SEXUAL HEALTH

Sexual health problems managed in Australian general practice: a national, cross sectional survey

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Objectives: To ascertain how frequently Australian general practitioners (GPs) identify sexual health (SH) problems, to gain understanding of how SH problems are managed in general practice and to determine the characteristics of GPs who manage them.

Methods: A secondary analysis of data from the BEACH programme April 2000–March 2003. BEACH is a cross sectional national survey of GP activity: approximately 1000 GPs per year, each records details of 100 consecutive patient encounters. Initially, patient reasons for encounter (RFE), suggestive of a SH problem, were used to derive a list of SH problems (that is, doctor's diagnosis/problem label). Management of these problems was then investigated for all encounters with patients aged 12–49 years. The frequency of SH problems, their management and the characteristics of GPs managing them, were analysed using SAS.

Results: During 299 000 encounters with 2990 GPs, 3499 (1.17 per 100 encounters) STI/SH problems were managed, the majority (81.1%) in females. The most common in women were genital candidiasis, vaginal symptoms, urinary symptoms, and intermenstrual bleeding, and in men were testicular symptoms, genital warts, and urethritis. Tests to exclude specific STIs were seldom taken and symptomatic management was common. GPs managing SH problems were younger, more likely to be female, have fewer years in practice, work in larger practices; hold FRACGP status (all $p = < 0.001$) than those GPs who managed none.

Conclusion: Patients seeking medical attention for SH problems are often managed by GPs. Tests to diagnose or exclude specific sexually transmitted infections are seldom ordered and symptomatic management is common. Strategies to improve management of SH problems in general practice need to be developed and evaluated.

Sexually transmitted infections (STIs) are on the increase in Australia¹ and general practice is often the first point of contact for people who think that they might have an STI. In the 2003 Australian Study of Health and Relationships, 20% of men and 17% of women reported that they had previously been diagnosed with an STI and 55% of these were diagnosed by a general practitioner (GP).² However, limited information is available about the actual number of sexual health (SH) problems managed in general practice and how such problems are managed. STIs, including HIV, syphilis, gonorrhoea, and chlamydia are notifiable through the state jurisdictions,¹ although it is not known how many of these notifications come from GPs. In addition, the Australian Health Insurance Commission (HIC) holds data on numbers of pathology tests undertaken, for which a Medicare rebate was paid, including tests for STIs.³ Estimates of incidence of STIs can be made from diagnoses made at pathology laboratories. However, these are poor estimates of the number of people presenting to general practice with STIs, as not all GPs will order tests and not all tests ordered will be billed through Medicare. Moreover, this does not give any qualitative information on the presentation of patients with symptoms of STIs but for whom a definitive diagnosis is not reached, or on how these patients are managed.

Questionnaire based surveys provide additional information. In a survey of 520 Victorian GPs, 19% reported managing an STI daily or weekly, 36% monthly, and 46% infrequently or never,⁴ and a study of GPs with previous experience in diagnosing and managing STIs found that 60% reported having seen more than 20 patients at risk of an STI in the previous 12 months.⁵ Both studies were small, not nationally representative and relied on GP recall.

Questionnaire based data are subjective, and depend on the GP's estimate of encountered cases, which are often over-estimates.⁶ Finally, a study using the Bettering the Evaluation and Care of Health (BEACH) database revealed that diagnosed STIs were rarely recorded, only 521 STIs being managed at 303 000 (0.17 per 100) encounters.⁷

That study concentrated on problems recorded as defined by clear STI diagnoses. The low frequency of management of these problems in general practice led us to wonder the extent to which possible STIs were being managed symptomatically by GPs without being tested to gain a clear diagnostic label for the problem.

BEACH is an ongoing, cross sectional, encounter based survey of general practice activity throughout Australia. Continued access to the BEACH database allowed further analysis of the management frequency of STI/SH problems by Australian GPs. The aims of this study were to ascertain how frequently Australian GPs manage SH problems (STIs and health problems suggestive of STIs), to gain understanding of how SH problems are managed in general practice and to determine the characteristics of GPs who manage them.

Abbreviations: BEACH, Bettering the Evaluation and Care of Health; CAPS, Coding Atlas for Pharmaceutical Substances; FRACGP, Fellowship of the Royal Australian College of General Practitioners; GP, general practitioner; HSV, herpes simplex virus; ICPC, International Classification of Primary Care; MC&S, microscopy and culture and sensitivity; NGU, non-gonococcal urethritis; NSU, non-specific urethritis; PID, pelvic inflammatory disease; RFE, reasons for encounter; SH, sexual health; STI, sexually transmitted infections

METHODS

The database

The BEACH survey began in April 1998 and its methods have been described in detail elsewhere.⁸ In summary, each GP in a random sample of approximately 1000 practising GPs per year completes details about 100 consecutive GP-patient encounters on standardised paper recording forms. The encounter may involve management of new problem(s) and/or a follow up for previously managed condition(s).

