

NATIONAL
MANAGEMENT
GUIDELINES
FOR SEXUALLY
TRANSMISSIBLE
INFECTIONS

REVISED AND UPDATED APRIL 2002

PREPARED BY

the Venereology Society of Victoria
in conjunction with

the Australasian College of Sexual
Health Physicians

DISCLAIMER

These Guidelines are an updated version of the 1997 Guidelines. Developments in knowledge will be incorporated in a new edition, planned for 2005.

The publisher accepts no responsibility for errors, omissions or inaccuracies contained herein or for the consequences of any action taken as a result of information in this publication. These Guidelines are no substitute for consultation with a medical practitioner experienced in the management of conditions described herein.

Responsible use of these Guidelines requires that the prescriber is familiar with contraindications and precautions relevant to the various pharmaceutical agents recommended herein.

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P R E F A C E

This is an updated version of the previously published National Management Guidelines for Sexually Transmissible Diseases and Genital Infections 1997, which arose from regular editions of the guidelines first published in 1984 by the Venereology Society of Victoria (VSOV). This new edition reflects recent changes in clinical management and includes an expanded list of Australian public sexual health clinics and family planning clinics.

The aim of the guidelines is to provide a concise and current reference for the best treatments for sexually transmissible infections (STI). They have been developed in particular to assist practitioners who are managing conditions that they encounter infrequently. The guidelines focus on total management of STI including the necessity for treatment to be preceded by accurate diagnosis.

The guidelines also contain notes on history taking, examination and testing procedures, patient information/partner notification advice, mandatory notification requirements and the register of public clinics.

The Editorial Committee recognises that local guidelines may differ because of local circumstances and encourages readers to become familiar with any such guidelines.

To assist readers in finding the information they seek, content sections have been highlighted in the side margin. It is intended that the updated guidelines will also be published on the VSOV website.

As with previous editions, this edition is designed for general practitioners, students, nurses and other health workers as well as those who work/study in Sexual Health or Family Planning Clinics. Comments and suggestions for future editions are welcomed.

Over time, many colleagues in the Venereology Society of Victoria have contributed to the guidelines and, for this issue, the time and efforts of Dr Ron McCoy, Ms Alexa Rosengarten, Dr Meredith Temple-Smith and Mr Chris Thomas are gratefully acknowledged. This edition has been progressed by the expert advice of the following members of the Australasian College of Sexual Health Physicians: Dr David Bradford (Queensland), Dr Ian Denham (Victoria), Dr Heather Lyttle (Western Australia) and Dr Stella Heley (Victoria).

Dr Di Tibbits
Coordinating Editor and President VSOV

*Dedicated to the memory
of Don Jacobs and Peter Meese*

**NATIONAL MANAGEMENT GUIDELINES
FOR SEXUALLY TRANSMISSIBLE INFECTIONS**

*Venerology Society of Victoria in conjunction with
the Australasian College of Sexual Health Physicians*

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HISTORY TAKING

Sexuality is important, even for those who adopt a celibate lifestyle. Sexual dysfunction, whether psychological, physical or due to a sexually transmissible infection (STI), leads to much suffering. The expression of an individual's sexuality (or lack of it) is influenced by many factors, including the cultural environment in which the person is raised and lives. Recognition of the influence of the prevailing cultural mores on a person's sexual development and sexual behaviour is essential to the understanding of that patient's condition.

The appearance of the human immunodeficiency virus (HIV) and advances in the understanding of human sexuality in the fields of psychology, anthropology and sociology have forced a reappraisal of the standard medical history that traditionally paid little attention to social factors such as recreational drug use and sexuality.

Sexual history taking is not the sole province of the sexual health physician, sex therapist or psychologist. Health care providers at any level, and in any branch of medicine, may see patients who have diseases or psychological conditions directly linked to their recent or past sexual behaviour.

The medical history in patients at risk of STIs

Taking a standard medical history from a patient who may have run the risk of an STI is no different from history-taking in other fields of medicine, and only a few points need to be made here.

Non-technical language: In young patients, contracting an STI may be the reason for their first visit to a doctor or clinic on their own. Many are quite unsophisticated about medical or technical terms such as fellatio and urethra. The health

care provider will have to adapt to the patient's level of understanding and use language which is appropriate.

Specific questioning about symptoms: It is important not to presume that a presenting genital symptom is the only problem. More than one STI may be present. Direct questioning about genital symptoms should include asking about urethral and vaginal discharge and its amount and character; abnormal vaginal or rectal bleeding; genital rashes, lumps and sores; itching and/or discomfort in the perineum, perianal and pubic region, lower abdominal pain and dyspareunia; and difficulties with micturition or defaecation.

Drug allergies and recent oral or topical medications: Every medical history includes these items, but in STI management they are particularly relevant. Antibiotic therapy will have to be tailored to take account of past allergic reactions, and symptoms and signs may be modified or suppressed by self-medication of previously prescribed antibiotic, antiviral or antifungal therapy.

Previous history of sexually transmissible infections: In taking a history of past medical health, STIs may be overlooked or knowingly excluded by the patient. It is important not to miss this clue to the patient's present condition, and asking about past STIs is an easy and relatively painless way to lead into the sexual history. Also, any history of blood transfusions (and their dates) and blood-borne infections (hepatitis B or C) should not be omitted.

The sexual history

Health care providers adept at taking a standard medical history may feel a lack of confidence in

dealing with sexual matters. This is especially so when there are age, gender, race sexuality or cultural differences between patient and provider.

Every practitioner has an individual style of taking a sexual history, and there are no hard and fast rules. The health care provider who is able to create a comfortable atmosphere with a relaxed and friendly approach starts at a great advantage. However, even those to whom this style does not come naturally can still take an adequate sexual history provided they have the will to tackle the task. There are just a few tips that may help:

- Start with the easy questions first before inquiring about previous STIs, eg ask patients when they last had sex. This is a relatively innocuous question and opens up further discussion such as “Who was it with? Was it a regular partner, someone you know well, or someone you had just met?”
- Do not presume a patient’s sexual orientation based on his or her appearance.
- Do not use expressions or ask direct questions that tend to label patients. For example, many men who have had sex with other men do not classify themselves as gay or even bisexual. A better approach is to ask whether the patient has “...ever had sexual contact with another man?”
- Remember that a patient may be at risk of STIs through the activities of a regular partner, not because of his or her own sexual behaviour. Some patients may at first find this difficult to articulate, so gentle questioning about the partner’s sexual health is always necessary.
- Ask patients about their knowledge and use of condoms or other prophylactic measures. This is

an excellent opportunity during the history to take a little time to provide some preventive education. It may be useful to make patients aware of the female condom.

- If you come to a complete brick wall, don't try to press on. Stop the line of questioning and talk about something else. You can always come back to the sexual history later, even perhaps during the physical examination.
- So that correct tests can be taken from the appropriate sites, it is important to ask about oral and anal sex, as well as vaginal intercourse, and to check whether patients used condoms or other barrier methods for specific forms of sexual intercourse.

The impression to convey to patients is that it is safe to talk about sexual behaviour and sexuality because it is a normal part of any professional consultation and important in their overall management. In communities where cultural factors are particularly strong, sexual history taking may have to be delegated to a person of the same sex or tribal background as the patient. Some Aboriginal and Torres Strait Islander health workers are now receiving training in this area in parts of northern Australia. Whatever way a sexual history is obtained, the patient must feel assured that details given to health care providers are regarded as being in strict confidence and will not be released without permission to any third parties. Maintenance of confidentiality is the cornerstone of sexual history taking.

An accurate medical and sexual history is an essential prerequisite to adequate examination and to subsequent investigations for STIs.

EXAMINATION

An insensitive and inhumane attitude to genital examination is all too common, and it is little wonder that myths abound about the sort of examinations and treatments people with STIs can expect. Symptomatic patients often delay attending out of fear or embarrassment. The following are guidelines to good examination practices.

Allaying fears: An STI examination may be uncomfortable or embarrassing for many patients, so the health care provider must make every effort to reassure patients by making sure they are as relaxed as possible before starting the examination, and by explaining what is going to be done. This is not only consistent with basic human rights and dignity, but also an important public health measure, as present and future patients will only cooperate and attend if they are treated with kindness and consideration.

General examination: Patients with possible STIs merit a careful and thorough physical examination. Not all sexually transmissible diseases have a genital component, and not all abnormal genital signs are due to sexually transmissible organisms. HIV infection and syphilis especially may cause extragenital symptoms and signs. The clinician should pay particular attention to nutritional status, the skin, mouth and lymph nodes, and examine the chest, the cardiovascular system, the abdomen and the central nervous system.

Anogenital examination: The anogenital region merits as careful an examination as the cardiovascular system. Unfortunately, most doctors feel more at home at the end of a stethoscope than they do looking under a foreskin, and vaginal examinations are often thought to be the province of gynaecologists or female general practitioners.

However, the anogenital examination is not difficult, and is frequently done very well by nurse practitioners and indigenous health workers after a little training and hands-on experience.

Privacy: It is important to ensure privacy for the patient, and to carry out the history, examination and testing in as gentle and sensitive a manner as possible, and free from interruptions.

Good light: A good light source is mandatory. Ask anyone who has tried to visualise the cervix with an old torch balanced on top of Webster's dictionary or to hunt down suspected pubic lice under the ordinary overhead light of an average surgery or clinic.

Good preparation: Ensure that an assistant has the necessary equipment (slides, swabs and spatulas) ready or, in the case of a single-handed practitioner, that they are within easy reach. Good genital examination and testing is as much a matter of forethought and planning as is sensitivity to the patient's feelings and needs. Disposable plastic speculae and proctoscopes or adequately disinfected or sterilised metal instruments should be used. Metal instruments should be warmed in warm water before insertion and, in the case of vaginal speculae, this will also provide enough lubrication to minimise discomfort. Artificial lubricants may interfere with Pap smear interpretation, and may inhibit the growth of some STI pathogens.

A careful examination is an essential part of the assessment of patients concerned about STIs.

The genital examination is an essential prerequisite to interpreting results of many laboratory tests for genital infections.

Examination is the only method available for detecting some STIs such as genital warts.

TESTING FOR STIs

Each health care provider will need to consider, in consultation with the local pathology laboratory, the tests for sexually transmissible pathogens which are practical and necessary for his or her practice, depending on the prevalence of particular STIs in that community and the range of tests available from the pathologist. Specimens for testing for STIs are best taken by the practitioner who has taken the sexual history and examined the patient. If practitioners use the services of a pathology laboratory to take specimens, it is their responsibility to ensure that the person(s) doing the tests does so competently, and that the practitioner has already made a careful physical examination before referral for testing.

Tests recommended for patients with possible STIs are:

- In symptomatic patients, or in the case of females where an internal vaginal examination is done, *swabs for PCR or LCR for gonococci and chlamydia* are taken by inserting the provided swab 2 cm into the endocervical canal or urethra for a minimum of 15 seconds.
- *Urine tests for chlamydial screening* by PCR or LCR have sensitivity and specificity comparable to other test methods and are an alternative to painful urethral swabs. They should be used in asymptomatic people requesting a sexual health check-up.
- *Swabs for gram-stained smear and culture for Neisseria gonorrhoeae* are taken from the urethra and cervix. These are useful to monitor the antibiotic sensitivity of gonococcal strains and should always be taken in symptomatic people and from women whenever an internal vaginal examination

is done (eg for a Pap smear). Similarly, swabs for gram-stained smear and culture may be taken directly from the anorectal mucosa if proctoscopy is performed. Blind anal swabs and throat swabs are useful only for culture.

- *Wet preparation, and a high vaginal swab for gram-stained smear* will detect candidiasis, trichomoniasis and bacterial vaginosis.
- *Swabs should be taken from genital ulcers* for herpes culture or HSV antigen detection. Dark field examinations should be performed on genital lesions that are indurated, persistent or accompanied by firm enlarged inguinal nodes. Biopsies may have to be taken to confirm diagnoses of some of the more unusual causes of genital ulceration.
- *Serology* should be reserved for the diagnosis of syphilis, lymphogranuloma venereum (LGV), the hepatitis viruses A, B, C or Delta, and HIV infection. Serological tests for gonorrhoea, chlamydia and herpes are rarely useful although type specific herpes antibody tests are becoming increasingly available.

Most STIs are asymptomatic and require specific testing at specific genital sites for their detection.

Adequate testing for STIs comprises examination and microscopy and culture and serology.

Blood tests taken alone will miss most STIs.

An HIV test is not, by itself, an adequate STI checkup.

Tests for STIs, including the HIV antibody test, should only be performed with the patient's knowledge and consent and after adequate counselling.

The general principles of management of patients with STIs are as important as prescribing correct antimicrobials. Follow these guidelines:

Information: The patient should be told the specific diagnosis. Vague terms like ‘a bit of an infection’ should be avoided. A brief description of the natural history of the disease, treated and untreated, should always be given. Particular fears regarding future fertility, the possibility of recurrence, transmissibility and HIV infection should be addressed.

