



High Chlamydia Prevalence Found in a Collaborative Health Department—University Student Health Services Sexually Transmitted Infection (STI) Screening Program

Heather A. Lindstrom PhD^{1,2}, Gale Burstein MD MPH^{1,2,3}, Susan Mancuso MSN FNP⁴, Scott Zimmerman^{1,2}, DrPH, MPH

1. Erie County Department of Health, Buffalo, NY ; 2. University at Buffalo School of Public Health and Health Professions; 3. University at Buffalo Pediatrics Associates; 4. University at Buffalo Student Health Services

Abstract

Background: Although college students may consent for their own health care, commercially insured students may forego sexual health care due to potential health plan disclosure of services to parents through billing, costly co-payments for out-of-network care, and out-of-pocket expenditures.

Objective: Remove barriers to sexually transmitted infection (STI) screening, diagnostic and treatment services. Collect epidemiologic data on an at-risk population of college students.

Methods: In June 2007, a large western New York state university and county public health department partnered to offer gonorrhea and chlamydia screening tests (BD Probetec ET; Becton Dickinson, Sparks, MD) to students seeking STI services at the university's student health service. For commercially-insured and uninsured students, a \$10 fee per STI visit was assessed to defray costs of specimen processing and courier transport to the public health laboratory.

Results: Between June 4, 2007 and May 31, 2009, there were 1,464 student visits to the health service which resulted in STI testing. The median student age was 21 years, 56% were female, and 58% were Caucasian. The majority (81%) of those tested were asymptomatic. Among the 1,386 chlamydia and gonorrhea tests performed, 90 (6.5%) were chlamydia positive and 6 (0.4%) were gonorrhea positive. Chlamydia positivity varied significantly by gender, race, and reason for STI testing. Three students were co-infected with chlamydia and gonorrhea.

Conclusion: A substantial chlamydia burden exists among young adults, many asymptomatic, accessing a university health clinic for STI testing. A public health partnership identified infected students who may otherwise have foregone care without health department support. The collaborative program increased STI screening in the community without a need for increased health department staffing.

Background

Chlamydia trachomatis is the most commonly reported sexually transmitted infection (STI) in Erie County, New York and the United States.

- Persons ages 15 - 24 years account for ~70% of all diagnosed infections.
- Females are at increased risk of asymptomatic infection.
- Chlamydia in females can have serious sequelae, including pelvic inflammatory disease and infertility.
- Annual chlamydia screening for sexually active females ≤ 25 years is recommended.
- Chlamydia prevalence among college students ranges from ~2% - 10%.

College students may forego sexual health care for many reasons:

- Disclosure of confidential services to parents through health plan billing policies and "explanation of benefits" (EOBs)
- Expensive out-of-pocket fees
- Inconvenient clinic locations and hours of operation

The University at Buffalo (UB), the Erie County Department of Health (ECDOH) and the Erie County Public Health Laboratory (ECPHL) initiated a collaborative program to expand health department STI services to students at a large, urban university.

Objectives

To reduce barriers to STI screening, diagnostic and treatment services

To collect epidemiologic STI data among a population of Erie County, New York college students for surveillance and program planning purposes

About the University

UB is a large, urban, 3-campus university in Buffalo, NY.

- In 2009, UB enrollment ≈ 29,000 students
- ~2/3 undergraduates
- Ethnically diverse population from local community, NY State and national and international locations

Health Services Available to Students

UB's student health clinic offers primary care, women's health services, and HIV counseling and testing.

- UB's student health services are available to all enrolled students
- 38,300 student visits with providers during 6/07 – 5/09

Students may incur expenses for sexual health services.

- STI testing and treatment
- Most students covered on parents' health plan where out of network fees apply or have no health insurance.

Methods

In June 2007, ECPHL offered gonorrhea and chlamydia tests (BD Probetec ET; Becton Dickinson, Sparks, MD) to students seeking STI services at UB's student health clinic.

- HIV, syphilis, hepatitis A, B and C virus tests were also offered

Students were assessed a \$10 fee per STI visit.

- Student accounts billed as a "medical treatment charge" to assure confidentiality
- Commercial insurers not billed for STI laboratory services

Epidemiologic data was collected for participating students.

- Age, sex, race, gender of sex partners, international student status and country of origin, and the reason for STI testing

Data from the first two years of the program, June 2007 - May 2009, is presented.

