were initially selected and trained to act as key touchpoints. As the project progressed, other staff members were included. In Detroit, all school staff were trained on Project Connect during school-wide in-service trainings prior to the start of the school year and all were given provider referral guides. In Detroit, however, provider referral guides were also distributed during STD screening events organized by the state health department but conducted within Project Connect intervention schools, among others, as well as during other large, school-wide activities (eg, antiviolence rally). In both cities, intervention staff found it necessary to include in training sessions information on minor′s right to consent for care and minor confidentiality laws as knowledge regarding these areas, as has been found elsewhere,[16] was often incomplete or erroneous.

## Study Objectives

The current analyses seek to answer 5 primary questions. First, did students attending schools implementing Project Connect use the provider referral guide when seeking healthcare services? Second, did students attending schools implementing Project Connect use the provider referral guide when seeking healthcare services at a higher rate than students attending schools not implementing Project Connect. Third, did the clinics selected for inclusion on the provider referral guide do a good job of providing SRHC to youth seeking services at that clinic? Fourth, did youth receive SRHCs services commensurate with their level of sexual risk? And, fifth, what staff time and costs were associated with implementation of Project Connect?

# METHODS

### Participants

Over the course of data collection, Project Connect was implemented in 4 schools. Figure 1 contains more information on the schools participating in implementation of Project Connect. The Project Connect provider referral guide listed 8 providers of SRHC services. Of these, 4 were community clinics, 2 were SBHCs, 1 was a school-linked health center, and 1 was a mobile testing center. The Youth Survey was conducted in both SBHCs, 2 community clinics, and the school-linked health center. Along with Youth Survey data, medical encounter data were also collected at both community clinics. All youth visiting 1 of the 5 clinics participating in the evaluation study were invited by clinic staff to complete a brief Youth Survey. In addition to the Youth Survey, those attending community clinics not affiliated with schools (N = 2) completed an additional survey of sexual risk and

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

service use information and were asked for their consent to have data abstracted from the record of their medical visit (ie, the Clinic Survey). Data were not collected from survey nonresponders, including numbers of refusals, reasons for refusals, and demographic information on refusers. Data collection took place between March 2012 and April 2013.

## Instruments

**Youth survey.—**The youth survey consisted of 9 questions measuring demographic information including sex, grade, and age, as well as prior completion of the survey, the name of the school currently attended (if any), type of insurance, reasons for the clinic visit, reasons for choosing the clinic, whether the Project Connect referral guide was used to get to the clinic, and who either provided the student with the referral guide or referred them to the clinic.

**Clinic survey.—**The Clinic Survey consisted of 2 parts: (1) Self-report by respondents on 10 items administered prior to interacting with a healthcare provider which gathered information on sex, age, race/ethnicity, age at first intercourse, current sexual activity, alcohol or drug use prior to last intercourse, condom use at last intercourse, and lifetime number of sexual partners. Current STD symptoms were measured as well as history of STD, pregnancy, and if ever tested for HIV; and, (2) Data were abstracted from the records of consenting respondents for that day′s visit and included age, contraceptive method prescribed (if any), HIV test result (if tested), pregnancy test result (if tested), type and result of STD tests (if tested), and type of insurance (if any).

## Guide Distribution and Cost Information

Referral guides were numbered upon distribution. Direct costs, indirect costs, and staff hours needed to implement the project were systematically compiled by project staff retrospectively and for the duration of the project. Direct costs and staff hours for key, nonresearch-related components include identification of intervention sites and identification of providers for inclusion on guide (site visits, calls with collaborating partners); production of physical provider referral guides (design, review, meetings with printers);training of key touchpoints (training development, materials development); dissemination and marketing (printing referral guides for distribution, development/printing of marketing materials, meeting with key stakeholders to encourage use); and, materials updates (following up with included providers, distribution of additional materials).