Sexual activity: Patients must be advised to avoid sexual intercourse until they have finished the prescribed medication or until they attend for follow-up. In situations where specific treatment is not given (for example, herpes or HIV infection), or where patients are unlikely to comply with abstinence, they must be advised on how to avoid or reduce the risk of transmitting the infection.

Partner notification: (see later section for more detail): Patients are often their own best contact tracers and they should always be made aware of their responsibility to ensure that recent sexual partners are checked and treated. Similarly, the practitioner’s responsibility does not end with deciding the correct treatment for the patient. In difficult cases or where time, experience or cross-cultural issues make contact tracing by patient or healthcare provider impossible, the practitioner should seek the help of indigenous health workers or trained local Health Department contact tracers/counsellors. The nearest public sexual health centre or STI clinic will be able and willing to assist.

Follow-up: In principle, patients should always be followed-up after completion of a course of treatment for repeat tests to ensure cure, though this may not always be possible in practice. When a course of treatment rather than a single dose has been prescribed, follow-up is important to check compliance. For viral infections such as herpes, HIV, hepatitis B and HPV, follow-up appointments allow patients to ask further questions and to access counselling and support.

Prevention: Every STI case or inquiry offers an opportunity for preventive education. The principles of prevention *do not* include taking a judgmental or moralistic stance. They *do* require an assessment of patients' lifestyles, beliefs, cultures, past sexual practices and difficulties they may encounter in trying to reduce their risks. The issues discussed in counselling a young urban heterosexual woman will vary from those covered when dealing with an older homosexual man or a young aboriginal from a remote community.

However, the object of all counselling sessions is the same, namely to encourage patients to eliminate or at least decrease their risk of future infection. A few basic points can be made:

- Abstaining from penetrative sexual intercourse will substantially reduce the risk of contracting or passing on STIs. If penetrative intercourse does occur, condoms and water-soluble lubricant will reduce the STI risk. Patients should be instructed in condom use, and told where affordable condoms and lubricant can be obtained, and how to negotiate with partners to ensure that condoms are used. Men can practise using condoms during masturbation, and men and women should carry condoms or at least have them within easy access.

- Mutual fidelity of uninfected partners is one of the best methods of preventing STIs. Establishing a regular sexual relationship based on love and trust is the ideal, but regular partners are not always trustworthy when it comes to sex. Health workers should encourage sexual partners to *communicate* their sexual needs to each other, and assist them in establishing a relationship where honesty about sex prevails. This may be more conducive to reducing risks of STIs than merely advocating a monogamous relationship, which may be so in name only.
- While reducing the number of sexual partners may appear, logically, to reduce the risk of contracting or passing on STIs, there is obviously a difference between a gay man who continues to have a large number of casual sexual partners but who scrupulously maintains safe sex practices with all of them, and a young woman who has a series of monogamous relationships of six months duration each (serial monogamy), but who is never able to get any of her partners to use condoms. Over a given time, the young woman is at considerably more risk of contracting an STI, even though she has fewer partners than the gay man.
- Avoiding sexual contact if prospective partners suspect they may have contracted an STI is a sensible measure. Encouraging people who have had unprotected sex to attend for checkups before undertaking any new sexual relationship will substantially reduce risk of transmission. This places a responsibility on health authorities to ensure that facilities for performing STI checks and dealing with STIs are easily accessible to those who need these services. The World Health Organisation has recognised that provision of better and

more easily accessible facilities for dealing with the traditional STIs will do much to prevent more people becoming infected with HIV.

- In counselling for prevention of STIs, health care providers must be always conscious of the link between sexually transmissible and blood borne infections. Advice about protected sexual intercourse must be accompanied by advice about the risks of sharing equipment during occasional, recreational, or well-established injecting drug use. Patients at potential or actual risk must be advised where clean injecting equipment can be obtained, and instructed about local operation and availability of needle availability programs.

Future prevention is as important as current treatment.

Follow-up is essential for promoting preventative practices.

The risk of acquiring STIs is related to unprotected sexual intercourse, as well as number of partners.

PARTNER NOTIFICATION

As well as the index patient, at least one other person is involved. Partner notification (contact tracing) is a necessary but sensitive part of management. An assurance of confidentiality and explanation of the reasons for contact tracing are necessary for patient cooperation. Some hints follow:

- An attitude of trust will facilitate discussion of the infection and the need to contact partners, and make the patient more likely to give out sensitive information.

- Basic information, such as the frequency of asymptomatic carriage, will encourage patients to contact partners. Have literature on hand. Multilingual pamphlets are available from major sexual health/STI centres.
- ‘Contact’ letters stating diagnosis and management, which the patient can hand to his/her partner (in turn to pass on to his/her health care provider), are useful.
- The index patient is the ideal person to contact partners, but this is sometimes not practical or culturally possible, and local health workers or Health Department contact tracers may need to be involved. Useful information to hand on to contact tracers includes: name, age, address, hair colour, accent, race, distinguishing marks and whether he or she was a sex worker in the sex industry. For sex workers, information should be obtained about the escort agency or place of work, when the patient used the agency’s services and the worker’s ‘working’ name.
- If the patient cannot remember details, enquire whether any of the patient’s friends could give more details or whether the patient could go back to the meeting place and make enquiries.
- Psychological issues such as guilt, relationship problems or sexual identity may inhibit the patient in giving information. Recognise your own prejudices and take into account any negative feelings you may have towards certain groups such as sex workers, gay men and injecting drug users. Contact the nearest sexual health or STI centre if you feel uneasy dealing with the situation or would like help or advice.

NOTIFICATION OF STIs

STIs of public health significance must be notified to health authorities. The following tables summarise notification requirements in Australia.

	ACT	NT	NSW	QLD	SA	TAS	VIC	WA
AIDS	D	D	D	D	D	D	D	D
Chancroid	DHL	DL	L	L	-	L	-	DL
Chlamydia	DHL	L	L	L	DL	L	DL [†]	D [†]
Donovanosis	DHL	DL	L	DL	DL	L	DL	DL
Gonococcal infections	DHL	L	L	L	DL	DL	DL	DL
Hepatitis A	DHL	L	L	L	DL	L	DL	D
Hepatitis B	DHL	L	L	L	DL	L	DL	D
Hepatitis C	DHL	L	L	L	DL	L	DL	D
Hepatitis 'viral'	DHL	D*	D*	-	DL	-	DL	-
HIV infection	DHL	L	L	DL	DL	DL	DL	D
LGV	DHL	L	L	L	-	L	-	-
Syphilis	DHL	DL	DL	DL	DL	DL	DL	DL
Trichomonas infections	L	L	L	-	-	-	-	-

D = Notifiable by medical practitioner

H = Notifiable by hospital

L = Notifiable by laboratory

DHL = Notifiable by medical practitioner, hospital and laboratory

DL = Notifiable by medical practitioner and laboratory

* = acute cases to be notified by phone

† = genital chlamydial infections only

	Time	Identifier	Contact no.
ACT	Not specified	Full name	(02) 6205 2155
NT	Not specified	Code	(08) 8922 8874
NSW	Within 24 hours of diagnosis	Full name except HIV/AIDS	(02) 9391 9234
Qld	Not specified	Full name except HIV/AIDS	(07) 3234 0942
SA	Within 3 days	Full name except HIV/AIDS	(08) 8226 6025
Tas	Dr within 2 days, Laboratory within 5 days	Full name for hepatitis, others by code	(03) 6233 3762
Vic	Within 5 days	Full name for hepatitis, others by code	1300 651 160
WA	Not specified	Full name or code as specified	(08) 9388 4852

VAGINAL DISCHARGE

Vaginal discharge may originate from either the vagina or cervix. A speculum examination *must* be performed and the cervix visualised after removing any vaginal exudate with a cotton wool swab.

Always examine the cervix and vagina in cases of vaginal discharge.

VAGINAL INFECTIONS

There are three main infective causes of vaginal discharge, only one of which is an STI. Their symptoms and signs overlap to some degree. The brief descriptions given below outline *characteristic* symptoms and signs. Simple laboratory tests allow precise diagnosis, and should be performed if the diagnosis is in doubt.

Candidiasis is usually from the patient's own bowel commensal candida in origin. It is not considered to be an STI, though male partners may sometimes become secondarily infected. Symptoms and signs result from overgrowth of *Candida albicans* or other yeasts, and the diagnosis is made by demonstrating increased numbers of yeast cells and hyphal forms in either a wet preparation or gram-stained vaginal smear.

Symptoms and signs of candidiasis vary, from classic thick curdy discharge and adherent plaques of yeast on the vaginal wall, to a thin white homogeneous discharge, with mild itch to severe itch with extensive vulval involvement, oedema and redness, or even vulval and perianal excoriation. Severe candidiasis may be confused with genital herpes. The vaginal pH remains normal at ≤ 4.5 .

Bacterial vaginosis is also endogenous in origin, and not considered to be an STI, although it is

associated with sexual activity. It results from an overgrowth of *Gardnerella vaginalis*, *Mobiluncus spp*, anaerobes and *Mycoplasma hominis*. The diagnosis is made by demonstrating an abnormal vaginal flora with normal lactobacilli being replaced by a dense population of small coccobacilli, many of which adhere to and cover vaginal squamous cells (clue cells), together with motile curved rods. Polymorphs are usually absent.

Characteristic symptoms and signs of bacterial vaginosis are a malodorous 'fishy' discharge and homogeneous non-adherent white-grey secretions uniformly coating the vaginal wall. Malodour is often more noticeable after sex or at the time of menstruation. Introital dyspareunia and vulval irritation are usually absent or minimal. The vaginal pH is raised at > 4.5 .

Trichomoniasis is acquired sexually. The diagnosis is made by demonstrating motile, flagellated protozoal organisms in either a vaginal wet preparation or in specific culture medium. Trichomonads are not visible in gram-stained smears. A promising PCR test (not yet commercially available) is being trialled in Australia.

The most common symptoms and signs are an irritating discharge, with accompanying vulvitis and vaginal wall inflammation, together with copious yellowish and sometimes frothy vaginal secretions. The vaginal pH is raised at > 4.5 .

Useful investigations for suspected vaginitis are:

- *Wet preparation:* A drop of vaginal secretion is mixed with a similar volume of normal saline on a microscope slide, and the preparation examined under 400x magnification. This allows precise identification of the three major causes of vaginitis.

- *Vaginal smear*: A swab from the vaginal wall is smeared onto a microscope slide, air-dried, heat-fixed, gram-stained and examined under 1000x oil-immersion magnification. This allows precise identification of candidiasis and bacterial vaginosis and clue cells, but not trichomoniasis.
- *Vaginal culture*: A swab from the vaginal wall is placed into a suitable transport medium (Amies medium or Stuart's medium with added charcoal) and sent to the laboratory for culture. *Candida albicans*, *Gardnerella vaginalis*, anaerobes and *Trichomonas vaginalis* may be detected. However, positive cultures for *Candida albicans* and *Gardnerella vaginalis* may not necessarily indicate symptomatic infection caused by these organisms, as they are present in low numbers as normal flora in many asymptomatic women.
- Yeasts, clue cells and trichomonads may sometimes be seen in Papanicolaou-stained cervical cytology smears, but this test has a low sensitivity for detection of vaginal infections. The Pap smear should not be used as a substitute for the specific investigations described above.

Treatment of vaginal infections

Candidiasis, asymptomatic

Treatment is not necessary.

Candidiasis, symptomatic

Topical vaginal antifungal preparations, if used according to manufacturers' recommendations, are likely to be effective in the majority of cases. Prolonged use should be avoided, as contact dermatitis may result.

It is often useful to use both vaginal pessaries

and a cream for external itch, and to reduce vulval/perineal infection.

- clotrimazole 1% vaginal cream or 100 mg pessaries p.v. daily for 6 nights, *or*
- clotrimazole 500 mg pessary p.v. as a single dose, *or*
- miconazole 2% vaginal cream or pessaries p.v. daily for 7 nights, *or*
- econazole 150 mg pessaries p.v. daily for 3 nights, *or*
- nystatin 1% cream or pessaries p.v. bd for 7 days.

Oral systemic antifungal preparations are more expensive than topical treatment. They should be reserved for resistant or recurrent cases or when topical preparations result in vulval irritation. In addition, ketoconazole may cause hepatotoxicity, and has important interactions with other drugs.

- fluconazole 150 mg single dose. Can be repeated weekly in resistant cases, or prior to menstrual period.
- ketoconazole 200 mg bd with food for 5 days.

Oral non-absorbed antifungals such as nystatin have no place in the treatment of acute candidiasis.

Male partners of women with candidal vaginitis do not require treatment unless they have symptoms or signs of an itchy or spotty balanitis. In this case an antifungal cream used twice daily for 5 days is helpful.

In cases of severe vulval irritation or balanitis associated with vaginal candidiasis, a short course of topical hydrocortisone 1% cream mixed with

topical antifungal cream may resolve symptoms. Unopposed steroids make the condition worse.

Some patients may try other soothing topical treatments, such as yoghurt. Such kitchen remedies are harmless adjuncts, but no more effective than placebos.

Candidiasis, recurrent

Frequently recurring candidiasis requires consideration of possible underlying causes such as diabetes, immunosuppression, HIV infection and antibiotic use, and exclusion of other causes of recurrent vulval symptoms such as herpes and dermatitis. In most cases, no cause can be found.