Information recorded includes age, sex, up to three patient "reasons for encounter" (RFEs), and up to four problems managed at the encounter (recorded by GP as diagnoses or as problem descriptions). The RFEs are the patient's reasons for presenting, in contrast with the GPs "problem managed" which describe his/her view of the problems managed, at the highest diagnostic level possible with the evidence available at the time. For each problem, management data include medications, pathology and imaging orders, and referrals. RFEs and problems managed were classified according to the International Classification of Primary Care (version 2) (ICPC-2).⁹ Medications were classified according to an in-house classification, the Coding Atlas for Pharmaceutical Substances (CAPS)⁸ and to the Anatomical Therapeutic Chemical Classification Index (WHO).¹⁰ GP related data elements include, age, sex, years in practice, sessions worked per week, size of practice, country of graduation, current postgraduate general practice training and Fellowship of the Royal Australian College of General Practitioners (FRACGP) status.

We devised a list of common presenting symptoms suggestive of STIs, or that are commonly seen as presentations in sexual health clinics. Using this list, we searched the BEACH database for those patients between the ages of 12–49, who presented with these as RFEs. We selected this age group because children less than 12 years old are seldom diagnosed with STIs, and in both men and women over 49 years of age, STIs are less common and the symptomatology may be confused with urinary or reproductive problems.

In women, the most common RFEs suggestive of STIs were vaginal discharge, vaginitis/vulvitis, genital check up, genital pain or dyspareunia, candida, genital warts, and genital herpes. In men, the most common were scrotal/testicular complaints, genital warts, urinary tract symptoms, urethral symptoms, penile complaints, genital herpes simplex (HSV) infection and genital check up. We reviewed all problems managed at encounters involving these RFEs and through

subjective judgment derived a list of problems likely to be related to these RFEs. From this we identified a list of ICPC-2 codes that were likely to be related to sexual health. This list was the final basis for the study.

BEACH data collected during the 36 month period from April 2000 to March 2003 were analysed. In order to ensure representativeness, the data were stratified by sex of each GP and then weighted by age and GP activity level.

Statistical methods

The database was analysed using SAS version 8.2,¹¹ with the encounter being the primary unit of analysis. We use percentages to describe the distribution where events can only occur once in a consultation (for example, age and sex). If an event can occur more than once (for example, reasons for encounter, problem managed, or medications), we use rates per 100 encounters or per 100 problem contacts. We used χ^2 to calculate differences in GP characteristics and paired *T* test to calculate differences in patient age groups.

RESULTS

Data were available for 299 000 encounters from 2990 GPs, of which 130 646 were with patients aged 12–49 years. Of these, 81 317 encounters (62.2%) were with females, 48 309 (36.2%) were males, and sex was not specified for 1020. STI/SH problems numbered 3499, 2838 managed at encounters with females and 661 with males. They were managed more frequently for women (3.5 per 100 encounters) than for men (1.4 per 100 encounters). At least one STI/SH problem had been recorded by 67% (*n* = 2013) of GPs.

Sexual health problems managed

The most common problems managed in women were genital candidiasis (including thrush; genital, candidiasis, moniliasis, vaginitis candida); vaginal symptoms (vaginal discharge, vaginitis, vaginosis, infection vaginal, *Gardnerella*); urinary symptoms (cystitis, haematuria, dysuria); intermenstrual bleeding (intermenstrual bleeding, post-coital bleeding, spotting), genital check up; herpes simplex viruses infection; pelvic inflammatory disease (PID) (PID, endometritis, infection pelvic, inflammation pelvic, salpingitis); genital warts; and chlamydia (table 1).

Those most often managed in men were testicular symptoms (including epididymal cyst, testicular lumps, testicular pain, testicular swelling); genital warts; epididymitis/orchitis; urethritis (urethritis, non-specific urethritis

Table 1 Diagnoses/problems managed in female patients

Problem managed	Number of encounters	Rate per 100 encounters	Percentage of sexual health problems
Genital candidiasis	642	0.79	22.6
Vaginal symptoms or diagnoses*	448	0.55	15.8
Urinary symptoms or diagnoses†	294	0.36	10.4
Intermenstrual bleeding‡	261	0.32	9.2
Check up (genital)	196	0.24	6.9
Herpes simplex	156	0.19	5.5
PID*	145	0.18	5.1
Genital warts	137	0.17	4.8
Chlamydia	41	0.05	1.4
Other§	518	0.64	18.3
Total	2838	3.49	100

*Including vaginal discharge; vaginitis; vaginosis; *Gardnerella* and vaginal infection.

