

## **Increasing Adolescent STI Screening in Delaware School-Based Health Centers**

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Sexually transmitted infections (STIs) are a significant healthcare concern for the adolescent population and untreated can lead to serious long-term consequences. School-based health centers (SBHCs) can circumvent the barriers to reproductive health care that adolescents frequently experience and provide STI detection and treatment services confidentially to this population. This article describes a performance improvement project focused on increasing STI screening rates in fourteen SBHCs in Delaware.

Several interventions were implemented including staff training in motivational interviewing, adoption of “same-day testing” philosophy, improved SBHC provider collaboration, changing the timing of specimen collection, development of a student self-referral tool, and group education STI awareness events. These changes were implemented in two phases between 2011-2013 leading to both an increase in STI screenings performed and an increase in STI positivity rates compared with baseline.

### **Background**

It is estimated that nearly 20 million sexually transmitted infections (STIs) occur in the US annually. Half of these infections each year are among youth (ages 15-24) although they represent just 25% of the sexually active population. Frequently, these infections are asymptomatic and go undetected. Untreated STIs often lead to serious long-term health consequences, especially for adolescent girls and young women. Sequela includes upper genital tract infection and pelvic inflammatory infection (PID) with the potential for fibrosis, scarring, and loss of tubal function.<sup>1</sup> Ten to fifteen percent of untreated females with Chlamydia will develop PID.<sup>2</sup> Potential long-term results are tubal factor infertility, ectopic pregnancy, and chronic pelvic pain.<sup>3</sup>

Chlamydia is the most frequently diagnosed STI and the most commonly reported notifiable disease with a rate of 456.1 cases/100,000 population in the US in 2014. The rate of gonorrhea in 2014 was 110.7 cases per 100,000 people and both cases and rates of chlamydia and gonorrhea still remain highest in the 15-24 year old age group compared with any other.

Currently, the CDC recommends annual Chlamydia and Gonorrhea screening for all sexually active females aged < 25 years.<sup>4</sup> It is suggested that high-risk adolescents, including those previously diagnosed with an STI and those with multiple partners, be screened more frequently.<sup>5</sup> Although ranked as one of the 10 most beneficial and cost effective prevention services, Chlamydia screening is noted to be among the most underutilized with less than 60% of eligible females screened in 2009.<sup>6</sup> Studies also indicate that repeated Chlamydia infection is often due to reinfection by male partners indicating the potential value of screening at-risk males.<sup>5</sup>

## **Adolescence and Reproductive Healthcare Barriers**

Adolescents frequently engage in risky behaviors that place them at-risk for significant consequences including STIs and unplanned pregnancy. It is theorized that principles of developmental neurobiology including immaturity of the prefrontal cortex, predispose teens to risk-taking, recklessness, and sensation-seeking behaviors.<sup>7</sup>

Adolescents also must circumvent multiple barriers to access quality reproductive health services. These include difficulties with transportation to healthcare facilities and a lack of insurance or other ability to pay for services. Adolescents are often uncomfortable accessing STI testing through traditional healthcare settings not necessarily designed to be adolescent friendly and often have significant confidentiality concerns.<sup>4</sup> research indicates that providing teens with an adolescent friendly approach to healthcare encourages self-efficacious and risk-reducing behaviors.<sup>8</sup> In order to maximize effective reproductive healthcare, it has been suggested that providers need to “meet teens where they are” by providing counseling focused on limiting opportunities for immature judgment to have harmful consequences. Providing young people with the information, motivation, and behavioral skills to encourage making healthy choices as opposed to adult counseling methods focused solely on providing information has been shown to be more successful.<sup>7</sup> Based on these principles, Motivational Interviewing (MI) is a counseling style that is felt to be well suited to adolescents.

This counseling technique utilizes collaborative conversation to strengthen a person’s own motivation and commitment to change. The overall style of MI is one of guiding, and the approach is to elicit an individual’s own thoughts and conclusions, not impose opinions from the outside.<sup>9</sup> This helps to empower adolescents to build the motivation to change.