Good results are obtained with long-term suppressive antifungal therapy, usually with either ketoconazole or fluconazole. Patients with this condition are best referred to specialised clinics or practitioners with experience in dealing with this problem. Special diets and other folk remedies are not effective.

Bacterial vaginosis, asymptomatic

Treatment is not necessary, but is advisable before invasive procedures such as IUD insertion, hysteroscopy or termination of pregnancy, as there is an association between bacterial vaginosis and pelvic inflammatory disease.

Treatment in pregnancy is also advisable as there are reports of its association with premature rupture of membranes and ascending infection.

Bacterial vaginosis, symptomatic

Any of the following will be effective in the majority of cases. Amoxicillin is less effective than tinidazole and metronidazole.

- metronidazole 400 mg bd with food for 5 days, *or*
- tinidazole 2 g as a single dose with food, *or*
- metronidazole 2 g as a single dose with food, *or*
- clindamycin 2% vaginal cream 5 g daily for 7 days, *or*
- amoxicillin 500 mg tds for 7 days, *or*
- clindamycin 300 mg bd for 7 days.

Sexual partners do not need to be treated.

Nonspecific remedies such as vinegar and Aci-Jel vaginal jelly are not useful in either treatment or prevention.

In pregnancy tinidazole should not be used. Clindamycin cream or clindamycin tablets is the preferred option in the first trimester but metronidazole 400 mgm bd as above can be used.

Trichomoniasis

All cases and sexual contacts should be treated.

- metronidazole 400 mg bd with food for 5 days, *or*
- tinidazole 2 g as a single dose with food, *or*
- metronidazole 2 g as a single dose with food, *or*
- clindamycin 2% vaginal cream daily for 7 days.

In pregnancy both metronidazole and clindamycin cream as above can be used.

The sexual partner must be treated in cases of trichomonad infection. Both partners must be checked for the presence of other STIs.

- It is important to also take routine STI swabs from the cervix (and/or urethra) when vaginal discharge is present.

Vaginal discharge does not always indicate the presence of an STI.

Clinical diagnosis of vaginitis may be difficult, and laboratory confirmation is necessary in many cases.

Positive culture results for *Candida albicans* and *Gardnerella vaginalis* do not necessarily mean disease.

A Pap smear is not an acceptable diagnostic test for vaginal discharge.

Male partners do not need to be treated, except in trichomoniasis.

CERVICITIS

Cervical infection is not always accompanied by symptoms or signs of cervicitis, and often on examination the cervix appears normal. Cervicitis when present is an important indication of infection. Signs are a mucopurulent discharge from the endocervical canal, together with an inflamed, oedematous and friable ectropion with contact bleeding when taking swabs or when wiping the ectocervix. Laboratory testing is always required to identify the infecting pathogen. Coexisting urethral infection is common in cases of sexually acquired cervicitis, and a history of discomfort with urination is an important clue to the possible presence of an STI.

Gonococcal cervicitis is indistinguishable from other causes of cervical infection on clinical examination. Most cases are asymptomatic. Coexistent pharyngeal and anorectal infections are common, and also are often asymptomatic. Rectal infection in women may result from posterior spread of infective secretions, thus

occurring in women who have not had anal intercourse. Approximately 10–15% of cases of acute gonococcal cervicitis are complicated by pelvic infection. The prevalence of penicillinase-producing *Neisseria gonorrhoeae* (PPNG) varies within Australia, averaging about 5–20%. Co-infection with *Chlamydia trachomatis* is common in cases of gonorrhoea.

Because of the prevalence of PPNG, extragenital infection and chlamydial infection, penicillin-based treatment regimens alone are no longer recommended as treatment of first choice. Current treatment of gonorrhoea is with agents effective against PPNG strains, infection at extragenital sites, and possible coexisting chlamydial infection.

Chlamydial cervicitis is indistinguishable from other causes of cervical infection on clinical examination. Most cases are asymptomatic. Approximately 10–15% of cases of genital *Chlamydia trachomatis* in women are complicated by pelvic infection.

Other organisms associated with cervicitis include *Herpes simplex*, *Trichomonas vaginalis*, anaerobes and other organisms. In many cases of clinically evident mucopurulent cervicitis, no pathogens are able to be isolated.

Endocervical specimens are essential. Prior to taking endocervical swabs, first take a separate high vaginal swab for other infection. Then mop the ectocervix with cotton wool to avoid contamination with vaginal flora.

- *Endocervical (not vaginal) swab for Chlamydia trachomatis.* Chlamydial tests include culture, immunofluorescence, and detection of antigen or

nucleic acid. Recent advances in nucleic acid testing (NAT) have made these tests the most commonly used, and the most sensitive. Each method has stringent criteria for collection and transport, and these must be followed exactly. Endocervical columnar epithelium must be sampled. A swab is inserted into the canal, left for 10–15 seconds, and rotated during withdrawal.

Non-culture chlamydial tests may give false-positive results, and the false-positive rate may exceed the true-positive rate when screening low-risk populations. Positive results in women with cervicitis are much more likely to represent true infection. Nevertheless, a positive non-culture test should be interpreted with care, and only in conjunction with the history and clinical findings.

- *Endocervical swab for gram-stained smear.* This will detect typical gram-negative diplococci in most cases of cervical gonococcal infection. A stained urethral smear may be useful in women who have urethral symptoms. There will be ≥ 30 WBC/HPF indicating inflammation.
- *Endocervical swab for gonococcal culture.* This should be sent to the laboratory at room temperature in Amies or charcoal-containing Stuart's transport medium. Gonococci do not survive well in plain Stuart's medium. A provisional diagnosis and results of testing for penicillinase production should be available within 24–36 hours.
- urethral or urine sample for NAT to identify gonococci or chlamydia.

Pharyngeal and anorectal swabs for culture (not smears) should be taken if symptoms or the sexual history suggest infection at these sites. Gram-stained

smears should be taken via proctoscopy if there are symptoms after unprotected anal intercourse (see later section on proctitis).

Know the chlamydial test you use, and be familiar with its collection and transport requirements.

In a patient with low STI risk, interpret a positive non-culture chlamydial test with caution.

Treatment of cervicitis

Gonococcal cervicitis, proven or presumptive

The following are recommended in women, even if the strain of *Neisseria gonorrhoeae* is known or strongly suspected to be penicillin sensitive. Ciprofloxacin resistance is now firmly established in Australian capital cities as well as in South East Asia, therefore ciprofloxacin should only be used if local strains are known to be still sensitive to ciprofloxacin. Ciprofloxacin and ceftriaxone are highly effective in eradicating pharyngeal and anorectal infection. The recommendations for adults are:

- ceftriaxone 250 mg IM once,
- or*
- ciprofloxacin 500 mg orally once,

followed immediately by anti-chlamydial treatment with

- azithromycin 1 g orally once, *or*
- doxycycline 100 mg bd for 10 days, *or*
- roxithromycin 150 mg bd or 300 mg daily as a single dose for 10 days, *or*
- erythromycin ethylsuccinate 800 mg bd for 10 days.

Directly observed therapy is preferred.

A single 2 g oral dose of azithromycin is effective

in gonococcal cervicitis, but is expensive, causes gastrointestinal irritation at this dose, and is of unproven efficacy in extragenital infection. We do not recommend its *routine* use, but it may be used in settings where patient compliance is a problem and chlamydial prevalence is high.

If a tetracycline is to be used to treat concomitant chlamydia, we recommend doxycycline as it is well tolerated and the twice-daily dosage is convenient. However, minocycline 100 mg daily and tetracycline 500 mg tds, both taken for 10 days, are as effective as doxycycline.

Spectinomycin is not recommended here as it is ineffective against coexisting pharyngeal gonococcal infection.

Roxithromycin is more expensive than erythromycin, but much less likely to cause gastrointestinal irritation.

Follow-up cultures, partner notification and partner treatment are mandatory in all cases of gonococcal cervicitis.

Chlamydial cervicitis, proven or presumptive

Recommended treatment is:

- azithromycin 1 g orally once, (preferred treatment), *or*
- doxycycline 100 mg bd for 10 days, *or*
- roxithromycin 150 mg bd or 300 mg daily as a single dose for 10 days, *or*
- erythromycin ethylsuccinate 800 mg bd for 10 days.

In pregnancy

- erythromycin ethylsuccinate 800 mg bd for 10 days,

or

- amoxicillin 500 mg tds for 10 days,

or

- azithromycin 1 g orally single dose, only where compliance is an issue.

Amoxicillin has been reported to be effective, but it is not clear whether this eliminates the organism or temporarily suppresses replication. It may be used in pregnant patients who cannot tolerate erythromycin, but always in conjunction with careful follow-up.

Partner notification and partner treatment are mandatory. Follow-up cultures should always be done.

Nonspecific cervicitis (culture-negative)

Gonococcal and chlamydial cultures are negative in some cases of mucopurulent cervicitis. It is recommended that these patients be treated with one of the courses recommended above for chlamydial infection, if the patient is considered on the basis of the sexual history to be at risk of STIs. In such cases, it is recommended that the patient's sexual partner(s) also be tested and treated.

Cervicitis, complicated by pelvic infection

See section on pelvic inflammatory disease beginning on page 42.

URETHRAL DISCHARGE

Men who describe a history of urethral discharge should always be examined. Candidal balanitis in uncircumcised men, meatal warts and meatal herpetic ulcers are some conditions that may present masquerading as urethritis, and can be diagnosed only if a careful clinical appraisal is undertaken.

Always examine and investigate the patient who presents with a urethral discharge.

URETHRITIS IN MEN

Signs indicating urethritis are urethral discharge, meatal inflammation, polymorphs in the urethral exudate, or isolation of gonococci or *Chlamydia trachomatis* from urethral swabs. Symptoms and signs vary, and many patients are asymptomatic. Laboratory testing is always required to confirm the diagnosis and to identify the infecting pathogen.

Gonococcal urethritis is often indistinguishable from other causes of urethral infection on clinical examination. However, it presents most typically as a purulent discharge within a few days of exposure. Some cases are asymptomatic. Coexistent pharyngeal and anorectal infections are common in gay men, and are often asymptomatic. Rectal infection in gay men results from anal intercourse. Few cases of gonorrhoea in men are now complicated by epididymitis. The prevalence of penicillinase-producing *Neisseria gonorrhoeae* (PPNG) varies within Australia and averages between 5–20%. Co-infection with *Chlamydia trachomatis* is common in heterosexual men. In gay men, the prevalence rates of PPNG and of coexisting chlamydial infection are both lower than in heterosexual men.

Because of the prevalence of PPNG, extragenital infection and chlamydial infection, penicillin-based treatment regimens alone are no longer recommended as treatment of first choice. Current treatment of gonorrhoea is with agents effective against PPNG strains, infection at extragenital sites, and possible coexisting chlamydial infection.

Chlamydial urethritis is often indistinguishable from other causes of urethritis on clinical examination. However, it presents most typically as a mucoid, watery or mucopurulent discharge 1–3 weeks after exposure. Many cases are asymptomatic. Epididymitis is seen occasionally as a complication. The prevalence of genital *Chlamydia trachomatis* infection is higher in heterosexual men than in gay men.

Other organisms associated with urethritis include *Ureaplasma urealyticum*, *Mycoplasma genitalium*, *Herpes simplex*, *Trichomonas vaginalis*, anaerobes and other organisms. However, in many men, *Ureaplasma urealyticum* and anaerobes may also exist as normal urethral flora. In many cases of clinically evident and laboratory-proven urethritis, no pathogens are able to be isolated.

In cases of urethritis, the following investigations are recommended, using a cotton-tipped swab on a fine wire shaft to take the specimens. The patient should not urinate for at least one hour before specimen collection.

- *Urethral swab for gram-stained smear* will confirm the diagnosis by demonstrating polymorphs, and will detect intracellular and extracellular gram-negative diplococci in almost all cases of symptomatic gonococcal infection.

- *Urethral swab for gonococcal culture* should be sent to the laboratory at room temperature in Amies or charcoal-containing Stuart's medium. Gonococci survive poorly in plain Stuart's medium. Diagnosis and results of penicillinase testing are available in 24–36 hours.

In gay men, pharyngeal and anorectal swabs for culture (not smears) should also be taken if either symptoms or the sexual history suggest infection at these sites. Gram-stained smears may be taken via proctoscopy if there are symptoms following unprotected receptive anal intercourse (see section on gonococcal proctitis on 38).

- *Urethral swab for Chlamydia trachomatis*. Chlamydial tests include culture, detection of chlamydial antigen and detection of chlamydial nucleic acid. Each test method has stringent criteria for specimen collection and transport, and the laboratory's requirements should be followed exactly. It is essential that adequate sampling of the endourethral columnar epithelium is done. A swab must be inserted well into the urethra, left for a minimum of 15 seconds, and rotated firmly before it is withdrawn.
- *First-catch urine chlamydial tests* by polymerase chain reaction (PCR) or ligase chain reaction (LCR) are attractive non-invasive alternatives to swabs.