†Including cystitis and haematuria.

‡Including intermenstrual bleeding, postcoital bleeding and irregular bleeding.

*Including pelvic inflammatory disease: salpingitis; endometritis; and pelvic inflammatory infection.

§Including dyspareunia; Bartholin's cyst or abscess; pruritus vulvae, vulvitis, vulval pain, vulval abscess, vulval mass; cervicitis; foreign bodies in vagina; genital complaints (unspecified), menstrual problems; trichomoniasis.

Table 2 Diagnoses/problems managed in male patients

Problem managed	Number of encounters	Rate per 100 encounters	Percentage of sexual health problems
Testicular symptoms*	110	0.25	3.86
Genital warts	104	0.22	3.66
Epididymitis/orchitis	93	0.19	3.2
Urethritis†	77	0.17	2.71
Herpes simplex	59	0.12	2.08
Urinary symptoms	48	0.11	1.69
Chlamydia	33	0.07	1.16
Candidiasis	29	0.06	1.02
Gonorrhoea	11	0.02	0.39
Other	97	0.20	14.7

*Including epididymal cyst, pain and testicular lumps.

†Including urethritis and non-specific urethritis.

(NSU), urethral discharge, non-gonococcal urethritis (NGU); herpes simplex; urinary symptoms (dysuria, frequency, infection bladder, pain on urination, burning on urination), chlamydia (table 2).

Management of specific STI/sexual health diagnoses/problems

Vaginal symptoms

Vaginal discharge was the problem label for 448 women, for whom 412 pathology tests were ordered (92.0 per 100 contacts) including 204 vaginal swabs for microscopy and culture and sensitivity (MC&S), 58 chlamydia tests, 48 Papanicolaou smears, 42 cervical swabs for M&C, and 19 urine tests for MC&S. Three HIV antibody tests, four gonorrhoea cultures, two herpes cultures, and two tests for hepatitis B serology were ordered. Medications were prescribed at a rate of 73.4 per 100 contacts, including 172 for antibiotics and 154 for antifungal pessaries or topical antifungal agents. In 94 cases (21%) advice, education, or counselling was provided.

Pelvic inflammatory disease

At 154 female encounters the problem was described as PID and 152 pathology tests were ordered (98.7 per 100 PID contacts), including 38 vaginal swabs for MC&S, 31 chlamydia tests, 22 cervical swabs for MC&S, and 15 urine tests for MC&S. Two HIV antibody tests, two tests for syphilis serology, and two "tests for venereal diseases" were ordered. No specific tests for gonorrhoea were ordered.

Medications were prescribed at a rate of 112 per 100 PID contacts, 155 of which were for antibiotics, including metronidazole (57), doxycycline (38), and amoxicillin (20). Several patients received more than one antibiotic. Fourteen (7%) received advice, education, or counselling.

Testicular symptoms

Testicular problems were managed at 110 encounters. Seven pathology tests were ordered, six being urine tests for MC&S and one chlamydia test.

Medications prescribed were few ($n = 9$, 8.2 per 100 contacts) and included five antibiotics. Advice, education, or counselling was given for 39 contacts.

Epididymitis or orchitis

There were 93 patients for whom epididymitis or orchitis was managed. The 29 pathology tests ordered (31.2 per 100 contacts) included 14 urine tests MC&S, eight chlamydia tests, one urethral swab for MC&S, and six other unrelated tests. Prescriptions numbered 86 (68 for antibiotics) and advice, education, or counselling was provided at 16 contacts. Four referrals to specialists were made.

Urethritis

Urethritis was managed at 77 encounters. Fifty four pathology tests were ordered (70.1 per 100 contacts), including 18 urethral swabs for MC&S, 18 chlamydia tests, 17 urine tests for MC&S, two for an "STI test unspecified," two for a gonorrhoea culture, two for an HIV antibody test, two for hepatitis serology, one for syphilis serology, and six other unrelated tests.

Prescriptions totalled 66 (85.7 per 100 contacts) including 25 for antibiotics.

Treatment of genital warts

The problem was described as genital warts at 241 encounters. The treatment of genital warts varied considerably between men and women (table 3). No treatment was recorded in the management of this problem for 68 patients (28%). However, as BEACH represents a "snapshot" of care, some of these patients may have been treated at a previous or subsequent visit. Cryotherapy was used for more than half the male patients with this diagnosis and about one third of females. Other less common treatments included podophyllin resin and podophyllotoxin (table 3).