## **School-Based Health Centers in Delaware**

School-based health centers (SBHC) provide comprehensive health and mental health services to adolescents in a school setting. Centers are commonly sponsored by existing community health care agencies and are available to all students.<sup>8</sup> SBHCs can provide a solution to some of the healthcare barriers adolescents experience, address their unique healthcare needs, and focus on an adolescent-friendly approach. follow-up care is facilitated by the ease of access to services in the school setting where adolescents spend the majority of their day.<sup>10</sup> The vision of SBHCs is to provide students with the health care they need to be successful in school by reducing barriers to such services. As of 2012, there were over 2000 such centers in the U.S. offering a range of health services.<sup>11</sup>

In Delaware, SBHCs are located in 29 public high schools, overseen by the Division of Public Health and operated by a medical partner. Care is provided by a multi-disciplinary team including medical and mental health providers in an adolescent friendly environment with no out-of-pocket fees. Reproductive health services are one of the services offered to students from 13- 19 years of age. In order to be eligible to receive services, students less than 18 years of age must have a signed consent by a parent or guardian on record. Once that consent is obtained, the results of such evaluation and treatment are confidential. Available services vary from site-to-site but currently can include STI screening and treatment, pregnancy testing, oral and injectable contraceptive initiation, condom distribution, safe sex counseling, and HIV testing if approved by the School Board.<sup>12</sup>

## **Baseline Data**

Prior to the implementation of the project, students could self-refer for STI screening or be offered screening by the provider based on assessed risk during a visit. Urine STI screening was performed using the GEN-PrOBE APTIMA urine specimen collection kits and analysis was done by the state laboratory that supports the SBHC programs. The GEN-PrOBE APTIMA has a sensitivity and specificity for *C. trachomatis* of 96.5% and 98.7% respectively and sensitivity and specificity for *N. gonorrhoeae* of 96.5% and 99.4% respectively.<sup>13</sup> Students were typically offered screening at or near the end of the office visit if it was not the primary reason for the visit or scheduled for screening at a later date. Students were noted to be reluctant to complete the screening process on the same day due to concerns about prolonging their visit to provide a urine specimen. STI screening visits scheduled for a later date were noted to frequently result in student “no-shows.”

During the school year 2009-2010, prior to implementation of the PI project, 503 STI screenings were performed at the 9 sites operated by Christiana Care Health System involved in phase 1 of the project. The rate of detected STI positivity (percent of positive tests captured and treated) was 11% (57 positive results/503 specimens.) All positive results were treated confidentially at the centers utilizing current CDC treatment guidelines.

## **Measures**

### **Phase 1 (2011-2012)**

#### ***Interventions***

Nine SBHC participated in the first phase of the project. All providers received training to utilize motivational interviewing techniques with the adolescent population. As staff noted students frequently used the restroom when entering the SBHC, center staff was asked to request a urine specimen routinely upon check-in. If during the history collection the student was assessed as being sexually active, the student was encouraged to be screened with the collected urine. Reproductive health counseling (RHC) was provided. Both positive and negative results were shared and discussed with the student at a scheduled follow-up visit. STI risk awareness group education events were scheduled either in the high school cafeterias over lunch or in individual classrooms.

#### ***Results***

The intervention was initiated in September 2011 at nine centers and data were collected until May 2012. A total of 679 STI tests were performed; representing a 35% increase compared to baseline. The rate of detected positivity was 14% (97 positive results/679specimens).

### **Phase 2 (2012-2013)**

#### ***Interventions***

Encouraged by results from Phase 1 and recognizing that further improvement of the STI rates was both desirable and attainable, members of the SBHC performance improvement project team developed additional interventions to increase testing rates. A simple written tool was developed for students to self-refer for STI testing during all SBHC visits. Motivational interviewing

techniques, as applied to the adolescent population, were again reviewed at provider meetings as a method to engage students in their healthcare decisions. Improved collaboration among medical providers and mental health providers at each site for reproductive health concerns was encouraged. Specifically, the mental health providers gave automatic referrals for medical services if a student was assessed as being sexually active during the yearly adolescent risk assessment screen visit and eligible to receive services.

Medical providers were asked to adopt “same-day testing” philosophy. All students were again offered an additional SBHC visit to review results and to provide health and sexuality counseling and education. Additionally, providers were again encouraged to schedule a group STI awareness education event at each site. As an incentive, the site that achieved the highest STI testing rate increase from their previous year would receive recognition at the annual end-of-year SBHC celebration.

