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An increase in sexually transmitted infections seen in US emergency departments

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Abstract

Surveillance data show that there is an increase in the incidence of sexually transmitted infections (STI) and we believe that because of this increased incidence, coupled with a deteriorating public health infrastructure, these STIs are being seen more often in emergency departments. Therefore, we used six years of the most recently available nationally-representative emergency department data to show an increase in the number of emergency department visits where a sexually transmitted infection was treated. We further described the population for these visits.

Keywords

Sexually transmitted infection; Emergency department; Public health; Health services

1. Introduction

Sexually transmitted infections (STI) are among the most commonly reported notifiable diseases in the United States (US).¹ and rates of these infections are on the rise.² Direct healthcare costs of STIs, excluding HIV, are estimated at approximately \$3.5 billion per year, indicating the importance of their prevention as well as their proper diagnosis and treatment.³ STI surveillance has shown consistently that STIs are diagnosed and treated outside traditional STD clinics, including emergency departments (ED),² when gaps in the US public health infrastructure are created by the closure of such STD clinics.⁴ Treatment of STIs in the ED is not optimal and can increase costs and decrease quality and continuity of care.⁵ Therefore, due to increases in STI incidence, we assessed changes over time in the number of ED visits for the treatment of STIs in comparison to ED visits for all other diagnoses in the US.

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Conflict of interest

All authors of this short communication are employees of the Centers for Disease Control and Prevention and have no conflicting interests or financial disclosures in the preparation and reporting of this information.

CDC Disclaimer.

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

2. Methods

Data were taken from the National Hospital Ambulatory Medical Care Survey-Emergency Department component (NHAMCS-ED); a nationally-representative sample of emergency department visits to non-institutional, general and short-stay hospitals, exclusive of Federal, military, and Veterans Administration hospitals, located in the 50 States and the District of Columbia, conducted yearly by the National Center for Health Statistics.⁶ We used NHAMCS-ED data collected during two time periods (2008–2010 and 2011–2013) and provided estimates of the numbers of all ED visits and those that had a diagnosis of an STI, including, chlamydia, gonorrhea, or “unspecified venereal disease”. We then characterized these visits into those wherein azithromycin, doxycycline, or ceftriaxone was dispensed or prescribed. These antibiotics typically are used for the treatment of STIs and other conditions. We computed the average age of the patients and the percentages of visits made by females, non-white patients, and those with Medicaid or State Children’s Health Insurance Program (SCHIP) as the expected payment source. Chi-square tests were used to compare differences between time periods and differences between characteristics of visits for STIs and those for all other diagnoses during 2011–2013. Two-tailed *t*-tests were used to compare the estimated average age of patients. All analyses were conducted using SAS/SUDAAN to take into account the complex sampling design of the survey and to produce national estimates.

3. Results

From 2008–2010 to 2011–2013, there was a 2% increase in the number of visits to EDs for all diagnoses and a 39% increase in the number of visits to EDs that included an STI diagnosis ($p < 0.01$). Visits including a prescription for azithromycin increased 10% for all visits compared to an 83% increase for visits with an STI diagnosis ($p < 0.01$). Visits including a prescription for doxycycline increased 3% for all visits compared to a 24% increase for visits with an STI diagnosis ($p < 0.01$). Visits including a prescription for ceftriaxone increased 6% for all visits compared to an 82% increase in visits with an STI diagnosis. ($p < 0.01$). (Table 1) Of the ED visits during 2011–2013, compared to all visits, those with a diagnosis of an STI were younger (26.9 years v. 37.6 years; $p < 0.01$), predominantly non-white (70.4% v. 27.1%; $p < 0.01$) and had a larger proportion of visits that were covered by public insurance (42.7% v. 26.3%; $p = 0.02$). (Table 2).

4. Discussion

These analyses show that the number of visits for STI care in the ED setting has risen at a faster rate than the number of ED visits for all diagnoses, and that the use of antibiotics for STIs in this setting has outpaced the use of antibiotics for other indications. Furthermore, these analyses demonstrate that patients receiving STI care in the ED setting are younger, predominantly non-white and more likely to be covered by public insurance compared to ED patients overall.

