

## ADOLESCENT SEXUAL HEALTH

# News from the frontline: sexually transmitted infections in teenagers attending a genitourinary clinic in south east London

S Creighton, S Edwards, J Welch, R Miller

*Sex Transm Infect* 2002;**78**:349–351

**Objectives:** To define the incidence and characterise the clinical presentation of sexually transmitted infections (STI) in people aged  $\leq 16$  years old attending a genitourinary clinic in south east London.

**Methods:** Cross sectional analysis of clients aged  $\leq 16$  years attending one genitourinary clinic. A subgroup was identified for priority treatment. Data collected included age, reason for presentation, diagnosis, contraceptive use, and adherence to therapy. Diagnoses were compared to the KC60 codes for female attendances of all ages.

**Results:** 144 females and 18 males with a mean age of 15.4 years attended, of whom 49% were symptomatic. Compared to other attenders, clients aged  $\leq 16$  years were significantly more likely to have an STI (64% versus 22%,  $p < 0.0000001$ ); 27 were pregnant (of whom 96% requested a termination of pregnancy); 47% did not return for follow up; and 12% did not adhere to treatment plan. Those diagnosed with an STI were significantly less likely to reattend ( $p < 0.001$ ).

**Conclusions:** There is a high rate of STIs in 16 year olds compared to national figures and to general clinic attenders. Poor contraception is often overlooked within the genitourinary medicine clinic. Young attenders frequently fail to reattend for follow up. Priority treatment did not affect outcome. Further strategies are needed to identify ways to improve young people's access to genitourinary medicine clinics.

Rates of infection with *Chlamydia trachomatis* and *Neisseria gonorrhoeae* peak among women aged 16–19 years<sup>1</sup> and teenagers with sexually transmitted infections (STI) are more likely than older groups to be reinfected after initial presentation.<sup>2</sup> Twenty eight per cent of 16 year olds use no contraception,<sup>3</sup> resulting in the United Kingdom having the highest teenage pregnancy rate in western Europe.<sup>4</sup> These issues are prioritised in the national strategy for sexual health and HIV.<sup>5</sup>

South east London has the highest abortion rate in England<sup>6</sup> and treats 14% of the nation's gonorrhoea.<sup>7</sup> The present study is a cross sectional analysis of clients aged  $\leq 16$  years attending a genitourinary medicine clinic in south east London which offers treatment for all sexually transmitted infections (STIs), contraception, and forensic screening.

The aims of the study were to define the incidence of STI in clients aged  $\leq 16$  years in south east London, characterise behavioural variables (for example, reason for accessing the clinic, contraceptive use, and adherence to treatment), and observe treatment received in the clinic.

### METHODS

This is a cross sectional survey of all clients aged  $\leq 16$  years attending the genitourinary medicine clinic at King's College

Hospital in March and October 1998. Two separate months were chosen to minimise effects of individual staff members on client treatment. Clients attending repeatedly in this time period were counted once. Cases were identified retrospectively from the clinic database. Data were abstracted from the medical records using a standardised proforma by one investigator. Variables collected included age, sex, reason for presentation, obstetric history, contraceptive practice, diagnosis, follow up, and adherence to treatment. Adherence was defined as completing 90% of medications, refraining from unprotected sexual intercourse and undertaking appropriate partner notification. Of note, in April 1998 clinic policy was changed so that all clients aged  $< 16$  received priority treatment. In summary, a health adviser saw clients within 10 (range 1–21) minutes to assess Gillick competency, discuss the clinic procedure and explain the importance of treatment, and afterwards ensured that they were seen immediately in the conventional clinic setting. At this time, medical staff were primed as to the importance of prioritising these clients and of ensuring adequate treatment, including contraception.

Diagnoses and adherence to therapy were compared to case and sex matched controls chosen at random from clients age  $> 20$  years attending the clinic in the same 2 months. These controls faced a median waiting time of 47 minutes and spent an average of 4.5 hours in clinic.