## Procedure

To abstract and collect sensitive data from youths′ medical records, a minor consent form explaining the purpose of the data abstraction was distributed which outlined the purpose of the research, risks and benefits associated with participation, and information about privacy protection. The minor consent form was only distributed at the 2 community clinics where medical records data were being abstracted. If youth signed the minor consent form, they received a $5 gift card for their participation. Consenting youth were not required to answer questions on the Clinic Survey, but their consent did allow the nurse practitioner to document their test results. Parental permission was not required. Clinic staff received training on data collection and security.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

### Data Analysis

For the Youth Survey, $\chi^2$ statistics compared students attending schools implementing Project Connect versus those in schools not implementing Project Connect on reasons for clinic visit and on sexual behavior variables at a bivariate level. For the Clinic Survey, $\chi^2$ statistics compared receipt of SRHC services by high-risk and low-risk participants for items with a dichotomous outcome variable. Multinomial logistic regression was used where the outcome variable had more than 2 possible responses. Significance level was set at $p < .05$. All analyses were conducted in SPSS v21.

## RESULTS

### Guide Distribution and Cost Information

During the 23-month implementation of Project Connect in 3 Detroit city schools, 1823 referral guides were distributed by key touchpoints. Table 1 contains more information on staff hours and costs of intervention implementation.

### Youth Survey Results

Overall, 599 youth responded to the Youth Survey. Although identifying information was not collected, the number of respondents indicating that they had taken the survey more than once was negligible (8/599.) As youth did not have to be in school to be eligible to complete the survey, 24.3% (N = 156) of students met age eligibility criteria but were not enrolled in school. An additional 2.8% (N = 9) of students did not report their school status. Neither group was included in further analyses. Of the remaining 443 student participants, 45.1% (N = 200) attended a school implementing Project Connect. Table 2 contains further demographic information. Overall, 24.3% (N = 83) of respondents indicated that they had used the provider referral guide to visit the clinic. Of these, the most frequently reported sources of the provider referral guide were school nurses, friends, and coaches. There were no differences on reported reason for visiting the clinic related to SRHC (ie, for STD/HIV testing, STD/HIV treatment, pregnancy testing, discussing/getting birth control, or prenatal care) between these respondents and those listing another reason for selecting that clinic. However, respondents indicating that their reason for visiting the clinic was illness/injury were more likely to report use of the provider referral guide as a reason for visiting the clinic as compared to those who did not cite use of the provider referral guide (55.3% vs 38.5%; $\chi^2 = 5.091$, $p < .001$).

Significantly more students attending a school implementing Project Connect reported using the provider referral guide when accessing healthcare (32.7%; N = 49) as compared to students not attending a school implementing Project Connect (17.7%; N = 34 [$\chi^2 = 10.25$, $p < .001$]). As compared to students not attending a school implementing Project Connect, students in a school implementing Project Connect were more likely to report having chosen to attend the respective clinic because it was close to school (49.5% vs 10.3%; $\chi^2 = 83.24$, $p < .0001$), because it was open during a convenient time (16.0% vs 4.1%; $\chi^2 = 17.94$, $p < .0001$), or because staff were considered friendly (21.0% vs 13.6%; $\chi^2 = 4.21$, $p < .05$). That the clinic was close to home was the only aspect drawing significantly more students not attending a school implementing Project Connect (9.5% vs 21.5%; $\chi^2 = 11.67$, $p < .001$).

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Students attending a school implementing Project Connect were also significantly more likely than students not attending a school implementing Project Connect to report their primary reason for accessing services as STD treatment (9% vs 2.6%; $\chi^2 = 8.55$, p = .005) or illness/injury (29.5% vs 8.1%; $\chi^2 = 33.44$, p < .0001). Conversely, students attending a school implementing Project Connect were significantly less likely than students not attending a school implementing Project Connect to report their primary reason for accessing services was pregnancy testing (6% vs 14.1%; $\chi^2 = 7.62$, p < .007), discussing/getting birth control (2.5% vs 9.4%; $\chi^2 = 8.80$, p = .003), or their yearly checkup/physical (27.5% vs 50.4%; $\chi^2 = 23.65$, p < .0001).

## Clinic Survey Results

As with the Youth Survey, respondents completing the Clinic Survey (N = 305) did not have to be in school to be eligible for participation. Eliminating respondents who were not enrolled in school (N = 105) or had missing data on this element (N = 12) produced 188 student respondents. Of these, only 2.7% (N = 5) reported attending a school implementing Project Connect. As a result, comparisons could not be drawn between students attending implementing versus nonimplementing schools. Clinic encounter information is presented on the full sample of youth responding to the Clinic Survey. Table 2 contains further demographic information.