Non-culture tests may give false-positive results. When using such tests to screen low-risk populations, the false-positive rate may exceed the true-positive rate, but positive results in men with urethritis are much more likely to represent true infection. Nevertheless, a positive non-culture test should be interpreted with care, and

always in conjunction with the sexual history and clinical findings.

Diagnosing urethritis by macroscopic examination of urine is unacceptable.

Know the chlamydial test you use, and be familiar with its collection and transport requirements.

In a patient with low STI risk, interpret a positive non-culture chlamydial test with caution.

Treatment of urethritis

Gonococcal urethritis, in gay men when there is a history of fellatio or receptive anal intercourse

The following are recommended in gay men, even if the strain of *Neisseria gonorrhoeae* is known or suspected to be penicillin sensitive. Ciprofloxacin and ceftriaxone are highly effective in eradicating pharyngeal and anorectal infection.

- ceftriaxone 250 mg IM once, *or*
- ciprofloxacin 500 mg orally once,

followed by, if there is considered to be a risk of coexisting chlamydial infection,

- azithromycin 1 g orally once, *or*
- doxycycline 100 mg bd for 10 days, *or*
- roxithromycin 150 mg bd or 300 mg once daily for 10 days.

Gonococcal urethritis in men where there is no risk of pharyngeal or anorectal infection

The following are recommended:

- ceftriaxone 250 mg IM once, *or*
- ciprofloxacin 500 mg orally once, *or*

- spectinomycin 2 g IM as a single dose, *followed by*
- azithromycin 1 g orally once, *or*
- doxycycline 100 mg bd for 10 days, *or*
- roxithromycin 150 mg bd or 300 mg once daily for 10 days.

The following may be used if the strain is known or strongly suspected to be penicillin sensitive.

- amoxicillin 3 g and probenecid 1 g orally, *or*
- procaine penicillin 3 g IM and probenecid 1 g.

Ciprofloxacin resistance is now firmly established in Australia capital cities and spectinomycin resistant strains have been reported in cases originating from South East Asia. In these cases, an alternative to ceftriaxone is:

- cefuroxime axetil 1 g stat.

Spectinomycin is ineffective against pharyngeal gonorrhoea, and is recommended only in heterosexual men.

Azithromycin in a single 2 g oral dose is effective in gonococcal urethritis, but is expensive, causes gastrointestinal irritation at this dose, and is of unproven efficacy in extragenital infection. Its *routine* use is not recommended.

Doxycycline is well tolerated and the twice-daily dosage is convenient. However, minocycline 100 mg daily or tetracycline 500 mg tds for 10 days is as effective.

Follow-up cultures, partner notification and partner treatment are mandatory in all cases of gonococcal urethritis.

Chlamydial urethritis, proven or presumptive

Recommended treatment is:

- azithromycin 1 g orally once, *or*
- doxycycline 100 mg bd for 10 days, *or*
- roxithromycin 150 mg bd or 300 mg once daily for 10 days.

Azithromycin is available in Australia for treatment of genital chlamydial infections. Despite its expense, it is effective in a single dose and is the preferred treatment if patient compliance is uncertain.

Partner notification and partner treatment are mandatory. Follow-up cultures should be done.

Nonspecific urethritis (culture-negative)

Gonococcal and chlamydial cultures are negative in many cases of proven urethritis. Nevertheless, it is recommended that these patients be treated with one of the courses recommended below, and that their sexual partners be tested and treated for presumed chlamydial infection. The following regimens have been found to be useful on an anecdotal basis:

- azithromycin 1 g orally once, *or*
- doxycycline 100 mg bd for 10 days, *or*
- roxithromycin 150 mg bd or 300 mg daily as a single dose for 10 days.

Treatment of nonspecific urethritis is commonly followed by persistence or relapse, a situation that causes much anxiety and psychosexual disturbance. In difficult cases which do not seem to respond to treatment, and when reinfection is not likely, referral is recommended. Unusual organisms, prostatitis and other urethral pathology must be excluded.

Urethritis, complicated

See section on epididymitis and disseminated gonococcal infection on page 40.

ACUTE PROCTITIS

Proctitis is suggested by anal discharge, blood and/or mucus in stools, and pain during defaecation. Proctitis caused by sexually transmitted organisms is usually caused by *Neisseria gonorrhoeae* or *Herpes simplex*, but *Chlamydia trachomatis* is being increasingly associated. In gay men, *Shigella* and *Campylobacter jejuni* infections may be acquired from sexual activities, and proctitis may occur as part of an infective enteritis caused by these organisms.

In suspected proctitis, proctoscopy should be performed unless patient discomfort makes this impossible, and the following investigations are suggested:

- *Swab of purulent exudate for gram-stained smear.* This will detect typical gram-negative diplococci in most cases of gonococcal infection. Blind anorectal swabs are not suitable for gram-stained smears.
- *Swab for gonococcal culture.* This should be sent to the laboratory at room temperature in Amies or charcoal-containing Stuart's transport medium. Gonococci do not survive well in plain Stuart's medium. A provisional diagnosis and results of testing for penicillinase production should be available within 24–36 hours.
- *Swab for herpes culture.* This should be placed into viral transport medium, refrigerated, and sent to the laboratory as soon as possible. If facilities for culture are not available, ulcer swabs for immunofluorescence may be taken.

- *Faeces culture for enteric pathogens.* This should be done if the history suggests infective enteritis.

Treatment of proctitis

Gonococcal proctitis, proven on microscopy

The following are recommended, even if the strain of *Neisseria gonorrhoeae* is known or strongly suspected to be penicillin sensitive. Both are highly effective in treating anorectal infection. However ciprofloxacin resistant strains are becoming more common in gay men in Australia, and ceftriaxone is therefore the preferred therapy in both males and females, unless local strains are known to be sensitive to ciprofloxacin.

- ceftriaxone 250 mg IM once, *or*
- ciprofloxacin 500 mg orally once.

Acute proctitis of uncertain origin

The following are recommended initial therapy pending results of cultures.

- azithromycin 1 g orally once, *or*
- ceftriaxone 250 mg IM once, *or*
- ciprofloxacin 500 mg orally once,

together with

- doxycycline 100 mg bd for 10 days, *or*
- roxithromycin 150 mg bd or 300 mg once daily for 10 days,

together with, if there is clinical suspicion of Herpes simplex infection,

- valaciclovir 500 mg bd for 5 days.

GONOCOCCAL PHARYNGEAL INFECTION

Gonococcal pharyngeal infection is usually acquired by fellating an infected partner, and almost all cases are seen in gay men and in women. Infection is almost always asymptomatic.

Penicillins and spectinomycin are not reliable in eradicating gonococci from the pharynx.

Gonococcal pharyngeal infection

The following are recommended, even if the strain of *Neisseria gonorrhoeae* is known or strongly suspected to be penicillin sensitive. Both are effective in eradicating pharyngeal infection, although cases of gonorrhoea caused by gonococci resistant to fluoroquinolones are being increasingly reported. Thus if ciprofloxacin is used careful follow-up and test-of-cure is mandatory.

- ceftriaxone 250 mg IM once, *or*
- ciprofloxacin 500 mg orally once.

COMPLICATED GONOCOCCAL AND CHLAMYDIAL INFECTIONS

Gonococcal and chlamydial infections may result in a variety of upper genital, peritoneal, joint, ocular and other manifestations. The clinical features and management of these complications are beyond the scope of these guidelines. What follows is a list of recommended antibiotic treatments. Hospital admission is usually required for cases of disseminated gonococcal infection and for severe epididymitis.

It is important to note that cases of gonorrhoea caused by gonococci resistant to fluoroquinolones

are increasingly being reported. Thus if ciprofloxacin is used, careful follow-up and test-of-cure is mandatory.

Gonococcal epididymitis (PPNG)

- ceftriaxone 250 mg IM daily, *or*
- ciprofloxacin 500 mg daily,

together with

- doxycycline 100 mg bd.

Combined treatment should initially be for 3–5 days or until there is clinical improvement. Treatment can then be continued with doxycycline alone for a total of 21 days.

Gonococcal epididymitis (penicillin-sensitive)

- ciprofloxacin 500 mg daily, *or*
- amoxicillin 500 mg tds,

together with

- doxycycline 100 mg bd.

Combined treatment should initially be for 3–5 days or until there is improvement. Treatment can then be continued with doxycycline alone for a total of 21 days.

Disseminated gonococcal infection and adult gonococcal conjunctivitis

- ceftriaxone 1 g IV or IM every 24 hours initially.

Further treatment, in consultation with a consultant sexual health physician, will depend on microbiological results.

Prophylaxis for neonates of women with gonorrhoea

- ceftriaxone 50 mg/kg (max 125 mg) IM single dose.

Gonococcal neonatal conjunctivitis

- ceftriaxone 50 mg/kg (max 125 mg) IM \geq 3 days,
together with
- chloramphenicol eye drops, hourly for first day then at reducing intervals.

Chlamydial epididymitis

- doxycycline 100 mg bd for 21 days, *or*
- roxithromycin 150 mg bd or 300 mg once daily for 21 days.

Chlamydial adult conjunctivitis

- doxycycline 100 mg bd for 10 days, *or*
- roxithromycin 150 mg bd or 300 mg once daily for 10 days.

Prophylaxis for neonates of women with chlamydial infection

- erythromycin syrup 50 mg/kg/day 8-hourly for 7 days.

Chlamydial neonatal conjunctivitis

- erythromycin syrup 50 mg/kg/day 8-hourly for 14 days
plus
- sulfacetamide eye drops and eye toilets 8-hourly.

Chlamydial neonatal pneumonia

- erythromycin syrup 50 mg/kg/day 8-hourly for 21 days, or longer if clinically indicated.

PELVIC INFLAMMATORY DISEASE (PID)

The clinical features of pelvic infection are variable and may be minimal, especially in the case of chlamydial disease. In women aged under 25 years 60–80% is caused by sexually transmitted gonococci or chlamydia mixed with other commensals and anaerobic genital flora. Otherwise PID often occurs by ascending spread of genital commensals often following surgical trauma, pregnancy, IUD insertion or removal, as in longstanding PID occurrences. A high index of suspicion is necessary if the diagnosis is not to be missed. Symptoms may include lower abdominal pain or discomfort, vaginal discharge, abnormal vaginal bleeding or pain with intercourse. The following signs may be present on examination:

- abdominal tenderness, guarding or rebound.
- tenderness or a mass in the adnexa, may be uni or bilateral.
- cervical excoriation - pain on moving the cervix laterally.
- temperature may be raised.

In cases of suspected PID, the following investigations should be performed:

- *Wet preparation.* A drop of vaginal secretion is mixed with a drop of saline on a microscope slide, and the preparation examined under 400x magnification. The presence of polymorphs supports a diagnosis of cervical infection.
- *Endocervical swab for gram-stained smear.* This is for detection of gonococci and other bacteria.
- *Endocervical swab for bacterial culture.* This should be sent to the laboratory at room temperature in Amies or charcoal-containing Stuart's transport medium. This specimen is

suitable for culture of gonococci, anaerobes, *Mycoplasma spp* and other endogenous flora.

- *Endocervical (not vaginal) swab for Chlamydia trachomatis.* Chlamydial tests include culture, detection of chlamydial antigen and detection of chlamydial nucleic acid. Each test method has stringent criteria for specimen collection and transport, and the laboratory's requirements should be followed exactly. It is essential that adequate sampling of the endocervical columnar epithelium is done. A swab must be inserted into the canal, left for 10–15 seconds, and rotated as it is withdrawn.
- Urine sample for nucleic acid testing (NAT) for chlamydia and gonorrhoea.

Hospital admission is recommended for patients other than those with mild disease and is mandatory if tubo-ovarian abscess is suspected. Treatment of PID should be reviewed after 24 to 48 hours and revised according to microbiological results and clinical response. Duration of treatment depends on the severity of disease and the response to therapy. It should continue until symptoms and cervical tenderness have resolved, and for a minimum of 14 days. The clinical diagnosis of PID is unreliable. Laparoscopy is indicated if the diagnosis is doubtful or if rapid resolution of symptoms does not occur.

Acute PID can be divided into two broad categories on the basis of clinical history.

1. Acute PID in young sexually active women with no predisposing factors.

In these patients, the likely primary aetiological agents are *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. In mild cases these pathogens predominate, but in severe disease and in repeated episodes of PID

the aetiology is often polymicrobial, the primary pathogens being mixed with endogenous flora and *Mycoplasma hominis*.

Sexual contacts of patients with STI-related PID should be treated after appropriate tests have been taken.

Outpatient treatment of mild to moderate STI-related PID

A stat dose of:

- azithromycin 1 g,
plus, if gonorrhoea is suspected or proven,
- ceftriaxone 250 mg IM once, *or*
- ciprofloxacin 500 mg orally single dose,
followed by
- doxycycline 100 mg bd for 14 days,
plus
- metronidazole 400 mg bd for 14 days.

Note: Azithromycin 500 mgm daily has been removed for ongoing management of PID presumably because of the absence of a good evidence base. However in rural or remote areas daily azithromycin is much easier than doxycycline.