Data were compared using  $\chi^2$  analysis with Yates's correction.

### RESULTS

The database identified 172 clients; 10 of whom left before being seen. The remainder included 144 females and 18 males aged  $\leq 16$  years. The small number of males precludes their detailed analysis. Of the females, median age was 15.4 (range 12–15.9) years and median parity was 0.85 (range 0–10).

#### Reasons for attendance

Forty nine per cent of  $\leq 16$  year olds attended with symptoms suggestive of an STI; 43% of 12–16 year olds and 18% of controls attended for a routine check up ( $\chi^2 = 21.2$ ;  $p < 0.001$ ). Cases were significantly less likely than controls to attend as contacts (8% versus 40%,  $\chi^2 = 42.1$ ;  $p < 0.00000001$ ).

#### Contraception

Twenty seven of 144 (19%) were pregnant, of whom 26 requested a termination of pregnancy. Among the remaining 117 females, 89 (76%) were not using contraception at the time of consultation and 47 (53%) left the clinic without documentation of contraceptive advice.

#### Diagnosis

Diagnoses were similar in both months of the study. Table 1 shows the diagnoses of  $\leq 16$  year olds compared to all females

**Table 1** Diagnoses in teenagers and all women attending clinic

Diagnosis*	≤16 year olds	All women	χ <sup>2</sup>	p Value†
	No (%)	No (%)		
Chlamydia	34 (23)	86 (6)	15.8	<0.0001
Gonorrhoea	13 (9)	29 (3)	4.2	<0.05
PID	15 (10)	87 (8)	0	0.29
Other STI‡	32 (22)	100 (9)	8.5	<0.005
Any STI	94 (64)	302 (28)	36.2	<0.000001
Non-STI§	52 (36)	772 (72)	53.3	<0.01

\*Total number of diagnoses is >144 as some clients had >1 diagnosis; †χ<sup>2</sup> analysis with Yates's correction; ‡eg, genital warts, trichomonas vaginalis, herpes simplex and pediculosis pubis; §eg, candidiasis, bacterial vaginosis, urinary tract infection, family planning, and conditions not requiring treatment.

attending the clinic in the same months. Of the ≤16 year olds, 64% had an STI, compared to 22% of all females (χ<sup>2</sup> =47.6; p<0.0000001).

### Follow up

Sixty seven of 144 (47%) young women failed to attend after the first visit, compared to 29% of case matched controls (χ<sup>2</sup> = 10.3; p<0.001). Of those clients who returned to clinic, 17/77 (22%) of 16 year olds had failed to adhere fully to treatment regimens. Females with any STI were less likely to return for follow up than those without (p<0.001). The presence of symptoms did not improve follow up. Prioritisation did not affect likelihood of return to clinic or adherence. Eight of 41 (20%) clients who received priority treatment left before seeing a medical practitioner, compared to two of 103 of those who had been seen routinely. Of clients receiving priority treatment 26/41 (63%) received appropriate contraceptive advice, compared to 71/103 (69%) of all other 16 year olds.

### DISCUSSION

This is the first UK study looking at clients <16 years old in an area of high sexual morbidity. The main findings were that almost two thirds of 16 year olds seen in the genitourinary medicine clinic had an STI. Teenagers were 2.5 times more likely to have any STI than other attenders at the clinic, but 50% less likely to attend for follow up than case matched controls. One in five requested a termination of pregnancy and more than two thirds admitted to inadequate contraception. Despite this, nearly half left the clinic without receiving documented contraceptive advice. Prioritisation within the clinic did not affect contraceptive discussion, return for follow up, or adherence.

