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Use of expedited partner therapy among chlamydia cases diagnosed at an urban Indian health centre, Arizona

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Summary:

Chlamydia cases diagnosed in the women's clinic were more likely to receive expedited partner therapy (EPT) and to be re-tested as compared with urgent and emergent care settings. Fewer re-infections occurred among patients who received EPT. Disproportionate rates of chlamydia occur among American Indian (AI) populations. To describe use of EPT among chlamydia cases diagnosed at an urban Indian Health Service (IHS) facility in Arizona, health records were used to extract confirmed cases of chlamydia diagnosed between January 2009 and August 2011. Medical records of 492 patients diagnosed with chlamydia were reviewed. Among the 472 cases who received treatment, 246 (52%) received EPT. Receipt of EPT was significantly associated with being female (odds ratio (OR) 2.1, 1.03–4.4, $P < 0.001$) and receipt of care in the women's clinic (OR 9.9, 95% CI 6.0–16.2) or in a primary care clinic (OR 2.4, 95% CI 1.1–5.1). Compared with those receiving care in the women's clinic, the odds of receipt of EPT were significantly less in those attending the urgent/express care clinic (OR 0.1, 95% CI 0.06–0.2), and the emergency department (OR 0.1, 95% CI 0.05–0.2). Among treated patients who underwent re-testing ($N = 323$, 68% total treated) re-infection was less common among those that received EPT (13% versus 27%; OR 0.5, 95% CI 0.3–0.9). In this IHS facility, EPT was protective in preventing chlamydia re-infection. Opportunities to expand the use of EPT were identified in urgent and emergent care settings.

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Keywords

chlamydia; sexually transmitted infection; STD; expedited partner therapy (EPT); women's health; screening; treatment; patient delivered partner therapy; American Indian/Alaska Native

INTRODUCTION

Disproportionate rates of genital chlamydia infection occur among American Indian and Alaska Native (AI/AN) populations. During 2010, AI/AN had the second highest rates of chlamydia nationally.¹ These rates vary by region and are diagnosed more often among young women.² Similar to national rates, in Arizona, AI/AN populations represent the race/ethnicity group with the second highest rates of chlamydia statewide (1042 cases/100,000 persons).³ The Indian Health Service (IHS) is the federal agency within the US Department of Health and Human Services responsible for providing a comprehensive health service delivery system for approximately 1.9 million American Indians and Alaska Natives who belong to 564 federally recognized tribes in 35 US states.⁴ Chlamydia screening rates and positivity for AI/AN women receiving care through IHS vary by region as well.⁵ Chlamydia screening coverage among Arizona AI/AN women aged 16–25 attending prenatal, family planning and well woman visits through IHS reveals opportunities for expanded screening according to national recommendations.^{6,7} Evaluation of treatment outcomes of AI/AN populations in Arizona reveals differences in time to treatment of chlamydia with AI/AN populations experiencing delays in time to treatment as compared with other racial/ethnic groups.⁸

In September of 2008, Arizona passed a statute revision allowing for the use of expedited partner therapy (EPT)⁹ This evidence-based practice allows prescribing providers to provide medication(s) or prescription(s) to the chlamydia or gonorrhoea case to deliver to their heterosexual partner(s) without performing a physical exam of that partner.^{10,11} A study of women's health providers in the Phoenix area revealed the use of this practice by approximately 50% of physicians surveyed. Use of EPT by these providers was limited by providers' concerns regarding allergic reactions in the partners and pursuant liability.¹²

Although any medical provider delivering care to AI/AN populations outside of IHS must abide by state and other laws regarding EPT, federally operated practitioners within IHS are able to provide EPT to patients receiving care at IHS facilities notwithstanding contrary state laws so long as IHS has approved the practice for use within its federal-operated facilities.¹³ In addition, IHS practitioners are able to provide EPT to sexual partners who are non-IHS beneficiaries (non-tribal members) as an effort to prevent the spread of disease.¹⁴ Protocol guidelines for the implementation of EPT have been developed by IHS in collaboration with the Centers for Disease Control and Prevention for use within IHS facilities and other facilities providing care to AI/AN populations.¹⁵ The Phoenix Indian Medical Center (PIMC) is the largest IHS tertiary hospital and outpatient system in Arizona. During 2011, this facility was the third highest reporter of chlamydia cases statewide. In order to evaluate treatment outcomes and the use of EPT, medical charts of chlamydia cases diagnosed at this facility were reviewed.

