

Brief Original Article

Sexually transmitted infections case notification rates in the Kingdom of Saudi Arabia, 2005–2012

Ziad A Memish¹, Sanaa M Filemban¹, Raafat F Al-Hakeem¹, Majdy Hamed Hassan¹, Jaffar A Al-Tawfiq^{2,3}

¹ Ministry of Health and College of Medicine, Alfaisal University, Riyadh, Saudi Arabia

² Johns Hopkins Aramco Healthcare, Dhahran, Saudi Arabia

³ Indiana University School of Medicine, Indianapolis, United States

Abstract

Introduction: Sexually transmitted infections (STIs) are major public health concerns around the world. This study describes the epidemiology of reported STI cases from 2005 to 2012 in the Kingdom of Saudi Arabia.

Methodology: The annual registry was the main source of data as reported by healthcare providers. Case definitions were based on positive human immunodeficiency virus (HIV) antibodies detectable by enzyme-linked immunosorbent assay (ELISA) and confirmed by western blot test for HIV cases. The definitions of other STIs were based on published Centers for Disease Control and Prevention (CDC) definitions.

Results: During the study period, 68,886 new cases were reported, with nongonococcal urethritis being the highest STI (25.4 per 100,000 population (25.4), followed by trichomoniasis (9.1), HIV (7), human papillomavirus (HPV) infection (2.9), and syphilis (1.3). The cases included nongonococcal urethritis (n = 35,613; 51.7%), trichomoniasis (n = 12,679; 18.4%), gonococcal urethritis (n = 3,006; 4.4%), syphilis (n = 1,769; 2.6%), HIV (n = 9,843; 14.3%), genital warts (n = 4,018; 5.8%), genital herpes (n = 1,508; 2.2%), and chancroid (n = 450; 0.7%). Saudi contribution to HIV cases increased from 28.9% in the preceding decade to 43.5% in the current study.

Conclusions: Nongonococcal urethritis, trichomoniasis, and HIV were the most commonly reported STIs in the Kingdom of Saudi Arabia.

Key words: Saudi Arabia; HIV; STI; sexually transmitted infection.

J Infect Dev Ctries 2016; 10(8):884-887. doi:10.3855/jidc.7020

(Received 14 April 2015 – Accepted 03 August 2015)

Copyright © 2016 Memish *et al.* This is an open-access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Introduction

Sexually transmitted infections (STIs) constitute a major health problem worldwide, especially in developing countries [1,2]. According to the World Health Organization (WHO), 499 million new cases of curable syphilis, gonorrhoea, chlamydia, and trichomoniasis occur annually in adults [3]. In general, the prevalence of STIs tends to be higher in urban residents, unmarried individuals, and young adults [3-5]. Serious complications result from late diagnosis or ineffective treatment of STIs. These complications include infertility, ectopic pregnancy, anogenital cancer, and premature death [3,4].

The precise burden of STIs is generally unknown. Passive STI surveillance systems are present in some countries, and the credibility of these data and estimates depend on the quality of STI services, the degree to which patients ask for healthcare, the severity of cases, the diagnostic test(s) used, and the excellence of reporting [5]. Data on STIs in Islamic countries are limited due to cultural and religious concerns [6,7]. The Kingdom of Saudi Arabia (KSA) is a conservative

Islamic country where Islamic rules are strictly followed. The concept of being infected with STIs is not totally accepted by culture and society. The stigma is associated with the sense of being blamed, especially in the case of human immunodeficiency virus (HIV) infection [4,8]. Thus, we attempted to present the epidemiology of STIs in KSA and provide an estimate of the burden of these diseases.

Methodology

The total KSA population was 29,195,895 in 2012, of which 19,838,448 (67.9%) were Saudi. Approximately 42.3% of the population were under 15 years of age, 54.8% were between 15 and 64 years, and 2.9% were over 64 years of age.

