



The sexually transmitted infection 'check up'

Screening for STIs in general practice

BACKGROUND Many sexually transmitted infections (STIs) and blood borne viruses (BBV) such as HIV are asymptomatic. Early detection is important for minimising associated risks. With appropriate treatment and management (including contact tracing) it is possible to substantially reduce morbidity as well as transmission to sexual partners and the neonate. **OBJECTIVE** This paper outlines which tests should be administered to otherwise 'well' individuals. It also examines the questions of when, why and how to respond to requests for an STI 'screen' or 'check up'.

DISCUSSION Testing and screening for asymptomatic STIs and BBV are important, especially in situations where proven interventions can decrease morbidity and transmission. Screening for STIs also provides the opportunity in a one-on-one consultation for health promotion. Sexually transmitted infection testing can also initiate a conversation about 'safer sex' and may help address other concerns patients may have.

'Screening' is defined as testing carried out among apparently well people to identify those at an increased risk of a disease or disorder.¹ Screening for bacterial sexually transmitted infections (STIs) offers opportunities for early intervention and treatment and has been shown to reduce rates of transmission² thereby decreasing morbidity.

Screening can be based on selective criteria for those at higher risk or routinely offered to everyone. The cost effectiveness of each approach depends on the prevalence of infection within the community or group being 'screened', the type of test used, its specificity and sensitivity, the cost of the test and the availability of an appropriate intervention to minimise morbidity and/or mortality.³ Screening to detect asymptomatic infection should only occur if it is possible to decrease transmission, morbidity or mortality through intervention. Detection should not cause physical or psychological harm to the patient.

Medicolegal issues may also need to be considered when screening for STIs. This, combined with

individual concerns, public health and cost issues need to be balanced when considering any screening tests.

Responding to the request for a sexual health 'check up'

Asymptomatic patients may request an 'STI check up' after entering a new sexual relationship, before embarking on unprotected sex. Couples are encouraged to get 'tested' before ceasing condom use, and efforts should be made to ensure that both partners are tested.

Patients may also present requesting testing because they are unwilling to divulge other risks, may be symptomatic or worried. Direct questioning about specific symptoms should form part of the history.

Patient concern and request for a 'check up' may be a surrogate marker for other health issues such as erectile dysfunction.⁴ A request for an HIV test may reveal concerns about partner fidelity, sexuality issues or a sexual assault.⁵ Anyone who has experienced sexual contact may present for a

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Table 1. Our recommendation for STI and BBV screening

Screening asymptomatic individuals at risk through noncommercial sexual activity

- Anyone who asks for a test
- Contact of anyone with an STI
- Young sexually active people under 25 years of age (chlamydia especially)
- Unprotected sex (especially overseas country of higher HIV risk)
- Multipartnered individuals
- Recent change in sexual partner

Regular or periodic STI testing for those at higher risk due to occupational risk/sexual risk and/or public health reasons

- Commercial sex workers (regular screening for STIs to ensure safety to and from clients)
- Men having sex with other men (multisite testing) (especially multisite gonorrhoea and chlamydia) (Table 5*)
- Health professionals at risk of needlestick injury (HIV, HCV, HBV [if not vaccinated])

Other groups to be considered

- Pregnant women (especially HIV, syphilis, hepatitis B and C, and chlamydia/gonorrhoea, +/- BV)
- Pregnant women referred for termination of pregnancy (TOP) (BV, chlamydia and gonorrhoea, important to decrease risks of pelvic inflammatory disease post-TOP)
- HIV positive individuals (concomitant infections have been shown to increase risk of HIV transmission)

sexual health screen and requests for testing should not be dismissed, regardless of risk. Sexual history and risk assessment are important to tailor testing, counselling and education (Table 1).

STI risk assessment

An accurate history should aid the practitioner in assessing the likelihood of a positive result, as well as targeting patient education and providing essential health promotion information (Table 2, 3). The limitations of the tests themselves, incubation and window periods of the tests should also be discussed (Table 4).

Consultation in a private, nonthreatening, non-judgmental forum may help clarify reasons for presentation. Use language that you feel comfortable with and that the patient understands. It is also important to explain to the patient why you are asking certain questions: ‘In order to establish your level of risk of HIV, I will need to ask you some personal and private questions’.

