Room for Improvement- Syphilis; Knowledge and Delayed Diagnosis among Sexual Health Clinic Attendees

K Hunter, J Badwal, D Singh, H Fairbairn, MA Shaharuddin, E Muldoon
Department of Infectious Diseases, St James Hospital, James St, Dublin 8

Abstract
Cases of early infectious syphilis are increasing in Ireland. A questionnaire distributed to sexual health clinic attendees assessed syphilis knowledge. A telephone survey in patients with secondary syphilis explored potential delays in diagnosis. 272 questionnaires were completed. 54% of respondents were male. 222 (81.6%) were Irish. 31/268 (12%) who stated their sexual orientation were men who have sex with men (MSM). 226 (83%) had heard of syphilis. MSM had better knowledge compared to heterosexual males (p<0.05). Contact details were available for 60 patients with secondary syphilis. 37 patients were surveyed. 31/37 (84%) recalled symptoms prior to diagnosis, mean duration of symptoms 53 days (range 7-168). 23/37 (62%) reported consulting at least one physician before attending sexual health services. 12/23 (52%) were given an alternate or no diagnosis. Greater awareness of syphilis signs and symptoms is needed amongst patients and healthcare providers to prevent delayed diagnosis leading to ongoing transmission.

Introduction
Syphilis is a sexually transmitted infection (STI) caused by the spirochete Treponema pallidum. The untreated infection typically presents in a sequence of stages. Primary syphilis is characterised by the development of a chancre at the infection site which remains for 3-6 weeks, however up to 60% of patients will not recall a chancre. The untreated infection progresses to secondary syphilis, in approximately 30% of patients. The manifestations of secondary syphilis are protean, hence its moniker of the great imposter. The most frequent symptoms are rash, headache, fevers, myalgias and lymphadenopathy. The asymptomatic latent stage of infection lasts until tertiary syphilis (which occurs in 30% of untreated patients) during which the neurological, musculoskeletal and cardiovascular manifestations of long term infection may become apparent. Transmission requires exposure to open lesions where the bacterium is present and occurs via sexual contact with an infected individual. Syphilis control depends on early diagnosis, timely treatment, partner notification, and screening.

Over the past decade there has been a steady increase in the annual number of STI cases reported in Ireland. A 2000 syphilis outbreak involved a dramatic increase in cases of early infectious syphilis among men who have sex with men (MSM) in Dublin and peaked in 2001. Similar European and North American outbreaks were observed at this time. An outbreak control team implemented mass-media educational campaigns to increase awareness and increase syphilis screening, contact tracing and on site testing in venues of high sexual activity. However, despite these efforts syphilis infection rates have not reverted to pre-outbreak levels.

A questionnaire based study aimed to assess the syphilis knowledge of patients attending the Genito-Urinary Medicine & Infectious Disease (GUIDE) clinic of St. James's Hospital (SJH) in Dublin. The GUIDE department is the largest provider of HIV and sexual health care in the Republic of Ireland with greater than 25,000 patient attendances per year. Patients can visit the sexual health clinic anonymously, free of charge and without referral by a doctor. Sexual health clinics are run on a "walk-in" basis, with as many patients seen as possible on a given day. In addition the clinic also caters for approximately 2,000 HIV positive patients engaged in follow up care. There was an almost 50% increase in GUIDE diagnosed cases of syphilis in 2009 (unpublished data), despite current control measures and disease surveillance. Previous English studies identified that 20% of male respondents had not heard of syphilis and found a common perception among MSM that syphilis is a rare disease.

Anecdotally, it was felt that many symptomatic patients may have had their syphilis diagnosis delayed either by failure to present for medical attention, or alternatively through attending a physician who failed to recognise and diagnose syphilis. To determine these challenges to diagnosis, a retrospective telephone survey of secondary syphilis cases diagnosed in the GUIDE clinic from 2007 to 2009 was conducted.

Methods
An anonymous questionnaire consisting of questions related to patient demographics and syphilis knowledge was distributed to all consenting GUIDE clinic attendees between 1 and 12 March 2010. The survey assessed patients knowledge of syphilis and its transmission. Two medical students distributed and collected all surveys and were available to clarify questions for respondents. All cases of secondary syphilis diagnosed between Jan 2009 and December 2009 were identified from a database held in the GUIDE department. All patients presented with a clinical syndrome compatible with secondary syphilis along with positive syphilis serology. Up to 4 attempts were made to contact each eligible patient by telephone. To uphold confidentiality voicemail messages were not left. All available charts and referral letters were reviewed. Data analysis was carried out using MS Excel and SPSS software. The SJH Ethics Committee approved both studies.
Results

Knowledge questionnaire - Sample characteristics

272 completed questionnaires were collected during the sampling period. 54% of respondents were male. The mean age of participants was 28.6 years (range 16-51 years). 31/268 (12%) participants who stated their sexual orientation were MSM. 84% (222/264) were Irish. Respondents were split between first-time (49%, 130/268) and repeat attendees (51%, 138/268). The majority (86%, 226/263) of respondents had heard of syphilis. Media was the most frequently reported source of syphilis information while health/STI services were the least frequently cited sources. Other reported sources included education and word of mouth.

Questionnaire responses

The percentage of respondents answering each question correctly varied from 12% (33/272) who knew syphilis transmission can occur via kissing to 96% (261/272) who knew that syphilis cannot be contracted by being in the same room as an infectious individual (Figure 1). For analysis, questions were divided into two groups: general syphilis knowledge and transmission knowledge. Each individual was assigned a general and transmission score calculated as the number of correct answers within each group. Participant scores on transmission knowledge were higher (mean 5.0) than general knowledge scores (mean 4.1).