Of the surveyed youth, 80.3% (N = 245) provided information on age of first sexual intercourse (range = 6 – 19; M = 14.47; SD = 2.01); 70.5% (N = 215) of the total sample reported engaging in sexual intercourse in the past 3 months. Roughly as many youth reported not using a condom at last intercourse (43.3%; N = 132) as reported using a condom at last intercourse (42.6%; N = 130). Among youth reporting on their number of sexual partners (N = 257), 17.8% (N = 51) reported having had 6 or more sexual partners, making this the most commonly given response. Conversely, 21 (8.2%) reported having no sexual partners. Because many services should be offered to all youth in this age range as they may be contemplating engaging in sexual activity even if they are not currently, all respondents are included in the analyses.

Although 45.6% (N = 139) of respondents indicated their primary reason for visiting the clinic was for a physical exam, an additional, equivalent 28.2% (N = 86) and 17.4% (N = 53) indicated their primary reason was for STD and pregnancy testing, respectively. Overall, 32.1% (N = 98) of respondents indicated a previous STD diagnosis and 30.8% (N = 94) indicated presence of one or more symptoms of STD at the time of their clinic visit. Of the 231 respondents who reported on past pregnancy history, 18.0% (N = 55) had a previous pregnancy. Combining respondents with a past STD or pregnancy with those indicating presence of one or more symptoms of STD created a category of respondents deemed at high risk for current or subsequent STDs. This subgroup comprised 52.1% (N = 159) of the sample.

As seen in Table 3, for both the total clinic sample and the high-risk subgroup, nearly all respondents were tested for chlamydia and gonorrhea and nearly all females were tested for pregnancy. There was no difference between testing for chlamydia, gonorrhea, and pregnancy for the high-risk and low-risk subgroups. Overall, 85% of respondents were tested

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

for HIV; respondents in the high-risk subgroup (57.0%; N = 77) were more likely to receive an HIV test than were respondents in the low-risk subgroup (42.9%; N = 36 [$\chi^2 = 4.169$, $p < .05$]). Approximately 88% of respondents were prescribed a contraceptive at the clinic encounter, with more prescriptions going to respondents in the high risk as opposed to the low-risk subgroup (71.2% vs 59.3%; $\chi^2 = 3.397$, $p < .05$). The most commonly prescribed contraceptive for all youth was the male condom. Among female respondents, the number prescribed birth control pills was roughly equal to those prescribed Depo-Provera. There was no difference between high-risk and low-risk subgroups on types of contraceptives prescribed. A follow-up plan for SRHC services was discussed with 55.4% of the total clinic sample and 63.5% of the high-risk subgroup, with no difference between the high- and low-risk subgroups. However, fewer respondent medical records were flagged as having no need for a follow-up plan for SRHC services among the high-risk subgroup (22.0% vs 23.7% for low-risk subgroup; [$\beta = 6.444$, confidence interval = 1.229-33.803, $p < .05$]) as compared to medical records indicating that a follow-up plan for SRHC services was not discussed (1.5% vs 10.5% for low-risk subgroup).

## DISCUSSION

The adaptation and implementation of Project Connect in Detroit provided several key clues as to its effectiveness outside of a highly structured research environment and filled gaps in data collection identified by the pilot trial. Despite disruptions in intervention delivery, nearly 1 in 4 student respondents indicated using the provider referral guide to visit the clinic. Of these, more attended schools implementing Project Connect than schools not implementing Project Connect. Although only one third of youth providing information at the clinic encounter attended a school implementing Project Connect, roughly 1 in 3 of those who did attend a Project Connect school reported using the provider referral guide to access the clinic. Overall, SRHC concerns were a primary driver for youth seeking care, and those factors listed as important to youth when selecting a care provision site align with the priorities emphasized by the clinic and provider selection criteria used in the healthcare infrastructure scan component of Project Connect, namely: proximity, accessibility, and youth-friendly staff. Within schools, youth described receiving a Project Connect provider referral guide from a range of staff, notably nurses and coaches, indicating both a willingness among students to seek SRHC information from trusted staff as well as the utility of having, on hand, a resource providing actionable information youth could use to seek the appropriate healthcare.