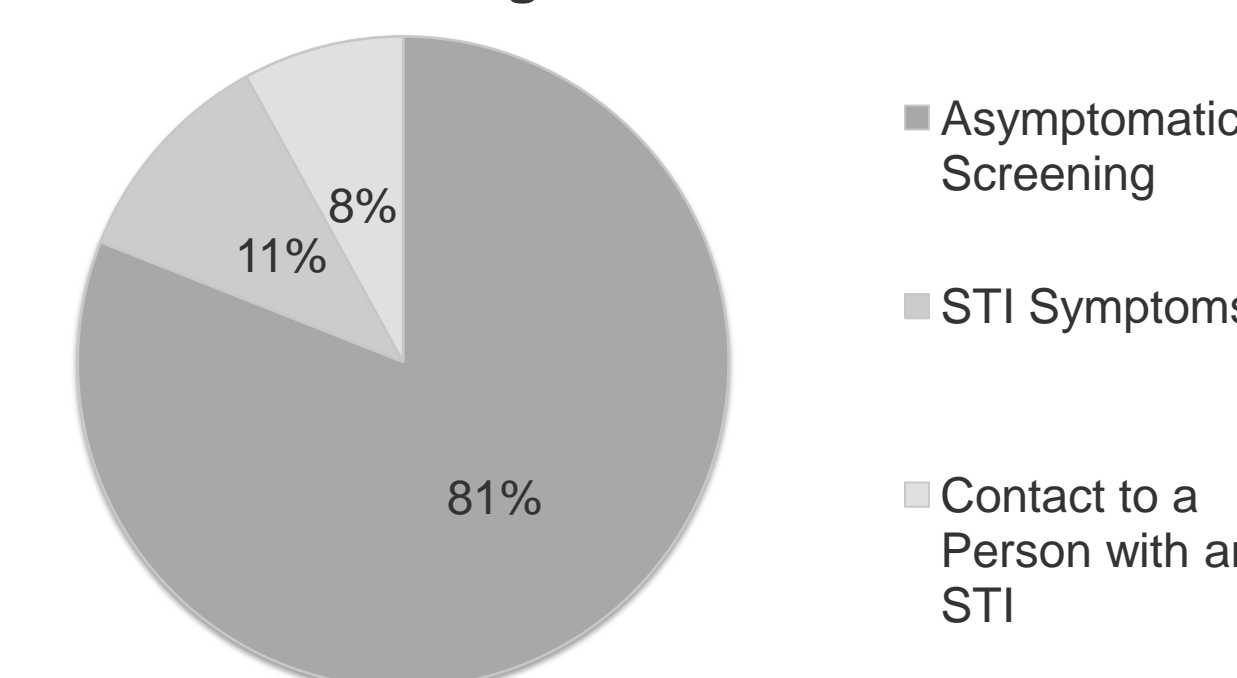
Results

Between June 4, 2007 - May 31, 2009, STI testing occurred in 1,464 student visits.

TABLE 1: Characteristics of Students Tested

Characteristic	Percentage
Female	56%
Median Age in Years (Range)	21 (17-37)
Race	
White	58%
Black	18%
Asian	12%
Hispanic	6%
Other	2%
Not Reported	4%
International Student	12%

Figure 1: Reason for STI Testing During Clinic Visit



≥1 STI was diagnosed in 6.1% (96/1,464) of STI testing visits.

1,386 gonorrhea and chlamydia tests performed

- 90 (6.5%) chlamydia positive
- 6 (0.4%) gonorrhea positive
- 3 students co-infected with chlamydia and gonorrhea
- 2 syphilis cases and 1 hepatitis C case diagnosed

TABLE 2: STI Screening Results

STI	# Positive/# Tested	% Positive
Chlamydia	90/1386	6.5%
Gonorrhea	6/1386	0.4%
Syphilis	2/577	0.3%
Hepatitis C	1/233	0.4%
Hepatitis B	0/143	0
Hepatitis A	0/88	0
HIV	0/988	0

Chlamydia positivity varied by gender, race, age, and reason for testing.

TABLE 3: Chlamydia Positivity

	# Positive/# Tested	% Positive	OR	95% CI	P
Sex					
Males	46/640	7.2%	1.29	0.85-2.02	0.24
Females	44/777	5.4%	1.0		
Race					
Black	34/269	12.6%	3.45	2.04-5.83	0.00*
Hispanic	8/85	9.4%	2.48	1.02-5.82	0.02*
Other	2/27	7.4%	1.91	0.43-8.38	0.39
Asian	8/179	4.5%	1.11	0.47-2.57	0.79
White	34/844	4.0%	1.0		
Age in Years					
≤ 25	86/1327	6.5%	2.29	0.79-7.44	0.10
> 25	4/136	2.9%	1.0		
International Student					
Yes	11/169	6.5%	1.07	0.52-2.12	0.85
No	79/1289	6.1%	1.0		
Reason for Testing					
Contact to STI	23/117	19.7%	5.65	3.18-9.99	0.00*
STI Symptoms	19/163	11.7%	3.05	1.68-5.49	0.00*
Asymptomatic Screening	49/1181	4.1%	1.0		

*P < 0.05

Conclusion

- A substantial chlamydia burden exists among young adults, many asymptomatic, accessing a university health clinic.
- A public health partnership identified infected students who may otherwise have foregone care without Health Department support.
- A health department STI program increased screening without increasing staffing.

Implications for Programs

With shrinking public health resources, partnering with university clinics for confidential STI testing can be a cost efficient outreach strategy to reach at-risk populations that may otherwise forego these services.

References

1. Cook, RL et al. Screening for *Chlamydia trachomatis* infection in college women with a polymerase chain reaction assay. *Clinical Infectious Diseases* 1999;28:1002-1007.
2. Gold, RB. Unintended consequences: how insurance processes inadvertently abrogate patient confidentiality. *Guttmacher Policy Review* 2009;12(4):12-16.
3. James, AB et al. Chlamydia prevalence among college students: reproductive and public health implications. *Sexually Transmitted Diseases* 2008;35(6):529-532.
4. Sipkin, DL et al. Risk factors for *Chlamydia trachomatis* infection in a California collegiate population. *Journal of American College Health* 2003;52(2):65-71.
5. Sutton, TL et al. Prevalence and high rate of asymptomatic infection of *Chlamydia trachomatis* in male college reserve officer training corps cadets. *Sexually Transmitted Diseases* 2003;30(12):901-904.

Acknowledgements

The authors gratefully acknowledge the contributions of staff at the Erie County Public Health Laboratory and Epidemiology and Surveillance Program, the staff of the Sub-board One Laboratory at UB, and providers and staff of UB's Student Health Services. We also thank Brian Archibald of the UB Wellness Education program for graphics and design assistance.