Expanding Extra-genital Testing into the Outreach Setting

Alabama/North Carolina STD Prevention Training Center

Alabama - North Carolina
STD HIV
Prevention Training Center

Objectives:

- To provide technical assistance to the Forsyth County Department of Health STD Program for the implementation of extra-genital nucleic acid amplification-based testing (NAAT) for gonorrhea (GC) and chlamydia (CT) into standard outreach STD/HIV screening efforts, as well as into the STD clinic
- To integrate a medical student sexual health group (SHAG – Sexual Health Awareness Group) in health department efforts
- To assist with program evaluation and dissemination of findings

Process and People

- State funding
  - NC DHHS/FCDOH/POSSE
- Identification of laboratory
  - PTC/POSSE leadership
- Protocol oddslot development
  - PTC/POSSE leadership
- January 2014
  - Training –
    - PTC/Forsyth STD Clinic and Outreach group (POSSE – Prevent Ongoing Spread of STIs Everywhere)/SHAG students
  - Roll-out

Wake Forest® School of Medicine

Implementation of Oral and Rectal NAAT Testing for *N. gonorrhoeae* and *C. Trachomatis* Detection as a Component of Local Health Department Outreach Testing

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Introduction

High rates of *N. gonorrhoeae* (GC) and *C. trachomatis* (CT) infections continue to be reported from the Southern region of the United States. The 2013 CDC STD Surveillance report ranked North Carolina #11 in the U.S. for reported chlamydial infections (496.5/100K) and #9 for gonococcal infections (140.1/100K). Asymptomatic infection at the oropharyngeal, genital and/or rectal sites may serve as reservoirs of GC/CT as well as amplify HIV transmission efficiency. Screening initiatives represent an important element of the control strategy for these pathogens.

Current protocols at the Forsyth County, North Carolina STD clinic utilize nucleic acid amplification-based testing (NAAT) to detect infection with GC and/or CT at genital sites, but use culture, a less sensitive method, to detect GC infection at oropharyngeal or rectal sites. Extra-genital chlamydial infection is not tested for under the current protocol.

A recent county initiative funded expansion of testing to allow implementation of extra-genital GC/CT screening in outreach testing venues (patient-collected rectal swabs/provider-collected oral swabs) as well as NAAT-based testing (alongside culture) in the STD clinic (provider-collected swabs). It was our aim to provide local evidence regarding the burden of extra-genital gonococcal and chlamydial infection in order to inform future policy decisions related to the availability of extra-genital testing in the public health setting.

Methods

A retrospective chart review was conducted for all male and female patients aged 12-80 who reported to an outreach site or STD clinic (MSM only) January 1, 2014 to May 31, 2015. The initiative focused on the MSM population, as previous studies have found this group to have a significant risk for extra-genital sexually transmitted infections (STI).

Results

Table 1: The Prevalence of *N. gonorrhoeae and C. trachomatis* Infection by Testing Facility and Anatomic Site.

Testing Facility	Outreach (N=247*)				STD Clinic (N=221**)	
	Gender				Gender	
STI Type/ Anatomic Site	Male (n=100) # Positive	Female (n=147) # Positive	Total Positive	Total # of Tests	Male (n=221) Total Positive	Total # of Tests
GC/ Pharyngeal	3	2	5 (2.2%)	227	27 (13.5%)	200
GC/Rectal	2	1	3 (4.3%)	70	25 (16.3%)	153
GC/Genital	0	2	2 (0.9%)	230	25 (11.4%)	219
CT/Rectal	4	2	6 (8.6%)	70	28 (18.3%)	153
CT/Genital	2	9	11 (4.8%)	230	8 (3.7%)	219
Syphilis/ Blood	4	1	5 (2.5%)	202	32 (15.0%)	213
HIV/Blood	2	0	2 (1.0%)	200	11 (6.5%)	170

***1 of n=247 participants was a female to male transgender. All tests returned negative results.**
****1 of n=221 participants was a male to female transgender individual. HIV result was positive and all other results were negative.**

Twenty-six of the 27 GC or CT infections identified through outreach testing (96.3%) were asymptomatic at time of testing. Four concordant GC/CT infections (same infection at different anatomic sites or infections with different pathogens at the same site) were noted. Two rectal GC (66.7%), 5 pharyngeal GC (100%), and 4 rectal CT (66.7%) infections would have been missed without extra-genital NAAT screening.

Sixty-four (56.6%) of 113 GC or CT infections identified in clinic were asymptomatic. Six of 11 (54.5%) HIV-infected individuals were co-infected with GC and/or CT at the time of testing. Four of the 6 (66.7%) HIV infections were newly identified at the time of testing. Five rectal GC (20.0%), 11 pharyngeal GC (40.7%), and 19 rectal CT (67.9%) infections would have been missed in the absence of extra-genital NAAT testing.

Table 2: Comparison of *N. gonorrhoeae* Rectal and Pharyngeal NAATs with Accompanying Cultures from Clinic Testing.

	NAAT Tests		Culture Tests	
Anatomic Site	# Positive	Number of Tests	# Positive	Number of Tests
Rectal	25 (16.6%)	151	12 (7.9%)	151
Pharyngeal	25 (12.8%)	195	10 (5.1%)	195

When NAAT and bacterial culture for GC were run on the same samples from clinic patients, culture only detected 48% (12/25) of the rectal and 40% (10/25) of the pharyngeal infections detected by NAAT.