Open ended question such as: ‘Can you tell me

Table 2. Suggested open ended questions for taking a sexual history

- Why do you think you have been at risk of STIs or HIV?
- Which STIs are you particularly concerned about?
- What do you think I need to know about your sexual practises to ensure that I order the best tests?
- What do you do to protect yourself against HIV infection and other STIs?
- In what situations would you be less likely to use condoms?
- Tell me about your use of condoms, for anal sex, vaginal sex, oral sex?

more about the type of check up you want?’ or ‘What do you expect the check up to reveal?’ may elicit useful information about the reasons for presentation (Table 2). Some patients may be reluctant to disclose information unless asked direct closed questions about their sexual activity (Table 3).

Initially, the patient interview should establish the reason for presentation, identify risks of infection and clarify any misconceptions the patient may have. The sexual history and risk assessment may reveal sexual practices or issues that will focus the consultation accordingly; for example, if the patient divulges that they are a commercial sex worker or a homosexual man more regular and multisite STI screening would be required (Table 5).

Screening for STIs in general practice – what investigations and why?

Clinical time pressures, concerns about confidentiality and structural barriers imposed by the federal government to limit pathology testing by general practitioners may make comprehensive screening for STIs difficult.⁷ Testing over two consultations may make the process more feasible.

HIV

Despite human immunodeficiency virus (HIV) sero prevalence in Australia estimated at 66:100.000,⁸ the consequences of undiagnosed and untreated HIV infection are fatal. Until a decade ago little could be offered to HIV positive patients. However, recent years have seen a paradigm shift

Table 3. Suggested closed questions for taking a sexual history**Present sexual history**

- Are you in a sexual relationship at the moment? With a male or female partner?
- When did you last have sex? Was that with a male or female partner? Casual or regular partner?
- Have you had any other partners? While in this relationship?
- Have you had a change in partner?
- Do you have vaginal sex? oral sex? anal sex?
- What percentage of the time do you use condoms for vaginal sex? anal sex? oral sex?

Past sexual history

- How many sexual partners you have had in the past?
- Without condoms? (do not say 'protection', ie. it could mean 'the oral contraceptive pill')
- Do you have sex with men, women or both?
- Have you ever had sex with someone of the same sex?

Overseas risk (as other countries have different rates of HIV infection)

- Have you ever had sex with someone from overseas?
- Where were they from?

Nonconsensual sex

- Has anyone forced you to have sex that you didn't want to have?
- Have you had any unwanted sexual contact?

Commercial sex worker (CSW) and/or client of a CSW

- Have you ever been paid for sex?
- Have you ever paid for sex?

Sexual dysfunction

- Do you have any problems with sexual intercourse?
- Have you ever discussed these with anyone?

Introducing hepatitis C

'Your liver tests are a little raised, sometimes this can be caused by hepatitis viruses. I would like to ask you some personal questions so I can establish what risks you may have of hepatitis C infection':

- Have you ever injected drugs?
- Have you ever had a tattoo that may have been done in an unsterile way?
- Did you have a blood transfusion before 1990?

Table 4. Which test to use for STI screening and window periods of common STIs

| | Screening test | Window period | Comment |
|-------------|---|---------------|---|
| HIV | HIV Ab/Ag | 6–12 weeks | Newer tests combine HIV antigen with HIV antibody |
| Syphilis | EIA or RPR/VDRL + TPPA/TPHA | 2–12 weeks | Repeat serology for those with suspected exposure |
| | | 3–12 weeks | |
| Hepatitis B | HepB coreAb HepB sAg HepB sAb | 4–24 weeks | Past exposure |
| | | 4–8 weeks | Carrier status/recent infection |
| | | | Past vaccination |
| Hepatitis C | HepC Ab | 2–26 weeks | |
| Chlamydia | First catch urine PCR/LCR Cervical swab PCR/LCR | 2–7 days | Men and women |
| | | | In women: sensitivity of cervical swab slightly greater than urine test |
| Gonorrhoea | First catch urine Gonorrhoea culture/PCR Cervical culture/PCR | 24 hours | Men (beware gonorrhoea PCR false positives – confirm with culture) |
| | | | Women (beware NG PCR/LCR false positives – confirm with culture) |
| | | | |

Table 5. Testing recommendations for men who have had any sex with other men in the previous 12 months*

The following tests should be offered at least once a year:

Serology

- HIV serology
- Syphilis serology
- Hepatitis A serology – immunise if negative
- Hepatitis B serology – immunise if negative

Swab tests

- Pharyngeal: gonorrhoea culture
- Anal: gonorrhoea culture or PCR
chlamydia PCR

Urine tests

- First catch urine: chlamydia PCR, gonorrhoea culture or PCR

*Guidelines developed by the Australian College of Sexual Health Physicians. www.acshp.org.au

The full STI check up involves blood and/or genital and urine tests

BLOOD TESTS

The routine 'STI' blood tests check for infection with:

- ☐ HIV (human immunodeficiency virus)
- ☐ Hepatitis B
- ☐ Syphilis

HIV and hepatitis B are viral infections that may be transmitted in semen and cervical/vaginal secretions during vaginal or anal sex where no condom has been used. It may take **up to 3 months** for any of these infections to show in the blood tests.