MATERIALS AND METHODS

Laboratory confirmed cases of consecutive positive chlamydia cases diagnosed between January 2009 and August 2011 at PIMC were extracted from the electronic health record. All cases were diagnosed using the BDProbetec™ (Becton, Dickinson & Company, Sparks, MD, USA) combination nucleic acid amplification test for chlamydia and gonorrhoea performed on urine samples at the PIMC laboratory.

Individual patient laboratory and clinical records were reviewed by one infectious disease physician and one sexually transmitted disease (STD) public health nurse using a standardized data extraction form. Demographic variables including age, gender and community were recorded for each case. The type of clinic or hospital area where testing was performed was recorded for each case. These sites were designated as follows: emergency department, express/urgent care, primary care (including internal medicine, family practice, paediatrics, public health nurse's clinic, HIV care clinic, corrections) and women's clinic.

Female cases were designated as symptomatic if there was a clinical note that included any of the following symptoms: irregular vaginal bleeding, abnormal vaginal discharge, lower abdominal pain and/or dysuria. Male cases were designated as symptomatic if any of the following symptoms were noted: dysuria, penile discharge, and/or testicular pain or swelling. Among asymptomatic cases, reasons for chlamydia and gonorrhoea screening were recorded and included the following: prenatal care, well woman exam, family planning, screening physical exam and partner of a confirmed case.

Treatment completion, date of treatment, date of retesting, date of reinfection and provision of EPT were extracted from each patient record as available. Time to treatment for chlamydia was calculated in days from the date of the positive laboratory report to the date of recorded receipt of the medication (azithromycin 1 g or doxycycline 100 mg twice a day for 7 days) from the facility pharmacy. The provision of EPT for chlamydia was recorded for any patient that picked up 2 g of azithromycin from the pharmacy and for whom a clinical record of EPT by the STD public health nurse was present in the medical record.

Data were compiled in Excel (2010) and exported to SPSS (PASW v. 19, Chicago, USA) and SAS (v. 9.3, Cary, NC, USA) for analysis. Univariate analyses were conducted using chi-square. Multivariate analysis was performed using logistic regression. Continuous variables including age, time to treatment (days), and time to re-testing (days) were compared using Kruskal–Wallis analysis of medians. Variables of significance at $P < 0.05$ in univariate analysis were included in a multivariate model using a backward selection fashion.

The methods and findings of this study were reviewed and approved by the Phoenix Area Institutional Review Board of the IHS.

RESULTS

Demographics

We reviewed 492 patients diagnosed with chlamydia infection during the study period, of which 407 (83%) were women. The median age of women was 22 years and 23 for men ($P=0.07$). Among female cases, 64% occurred among those ages 15–24; 62% of male cases were age 15–24.

Symptom presentation and clinic of diagnosis

Symptoms were present at the time of diagnosis in 44% ($N=216$) of patients overall; 42% of women and 53% of men ($P=0.09$). In univariate analysis, as compared with asymptomatic patients, symptomatic patients were more likely to be diagnosed with chlamydia in the express/urgent care clinic (42% versus 12%, $P<0.001$) and the emergency department (25% versus 2%, $P<0.001$), and less likely to be diagnosed in women's clinic (27% versus 75%, $P<0.001$). Receiving treatment the same day as testing was associated with being symptomatic (<0.001). In a multivariate logistic regression model, a patient's symptomatic status remained significantly associated with care in the emergency department (OR 21.6, 95% CI 6.9–68.0) or the express clinic (OR 6.1, 95% CI 2.8–13.5), and male gender (OR 3.0, 95% CI 1.6–5.8); it was negatively associated with receiving care in the women's clinic (OR 0.4, 0.2–0.9).