Although students attending schools implementing Project Connect were no more likely than those attending schools which were not to report their reason for the visit as SRHC, students attending schools implementing Project Connect were more likely to report their reason for the visit as illness or injury. This hints at the utilization of the provider referral guide for healthcare seeking beyond SRHC. Students attending schools implementing Project Connect were also less likely to report their reason for visiting the clinic as pregnancy testing, discussing/getting birth control, or their yearly checkup/physical. Although this may be because these types of reproductive healthcare services and routine preventive care are often offered as part of an ongoing medical relationship between provider and patient, this study is not able to answer the question of why certain types

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

of healthcare seeking behavior are more or less closely associated with use of the provider referral guide. Additional research exploring the decision-making process when deciding when and where to seek healthcare is needed to elucidate this.

The Detroit adaptation did, however, provide information about services provided at the clinic encounter level, data which were missing from the original pilot. Overall, youth seeking SRHC displayed high levels of risk. Nearly all respondents received screening for chlamydia and gonorrhea, and approximately 85% were screened for HIV. Pregnancy testing was almost universal for females, and almost 6 of 10 youth were prescribed some type of contraceptive. Almost all clinic encounters included some discussion of SRHC follow-up, even if it was decided that SRHC follow-up was not needed. Altogether, in the community clinics where abstraction of clinic encounter data was possible, the selected healthcare providers fulfilled the intent of Project Connect. They offered high-quality SRHC, including recommended preventive services. They provided HIV testing and prescribed contraceptives to more high risk as compared to low-risk youth and were less likely to omit discussion of SRHC follow-up. This appears to indicate that the selected healthcare providers were not simply implementing universal SRHC protocols for all youth in this age range but were, instead, knowledgeable regarding the patient′s level of risk and true need for SRHC services.

## Limitations

Several disruptions in implementation meant that Project Connect was variably accessible by students in intervention schools over the course of the project The need to train new staff, receive new or additional approvals to operate within schools, and to navigate around administrative obstacles which emerged as by-products of school-level changes created delays on the front end of implementation which, when combined with the limitations of the school year calendar, shortened the period of time in which Project Connect was visible to students. Despite this, Project Connect was able to assist a significant number of youth to reach care. It is possible that more youth may have used Project Connect to find a healthcare provider had efforts been more extensive. Youth who used the provider referral guide were not significantly more likely to be screened or to be positive for an STD. However, this may be a reflection of the quality of selected providers and prevailing high rates of positivity among youth in Detroit.

## Conclusions

The idea of a provider referral system is not unique to Project Connect. Some organizations and entities offer online locators for individuals seeking providers or STD/HIV testing, though these may not incorporate information regarding the youth-friendliness of the site or provide indicators of quality of care.[17] Project Connect uses a systematic approach to identifying providers within the community who are already doing a good job of providing high-quality SRHC to youth as opposed to simply listing all available providers, and so, for this at-risk population, may be a better choice for connecting youth to SRHC services than the higher level provider/testing locators. By focusing materials, resources, and efforts on driving youth to these high-quality providers, Project Connect provides the information necessary for youth to access healthcare with fewer obstacles, from a knowledgeable

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

and youth-friendly healthcare provider, and in the venue most convenient to them. Other referral systems may focus on youth or use some type of methodology to identify good providers,[18-20] but little information is available regarding their efficacy or effectiveness.

## IMPLICATIONS FOR SCHOOL HEALTH

Given that the rate of STD screening among youth does not appear to have increased over the past decade[21] despite continued, obvious need, implementing innovative ways of bringing at-risk youth into care remains a public health priority. As Table 1 shows, Project Connect is a low-cost structural intervention that links youth to needed SRHC services within their own community. Likewise, evidence of its sustainability can be seen in Los Angeles, under the auspices of the Los Angeles County Department of Public Health, where implementation continues in project schools which participated in the original trial of Project Connect.[22] Implementation in diverse communities highlights the flexibility of this intervention in addressing local barriers and maximizing local resources. Use of existing community providers who are already doing a good job of providing SRHC to this population does likewise. The process of developing Project Connect unearths a great deal of information about the local healthcare infrastructure and local barriers to receipt of healthcare by youth as well as supporting collaboration between schools and local/state public health agencies. By providing youth with links to high-quality providers, Project Connect helps youth seek care autonomously and supports a youth′s best chance at having a positive experience when seeking care.