Characteristics of GPs managing STIs (table 4)

More than half (56.8%) of participating GPs recorded at least one STI/SH problem during their 100 recorded encounters.

Table 3 Treatment of genital warts comparing males and females

Treatment	Males (n, %) (n = 104)	Females (n, %) (n = 137)	Total (n, %)
Cryotherapy	59 (56.7%)	42 (30.6%)	101 (41.9%)
Podophyllin resin	11 (10.5%)	22 (16%)	33 (13.7%)
Imiquimod	6 (5.7%)	11 (8%)	17 (7.1%)
Podophyllotoxin	10 (9.4%)	6 (4.4%)	16 (6.6%)
Cautery	2 (1.9%)	4 (2.9%)	6 (2.5%)
No treatment	16 (15.4%)	52 (38%)	68 (28.2%)

Table 4 Comparison between GPs who managed STIs and the BEACH cohort

GP characteristic	Non-STI/SH GPs (n,%) (n = 1290)	STD/SH GPs (n,%) (n = 1700)	p Value
Sex			
Male	1069 (82.9%)	898 (52.8%)	<0.001
Female	221 (17.1%)	802 (47.2%)	
Age			
<35 years	54 (4.2%)	157 (9.3%)	<0.001
35–44 years	285 (22.1%)	520 (30.8%)	
45–54 years	461 (35.8%)	596 (35.2%)	
>55 years	478 (37.10%)	419 (24.8%)	
Missing	2	8	
Years in general practice			
<10 years	154 (12.0 %)	331 (19.5%)	<0.001
>10 years	1126 (88.0%)	1363 (80.5%)	
Missing	10	6	
Sessions per week			
<5	184 (14.5%)	319 (19.0%)	<0.001
6–10	866 (68.1%)	1140 (67.9%)	
>10	221 (17.%)	220 (13.1%)	
Missing	19	21	
Size of practice			
Solo	258 (20.4%)	216 (12.8%)	<0.001
2–4 GPs	519 (41.0%)	630 (37.4%)	
>4 GPs	488 (38.6%)	839 (49.8%)	
Missing	25	15	
Country of graduation			
Australia	945 (73.5%)	1255 (73.9%)	NS
other	340 (26.5%)	443 (26.1%)	
missing	5	2	
Currently in RACGP training program	38 (3.0%)	40 (2.3%)	NS
FRACGP	371 (28.8%)	643 (37.8%)	<0.001

Missing data removed from calculation of percentage; RACGP, Royal Australian College of General Practitioners; FRACGP, Fellows of the Royal College of General Practitioners.

These GPs were younger and had worked for fewer years, were more likely to be female, work in a group practice, and to hold the FRACGP than the total BEACH GP sample.

DISCUSSION

Sexual health problems do present to general practice. In this study, over two thirds of the GP participants managed at least one STI/SH problem during their 100 recorded patient encounters. The most common sexual health diagnoses/problems in women were candidiasis; vaginal symptoms; urinary symptoms; intermenstrual bleeding; genital check up; genital herpes; PID; genital warts; and chlamydia. In men the most common were testicular symptoms; genital warts; epididymitis/orchitis; urethritis; genital herpes; urinary symptoms; and chlamydia. Tests to exclude specific STIs were not commonly ordered and symptomatic or syndromic management was often provided.

Two thirds of the problems managed were in women. There are several possible reasons for this gender imbalance. Firstly, young women attend their GP more frequently than young men¹² and are more likely to have attended general practice with a sexual health problem, before attending a sexual health clinic.¹³ Secondly, in contrast, men are more likely to attend a sexual health service than women.^{14 15}

In our previous work we were surprised to find that the management of diagnosed STIs was so rare in general practice (0.17 diagnosed STI problems per 100 encounters).⁷ In contrast, this study, using a different methodology from our previous study, of problems labelled as either diagnosed STIs, or in symptomatic terms suggestive of STI, suggest that sexual health problems are dealt with more frequently (2.5 per 100 encounters) than our previous study suggested, but that a clearly proved diagnostic label often has not been established at the time of its management. That is, GPs are frequently managing these problems without a proved diagnosis and without testing for other conditions.

Moreover, the tests to provide a specific diagnosis do not seem to be taken by GPs.