Time to treatment and re-testing

Treatment was received by 97% of total cases. Of the 16 patients for which no treatment was documented, 11 (69%) were diagnosed in the emergency department or urgent care clinic and four (25%) were diagnosed in women's clinic. There were no differences in treatment completion by age or gender; however, the median days from lab collection to treatment were longer for women as compared with men (8 days versus 3 days, $P<0.001$). There was no significant difference in treatment completion by 14 (83% versus 73%, $P=0.07$) or 30 days (90% versus 89%, respectively, $P=0.7$) between men and women. Treatment the same day as testing was more common among men (45%) as compared with women (11%, $P<0.001$).

Among treated patients, 330 were re-tested (70%). The overall median days from treatment to re-testing was 60 (range 6–805 days). Women were more likely to be re-tested as compared with men (72% versus 35%, $P<0.001$). However, there were no significant differences by gender in the intervals from initial treatment to re-testing ($P=0.8$). In a multivariate logistic regression model, re-testing remained significantly associated with being a woman (OR 4.7, 95% CI 2.9–7.8) and negatively associated with care in the emergency department (OR 0.4, 95% CI 0.2–0.7).

Receipt of EPT

Among the 472 cases who received treatment, 246 (52%) received EPT. In univariate analyses, receipt of EPT was associated with female gender, being diagnosed in a women's clinic or a primary care clinic, asymptomatic presentation and receiving treatment between 1 and 14 days after diagnosis. EPT was significantly less likely to be provided to men and

persons diagnosed in the urgent/express care clinic, or the emergency department. Patients receiving treatment the same day as testing were less likely to receive EPT compared with cases receiving treatment between 1 and 14 days (Table 1). In a multivariate logistic regression model, receipt of EPT remained significantly associated with being a woman (OR 2.1 1.03–4.4, $P < 0.001$) and receipt of care in the women's clinic (OR 9.9 95% CI 6.0–16.2) or in a primary care clinic (OR 2.4, 95% CI 1.1–5.1). As compared with the women's clinic, the odds of receipt of EPT were significantly less in the primary clinic (OR 0.24, 95% CI 0.11–0.52), urgent/express care clinic (OR 0.1, 95% CI 0.06–0.2) and the emergency department (OR 0.09, 95% CI 0.05–0.2). Re-infection was significantly higher among patients who did not receive EPT in this sample ($P = 0.003$). In a multivariate model controlling for gender, re-infection was less common among re-tested patients receiving EPT (13% versus 27%; OR = 0.5, 95% CI 0.3–0.9).

DISCUSSION

Among these chlamydia cases diagnosed among AI/AN, receipt of EPT was associated with a decreased risk of re-infection. Receipt of EPT varied based on the presence of symptoms and the type of clinical setting where diagnosis occurred. Patients with symptoms were more likely to be seen in urgent or emergent care settings and receive same day treatment but were less likely to be provided EPT. Patients seen in women's clinic and primary care clinics were more likely to be provided EPT and to be re-tested. Women experienced more treatment delays as compared with men. Treatment completion rates were high for these CT cases (97%) and were higher when compared with those among AI/AN chlamydia cases across Arizona.⁸ These findings highlight how effective treatment and partner management strategies need to take into account location of delivery of clinical care.

Ours is the first study to evaluate the use of EPT in an IHS facility. This study mirrors others in demonstrating reductions in re-infections with the use of EPT^{10,11,16,17}. Exactly half of the patients in this study were prescribed EPT, a finding comparable to other clinical settings and provider practices.^{12,18–20} Receipt of EPT likely reflected follow-up opportunities available by clinical setting. Patients diagnosed in primary and women's clinics were more likely to receive treatment one or more days after testing but were also more likely to receive EPT as compared with patients diagnosed in urgent and emergent care settings. The provision of EPT in women's health-care settings is an accepted option for partner treatment.^{12,16,18} These findings positively reflect the patient follow-up practices of the primary and women's clinics at this facility and highlight opportunities to expand the delivery of EPT for patients diagnosed in urgent and emergent care settings.