Youth received the Project Connect provider referral guide from a number of trusted key touch-points within schools, but school nurses, providing approximately 1 in 5 referrals, were the most popular source. However, as many as 25% of schools may not have a school nurse at all, while an additional 30% may have only a part-time nurse.[23] Even in those schools with school nurses, other demands such as the management of chronic conditions, administering medications, and providing first aid, among others, limit the amount of time nurses are able to spend on the SRHC needs of youth.[24] Although not a substitute for individual-level clinical encounters, Project Connect can help fill this gap by laying the groundwork to allow busy school nurses to maximize the outcome of interactions with students seeking SRHC services by providing a “cheatsheet” of high-quality, trusted providers. Likewise, by equipping additional staff within schools who can provide this same high-quality information, Project Connect gives students access to multiple staff members who can help them navigate at least some component of healthcare-seeking.

In Detroit, in addition to providing the Project Connect guide through key touchpoints, it was also distributed at STD screening “blitzes” at intervention high schools conducted in conjunction with the state health department. Although partnering health departments followup with students with positive results to ensure treatment, the Project Connect guide may offer these obviously at-risk students, along with others who may have similar risk profiles or who may be contemplating initiating sexual activity, the information to seek SRHC independently. Other schools may be unable to muster the resources necessary to mount such a comprehensive effort. In those cases, Project Connect may be used as a standalone intervention. For all schools, regardless of ongoing clinical efforts, Project

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Connect may be added to existing sexual health education curricula, rounding out the offered information by providing the crucial next step—linkage to appropriate SRHC.

## REFERENCES


1. US Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2013. Atlanta, GA: US Department of Health and Human Services; 2014.
2. McKay A, Barrett M. Trends in teen pregnancy rates from 1996-2006: a comparison of Canada, Sweden, U.S.A., and England/Wales. Can JHum Sex. 2010;19(1-2):43–52.
3. Geisler WM, Chyu L, Kusunoki Y, Upchurch DM, Hook EW III. Health insurance coverage, health care-seeking behaviors, and genital chlamydial infection prevalence in sexually active young adults. Sex Transm Dis. 2006;33(6):389–396. [PubMed: 16505745]
4. Goyal MK, Witt R, Hayes KL, Zaoutis TE, Gerber JS. Clinician adherence to recommendations for screening of adolescents for sexual activity and sexually transmitted infection/human immunodeficiency virus. J Pediatr. 2014;165:343–347. [PubMed: 24840761]
5. Cunningham SD, Kerrigan DL, Jennings JM, Ellen JM. Relationships between perceived STD-related stigma, STD-related shame and STD screening among a household sample of adolescents. Perspect Sex Reprod Health. 2009;41(4):225–230. [PubMed: 20444177]
6. Hyden C, Allegrante JP, Cohall AT. HIV testing sites′ communication about adolescent confidentiality: potential barriers and facilitators to testing. Health Promot Pract. 2013;15(2):173–180. [PubMed: 23966274]
7. Irwin CE, Adams SH, Park MJ, Newacheck PW. Preventive care for adolescents: few get visits and fewer get services. Pediatrics. 2009;123(4):565–572.
8. Lau JS, Adams SH, Irwin CE Jr, Ozer EM. Receipt of preventive health services in young adults. J AdolescHealth. 2013;52:42–49.
9. Wiehe SE, Rosenman MB, Wang J, Katz BP, Fortenberry JD. Chlamydia screening among young women: individual- and provider-level differences in testing. Pediatrics. 2011;127(2):e336–e344. [PubMed: 21262889]
10. Guerry SL, Bauer HM, Packel L, et al. Chlamydia screening and management practices of primary care physicians and nurse practitioners in California. J Gen Intern Med. 2005;20:1102–1107. [PubMed: 16423098]
11. Wiehe SE, Rosenman MB, Wang J, Fortenberry JD. Disparities in chlamydia testing among young women with sexually transmitted infection symptoms. Sex Transm Dis. 2010;37(12): 751–755. [PubMed: 20644496]
12. Dittus P, De Rosa CJ, Jeffries RA, et al. Evaluation of the Project Connect health systems intervention: linking sexually experienced youth to sexual and reproductive healthcare. J Adolesc Health. 2014;55:528–534. [PubMed: 24856358]
13. US Centers for Disease Control and Prevention. The Project Connect Implementation Guide. Available at: http://www.cdc.gov/std/projects/connect/guide.htm. Accessed October 15, 2015.
14. Michigan Department of Health and Human Services. Michigan Sexually Transmitted Diseases Database, sexually transmitted disease section, Division of HIV/AIDS-STD, 2010. Available at: http://www.mdch.state.mi.us/pha/osr/CHI/STD_H/SD10ST3A.ASP. Accessed May 3, 2016.
15. Family PACT welcome page. Family PACT web site. Available at: http://www.familypact.org/. Accessed December 30, 2014.
16. Hyden C, Allegrante JP, Cohall AT. HIV testing sites′ communication about adolescent confidentiality: potential barriers and facilitators to testing. Health Promot Pract. 2014;15(2):173–180. [PubMed: 23966274]
17. Get Tested. National STD and HIV Testing. Available at: http://gettested.cdc.gov/. Accessed January 21, 2015.
18. Adolescent Pregnancy Prevention Campaign of North Carolina. The Playbook. Available at: http://www.appcnc.org/projects-services/the-playbook. Accessed January 15, 2015.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