Scores were grouped into approximately equal intervals and chi squared tests performed to assess any relationship between score group and characteristics including gender, age, nationality, attendance and number of previous attendances. The scores of MSM and heterosexual males were compared. Correlation coefficients were calculated between age and score. The chi squared results indicate that non-Irish respondents were more likely to score highly on transmission knowledge (p<0.05) but that there was no difference in general knowledge between Irish and non-Irish respondents. MSM showed better general (p<0.05) and transmission knowledge (p<0.05, Figure 2) than heterosexual males. There was no significant difference in knowledge associated with gender or attendance status. No significant correlation was found between age and either score. A chi squared test indicated that the observed proportion of non-Irish attendees at the clinic during the two week study period (16%) significantly differed (p<0.0001) from the proportion of non-Irish patients in 2009 syphilis diagnoses in HIV negative patients (33%, unpublished data). This indicates that non-Irish nationals are disproportionately over represented amongst syphilis diagnoses.

Delayed Diagnosis Study - Sample characteristics

There were 70 secondary syphilis diagnoses in total, of which 60 (86%) had available contact details. 38/60 (63%) were contactable, 37 of whom (97%) consented to participate in the survey. All participants were male with a mean age 39.5 years (range 24-58 years). 18/37 (49%) were HIV co-infected. All patients were MSM, other documented risk factors (Figure 3) were unprotected sexual intercourse (66%), multiple sexual partners (10%) and contact with a known syphilis infected partner (10%).

Questionnaire results

31 of the 37 (84%) participants recalled symptoms prior to diagnosis. The mean duration of all reported symptoms was 52.7 days (range 7-168 days). Most commonly reported symptoms included rash (61%), genital lesion (39%), general malaise (52%), headache (29%) and fever (29%). Figure 4 depicts the number of practitioners attended by cases prior to GUIDE clinic attendance. 23/37 (62%) had seen at least one other practitioner and 9/23 (39%) reported attending two or more practitioners. 16/23 (70%) cases had seen a general practitioner (GP). Of these 23 cases who reported attending a medical practitioner prior to attending GUIDE, 9 (39%) were given a different diagnosis including fungal infection, influenza, general rash/hives or an unspecified STI, 11 (48%) were diagnosed with syphilis, and 3 (13%) reported no diagnosis given. Reasons for delayed presentation to the GUIDE clinic reported by seven (19%) cases mainly consisted of time constraints and underestimating symptoms. The internet (32%) and friends or family (14%) were reported sources of diagnostic information. All patients were treated with penicillin or doxycycline in the case of penicillin allergy. Patients received syphilis education and partner elicitation for screening was encouraged.

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Discussion

Improved patient knowledge of syphilis and access to STI services remain cornerstones of public health intervention as they impact on transmission, timely presentation for assessment, and sex partner elicitation for investigation and treatment. As syphilis notifications in Ireland are again increasing, it seems necessary to reintroduce and sustain educational and preventative measures in an effort to increase public knowledge of syphilis, reduce undiagnosed cases and prevent further transmission. Since questionnaire respondents reported learning through media rather than official health publications and clinics, funding media campaigns may be more cost-effective than producing public health literature. Future campaigns should focus on the lack of transmission awareness associated with kissing, unprotected oral sex and vertical transmission. Telephone survey limitations include the single centre sample, which could underestimate the extent of secondary syphilis cases that remain undiagnosed. However, since the GUIDE clinic is the largest centre for HIV and STI care in Ireland\(^1\), it is likely that the results are valid.

Limitations of the knowledge questionnaire include the possibility that GUIDE patients are likely to have better than average access to STI information. Also, patients with literacy/language issues are likely to be under-represented. However the large sample size and the self presentation of patients to the GUIDE clinic should limit these drawbacks. It is unsurprising that MSM had higher knowledge scores as this is a key target group for awareness campaigns. However the large sample size and the self presentation of patients to the GUIDE clinic should limit these drawbacks. The incorporation of increased STI teaching to medical trainees and practitioners is strongly recommended. The finding that 52\% of patients who attended a physician prior to GUIDE attendance were not diagnosed with syphilis underscores this need. Of further concern is the HIV co-infection figure of 49\% of all participant cases since syphilis and HIV demonstrate epidemiologic synergy. Symptomatic infectious syphilis increases the risk of HIV and syphilis transmission to susceptible partners.

Alongside patient knowledge, the substantial proportion of delayed diagnosis amongst secondary syphilis patients demonstrates the need for improved syphilis knowledge among healthcare providers. Telephone survey figures indicate a mean duration of symptoms of 53 days prior to diagnosis. Since the time course for syphilis progression to more severe forms falls within this range, untreated patients are at risk of long term sequelae and transmission to sex partners. The incorporation of increased STI teaching to medical trainees and practitioners is strongly recommended. The finding that 52\% of patients who attended a physician prior to GUIDE attendance were not diagnosed with syphilis underscores this need. Of further concern is the HIV co-infection figure of 49\% of all participant cases since syphilis and HIV demonstrate epidemiologic synergy. Symptomatic infectious syphilis increases the risk of HIV and syphilis transmission to susceptible partners.

The data obtained are a useful source of information on current syphilis awareness among both patients and clinicians and highlight an urgent need for targeted and effective public health campaigns and STI training programmes for non-STI clinicians.

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Correspondence: E Muldoon
Department of Infectious Diseases, St James’s Hospital, James’s St, Dublin 8
Email: eavan@esatclear.ie

References


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