This study relied on the relation between the symptomatic reasons for encounter and the problem label recorded at the encounter by the GP, where these suggested that a sexual health problem was being managed. This relies on GP recording which maybe subjective and may be prone to error. Moreover, not all STIs will present with obvious signs and symptoms. Indeed, the majority of individuals infected with STIs are asymptomatic.^{16 17} Conversely, signs and symptoms suggestive of STIs may have a different underlying pathology (for example, urinary tract infections, endometriosis, or ovarian cysts).¹⁸ In addition, because the BEACH database is a snapshot of patient management, it will underestimate the number of tests ordered and treatments given for a problem over time, as patients may have attended the GP (or another healthcare practitioner) previously, or after the recorded visit. None the less, the relative consistency of small number of tests ordered and the non-selective nature of testing (including vaginal, urethral, or urine tests for MC&S or tests for “venereal diseases”) suggest that many diagnoses are being made and treatment given on the basis of the history and examination. Our study does not assess the reasons why pathology tests were or were not taken, therefore, it is unclear whether GPs are unable to take specific specimens to diagnose STIs, or do not have the necessary laboratory support or expertise to interpret results or whether GPs are able to make an adequate diagnosis without specific pathology tests. For example, common vaginal infections such as BV and candida can be diagnosed accurately clinically in the majority of cases and further pathology tests may be unnecessary.

Some other studies have looked at management of STIs by GPs, using questionnaires or interviews to determine management of specific STIs or how specific tests (for example, high vaginal swabs) are used in general practice.^{4 19–22} These studies agree with our study that STIs are

seen and managed in general practice. However, specific tests are not always taken to confirm a diagnosis and thus inappropriate or suboptimal pharmacological therapy may be prescribed. For example, empirical treatment for PID may not adequately cover resistant gonorrhoea strains, which could be grown, if appropriate testing was undertaken. In our study we looked at a group of pathologies and presentations—sexual health rather than specific STIs. This may have revealed that more sexual health problems are being managed than is indicated by the above studies. For example, in a study of Victorian GPs, 46% said that they “rarely or never” managed an STI.⁴ In our study, 67% of GPs managed at least one sexual health problem in their 100 BEACH consultations. So that even if specific diagnoses are not made, GPs are seeing and managing these problems.

The most common problem labels were vaginal symptoms for women and testicular symptoms in men. In both of these cases, an argument for syndromic management can be made. In women, the most common causes of vaginal discharge, candida and bacterial vaginosis, are often correctly diagnosed, on a clinical, rather than a microbiological basis. In the consultations where the problem was recorded as a specific infection (for example, chlamydia), or suggestive of a specific infection (for example, pelvic inflammatory disease), then pathology tests were more likely to have been taken, as well as treatment provided. However, as this is a “snapshot” record they may not have initiated treatment on this date; it maybe a continuation or follow up appointment. Most women with a diagnosis of PID were prescribed appropriate antibiotics.

Patients, in whom syndromic or symptomatic management fails, may end up being referred to specialist services, or may present there, if they are dissatisfied with treatment from their GP. A study from the United Kingdom, found that one in four patients attending a sexual health clinic in London had previously presented to their GP with the same problem.¹³ Our study showed that referral to specialists was uncommon. However, as this represents one encounter in what may have been several visits for the same problem, it is impossible to establish the outcome for individual patients.

The characteristics of GPs managing sexual health problems are significantly different from those who did not record any sexual health problems as part of their 100 consultations. In many ways this is not surprising. The majority of the sexual health consultations were in women. Female GPs tend to see more female patients²³ and GPs tend to see patients around their own age.²⁴ Female GPs are likely to be younger and more likely to hold FRACGP than their male counterparts²⁵ and this is indeed the profile of GPs seeing sexual health problems in our study.

Barriers identified to adequate management within general practice include lack of knowledge concerning signs and symptoms of particular infections and about testing (when and how to take specimens) and treating algorithms; lack of knowledge of the benefits of testing particularly in those who are asymptomatic; lack of time; worries about discussing sexual health; limited access to testing by GPs (very few, if any, general practices have on-site microscopy); perceived structural barriers to limit the number of pathology tests taken; concerns about confidentiality; and time pressures in a busy practice.^{22 26 27}

This study shows that patients are presenting to their GPs with symptoms of STIs. However, it appears that in some cases the appropriate tests and treatments are not given.^{28 29} A better understanding of how GPs investigate and treat STIs over time is needed. A study of this design cannot answer such questions and maybe more qualitative research on the subject needs to be undertaken. With growing pressure on public sexual health services, an increasing number of

patients are likely to attend GPs for their sexual health needs. The patient experience and expectations of attending a GP rather than a specialist clinic are different and management needs to reflect this. Consequently, strategies to improve the management of STIs in general practice will need to consider and address the actual and perceived barriers to adequate management. Some of these barriers are easy to overcome through focused education and training programmes and the development of appropriate supporting services.^{13 30}

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