In this setting, symptomatic patients were more likely to be seen in an urgent care or emergency setting, to be treated the same day and less likely to receive EPT. Although presumptive therapy results in timely therapy, partner management may be delayed or omitted pending a definitive diagnosis of the original case and referral for partner services. In urgent care settings where presumptive treatment is given without the benefit of confirmatory lab results, it would not be feasible to prescribe medications to partners for an infection of unknown aetiology. At PIMC, patients with chlamydia who have received presumptive treatment for chlamydia are not currently contacted for re-testing, partner

elicitation, partner referral or EPT. Although EPT has been used with success in some urgent and emergent care settings,¹⁶ a system for patient notification and pharmacy referral would need to be developed in this facility. Public health nurses employed by IHS facilities have traditionally assisted in the follow-up and referral of STD cases and may be in an ideal position to facilitate subsequent delivery of EPT for patients presumptively treated in urgent care settings once diagnosis is available.²¹

There are certain limitations in this analysis. Providers within these clinic settings were not evaluated regarding screening, testing, and treatment practices, thus comparisons include only clinic-based patient outcomes. Pregnant women and young sexually active women seen in women's clinic are eligible for asymptomatic chlamydia screening according to national guidelines. There are not currently any chlamydia screening policies followed in the urgent or emergency care settings of this facility. Thus, time to treatment analyses were influenced by differences in treatment practices based on symptom presentation versus asymptomatic screening. Similarly, there are not currently any chlamydia screening guidelines in place for men. Thus, the opportunities for receipt of EPT among female partners of male cases are likely fewer. Finally, partners were not surveyed regarding the actual receipt of the medication.

The health benefits of reducing chlamydia re-infection particularly among women are well established and demonstrate the importance of partner treatment.⁷ EPT is a nationally recommended patient and public health-care tool that has been demonstrated to increase partner treatment and decrease re-infection at a lower cost compared with standard partner referral.^{10,11,16,22,23} Higher chlamydia rates among AI/AN populations make IHS facilities ideal settings for EPT. Available protocols for the delivery of EPT within IHS are available to establish and maintain this practice.¹⁵ In order to increase rates of EPT use, facilities will need to take into consideration the locations in which patients are diagnosed, and develop different strategies for patients diagnosed in different settings.

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Table 1Correlates of EPT use among chlamydia cases ($N = 492$)

Variable	EPT ($N = 246$) N (%)	No EPT ($N = 246$) N (%)	P value
Gender			<0.0001
Female	233 (95)	174 (71)	
Male	13 (5)	72 (29)	
Partner of a case			
Partner	1 (0.4)	17 (7)	<0.0001
Not a partner	245 (99.6)	229 (93)	
Mean age (range)	24 (13–45)	23 (13–47)	0.1021
Clinical diagnosis site			
Women's clinic	197 (80)	68 (28)	<0.0001
Prenatal visit	62 (31)	23 (34)	0.7202
Well woman exam	48 (24)	10 (15)	0.0967
Family planning visit	33 (17)	17 (25)	0.1339
Other	54 (27)	18 (27)	0.8805
Primary care	14 (6)	29 (12)	0.017
Urgent/express care	23 (9)	102 (41)	<0.0001
Emergency department	12 (5)	47 (19)	<0.0001
Symptom presentation			<0.0001
Symptomatic	81 (33)	135 (55)	
Asymptomatic	165 (67)	111 (45)	
Treatment			<0.0001
Treatment received	246 (100)	230 (94)	
No treatment received	0 (0)	16 (6)	
Time to treatment			
Same day treatment	5 (2)	75 (33)	<0.0001
1–7 days	112 (46)	56 (24)	<0.0001
8–14 days	73 (30)	33 (14)	<0.0001
15–30 days	38 (15)	31 (14)	0.542
>30 days	18 (7)	35 (15)	0.006
Re-testing			0.0003
Re-tested	181 (74)	143 (58)	
Not re-tested	65 (26)	103 (42)	
Re-infection *			
Re-infected	24 (13)	39 (27)	0.002
Not re-infected	157 (87)	104 (73)	

* Percentages calculated using number of persons that underwent re-testing by receipt of EPT ($N = 181$ for EPT and $N = 143$ for No EPT)

EPT, expedited partner therapy