Conclusions

A significant prevalence of extra-genital GC and CT infections were noted in both clinic and outreach populations. In the absence of extra-genital NAAT-based testing, approximately half of rectal GC infections would have been missed or ineffectively treated using culture-based methods, increasing risk for ongoing transmission and potentially facilitating the evolution of resistant gonorrhea. More than half of rectal CT infections would have been untreated. The high HIV/STI co-infection rates in this population, along with the high rectal GC/CT prevalence, highlight the fact that the population served is at increased risk of future HIV acquisition. Assurance of access of NAAT-based extra-genital testing is critical for HIV/STI control efforts.

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NOTE

Implementation of Oral and Rectal Gonococcal and Chlamydial Nucleic Acid Amplification-Based Testing as a Component of Local Health Department Activities

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ALABAMA - NORTH CAROLINA STD HIV PREVENTION TRAINING CENTER

Expanding Medical Student Sexual Health Education through a Student-Led Extracurricular Group

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Introduction

Despite a clear nead to educate future practitioners in sexual health, research has found that little time is devoted to the subject in North American medical schools. Furthermore, few studies have examined novel ways to implement sexual health training in medical education.

Aims

- To describe a student-led extracurricular group created at Wake Forest School of Medicine to promote interest in sexual health assessment and STI testing during the preclinical years of medical education
- To provide evidence for an engaging model of sexual health education that could be incorporated into other medical schools' curricula
- To demonstrate that sexual health education coupled with clinical opportunities to apply learned skills can also benefit the community

Methods

Wake Forest University Sexual Health Awareness Group (SHAG) was formed in 2011 by two medical students through partnership with the Forsyth County Department of Health (FCDPH). The group facilitated annual medical student training sessions focused on sexual history taking, behavioral risk assessment, and appropriate STI screening. Trained students conducted sexual health counseling and STI screenings at community sites alongside FCDPH employees. Sites at which students volunteered included three local universities, a LGBTQ Pride event, and an annual community health fair. STI tests performed included serum sampling for syphilis, human immunodeficiency virus (HIV) and hepatitis C (HCV), patient-administered genital sampling for *Neisseria gonorrhoeae* (GC) and *Chlamydia trachomatis* (CT), and urine sampling for GC/CT. Volunteer-collected pharyngeal tests and patient-collected rectal tests for GC/CT were added in 2014.

Results

Twenty-five students were trained in 2011. The number of students trained increased annually, with 89 medical students trained in 2016. Trainees included students in the MD, MD/PhD, PA, and MBS programs. Of the students trained in 2015, 64.7% volunteered at least once between September 2015 and March 2016 (44/68). There were 57 opportunities to volunteer at local sites during this period.

Table 1. Demographics of Student Participants

Academic Year	Number of Students Trained	% Pre-clinical Medical Students	% Male
2012	30	87%	43%
2013	35	91%	46%
2014	66	98%	32%
2015	68	100%	37%
2016	89	89%	42%

At University #1, serum HIV/syphilis testing increased by 49% with SHAG involvement and over 200 serum HIV/syphilis tests were performed annually by SHAG at University #2. Between August 2014 and October 2015, 207 GC/CT tests were performed at University #1 (131 urine/vaginal, 53 pharyngeal, 23 rectal) and 257 GC/CT test were performed at University #3 (203 urine/vaginal, 50 pharyngeal, 4 rectal). During this same period 10 HCV tests were performed at University #1 and 22 were performed at University #3. At University #2, 531 GC/CT tests (455 urine/vaginal, 65 pharyngeal, 11 rectal) were performed between September 2013 and September 2015.

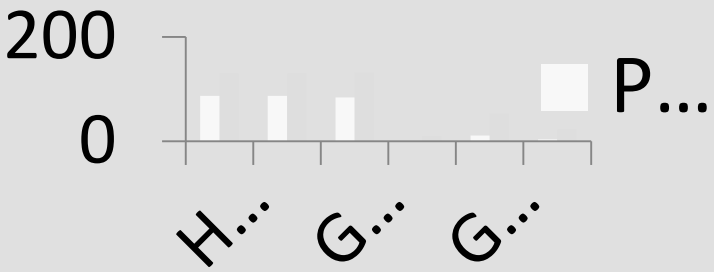

Figure 1. Annual Testing Pre- and Post-SHAG Involvement at University #1

Conclusions

This student-led extracurricular group in partnership with FCDPH provided experiential sexual health training while augmenting FCDPH's testing capacity. Growing participation in trainings demonstrates medical students' desire to learn more about sexual health during preclinical years and supports this model as an effective mechanism of introducing students to the topic.

Student volunteers at an annual STI testing event

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Conclusions

- Partnership between PTC and local health department led to:
  - Implementation of state-of-the-art screening in an outpatient setting
  - Implementation of NAAT-based screening for MSM in the STD setting
  - Opportunities for interaction between medical students and public health
    - "More hands" – expanding health department capacity
    - Experience for students – sexual history taking, real world public health
  - Presentation and publication of findings