This was a retrospective analysis of the annual STI cases as obtained from the Ministry of Health (MOH) KSA, from 2005 to 2012. The data are based on the annual registry statistics of adults with STIs as obtained from the Department of Preventive Medicine, the main source of data.

The definitions of the STIs were based on the Centers for Disease Control and Prevention (CDC) definitions [9,10]. HIV infection was defined as positive HIV antibodies detected by enzyme-linked immunosorbent assay (ELISA) and confirmed by western blot test. The presence of a painful genital ulceration and inflammatory inguinal lymphadenopathy defined chancroid. Gonococcal urethritis was based on the presence of urethral discharge with the presence of Gram-negative diplococci on Gram stain and/or the isolation of *Neisseria gonorrhoeae*. Syphilis was based on the presence of a reactive nontreponemal serologic test (Venereal Disease Research Laboratory [VDRL] or rapid plasma reagin [RPR]) and a reactive specific treponemal serologic test (*Treponema pallidum* hemagglutination test [TPHA] or fluorescent treponemal antibody absorbed [FTA-ABS]). Each case is counted once, as the Saudi MOH mandates that genital herpes and genital warts should be reported only once per patient, regardless of the number of recurrent episodes.

Results

A total of 68,886 cases were reported to the MOH from January 2005 to December 2012. The annual incidence of STIs is shown in Figure 1, with an overall incidence of 92.1 cases per 100,000. Nongonococcal urethritis was the most frequently occurring STI per 100,000 populations (25.4), followed by trichomoniasis (9.1), HIV (7), HPV infection (2.9), and syphilis (1.3) (Table 1). The cases included nongonococcal urethritis (n = 35,613; 51.7%), trichomoniasis (n = 12,679; 18.4%), gonococcal urethritis (n = 3,006; 4.4%), syphilis (n = 1,769; 2.6%), HIV (n = 9,843; 14.3%), genital warts (n = 4,018; 5.8%), genital herpes (n = 1,508; 2.2%), and chancroid (n = 450; 0.7%) (Table 1).

Figure 1. Annual total number of sexually transmitted infection cases from 2005 to 2012.

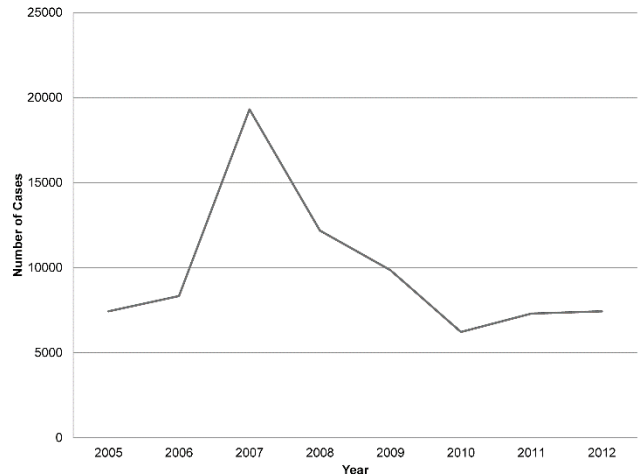


Figure 2. Annual number of reported sexually transmitted infections.

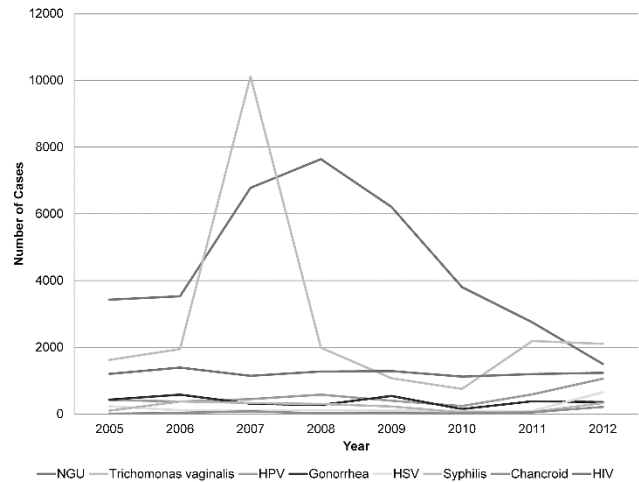


Table 1. Total number and annual incidence of sexually transmitted infections per 100,000 population in Saudi Arabia from 2005 to 2012.