19. City of New York. Teens in NYC… sexual health and pregnancy: clinics for teens. Available at: http://www.nyc.gov/html/doh/teen/html/sexual-health-pregnancy/clinics.shtml. Accessed January 15, 2015.

20. Georgia Campaign for Adolescent Power and Potential. gPower. Available at: http://www.gpowernow.org/. Accessed January 15, 2015.

21. Haderxhanaj LT, Gift TL, Loosier PS, Cramer RC, Leichliter JS. Trends in receipt of sexually transmitted disease services among women 15 to 44 years old in the United States, 2002 to 2006-2010. Sex Transm Dis. 2014;41(1):67–73. [PubMed: 24335746]

22. DeRosa C Project connect provider intervention: adoption by the Los Angeles County Department of Public Health. Presented at the 2014 STD Prevention Conference in Atlanta, GA, 2013.

23. National Association of School Nurses. School Nursing in the United States: A Quantitative Study. Silver Spring, MD: National Association of School Nurses; 2007.

24. Charting Nursing′s Future. Unlocking the Potential of School Nursing: Keeping Children Healthy, in School, and Ready to Learn. Princeton, NJ: The Robert Wood Johnson Foundation; 2010.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

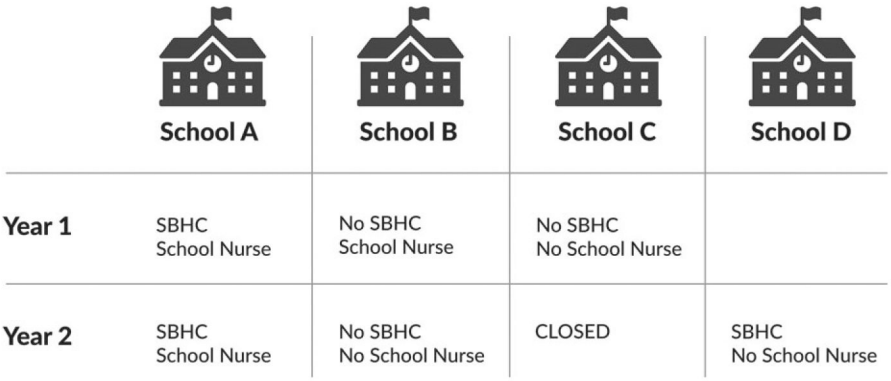


**Figure 1.**
Schools Participating in Adaptation of Project Connect in Detroit Throughout Data Collection Period

Author Manuscript Author Manuscript Author Manuscript Author Manuscript



**Table 1.**

Direct, Nonresearch Costs and Staff Time Devoted to Developing and Implementing an Adaptation of Project Connect in Detroit Across 3 Years of Project Implementation

| Cost Components | Staff Hours | Direct Staffing Costs | Supplies and Materials Costs | Travel Costs |
|---|---|---|---|---|
| Identification of intervention sites and identification of providers for inclusion on guide | 736 | $16,085 | $460 | $576 |
| Production of physical provider referral guides | 483 | $12,806 | $2835 | $288 |
| Training of key touchpoints | 400 | $9912 | $323 | $850 |
| Dissemination and marketing | 682 | $20,510 | $646 | $850 |
| Materials updates | 388 | $9605 | $2556 | $0 |
| **Total** | **2689** | **$68,918** | **$6820** | **$2564** |

*J Sch Health*. Author manuscript; available in PMC 2023 May 01.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