Inpatient treatment of severe STI-related PID

- cefotaxime 1 g IV 8 hourly, *or*
- cefoxitin 2 g IV 6-hourly, *or*
- ceftriaxone 1 g IV daily,
together with
- metronidazole 500 mg IV 8 hourly, *plus*
- doxycycline 100 mg 12-hourly orally, *or*
- roxithromycin 150 mg bd or 300 mg daily as a single dose,

until the patient is afebrile and improved, then

- doxycycline 100 mg bd orally for 2 to 4 weeks, *or*
- roxithromycin 150 mg bd or 300 mg daily as a single dose for 2 to 4 weeks.

2. Patients who develop PID after a recent pregnancy, abortion or gynaecological procedure, and those with a prior history of PID, or IUD insertion or removal.

In these patients, *Chlamydia trachomatis*, *Neisseria gonorrhoeae* and *Mycoplasma hominis* may be implicated, together with mixed anaerobic and aerobic bacteria such as *Bacteroides spp*, anaerobic cocci, *Streptococcus spp* and enteric bacteria.

Outpatient treatment of mild-moderate procedure-related PID

- doxycycline 100 mg bd for 2 to 4 weeks, *or*
- amoxicillin 500 mg tds *plus* metronidazole 400 mg tds for 2 to 4 weeks.

Inpatient treatment of severe procedure-related PID

- clindamycin 600 mg IV 6-hourly *plus* gentamicin 1.5 mg/kg IV 8-hourly *until afebrile*, then clindamycin 150-300 mg qid orally for 2 weeks, *or*
- cefotetan 2 g IV 12-hourly or cefoxitin 2 g IV 6-hourly *plus* doxycycline 100 mg bd orally *until afebrile*, then doxycycline 100 mg bd orally for 2 weeks.

Inpatient treatment of severe septicemic, procedure-related PID

- amoxicillin 2 g IV 4-hourly *plus* gentamicin 1.5 mg/kg IV 8-hourly *plus* metronidazole 500 mg IV 8-hourly *until afebrile*, then doxycycline 100 mg bd orally for 2 weeks.

GENITAL ULCERATION

Herpes simplex infection is the most common STI causing genital ulceration in Australia. Primary syphilis is rare in urban Australia, but must always be excluded if indurated ulcerative lesions are present, especially if there has been recent sexual contact in South East Asia or Africa.

Donovanosis is endemic in northern and central Australia, but chancroid and lymphogranuloma venereum (LGV) are usually seen only in travellers who have had sexual contacts in countries where these infections are endemic.

Diagnostic procedures for and management of genital ulceration, when the diagnosis is uncertain or the patient has recently returned from overseas, should be done by or in consultation with a specialised STI or sexual health service or a sexual health physician.

Pyogenic infections, trauma, drug eruptions, secondarily infected scabies, candidiasis, Behcet's disease, other dermatological conditions and neoplasms sometimes cause ulcerative lesions and may present diagnostic difficulties.

GENITAL HERPES

Genital *Herpes simplex* virus (HSV) infection may be acquired from either symptomatic or asymptomatic partners, and from either genital or oral sexual contact. About 70% is caused by HSV type 2. Most HSV infections are asymptomatic. Clinical manifestations depend on the site of viral entry and immunity from previous oral or genital HSV exposure. Manifestations of newly acquired infection may be severe in non-immune persons who have had no previous exposure. Initial infections are less severe

in persons with prior exposure. Sexually acquired manifestations include genital ulceration, gingivostomatitis, urethritis, cervicitis, and proctitis.

It may sometimes be difficult to decide whether a patient who presents with herpes for the first time has a true first infection or whether he/she has a recurrence of a previously unrecognised infection. Usual clinical features of first infections are that the lesions are multiple, widespread, bilateral, at different stages of development and resolution, and at sites of direct mucosal infection. In contrast, recurrent lesions are typically grouped and localised, unilateral, at identical stages of development, and at cutaneous sites along sacral dermatomes.

Suggested diagnostic tests for suspected herpes are:

- *Swab for viral culture.* This should be placed into viral transport medium, refrigerated, and sent to the laboratory as soon as possible. Viral culture is most likely to be successful if the swab is taken within 36 hours of the appearance of lesions. A negative HSV culture result does not exclude HSV infection.
- *Direct immunofluorescence for HSV antigen.* This is a useful test when viral culture facilities are not available. Ulcers are swabbed firmly with a cotton swab or scraped with a wooden spatula, and the cells obtained wiped onto a glass slide.

Serology is *not* recommended for the diagnosis of genital herpes infection as commercially available tests do not distinguish between HSV type 1 and 2 antibodies. Type-specific herpes antibody tests are now available in some centres, but their place in the diagnosis of genital herpes is not yet clear.

A negative HSV culture result does not exclude HSV infection.

Management of primary or initial (first) infection

- aciclovir 200 mg 5 times daily or 400 mg 8-hourly for 5-10 days, *or*
- valaciclovir 500 mg 12-hourly for 5-10 days.

Both regimens prevent new lesion formation and rapidly reduce viral shedding, infectivity and the risk of autoinfection.

In very severe cases, hospital admission may be required.

Topical lignocaine jelly 2% is a useful adjunct to aciclovir in managing severe first episodes. It should be applied frequently, but for no longer than 24–36 hours. There is a risk of sensitisation, but this is very rarely seen in practice.

Antifungals or antibiotics may occasionally be needed to treat secondary infection.

Salt baths and local application of ice packs may help reduce discomfort. Topical antiseptics such as povidone-iodine may be of some benefit.

Management of recurrent herpes

- For moderately severe recurrences occurring at least every 4–5 weeks, consider using suppressive aciclovir therapy, 200 mg 8-hourly or 400 mg 12-hourly for 3–6 months, or suppressive famciclovir therapy, 250mg 12-hourly for 3–6 months or suppressive valaciclovir therapy, 500 mg daily for 3–6 months. This should then be discontinued to assess the need for further courses.
- For moderately severe episodes occurring at intervals greater than 4–5 weeks, consider episodic therapy with aciclovir 200 mg 5 times

daily or 400 mg 8-hourly for 5 days, famciclovir 125 mg 12-hourly for 5 days, or valaciclovir 500 mg 12-hourly for 5 days. Episodic therapy should be initiated by the patient at the first sign of prodrome or very early lesions.

There is no evidence that lysine, zinc, vitamins, or other non-mainstream remedies are any more effective than placebo in the prevention of recurrences.

Notes

Perinatal transmission, with disseminated HSV infection, is most likely to occur with vaginal delivery at the time of primary maternal infection. The risk is very much lower with recurrent HSV lesions or asymptomatic infection at the time of delivery. A woman with a history of genital herpes, or who has had a partner with herpes, should alert her obstetrical team to this situation. The decision whether to allow vaginal delivery depends on the obstetrician's practice, presence of lesions at term and availability of virological tests.

Secondary infection complicates about 25% of cases of primary herpetic lesions in women. Most are due to *Candida albicans*, though *Gardnerella vaginalis* and vaginal anaerobes may also cause some secondary infections.

Cervical carcinoma and dysplasia are now known to be more consistently associated with human papillomavirus infection than with HSV. There is no evidence that women with a history of herpes need to have Pap smears more frequently than other women.

Aciclovir in first episodes has no effect on the likelihood of recurrences. Oral aciclovir is as effective as the more expensive IV preparation that should be

reserved for severe primary, neonatal or CNS infection. Aciclovir can accumulate when renal function is impaired and dosage should be reduced accordingly.

Aciclovir is not recommended for routine use during pregnancy. However, it may be used in individual cases when the patient's clinical condition requires it.

Every effort should be made to confirm or exclude genital herpes when this is suspected. This requires the use of appropriate investigations.

False-negative tests for HSV are common if taken more than 48 hours after the onset of an episode or after medication has been applied.

The patient should be referred for expert advice when the diagnosis is uncertain, the clinical course is not as expected, or intensive counselling is required.

Prolonged episodes of HSV infection lasting longer than 4 weeks should alert the clinician to the possibility of an immunosuppressive illness such as HIV infection.

Serology is often misinterpreted. The place of type-specific herpes antibody tests is not yet clear.

CHANCROID

The organism responsible for chancroid, *Haemophilus ducreyi*, is fastidious and difficult to culture. Referral to a specialist centre is the most appropriate course of action in suspected cases, such as when a patient presents with genital ulceration following sexual exposure in South East Asia, India, or Africa. There appears to be an increased risk of HIV acquisition in patients with chancroid. Chancroid ulcers are usually

tender and multiple and may be associated with fluctuant inguinal lymphadenitis.

Diagnosis is by culture of *Haemophilus ducreyi* on specialised media using a swab of the lesion. In some cases, gram-stained smear may show typical organisms, but this test has low sensitivity compared to culture. Serological tests are not routinely available.

Antibiotic treatment of chancroid

- azithromycin 1 g as a single dose, *or*
- ciprofloxacin 500 mg bd orally for 3 days, *or*
- ceftriaxone 250 mg IM single dose, *or*
- erythromycin base 500 mg orally four times a day for 7 days.

DONOVANOSIS

The organism responsible for this condition, *Calymmatobacterium granulomatis*, cannot be cultured on routinely available laboratory media. Typical donovanosis lesions are exuberant, beefy-red, malodorous, and resemble granulation tissue. The penile glans, vulva and perianal skin are the sites most commonly infected.

Laboratory diagnosis is usually made by cleansing lesions with saline, taking punch biopsies and demonstrating Donovan bodies with Wright's or Giemsa stain. Biopsy of donovanosis lesions can usually be taken with minimal discomfort with local anaesthesia. A PCR test suitable for a simple swab may be available soon.

Antibiotic treatment of donovanosis

The National Donovanosis Eradication Advisory Committee (NDEAC) recommends:

- directly observed treatment in all cases of suspected or confirmed donovanosis.
- azithromycin 1 g weekly for 4 weeks.
- re-examination at 4 weeks and if not healed, azithromycin 1 g weekly for a further 2 weeks.

Alternatives to azithromycin are listed below, but are not recommended options:

- doxycycline 100 mg bd for at least 21 days,
or
- erythromycin 800 mg bd for at least 21 days,
or
- ceftriaxone 1 g IM or IV daily for at least 14 days.

LYMPHOGRANULOMA VENEREUM (LGV)

LGV is caused by *Chlamydia trachomatis* serotypes different from those which cause urethritis or cervicitis. The initial lesion is a transient ulcer that usually appears 3-10 days after infection. This may go unnoticed, and most patients with LGV present some weeks later with inguinal lymphadenopathy which may have progressed to form a fluctuant bubo by the time the patient is seen.

The following diagnostic tests are recommended:

- *Demonstration of Chlamydia trachomatis* in fluid aspirated from a fluctuant bubo, by either culture or immunofluorescence.
- *Serology.* The LGV complement fixation test (LGV-CFT) is the most widely available serological test. Titres greater than 1:64 are diagnostic of LGV in a patient with a compatible clinical picture. Other chlamydial serological tests such as microimmunofluorescence or EIA usually demonstrate high titres of anti-chlamydial

antibodies, but these results are more difficult to interpret.

Antibiotic treatment of LGV

- doxycycline 100 mg bd for 21 days or longer, *or*
- roxithromycin 150 mg bd or 300 mg once daily for 21 days or longer.

SYPHILIS

Syphilis is caused by the spirochaete *Treponema pallidum*. Syphilitic infection may be divided into congenital and acquired infection. Acquired infection may be further categorised into early infection of less than 2 years duration, which includes primary, secondary and early latent disease. Late syphilis, of more than 2 years duration, includes late latent and late clinical disease.

Laboratory diagnosis of syphilis is by:

- *Demonstration of spirochaetes* in primary chancres or mucous membrane lesions of secondary syphilis. The lesion is cleaned with saline, squeezed gently, and a drop of expressed exudate placed onto a glass slide. If dark-field microscopy is immediately available, motile treponemes can be seen directly in the wet preparation. If dark-field microscopy is not available, an alternative technique is to allow the sample to dry and to send the slide to a laboratory for detection of treponemes by immunofluorescence.
- *Serology* is positive at the time of presentation of most primary chancres, but is not a reliable test for suspected syphilitic chancre. Nonspecific (non-treponemal) tests (RPR, VDRL) will usually have become reactive 6 weeks after infection. A

non-reactive RPR after 3 months excludes the possibility of syphilis. The RPR is the most commonly used test to assess the activity of disease and monitor response to treatment. In early syphilis, there will be a fourfold drop in the RPR titre over 6 months following adequate treatment. Even without treatment, the RPR titre gradually declines over the years.

Specific treponemal tests (TPHA, FTA-Abs) remain positive for life in most cases, regardless of treatment.

Recommended treatment of the various stages of syphilis is as follows:

Early syphilis: primary, secondary and early latent (<2 years duration)

- procaine penicillin 1 g IM, daily for 10 days,
or
- benzathine penicillin 1.8 g IM, single dose.

Treatment of early syphilis in patients allergic to penicillin

- doxycycline 100 mg twice daily for 14 days.

Erythromycin is not highly effective and may not prevent congenital syphilis if it is used during pregnancy. Penicillin-allergic pregnant women with syphilis pose difficult problems, and should be managed in consultation with an experienced sexual health physician.