| Infection | Total number of infections (%) | Annual incidence of infection per 100,000 population |
|--------------------------------------|--------------------------------|------------------------------------------------------|
| | | |
| Nongonococcal urethritis | 35,613 (51.7) | 25.4 |
| Trichomoniasis | 12,679 (18.4) | 9.1 |
| HIV | 9,843 (14.3) | 7.0 |
| Syphilis | 1,769 (2.6) | 1.3 |
| Human papillomavirus (genital warts) | 4,018 (5.8) | 2.9 |
| <i>Neisseria gonorrhoeae</i> | 3,006 (4.4) | 2.1 |
| Genital herpes | 1,508 (2.2) | 1.1 |
| Chancroid | 450 (0.7) | 0.3 |
| Total | 68,886 | 92.1 |

Table 2. Comparison between the total number of sexually transmitted infections between 1995–1999 and 2005–2012.

| Infection | Total number of infections (%) (1995–1999)* | Total number of infections (%) (2005–2012) |
|--------------------------------------|---------------------------------------------|--------------------------------------------|
| Nongonococcal urethritis | 14,557 (37.3) | 35,613 (51.7) |
| Trichomoniasis | 10,967 (28.1) | 12,679 (18.4) |
| HIV | 2,917 (7.5) | 9,843 (14.2) |
| Human papillomavirus (genital warts) | 1,382 (3.5) | 4,018 (5.8) |
| <i>Neisseria gonorrhoeae</i> | 5,547 (14.1) | 3,006 (4.3) |
| Syphilis | 3,385 (8.7) | 1,769 (2.5) |
| Genital herpes | 216 (0.6) | 1,508 (2.1) |
| Chancroid | 78 (0.2) | 450 (0.6) |
| Total | 39,049 | 68,886 |

*Data were compiled from Madani [6].

Total STI distributions by year are presented in Table 2, with the lowest number of cases (1,097) reported in 2010 and the highest number of cases (21,621) reported in 2008. Of the total 9,843 HIV cases, 5,558 (56.5%) were among non-Saudis. The contribution of Saudi patients to HIV cases increased from 28.9% in the preceding decade to 43.5% in the current study (Table 2). The annual distributions by year of reported STIs are shown in Figure 2. Nongonococcal urethritis was highest in 2007 to 2009. *Trichomonas vaginalis*, gonorrhoea, and *Treponema pallidum* infections showed no significant variation over the study period (Figure 2).

A comparison between STIs in 1995–1999 and 2005–2012 showed that nongonococcal urethritis increased from 37.3% to 51.7%, HIV from 7.5% to 14.2%, HPV from 3.5% to 5.8%, and genital herpes from 0.6% to 2.1%. (Table 2).

Discussion

The main finding of our study was that over an eight-year period, STIs in KSA remained low, with an annual incidence of 92.1/100,000. Shame and stigmatization may lead affected individuals to seek help outside established healthcare systems by visiting traditional healers, self-treating, or not seeking care at all. Thus, STI surveillance based on reporting of symptomatic individuals may underestimate the total number of new cases [5]. Social stigma of STIs is known to occur in various societies and contributes to under-detection and underreporting [11,12].