Of note, prior to this time period the number of SBHC sites managed by Christiana Care Health System increased from 9 to 14. All new sites were asked to participate. New registration forms were also instituted prior to Phase 2 which required all students to reregister for services. As a result, enrollment numbers dropped significantly during this process despite an increase in the number of sites as it took some time to rebuild the student base.

## Results

The changes were implemented 2/1/2013 at 14 sites and data was collected until 5/31/2013 (see Figure 1). A total of 389 tests were completed; with an average increase of 29.8% over the 14 sites compared with the same four months in Phase 1 (343 screens). The positivity rate increased from 9.9% to 11.8% in Phase 2 (46 positive STI tests/389 tests) during the four study months (see Figure 2). Due to distracting variables as previously noted, data was only collected for four months rather than the nine in phase 1. Reproductive health counseling opportunities were not specifically measured, but likely were increased secondary to more students receiving STI testing services. A survey for both medical and mental health providers was offered at the completion of the study to obtain participant feedback.

Figure 1. Number of STI Tests Performed

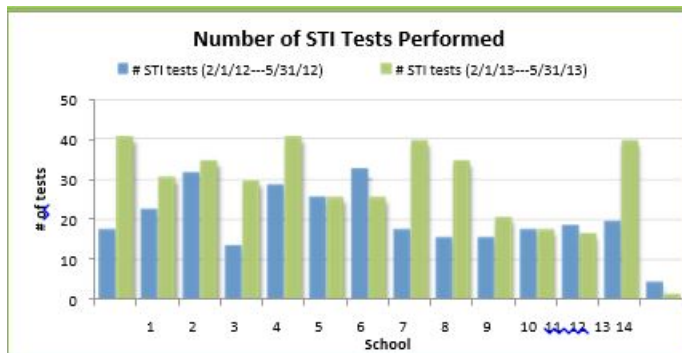
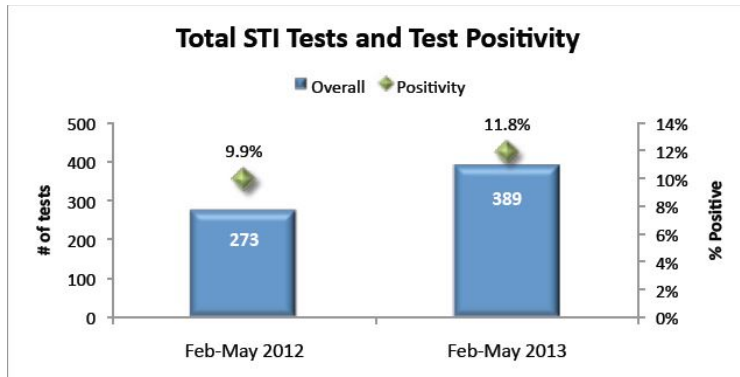


Figure 2. Total STI Tests and Test Positivity



Seventy-three percent of project participants felt they had changed their practice as a result of the STI project implementation and 80% were “very likely” to continue to utilize the implementations in their future practice.

## Discussion

STIs are a significant healthcare concern for the adolescent population. Some common adolescent barriers to testing and treatment can be successfully circumvented in the SBHC environment. Simple interventions, such as changing specimen collection timing and encouraging same-day testing can lead to more teens being both screened and treated. Engaging all staff members of the SBHC team in the design of the intervention contributed to the success. Other modalities used to engage students in testing, such as a self-referral tool and the motivational interviewing style of counseling were acceptable to teens.

Although the motivational interviewing style was uncomfortable for some providers at first, regular provider meetings with feedback helped to refine MI technique and increase acceptance. SBHCs are limited in some ways compared to other community providers as they can only offer testing and treatment for STIs to minors who have consent from their parent or guardian to receive such services. However, their ability to provide services to students at no out-of-pocket cost in an accessible location is advantageous. While some of these unique aspects of the construct of SBHCs limit the generalizability of this performance improvement project, certain aspects and principles of it can be adapted for use in other community settings and in primary care practices. Within the SBHC environment, principles and practices from this project can be adapted and implemented to increase rates of use of reliable forms of contraception and screening for HIV.

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