**Table 2.**

Demographic Information for Respondents Completing the Youth and Clinic Surveys

| | Youth Survey (N = 443) N (%) | Clinic Survey (N = 305) N (%) |
|---|---|---|
| Sex | | |
| Girls | 290 (65.5) | 215 (70.5) |
| Boys | 149 (33.6) | 90 (29.5) |
| Grade | | |
| 7th | 11 (2.5) | 8 (2.6) |
| 8th | 18 (4.1) | 16 (5.2) |
| 9th | 66 (14.9) | 27 (8.9) |
| 10th | 98 (22.1) | 33 (10.8) |
| 11th | 122 (27.5) | 40 (13.1) |
| 12th | 128 (28.9) | 64 (21.0) |
| Not in school | — | 117 (38.4) |
| Age | | |
| 13 or younger | 19 (4.3) | 15 (4.9) |
| 14 | 44 (9.9) | 20 (6.6) |
| 15 | 91 (20.5) | 39 (12.8) |
| 16 | 102 (23.0) | 31 (10.2) |
| 17 | 109 (24.6) | 55 (18.0) |
| 18 | 59 (13.3) | 62 (20.3) |
| 19 or older | 18 (4.1) | 81 (26.6) |
| Insurance status | | |
| Private | 27 (8.9) | 17 (9.0) |
| None | 52 (17.0) | 23 (12.2) |
| Public | 185 (60.7) | 121 (64.4) |
| Past STD diagnosis | — | 53 (28.2) |

STD, sexually transmitted disease.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript





*J Sch Health*. Author manuscript; available in PMC 2023 May 01.

**Table 3.**

Clinic Encounter Data Abstracted From Medical Records of Youth Attending Community Clinics

| | Total Clinic Sample (N = 305) | | High-Risk Subgroup* (N = 159) | |
|---|---|---|---|---|
| | Data Available in Chart† N (%) | N (%)‡ | Data Available in Chart† N (%) | N (%)‡ |
| Chlamydia/gonorrhea test received | 305 (100.0) | 292 (95.7) | 159 (100.0) | 152 (95.6) |
| Positive for chlamydia | 292 (95.7) | 33 (10.8) | 152 (95.6) | 23 (14.5) |
| Positive for gonorrhea | 292 (95.7) | 6 (2.0) | 152 (95.6) | 4 (2.5) |
| HIV test received | 261 (85.6) | 128 (42.0) | 135 (84.9) | 77 (48.4)§ |
| Positive for HIV | 123 (40.3) | 1 (0.3) | 74 (46.5) | 0 (0.00) |
| Pregnancy test received// | 211 (98.1) | 206 (95.8) | 132 (97.8) | 131 (97.0) |
| Positive for pregnancy// | 204 (94.9) | 23 (10.7) | 129 (95.6) | 18 (13.3) |
| Contraceptive prescribed | 269 (88.2) | 181 (59.3) | 139 (87.4) | 99 (62.3)§ |
| Male condom | 209 (68.5) | 179 (58.7) | 110 (69.2) | 96 (87.3) |
| Female condom | 208 (68.2) | 6 (2.0) | 110 (69.2) | 3 (1.9) |
| Birth control pills// | 145 (67.4) | 36 (16.7) | 93 (68.9) | 21 (15.6) |
| Depo-Provera// | 145 (67.4) | 34 (15.8) | 93 (68.9) | 22 (16.3) |
| Discussed SRHC follow-up | 247 (81.0) | 169 (55.4) | 132 (83.0) | 101 (63.5) |
| SRHC follow-up not needed | 247 (81.0) | 67 (22.0) | 132 (83.0) | 29 (18.2)§ |
| SRHC follow-up not discussed | 247 (81.0) | 11 (3.6) | 132 (83.0) | 2 (1.3) |

HIV, human immunodeficiency virus; SRHC, sexual and reproductive healthcare; STD, sexually transmitted disease.

*Comprised of respondents indicating either previous STD diagnosis, previous pregnancy, or symptoms at time of clinic visit. Not independent of total clinic sample.

†N (%) of respondents for whom data were present in medical record at time of abstraction out of total clinic sample.

‡N (%) of respondents reporting outcome out of those for whom data were present in medical record at time of abstraction.

§Comparisons of respondents in high-risk subgroup to respondents in low-risk subgroup. Data for low-risk subgroup not presented. $p < .05$.

//Reported for girls only (total clinic sample: N = 215; high-risk subgroup: N = 135).