Late latent syphilis (> 2 years duration)

- procaine penicillin 1 g IM, daily for 15 days,
or
- benzathine penicillin 1.8 g IM, weekly for 3 doses.

Both regimens are highly effective, with failures reported only after benzathine penicillin. Procaine penicillin is preferable, and benzathine penicillin should be used only when compliance is unlikely. However benzathine penicillin is the preferred option in rural or remote Australia for compliance and logistic reasons. Non-penicillin regimens have not been thoroughly evaluated and should be used only when penicillin cannot be used.

Cerebrospinal fluid examination may be necessary to exclude neurosyphilis in patients with late syphilis when benzathine penicillin or a non-penicillin regimen is used. Patients who present with positive serology without symptoms should be managed in consultation with a specialist sexual health physician.

Cardiovascular syphilis

- procaine penicillin 1 g IM, daily for 20 days.

Neurosyphilis

- benzyl penicillin 2-4 g IV 4-hourly for 14 days, *followed by*
- benzathine penicillin 1.8 g IM, single dose.

If outpatient treatment is unavoidable

- procaine penicillin 1 g IM daily *plus* probenecid 500 mg bd for 20 days, *followed by*
- benzathine penicillin 1.8 g IM, single dose.

If allergic to penicillin

- doxycycline 100 mg twice daily for 30 days.

However, alternatives to penicillin in the management of neurosyphilis have not been adequately evaluated. Specialist consultation is recommended

for the management of syphilis in patients with penicillin allergy.

Congenital syphilis

- benzyl penicillin 50 mg/kg IM or IV daily in 2 divided doses for 10 days, *or*
- procaine penicillin 50 mg/kg IM daily for 10 days.

Benzathine penicillin 50 mg per kilogram body weight as a single intramuscular injection may also be used but it is preferable in such cases to exclude CNS involvement by lumbar puncture before treatment.

Infants of mothers treated with drugs other than penicillin during pregnancy should be treated with one of the above penicillin regimens after birth.

Follow-up after treatment of syphilis

It is essential that all patients treated for syphilis receive close clinical and laboratory follow-up. Quantitative RPR or VDRL tests should be taken at 3, 6, 12 and 24 months after treatment. Follow-up serology is especially important for those patients treated with antibiotics other than penicillin.

Re-treatment should be considered if clinical signs or symptoms persist or recur, if there is a sustained fourfold increase in the titre of RPR or VDRL, or if the initial RPR or VDRL titre fails to show a four-fold decrease within 6 months.

When re-treatment is being considered, a lumbar puncture to exclude neurosyphilis is recommended.

Syphilis and HIV infection

Patients in whom syphilis is diagnosed should be encouraged to be tested for HIV infection.

The possibility of neurosyphilis should always be considered in the differential diagnosis of neurological disease in HIV infection.

Case reports have suggested that treatment failures are more common when syphilis occurs in HIV-infected patients. This should be remembered when selecting a treatment regimen and in supervising follow-up.

GENITAL WARTS AND HPV INFECTION

Human papilloma virus (HPV) has not yet been grown in cell or tissue culture. DNA probing has identified more than 70 types of HPV. Types 6, 11, 16, 18, 31, 33 and 35 seem to be closely associated with anogenital infection.

HPV is capable of causing a wide spectrum of disease, including: asymptomatic carriage of the virus detectable as viral DNA in affected cells; cytological changes not apparent to the naked eye but detectable by histological techniques; cervical, vaginal, vulval, anorectal and penile lesions seen by colposcopy but not apparent macroscopically; and recognisable genital warts or condylomata acuminata. The natural history of HPV infection in the anogenital region is not well understood.

HPV is sexually transmissible whatever the clinical manifestations.

The clinician should be aware of the close link between HPV infection, particularly with types 16 and 18, and malignant change in cells of the cervix and possibly other parts of the anogenital tract.

Methods used to treat genital warts include:

- antiproliferative agents (podophyllotoxin, 5-fluorouracil).

- ablative therapies (cryocautery, diathermy, laser ablation, surgical excision, trichloroacetic acid).
- immune response enhancement (imiquinod cream).

Notes

Caustic or antiproliferative agents should be used with care, and not on the cervix. Podophyllotoxin should not be used in pregnancy, or for more than a few weeks, because of the risk of toxicity due to systemic absorption.

Repeated treatments are often necessary, either because individual warts may be difficult to eradicate, or because new warts appear in areas of previously uninvolved skin.

Women with genital warts should have Pap smears to detect cervical HPV and/or dysplastic changes, as should all female partners of men with genital warts.

Anal warts may occur in women and in heterosexual men who have not had anal sex.

Women with HPV changes on Pap smears should have smears at 6-monthly intervals and be referred for colposcopy if dysplasia occurs or if HPV changes persist. Women with abnormal Pap smears should advise male partner(s) to be checked for HPV infection.

Condoms are highly (but not completely) effective in preventing transmission of HPV, and patients should be advised to use condoms with new partners.

MOLLUSCUM CONTAGIOSUM

These lesions are caused by a poxvirus, and occur most often around the genitals in adults. Transmission is by direct skin contact. If lesions are few, treatment may not be necessary as they may regress spontaneously. In immunosuppressed patients, lesions may enlarge rapidly and resist treatment.

- cryotherapy using liquid nitrogen, CO₂ snow or N₂O cryoprobe is the preferred treatment.
- lesions may be de-roofed with a sharp stick and the contents expressed. Glacial acetic acid or trichloroacetic acid may then be applied carefully.
- diathermy and curettage may also be used.

PUBIC LICE

Phthirus pubis, the crab louse, primarily infests the pubic area, but may also infest body hair in men. After washing the affected area with soap and water and drying, apply:

- permethrin 5% cream or lotion.

The cream is applied to all hair-bearing areas except face and scalp, left on overnight, and then washed off.

In cases of eyelash infestation, petroleum jelly smeared onto the lashes is effective.

Treatment should be repeated after one week.

Sexual partners should also be treated.

Underwear, night clothes, bath towels and bed linen should be washed in hot water or dry cleaned.

SCABIES

Sarcoptes scabiei, the scabies mite, causes a generalised skin infestation sparing the face and scalp. In adults, after washing the affected area with soap and water and drying, apply:

- permethrin 5% cream or lotion.

The cream is applied over the entire body below the neck, rubbed in well in areas where lesions are present, left on for 24 hours, and then washed off.

Treatment should be repeated after one week.

Sexual partners should also be treated.

Underwear, night clothes, bath towels and bed linen should be washed in hot water or dry cleaned.

VIRAL HEPATITIS

Sexual activity is a factor in the transmission of hepatitis B, Delta hepatitis and hepatitis A. Sexual transmission of hepatitis C is rare.

Symptoms of acute viral hepatitis include fever, headache, malaise, lethargy, nausea, anorexia, dark urine, pale stools and jaundice. However, most cases are anicteric and asymptomatic.

The medical management of hepatitis is beyond the scope of these guidelines, but vaccination of high-risk groups against hepatitis A and B will prevent these infections, as well as Delta hepatitis which coexists only in the presence of hepatitis B.

Hepatitis B vaccination

Persons at higher risk of acquiring hepatitis B sexually include: homosexual or bisexual men; hetero-

sexual men and women with multiple partners; sexual partners of acute cases or carriers; sexual partners of injecting drug users; and sexual partners of persons whose ethnic origin is from a country where hepatitis B is highly prevalent. Consideration should also be given to vaccination of long-term household contacts of carriers. The following is recommended for adults at risk:

- hepatitis B vaccine 1 ml IM at 0, 1 and 6 months.

The deltoid muscle is the recommended site for injection. The buttock should be avoided.

Pre-vaccination screening for hepatitis B markers is generally not necessary but may be cost-effective in groups with a high prevalence of infection, such as homosexual men.

The seroconversion rate varies from 100% (age 1–10), through 95–98% (age 20–39), to 91% (age > 40 years).

Vaccine-induced antibody levels are lower in patients with chronic renal failure on dialysis, and those with HIV infection and other forms of immunocompromise. In these cases, a higher than usual dose (1 ml of normal vaccine in each deltoid or a single dose of dialysis formulation vaccine) at each date is recommended to increase the likelihood of seroconversion.

Post-vaccination antibody response testing is not routine, except in immunocompromised individuals, or in certain other situations such as occupational exposure to blood or body fluids.

If seroconversion does not occur after 3 doses, further injections may be given. Hepatitis B carrier state should be excluded in non-seroconverters.

The need for booster doses is unclear.

Post-exposure hepatitis B prophylaxis

Where there has been recent sexual exposure with a person known to be a hepatitis B carrier, the following is recommended, pending results of serology:

- hepatitis B immunoglobulin 400 IU (4 ml) IM once, may be given up to 14 days after sexual exposure, and

followed by, if the exposed partner is not immune,

- hepatitis B vaccination as described above. The first dose should be given within 7 days of exposure.

Hepatitis B vaccine and immunoglobulin can be given at the same time, but at different sites.

Hepatitis A vaccination

Hepatitis A is common in homosexual or bisexual men, especially when sexual practices involve faecal-oral contact. The following are recommended for adults at high risk:

- hepatitis A vaccine, 2 doses of 720 U in 1 ml IM, 2–4 weeks apart, *or* a single IM dose of 1440 U in 1 ml.

The deltoid is the recommended site for injection. The buttock should be avoided.

Prevaccination screening for hepatitis A antibodies should be considered in homosexual men, those with a history of jaundice, and those likely to have been exposed in childhood (born before 1945 or born in hepatitis A endemic areas).

Almost 100% of adults develop antibodies following two doses of vaccine, but the level of

antibody response may be impaired in immunocompromised individuals. A single double dose of 1440 units seems to be as effective as 2 spaced doses each of 720 units.

Post-vaccination antibody response is not routinely measured. Antibodies produced after primary immunisation last for at least 12 months. A booster dose at 6–12 months after the primary course results in a more persistent antibody response, but the need for booster doses is unknown.

Post-exposure hepatitis A prophylaxis

Where there has been recent (within a couple of weeks) sexual exposure with a person known or suspected to have hepatitis A, the following is recommended:

- normal human immunoglobulin 0.06 ml/kg IM once,
followed by, if not immune,
- hepatitis A vaccination as described above.

Administration of immunoglobulin with the first dose of vaccine does not effect the seroconversion rate, but may reduce the level of immune response. A booster dose of vaccine is required to ensure longlasting immunity.

HIV INFECTION AND AIDS

Human immunodeficiency virus (HIV) is predominantly sexually transmitted. Clinicians should consider the possibility of HIV infection in any person at risk of sexually transmissible disease, as well as in those who have a history of injecting drug use.

Infection with HIV results in a continuum ranging from an asymptomatic carrier state through to a wide spectrum of HIV-related conditions and serious life-threatening infections, neurological manifestations and secondary cancers constituting the Acquired Immune Deficiency Syndrome (AIDS).

Diagnosis of HIV infection depends first on a careful history and physical examination, seeking evidence of risk activity for acquisition of HIV and clinical manifestations of immune dysfunction or neuropsychiatric conditions. The clinician should maintain a high index of suspicion because of the varied clinical picture in HIV disease.

Laboratory confirmation of HIV infection is by:

- *detection of HIV antibody* by ELISA screening test, and confirming positive results by Western blot analysis (the test sequence performed in screening for HIV), *or*
- *HIV PCR RNA ('viral load')*, performed now for regular monitoring of the course of infection and sometimes used for diagnosis in primary HIV infection, *or*
- *detecting viral p24 antigen* in serum, especially soon after infection and again later in the course of the illness, *or*
- *HIV culture*, performed only in certain special clinical situations.

Opportunistic infections or secondary cancers are diagnosed by appropriate microscopy, culture, or histopathology techniques.

Prevention of HIV infection

HIV causes a lifelong infection that results usually in a lethal disease for which there is as yet no cure. Prevention is the best management. Health care workers are uniquely placed to provide preventive education. This opportunity should not be missed, especially in the young, and in patients whose behaviour puts them at risk, such as those with other STIs, or a history of injecting drug use.

HIV antibody testing should never be carried out without pretest counselling because of the opportunity this provides for preventive education, or without the patient's knowledge and consent, because of the serious implications of a positive test result for the individual.

Counselling about HIV/AIDS issues should include detailed and understandable information about sexual behaviour and IV drug use. While advice to avoid drug use and casual sexual encounters is often appropriate, doctors should also clearly explain ways of reducing the risk of viral spread, such as use of condoms, not sharing drug-use equipment and obtaining clean needles and syringes from needle exchange programs.

After the primary infection, the viral load stabilises at a 'set point'. The higher the set point viral load, the poorer the prognosis without treatment.

Prevention of HIV transmission

HIV-infected patients require careful counselling to help them to avoid transmitting the virus. They should be encouraged to inform past sexual

partner(s) so that these may seek medical care and counselling, and to inform future partners and insist on safe sexual practices. They must never share injecting equipment if drug use occurs, and should inform doctors, dentists and other health care workers involved in their care. The clinician must enlist the patient's cooperation to help prevent further transmission and should strive to create a supportive and non-threatening atmosphere during the consultation.