Non-Saudi patients accounted for 56.5% of the HIV cases, and the percentage of Saudis increased, from 15.8% in 1995–1999 to 28.9% in 2000–2009 [6,8], to 43.5% in the current study. In a previous report, the percentage of Saudis among all HIV cases increased

from 20% in early 2001 to 40% in 2009 [8]. The difference in the percentage of Saudis with HIV infection in these studies may be related to a source of data or a true change in the epidemiology of diagnosed HIV patients. The overall increase in the number of reported HIV cases may be related to the availability of HIV testing and counseling clinics throughout KSA as well as pre-marital testing [8]. Other possible contributing factors include improvement in the reporting system and better education and awareness. Despite such an increase in the reported cases, the overall prevalence of HIV/AIDS (acquired immunodeficiency syndrome) in KSA is consistently low (< 0.2%) [8]. Proper prevention programs for STIs remain a challenge. Strategies to prevent STIs in KSA should regenerate the Islamic values [6,8,11]. In addition, health education, early diagnosis and treatment, and comprehensive contact tracing should be applied [9,10].

Conclusions

Nongonococcal urethritis, trichomoniasis, and HIV were the most commonly reported STIs. Additionally, the Saudi contribution to HIV cases increased from 28.9% in the preceding decade to 43.5%. The total number of reported cases based on STI surveillance could be substantially underestimated due to the social stigma associated with STIs. Appropriate preventive programs in accordance with Islamic values should be put into operation.

References

1. Al-Sweih NA, Khan S, Rotimi VO (2011) The prevalence of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infections among men with urethritis in Kuwait. *J Infect Public Health* 4: 175-179.

2. Afrakhteh M, Beyhaghi H, Moradi A, Hosseini SJ, Mahdavi A, Giti S, Modarres SZ, Zonoobi Z, Masoomi H (2008) Sexually transmitted infections in Tehran. *J Family Reproduc Health* 2: 123-128.
3. World Health Organization (2013) Sexually transmitted infections fact sheet N°110. Updated May 2013. Available: <http://www.who.int/mediacentre/factsheets/fs110/en>. Accessed 8 August 2015
4. Kabbash IA, Al-Mazroa MA, Memish ZA (2011) Evaluation of syndromic management of sexually transmitted infections in Saudi Arabia. *J Infect Public Health* 4: 73-79.
5. World Health Organization (2001) Global prevalence and incidence of selected curable sexually transmitted infections - overview and estimates. Available: http://www.who.int/hiv/pub/sti/who_hiv_aids_2001.02.pdf. Accessed 8 August 2015
6. Madani TA (2006) Sexually transmitted infections in Saudi Arabia. *BMC Infect Dis* 6: 3.
7. Gray PB (2004) HIV and Islam: is HIV prevalence lower among Muslims? *Soc Sci Med* 58: 1751-1756.
8. Mazroa MA, Kabbash IA, Felemban SM, Stephens GM, Al-Hakeem RF, Zumla AI, Memish ZA (2012) HIV case notification rates in the Kingdom of Saudi Arabia over the past decade (2000-2009). *PLoS One* 7: 45919.
9. Centers for Disease Control and Prevention, Workowski KA, Berman SM (2006) Sexually transmitted diseases treatment guidelines, 2006. *MMWR Recomm Rep* 55: 1-94.
10. Workowski KA, Berman S; Centers for Disease Control and Prevention (CDC) (2010) Sexually transmitted diseases treatment guidelines, 2010. *MMWR Recomm Rep* 59: 1-110.
11. Madani TA, Al-Mazrou YY, Al-Jeffri MH, Al-Huzaim NS (2004) Epidemiology of the human immunodeficiency virus in Saudi Arabia; 18-year surveillance results and prevention from an Islamic Perspective. *BMC Infect Dis* 4: 25.
12. Al-Mazrou YY, Al-Jeffri MH, Fidail AI, Al-Huzaim N, El-Gizouli SE (2005) HIV/AIDS epidemic features and trends in Saudi Arabia. *Ann Saudi Med* 25: 100-104.

Corresponding author

Ziad A. Memish, Prof., MD, FRCPC, FACP, FRCPE, FRCPL
Ministry of Health & College of Medicine, Alfaisal University
P.O. Box 54146; Riyadh 11514, KSA
Phone: +966505483515
Email: zmemish@yahoo.com

Conflict of interests: No conflict of interests is declared.