Treatment of STIs in the ED setting is not optimal as suggested by several studies showing both over-treatment and under-treatment of chlamydia and gonorrhea as well as increased

costs for testing of these diseases in this setting. One recent study examining the treatment of women presenting to two inner-city emergency departments with lower abdominal pain or vaginal complaints suggested that empirical treatment for these conditions led to significant over-treatment of both chlamydia and gonorrhea.⁷ Another study using retrospective chart review from 500 randomly selected cases of suspected chlamydia or gonorrhea in an urban, academic ED showed that only 54% of treated patients received appropriate antibiotics at the initial visit, with 46% being treated presumptively.⁸ Examination into reasons for over and under-treatment issues in the ED setting suggest that vague empiric treatment guidelines coupled with increased time from specimen testing to getting test results and limited follow up in this setting contribute to presumptive treatment.⁹ Both over-treatment and under-treatment with antibiotics can lead to drug resistance in many organisms,¹⁰ and drug resistance in *Neisseria gonorrhoea* has recently become a national priority.¹¹ In addition to issues related to treatment quality, a study using outpatient claims data from 2012 showed that costs for STI testing in the ED setting were more expensive than STI testing in most any other healthcare setting.¹²

Previous work has shown that treatment differences exist for STIs in different ambulatory care settings¹³ and increasing numbers of people are seeking STI care outside of traditional STD clinics, such as urgent care centers.¹⁴ Reasons for choosing to be treated in an ED versus other treatment venues is multifactorial and includes issues of convenience and lack of health insurance for patients.¹⁵ However, work exploring why people seek treatment for STIs in the ED setting is limited. Treatment of STIs in physician offices and urgent care centers differs from how care for STIs is provided in the ED setting and may offer opportunities for addressing the noted limitations of STI care in the ED setting.

Ideally, the spread of STIs can be prevented through screening of at-risk populations and proper diagnosis and treatment, including follow-up and contact with potentially infected partners of diagnosed patients, as indicated by national guidelines.¹⁶ The findings here in these analyses demonstrate the increased burden placed on emergency departments, which may not be the most optimal source for STI care, by the substantial increase in STIs in the US and point to the need for increased prevention efforts for these diseases.

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Table 1

Estimates of the Numbers of Emergency Department Visits by Diagnosis and Medication.

	2008–2010	2011–2013	% change
Total number of ED visits, (all diagnoses)	389,677,000	397,519,000	2.0%
Number of ED visits, (STI diagnoses)	365,000	506,000	38.6%
All visits with azithromycin, (all diagnoses)	12,244,000	13,414,000	9.6%
STI visits with azithromycin, (STI diagnoses)	174,000	319,000	83.3%
All visits with doxycycline, (all diagnoses)	3,314,000	3,415,000	3.0%
STI visits with doxycycline, (STI diagnoses)	46,000	57,000	23.9%
All visits with ceftriaxone, (all diagnoses)	11,041,00	11,737,000	6.3%
STI visits with ceftriaxone, (STI diagnoses)	166,000	302,000	81.9%

Source: 2008–2013 National Hospital Ambulatory Medical Care Survey – Emergency Department component (NHAMCS-ED).

ED: Emergency Department.

STI: Sexually Transmitted Infection.

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Table 2

Characterization of Visits to Emergency Departments with and without STI Diagnoses, 2008–2013.

	2008–2010		2011–2013	
	All visits excluding		All visits excluding	
	STI	STI visits	STI	STI visits
Average age	36.7 years	25.6 years	37.6 years	26.9 years
% non-white	26.9%	62.9%	27.1%	70.4%
% female	54.7%	60.7%	55%	53.3%
% Medicaid/SCHIP	24.7%	23.9%	26.3%	42.7%

Source: 2008–2013 National Hospital Ambulatory Medical Care Survey – Emergency Department component (NHAMCS-ED).

SCHIP: State Children’s Health Insurance Program.

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