Prevention of progression

Little is known about the causes of progression of asymptomatic or mildly symptomatic HIV disease to AIDS. Other infections, especially sexually transmitted ones, may play a part. Strict adoption of safer sexual practices may be beneficial to the infected patient as well as to his/her sexual partners.

Similarly, a healthy lifestyle with a well-balanced diet, sufficient rest, exercise, and avoidance of known immunosuppressant recreational drugs, may be beneficial. Psychological factors such as excessive stress may have an immunosuppressive effect. Helping the patient to maintain a positive outlook is an important part of the doctor's role.

Sabin, oral typhoid, BCG and other live vaccines should be avoided.

Regular health monitoring

HIV-infected patients should attend for regular follow-up at 6-monthly intervals or more frequently if their clinical or immunological condition warrants it. At each visit the doctor should assess the patient psychologically and reinforce prevention of transmission messages. Physical examination should include:

- weight and temperature.
- presence of skin lesions or rashes.

- oral examination for hairy leukoplakia, candida or Kaposi sarcoma (KS).
- fundal examination, especially for cytomegalovirus (CMV) retinitis.
- check for lymphadenopathy or hepatosplenomegaly.
- auscultation of the chest for presence of pneumonia.
- anogenital examination, especially for herpes.
- neurological abnormalities.

When HIV infection is diagnosed, a number of baseline tests should be performed. The following list is a guide:

- Hb, blood cell counts.
- liver and renal function tests.
- serology for syphilis, hepatitis, toxoplasma and CMV.
- CD4 and CD8 lymphocyte counts.
- HIV PCR RNA (viral load) test.

At subsequent visits, Hb, blood cell counts, HIV viral load and CD4/CD8 lymphocyte counts should be repeated. Falling CD4 counts and rising viral load indicate the need for antiretroviral therapy.

HIV-infected women are at increased risk of cervical dysplasia, vaginal infections and pelvic inflammatory disease. These women should have a baseline colposcopic examination and 6-monthly Pap smears.

All patients with sexually-acquired HIV infection should be tested for other STIs.

Specific antiretroviral drugs

Current antiretroviral treatment strategies recommend the use of combined treatment with 3 or 4

drugs. The following antiretrovirals are currently available in Australia as Section 100 drugs. They are classified as nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs) or protease inhibitors (PIs).

NRTIs	NNRTIs	PIs
abacavir	delavirdine	indinavir
didanosine (ddl)	efavirenz	nelfinavir
lamivudine (3TC)	nevirapine	ritonavir
stavudine (d4T)		saquinavir
zalcitabine (ddC)		(amprenavir)
zidovudine (AZT)		(lopinavir)

O special access

Other drugs, including the protease inhibitors amprenavir and lopinavir, are available through special access schemes.

Antiretroviral therapy is a constantly and rapidly changing field, and detailed description of specific treatment of HIV infection is beyond the scope of these guidelines.

Only medical practitioners who have completed a prescriber's course and are experienced in the use of antiretrovirals should prescribe them.

Prophylactic therapy against opportunistic infections

In the past, primary and secondary prophylaxis were as important as antiretroviral treatment in the management of HIV infection. Prophylactic drugs may be used in two ways:

Primary prophylaxis is given prior to onset of opportunistic infection while the patient is healthy but immunosuppressed. For example, cotrimoxazole is usually commenced when the CD4 count falls

below 200/ μ l or 20% as prophylaxis against *Pneumocystis carinii* pneumonia.

Secondary prophylaxis. After an episode of infection has been successfully treated, appropriate drugs are then given continuously to prevent further episodes. With successful antiretroviral therapy, prophylaxis may be stopped when the CD4 count rises consistently above 200.

When to refer patients with HIV infection

Doctors in general practice will see an increasing number of patients with HIV. As this is a chronic disease the general practitioner is ideally placed to manage the patient's ongoing problems, with some help from a specialist clinic or sexual health physician. However, practitioners who find it difficult to deal with patients with HIV have a responsibility to refer the patient to another doctor or clinic with appropriate experience. Other reasons for referral include:

- suspected primary HIV infection (seroconversion illness).
- initiation of antiretroviral therapy.
- serious psychological difficulties due to HIV positivity.
- onset of a life-threatening opportunistic infection.
- onset of a secondary malignancy.
- investigation of persistent symptoms such as diarrhoea with weight loss, pyrexia of unknown origin, and neurological symptoms.

Given the substantial psychosocial and personal issues highlighted by HIV infection, many people living with HIV/AIDS have found it useful to make contact with peer-based groups such as AIDS councils. These groups provide information, individual support, a range of activities and a sense of self-empowerment in the face of a distressing illness.

Post-exposure Prophylaxis (PEP) of HIV

Persons exposed to significant risk of HIV infection through occupational exposure (eg deep needle-stick injury) or non-occupational exposure (eg unprotected receptive anal or vaginal intercourse, or needle sharing with a known HIV positive patient) may benefit from administration of combination antiretroviral therapy for one month, provided drugs are commenced within 72 hours of exposure.

Direct evidence of the effectiveness of PEP is lacking, but a substantial body of indirect epidemiological evidence now exists for the effectiveness of occupational PEP. The National Centre in HIV Epidemiology and Clinical Research has an ongoing study looking at non-occupational PEP.

People seeking PEP may present to emergency departments or sexual health clinics where starter packs of appropriate antiretroviral drugs are available. They should then be followed up within a few days for counselling and further prescription of antiretroviral drugs for one month, if appropriate, by accredited HIV prescribers. Counselling for PEP involves exploring with the patient the known or suspected risks of HIV infection against the risks and known side effects of one month's antiretroviral therapy.

PRESCRIBING INFORMATION

The information here is presented in the following format:

Drug name (Safety in pregnancy code*), drug presentations [pack size], availability and restrictions.

*The Australian categorisation of risk of drug use in pregnancy consists of five separate categories. Definitions of categories A-D, which apply to drugs mentioned in these guidelines, are reproduced here by courtesy of the Australian Drug Evaluation Committee, *Prescribing Medicines in Pregnancy, 4th ed., 2000*. In this table, the category (if the drug has been categorised) appears in brackets after the generic name.

Category A. Drugs which have been taken by a large number of pregnant women and women of childbearing age without any proven increase in the frequency of malformations or other direct or indirect harmful effects on the fetus having been observed.

Category C. Drugs which, owing to their pharmacological effects, have caused or may be suspected of causing harmful effects on the human fetus or neonate without causing malformations. These effects may be reversible. Accompanying texts should be consulted for further details.

Category B1. Drugs which have been taken only by a limited number of pregnant women and women of childbearing age without an increase in the frequency of malformations or other direct or indirect harmful effects on the fetus having been observed. Studies in animals have not shown evidence of an increased occurrence of fetal damage.

Category B2. Drugs which have been taken only by a limited number of pregnant women and women of childbearing age without an increase in the frequency

of malformations or other direct or indirect harmful effects on the fetus having been observed. Studies in animals are inadequate or may be lacking, but available data show no evidence of an increased occurrence of fetal damage.

Category B3. Drugs which have been taken by only a limited number of pregnant women and women of childbearing age without an increase in the frequency of malformations or other direct or indirect harmful effects on the fetus having been observed. Studies in animals have shown evidence of an increased occurrence of fetal damage, the significance of which is considered uncertain in humans.

Category D. Drugs which have caused, are suspected to have caused or may be expected to cause an increased incidence of human fetal malformations or irreversible damage. These drugs may also have adverse pharmacological effects. Accompanying texts should be consulted for further details.

Note. For drugs in the B1, B2 and B3 categories, human data are lacking or inadequate and subcategorisation is therefore based on available animal data. The allocation of a B category does *not* imply greater safety than the C category. Drugs in category D are *not* absolutely contraindicated in pregnancy (e.g. anticonvulsants). Moreover, in some cases the ‘D’ category has been assigned on the basis of ‘suspicion’.

abacavir (B3)

300 mg [60] tablets *Section 100*

20 mg/mL [1] oral solution *Section 100*

aciclovir (B3)

200 mg tablets [25]

200 mg tablets [50] *Approved indication(s) for authority: moderate to severe initial genital herpes*

200 mg [90] tablets Rp5 *Approved indication(s) for authority: episodic treatment of moderate to severe recurrent genital herpes*

amoxycillin (A)

500 mg capsules [20] Rp1

1 g injection, solvent needed (x5)

amprenivir (B3)

150 mg capsules [240] *Section 100*

azithromycin (B1)

500 mg capsules [2] *Restricted benefit indications: uncomplicated urethritis and cervicitis due to Chlamydia trachomatis*

benzathine penicillin (A)

1.8g/4mL, disposable syringe [1]

benzyl penicillin (A)

600 mg injection, solvent needed [10]

3 g injections, solvent needed [10]

cefotaxime (B1)

1 g injection, solvent needed [10] *Restricted benefit indications: infections where positive bacteriological evidence confirms that cefotaxime is an appropriate therapeutic agent; septicaemia suspected or proven*

cefotetan (B1)

2 g injection, solvent needed [10] *Restricted benefit indications: infections where positive bacteriological evidence confirms that cefotetan is an appropriate therapeutic agent; septicaemia suspected or proven*

cefoxitin (B1)

1 g injection, solvent needed [5]

ceftriaxone (B1)

250 mg injection, solvent needed [1] *Restricted benefit indications: gonorrhoea*

500 mg, 1 g or 2 g injections, solvent needed [5] *Restricted benefit indications: infections where positive bacteriological evidence confirms that ceftriaxone is an appropriate therapeutic agent; septicaemia suspected or proven*

chloramphenical (C)

0.5% eye drops [10 mL] Rp2

ciprofloxacin (B3)

250 mg tablets [2] *Restricted benefit indication(s): gonorrhoea*

250, 500, 750 mg tablets [14] *Approved indications for authority: treatment of infections proven to be due to ... other gram negative bacteria resistant to all other oral antimicrobials*

clindamycin (A)

150 mg capsules [25] *Restricted benefit indications: gram-positive coccal infections where these cannot be safely and effectively treated with a penicillin*

clindamycin vaginal cream (A)

2% cream 40 g (+ 7 applicators)[1]

clotrimazole (A)

1% topical cream, 1% vaginal cream, 35g Rp1 or 100 mg [6], 500 mg [1] vaginal pessaries

combivir (B3)

lamivudine 150 mg and zidovudine 300 mg tablets [60] *Section 100*

delavirdine (B3)

100 mg tablets [360] *Section 100*

didanosine (B2)

25, 100 mg tablets [60] *Section 100*

EC 125 mg, 200mg, 250 mg 400 mg capsules [30] *Section 100*

doxycycline (D)

100 mg capsules/tablets [7] Rp1

100 mg capsules/tablets [21] *Restricted benefit indications: urethritis*

100 mg capsules/tablets [28] *Restricted benefit indications: pelvic inflammatory disease*

econazole (A)

150 mg pessaries [3]

erythromycin base (A)

250 mg capsules [25]

erythromycin ethyl succinate (A)

400 mg tablets [25] Rp1

200/400 mg/5mL suspension Rp1

efavirenz (D)

50, 100, mg capsules [30], 200 mg capsules [42, 90]

Section 100

famciclovir (B1)

125 mg tablets [40] *Approved indication(s) for authority: episodic treatment of moderate to severe recurrent genital herpes*

fluconazole (B3)

150 mg capsules [1]

gentamicin (D)

80 mg/2mL injection

hydrocortisone (A)

1% cream 30 g [1]

imiquimod (B1)

250 mg 5% cream (single use sachet [12])

indinavir (B3)

200 mg capsules [360], 400 mg [42], 400 mg [180]

Section 100

ketonazole (B3)

200 mg [10] *Approved indication(s) for authority: symptomatic genital candidiasis recurring after treatment of at least 2 episodes with topical therapy*

lamivudine (B3)

100 mg [28] *Section 100*

lignocaine (A)

2% 10 g gel [1]

lopinavir (B3)

133.3 mg with 33.3 mg ritonavir capsules [90]

Section 100

metronidazole (B2)

200 mg tablets [21] Rp 1

400 mg [21] *Restricted benefit indications: treatment of anaerobic infections*

500 mg/mL 100 mL IV infusion [5] *Restricted benefit indications: treatment in a hospital of acute anaerobic sepsis*

miconazole (A)

2% 40 g vaginal cream

100 mg pessaries [7]

minocycline (D)

100 mg capsules [11]

nelfinavir (B2)

250 mg tablets [270] *Section 100*

nevirapine (B3)

200 mg tablets [60] *Section 100*

nystatin (A)

100,00U/5 g dose vaginal cream 75 g [1]

100,00U vaginal pessaries [15] Rp1

permethrin (B2)

5% 30 g cream [1] Rp1

50 mg/mL 100 ml lotion [1]

podophyllotoxin

0.5% 3.5 mL [1] *Restricted benefit indications: treatment of anal warts*

probenicid (B2)

500 mg tablets [100]

procaine penicillin (A)

1 g injection [5]

permithrin (B2)

50 mg/L 100 mL lotion [1]

ritonavir (B3)