Teenagers had a more than threefold increase in incidence of gonorrhoea and chlamydia compared to the already high incidence of these diseases in the general clinic attenders. This accords with data from urban genitourinary medicine clinics in the United States,<sup>8</sup> but contrasts with data from the United Kingdom.<sup>9</sup> The UK study reported a similar number of infections over a 2 year period as were seen in the 2 months of our study. Attenders at a genitourinary medicine clinic are not representative of all teenagers and it would be interesting to ascertain the incidence of these infections in the community. The fact that 43% of teenagers were attending for a routine check up, compared to 18% of controls, implies that teenagers may be more aware of the need for routine sexual health checks than older counterparts.

The poorly documented contraceptive advice offered within the genitourinary medicine clinic is of concern. The majority of 12–16 year olds had been pregnant at least once and one had been pregnant 10 times. A one stop sexual health clinic

### Key points

- Two thirds of clients aged ≤16 years had an STI
- Females aged ≤16 years were three times more likely to have an STI than other females attending the clinic
- Almost half of females aged ≤16 years failed to attend for follow up
- Contraceptive needs were inadequately served by the clinic

offering contraception, STI screens and behavioural advice may be especially useful in areas seeing a high number of teenagers.<sup>10</sup>

The low rate of follow up contrasts with a study, performed in a family planning clinic in the United States with a low incidence of STI.<sup>11</sup> Their findings may represent the characteristics of the general population, rather than that of teenagers in particular. Prioritisation did not reduce the number of clients leaving the clinic before being seen, nor did it improve the clinical care received within the clinic. This may be explained by the increasing workload of the clinic; there was a 70% increase in the number of ≤16 year olds seen in October compared to March. Although the time to initial assessment by a health adviser improved, this did not necessarily reduce total time spent in the clinic. Alternatively, the results may indicate that the initial interview with a health adviser failed to improve client education or treatment by other health professionals.

Very few young men were seen. This cannot be explained entirely by a later coitarche in men compared to women and implies that young men fail to access genitourinary medicine clinics. Ways of targeting this high risk group need to be explored.

The success of young people's sexual health clinics in improving adherence to therapy has been demonstrated.<sup>10</sup> However, total numbers of patients seen were lower in these studies than in our population. Although the benefits of outreach studies and peer education are recognised,<sup>12</sup> these are costly alternatives. In combating STI and unwanted pregnancy, it is imperative to target those at highest risk—namely, teenagers in south east London.

### CONTRIBUTORS

SC performed the data collection, statistical analysis and with RFM wrote the first and final drafts of the manuscript; SE contributed to study design and with JW critically reviewed drafts of the manuscript.

Funding: None.

Conflict of interests: None.

.....

### Authors' affiliations

**S Creighton, S Edwards**, Department of Genitourinary Medicine, Camden Primary Care Trust, Mortimer Market Centre, London WC1E 6AU, UK

**J Welch**, Department of Sexually Transmitted Diseases, King's College Hospital, Caldecot Centre, London SE5 9RS, UK

**R Miller**, Department of Sexually Transmitted Diseases, Royal Free and University College Medical School, University College London, and Camden Primary Care Trust, London WC1E 6AU, UK

Correspondence to: Dr Sarah Creighton, Department of Genitourinary Medicine, Camden Primary Care Trust, Mortimer Market Centre London WC1E 6AU, UK; screighton@gum.ucl.ac.uk