100 mg capsules [84] *Section 100*

roxithromycin

150 mg tablets [10] Rp1

saquinavir (B1)

200 mg soft gelatin capsules [180] *Section 100*

saquinavir base (B1)

200 mg capsules [270] *Section 100*

spectinomycin (B1)

2 g (+3.2 mL solvent) injection [1]

stavudine (B3)

20 mg, 30 mg, 40 mg capsules [80] *Section 100*

sulfacetamide (C)

10% 15 mL eye drops [1] Rp2

tetracycline (D)

250 mg capsules [24] Rp1

tinidazole (B3)

500 mg tablets [4]

trizivir (B3)

abacavir 300 mg and lamivudine 150 mg and zidovudine 300 mg tablets [60] *Section 100*

valaciclovir (B3)

500 mg tablets [30] Rp5 *Approved indications for authority: episodic treatment or suppressive therapy of moderate to severe recurrent genital herpes*

500 mg [10] x2 *Approved indications for authority: moderate to severe initial genital herpes*

zalcitabine (D)

0.375 mg, 0.750 mg tablets [100] *Section 100*

zidovudine (B3)

100 mg capsules [100], 250 mg [60] capsules *Section 100*

10 mg/mL syrup [200mL]

AUSTRALIAN PUBLIC SEXUAL
HEALTH CLINICS AND
FAMILY PLANNING CLINICS

Australian Capital Territory

FPACT

Health Promotion Centre

Childers Street

Canberra 2061

(02) 6247 3077

Canberra Sexual Health Centre

The Canberra Hospital

Gilmore Crescent

Garran 2605

(02) 6244 2184

New South Wales

Greater Murray Area Health Service

Albury Community Health Service

Sexual Health Service

596 Smollett Street

Albury 2640

(02) 6058 1800

Armidale Community Health Centre

New England Arca Health Service

Rusden Street

Armidale 2350

(02) 6776 4738

FPA Health

328-336 Liverpool Road

Ashfield 2131

(02) 9650 3057

Bourke Sexual Health Service

Community Health Centre

12 Darling Street

Bourke 2840

(02) 6872 2145

Broken Hill Sexual Health
Primary Health Centre
Broken Hill Base Hospital
Thomas Street
Broken Hill 2880
(08) 8080 1556

King George V Hospital
Missenden Road
Camperdown 2050
(02) 9515 7101

Canterbury Sexual Health Centre
Community Health Building
Canterbury Hospital
Cnr Canterbury Road & Thorncraft Parade
Campsie 2194
(02) 9718 7655

Sutherland Sexual Health Clinic
Antenatal Outpatient Department
(opposite Emergency)
Sutherland Hospital
430 Kings Way
Carringbah 2229
(02) 9350 2742

Sexual Health Clinic (Clinic 916)
Coffs Harbour Health Campus
345 Pacific Highway
Coffs Harbour 2450
(02) 6656 7865

Cooma Community Health Centre
Cnr Victoria & Bombala Streets
Cooma 2630
(02) 6455 3201

Kirketon Road Centre
Above the Darlinghurst Fire Station
Victoria Street (entrance)
Darlinghurst 2010
(02) 9360 2766

Wentworth/Balranald Sexual Health Service
42-44 Tapio Street
Dareton 2717
(03) 5021 7200

Deniliquin Sexual Health Service
2 MacAuley Street
Deniliquin 2710
(03) 5881 9690

Macquarie Area Sexual Health
194 Brisbane Street
(Cnr Bultje Street)
Dubbo 2830
(02) 6885 1700

The Lakes Clinic
Forster/Tuncurry Community Health Centre
16 Breese Parade
Forster 2428
(02) 6555 6822

Holden Street Clinic
69 Holden Street
Gosford 2250
(02) 4320 2114

Goulburn Community Health Centre
Goldsmith Street
Goulburn 2580
(02) 4827 3913

Griffith Community Health Centre
39 Yambil Street
Griffith 2680
(02) 6966 9900

Blue Mountains Sexual Health/HIV Clinic
Blue Mountains Hospital
Great Western Highway
Katoomba 2780
(02) 4784 6560

Nepean Sexual Health & HIV Clinic
'Clinic 204'
Suite 204, Level 2
68 Derby Street
Kingswood 2747
(02) 4734 2507

Short Street Centre
Sexual Health Clinic
St George Hospital
Ground Floor, Prichard Wing
Short Street
Kogarah 2217
(02) 9350 2742

Lismore Sexual Health Service
Northern Rivers Area Health Service
Lismore Base Hospital
4 Shepherd Lane
Lismore 2480
(02) 6620 2980

Lightning Ridge Health Service
Cnr Opal & Pandora Streets
Lightning Ridge 2843
(02) 6829 1022

Liverpool Sexual Health Clinic
Bigge Park Centre
Elizabeth & Bigge Streets
Liverpool 2170
(02) 9827 8022

Manly Sexual Health Service
Manly Hospital
8/18 Whistler Street (entrance in Market Lane)
Manly 2095
(02) 9977 3288

Livingstone Road Sexual Health Centre
182 Livingstone Road
Marrickville 2204
(02) 9560 3057

Luxford Road Sexual Health Clinic
Mt Druitt Hospital Grounds
Luxford Road
Mt Druitt 2770
(02) 9881 1733

Tweed Valley Sexual Health Service
Murwillumbah Community Health Centre
Cnr Nullum & Wollumbin Streets
Murwillumbah 2484
(02) 6670 9400

Narooma Community Health Centre
Marine Drive
Narooma 2546
(02) 4476 2344

Sexual Health Service
Royal Newcastle Hospital
5th Floor, McCaffrey Wing
Cnr King & Pacific Streets
Newcastle 2300
(02) 4923 6909

The Sanctuary
6 Mary Street
Newtown 2042
(02) 9650 3057

Sexual Health Clinic
Shoalhaven District Hospital
Shoalhaven Street
Nowra 2541
(02) 4423 9353

Orange Sexual Health Clinic
Community Health Centre
96 Kite Street
Orange 2800
(02) 6392 8600

Parramatta Sexual Health Clinic
Parramatta Health Service
158 Marsden Street
Parramatta 2150
(02) 9843 3124

Queanbeyan Community Health Centre
Antill Street
Queanbeyan 2620
(02) 6298 9233

Hawkesbury Sexual Health & HIV Clinic
108 March Street
Richmond 2753
(02) 4578 1622

Rozelle Hospital
The Clinic – Ward 17
Rozelle 2039
(02) 9650 3057

Clinic 16
Northern Sydney Sexual Health Service
Block 3, Royal North Shore Hospital
Herbert Street
St Leonards 2065
(02) 9926 7414/5

Albion Street Centre
150-154 Albion Street
Surry Hills 2010
(02) 9332 9600

Sydney Sexual Health Centre
Sydney Hospital
Nightingale Wing
Macquarie Street
Sydney 2000
(02) 9382 7440
Freecall 1800-451-624

Bligh Street Clinic
5 Bligh Street
Tamworth 2430
(02) 6766 3095

Manning Clinic
Taree Community Health Centre
64 Pulteney Street
Taree 2430
(02) 6592 9421

Sexual Health Service
79 Brookong Avenue
Wagga Wagga 2650
(02) 6938 6492

Illawarra Sexual Health Service
Port Kembla Hospital
Fairfax Road
Warrawong 2502
(02) 4276 2399

Northern Territory

Clinic 34
Sexual Health Unit
Health Development
Gap Road
Alice Springs 0871
(08) 8951 7549

Clinic 34
Centre for Disease Control
Building 4
Royal Darwin Hospital
Casuarina 0811
(08) 8922 8007

FPNT
Unit 2 The Clock Tower
Dick Ward Drive
Coconut Grove 0810
(08) 8948 0144

Centre for Disease Control
Cnr Chesterfield &
Matthew Flinders Way
Nhulunbuy 0881
(08) 8987 0358/6

Clinic 34
Disease Control
O'Keefe House
Katherine Hospital
Katherine 0851
(08) 8973 9049

Clinic 34
Community Care Centre
Tennant Creek Hospital
(Off Leichhardt Street)
Tennant Creek 0860
(08) 8962 4250

Queensland

Men's and Women's Health
C/- Hospital
Bamaga 4876
(07) 4090 4219

Brisbane Sexual Health Clinic
484 Adelaide Street
Brisbane 4000
(07) 3227 8666

Brisbane Sexual Health & AIDS Service
270 Roma Street
Brisbane 4000
(07) 3224 5526

Wide Bay Sexual Health Service
C/- Bundaberg Base Hospital
PO Box 34
Bundaberg 4670
(07) 4150 2754

Doll's House Sexual Health Clinic
The Esplanade
Cairns 4870
(07) 4050 6205

FPQLD
100 Alfred Street
Fortitude Valley 4006
(07) 3250 0200

Sexual Health Service
Health Plaza
Bell Street
Ipswich 4305
(07) 3817 2428

Sexual Health & Sexual Assault Services
Mackay Community Health Centre
12-14 Nelson Street
Mackay 4740
(07) 4968 3919

Sunshine Coast Sexual Health Clinic
15-17 Maud Street
Maroochydore 4558
(07) 5479 2670

Gold Coast Sexual Health Clinic
2019 Gold Coast Highway
Miami 4220
(07) 5576 9033

Mount Isa District Sexual Health Services
Doreen Street Clinic
Mount Isa Base Hospital
Doreen Street
Mount Isa 4825
(07) 4744 4405

Palm Island Sexual Health Service
Joyce Palmer Health Service
Palm Island 4816
(07) 4770 1144

Canning Street Clinic
8 Canning Street
Rockhampton 4700
(07) 4920 6262

Men's and Women's Health
Douglas Street
Thursday Island 4875
(07) 4069 0413

Sexual Health Service
Toowoomba Base Hospital
Kobi House
Pechey Street
Toowoomba 4350
(07) 4616 6446

Townsville Sexual Health Service
Ground Floor
242 Walker Street
Townsville 4810
(07) 4778 9600

Sexual Health Program
Cape York Health Service District
PO Box 341
Weipa 4874
(07) 4090 6262

SQWISI
404 Montague Road
West End 4101
(07) 3844 4565

Princes Alexandra Sexual Health
Princes Alexandra Hospital
Wooloongabba 4102
(07) 3240 5881

South Australia

Clinic 275
275 North Terrace
Adelaide 5000
(08) 8226 6025
Freecall 1800-809-460 (SA only)

Shine SA (previously FPSA)
17 Phillips Street
Kensington 5068
(08) 8431 5177

Shine SA East-West
(08) 8364 5033 (appts)

Shine SA Northern Clinic
(08) 8254 8200 (appts)

Shine SA Southern Clinic
(08) 8325 8164 (appts)

Tasmania

Sexual Health Unit

11 Jones Street

Burnie 7320

(03) 6434 6315

Sexual Health Unit

23 Steele Street

Devonport 7310

(03) 6421 7559

Sexual Health Branch

68 Warwick Street

Hobart 7000

(03) 6233 3557

Sexual Health Branch

42 Canning Street

Launceston 7250

(03) 6336 2216

FPTAS

2 Midwood Street

Newtown

North Hobart 7002

(03) 6228 1222

Victoria

(* Medicare card required)

Ballarat Community Health Centre*

The Annexe

710 Sturt Street

Ballarat 3350

(03) 5333 1635

FPVIC

901 Whitehorse Road

Box Hill 3128

(03) 9257 0100

Communicable Diseases Clinic
Royal Women's Hospital
132 Grattan Street
Carlton 3053
(03) 9344 2002
(03) 9344 2183 (appts)

Melbourne Sexual Health Centre
580 Swanston Street
Carlton 3053
(03) 9347 0244

HIV/STD Service*
Community Health Bendigo
Seymour Street
Eaglehawk 3556
(03) 5434 4300

Sexual Health Clinic*
Frankston Hospital
Hastings Road
Frankston 3199
(03) 9784 7650

STD/HIV Clinic*
Geelong Hospital
Swanston Street Annexe
Geelong 3220
(03) 5221 4735

Victorian HIV Service and I.D.Clinic
Alfred Hospital
Prahran 3181
(03) 9276 6081

AIDS/STD Clinic*
Latrobe Regional Hospital
Princes Highway
Traralgon 3844
(03) 5173 8000

Wodonga STD/HIV Clinic*
C/- Wodonga Regional Health Service
79 Vermont Street
Wodonga 3690
(02) 6051 7535
(02) 6051 7470 (appts)

Western Australia

Sexual Health Clinic B2
Infectious Diseases Department
Fremantle Hospital
Alma Street
Fremantle 6160
(08) 9431 2149

STD Clinic
36 Ware Street
Kalgoorlie, Boulder 6430
(08) 9021 2622

FPWA
70 Roe Street
Northbridge 6003
(08) 9021 2622

Phoenix
36 Palmerston Street
Northbridge 6003
(08) 9328 1387

Sexual Health Service
Royal Perth Hospital
Wellington Street
Perth 6000
(08) 9224 2178

Sexual Health Clinic
King Edward Memorial Hospital
Bagot Road
Subiaco 6008
(08) 9340 1383/1014