Accepted for publication 20 June 2002

### REFERENCES

- 1 **Connor**, N, Catchpole M, Nicoll A. Sexually transmitted diseases among teenagers in England and Wales. *CDR review* 1997;**7**:174-7.
- 2 **Anon**. Predictors of Chlamydia trachomatis infection among teenage adolescents; a longitudinal analysis. *Am J Epidemiol* 1996;**144**:997-1003.
- 3 **Ford N**. The socio-sexual lifestyles of young people in the south west of England. Exeter: South West Regional Health Authority and University of Exeter, 1991.
- 4 **Nicoll A**, Catchpole M, Thomas D. Sexual health of teenagers in England and Wales analysis of national data. *BMJ* 1999;**318**:1321-2.
- 5 **Department of Health**. *The national strategy for sexual health and HIV*. London: DoH, 2001, www.doh.gov.uk/nshs/strategy.htm accessed 12 June 2002.
- 6 **Office for National Statistics**. *Conceptions in England and Wales*. (Series AB no 22). London: Stationery Office, FM1 May 1997.
- 7 **Public Health Laboratory Service**. *GUM clinic returns, PHLS AIDS and STD centre and CDSC report, 2000*. London: PHLS, 2000.
- 8 **Bunnell RE**, Dahlberg L, St Louis M. High prevalence of sexually transmitted diseases in urban adolescent females despite moderate risk behaviours. *J Infect Dis* 1999;**180**:1624-31.
- 9 **Openeye AA**, Willmott C. The role of genitourinary medicine in adolescent sexuality. *Genitourin Med* 1991;**67**:44-6.
- 10 **James NJ**, Hughes S, Slack RC. A collaborative approach to the management of chlamydial infection among teenagers seeking contraceptive care in a community setting. *Sex Transm Infect* 1999;**75**:156-61.
- 11 **Smith PB**, Chacko MR Phillips SE. Sexually transmitted disease treatment and return for test of cure of adolescents in a family planning clinic. *J Adolesc Health* 1991;**12**:49-52.
- 12 **Gunn RA**, Podschun GD, Greenspan JR. Screening high risk adolescent males for chlamydia trachomatis infection. *Sex Transm Dis* 1988;**25**:49-52.

### NEW STI ONLINE SUBMISSION AND REVIEW SYSTEM

I am pleased to inform authors and reviewers that as of 21 February 2002, *STI* will be using a new online submission and review system. Developed by Highwire Press (CA, USA), *Bench>Press* is a fully integrated electronic system which utilises the web to allow rapid and efficient submission of manuscripts. It also allows the peer review process to be conducted entirely online. The aim, apart from saving trees, is to speed up the frequently frustrating process from submission to publication.

Authors can submit their manuscript in any standard word processing software. Standard graphic formats acceptable are: .jpg, .tiff, .gif, and eps. (*nb. multipage powerpoint files are NOT acceptable*). The text and graphic files are automatically converted to PDF for ease of distribution and reviewing purposes. Authors are asked to approve their submission before it formally enters the reviewing process. On approval by the authors, the submission is passed to the editor and/or reviewers via the web. All transactions are secure.

To access the system click on "SUBMIT YOUR MANUSCRIPT HERE" on the *STI* homepage: <http://www.sextransinf.com/> or you can access *Bench>Press* directly at <http://submit-sti.bmjournals.com/>.

We are very excited with this new development and I would encourage authors and reviewers to use the online system where possible. It really is simple to use and should be a big improvement on the current peer review process. Full instructions can be found on *Bench>Press and STI online*. Please contact Natalie Davies, Project Manager, [ndavies@bmjgroup.com](mailto:ndavies@bmjgroup.com) for further information.

### PRE-REGISTER WITH THE SYSTEM

We would be grateful if all *Sexually Transmitted Infections* authors and reviewers pre-registered with the system. This will give you the opportunity to update your contact and expertise data, allowing us to provide you with a more efficient service.

#### Instructions for registering

1. Enter <http://submit-sti.bmjournals.com>
2. Click on "Create a New Account" in the upper left hand side of the *Bench>Press* homepage
3. Enter your email address in the space provided.
4. Choose a password for yourself and enter it in the spaces provided.
5. Complete the question of your choice to be used in the event you cannot remember your password at a later time.
6. Click on the "Save" button at the bottom of the screen.
7. Check the email account you registered under. An email will be sent to you with a verification number and URL.
8. Once you receive this verification number, click on the URL hyperlink and enter the verification number in the relevant field. This is for security reasons and to check that your account is not being used fraudulently.
9. Enter/amend your contact information, and update your expertise data.