If there have been **blood-to-blood** risks, then we may also test for:

- ☐ Hepatitis C (which is not usually transmitted sexually)

In some cases, other infections may also be transmitted sexually and can be tested for by blood, such as:

- ☐ Hepatitis A

GENITAL AND URINE TESTS

An STI 'screen' or 'check up' will also involve tests for the following bacteria:

- ☐ Chlamydia
- ☐ Gonorrhoea

Bacterial infections are treatable with antibiotics and may be harmful if left untreated.

Up to **80% of women and 50% of men** with chlamydia have noticed nothing unusual, and do not know they are infected.

The ONLY way to know is to get tested

Women may also have vaginal swab tests if they notice an unusual vaginal discharge or discomfort. Although trichomonas is sexually transmitted, **bacterial vaginosis** and **candida are not sexually transmitted infections** and all are easily treated.

- ☐ Bacterial vaginosis (this was called gardnerella)
- ☐ Candida (this may also be called thrush)
- ☐ Trichomonas (this is a sexually transmitted infection)

OTHER COMMON VIRAL STIs

Subclinical (invisible) genital wart virus infection is extremely common and may be found in up to 50%* of the population. We cannot test for the invisible (subclinical) infection, but if obvious warts are present, they can be easily diagnosed and treated.

The invisible wart virus is also associated with Pap smear changes, and as wart virus is so common it is recommended that **EVERY WOMAN HAS REGULAR PAP SMEARS** every two years.

Genital herpes virus infection is also very common and is found in up to 30% of the population. 75–80% of those who are infected do not know that they have been exposed, and have no symptoms (that is they have invisible infection). Good medication is available to manage symptoms or sores if they are present, and to reduce the frequency of recurrences. The most accurate tests for herpes is the swab test when there are sores present. The genital herpes virus may be transmitted even if there are no sores present.

In general, an **STI check up** does **NOT test for (invisible) infection** with either the genital wart or genital herpes viruses. **Both infections** are transmitted by skin-to-skin contact and are **very common**.

*This figure can vary depending on the population tested and type of test.

Figure 1. The sexually transmitted infection (STI) check up

in the management of HIV through the use of HIV antiviral agents. These medications have significantly increased life expectancy and reduced mother-to-child transmission.⁹

With the significant morbidity and mortality of HIV combined with the ease and availability of good diagnostic testing, an HIV antibody test should be an obligatory part of the STI check up. To omit an HIV test or recommend against it could be seen to be medically indefensible. Should the patient decline an offered HIV test, this should be documented clearly in the notes. The importance of the three month window period should also be carefully discussed.

Syphilis

Syphilis testing should always form part of the 'STI screen' as it is a treatable condition with serious associated morbidity and mortality, including perinatal mortality. Routine tests for syphilis are inexpensive and accurate. Recent years have seen an increase of syphilis among homosexual men in western countries,¹⁰ in parallel with rises in former soviet countries and China.

Hepatitis viruses: A, B, C

Hepatitis A may be sexually acquired by the oro-faecal route, via oro-anal or oral sex. Recent outbreaks of hepatitis A have occurred in homosexual men in the western world. As this viral infection has significant morbidity and is preventable through vaccination, all men having sex with other men should be tested and offered vaccination (Table 5).

Hepatitis B may have very serious consequences, although the majority of adults acquiring the infection as an adult will overcome the virus. Despite some treatments available for managing the infection, hepatitis B remains highly infectious and is preventable through vaccination. Hepatitis B should be ordered in a routine STI screen and vaccination offered to 'at risk' patients.

Hepatitis C (HCV) is primarily transmitted through blood-to-blood contact. Risk of HCV transmission via sexual contact is low, estimated at up to 0.6% per year in monogamous relationships and up to 1.8% per year in those with multiple partners.¹¹ The STI check up, may be an appropriate time to perform a hepatitis C test, in those who may have been exposed. These include people with a history of injecting drug use, prisoners, those who

had a blood transfusion before 1990 or who were born in a country of high hepatitis C prevalence (eg. Egypt).

Chlamydia

Chlamydia is the most commonly notifiable bacterial infection in Australia,¹² and recent studies have recommended that all young adults under 25 years of age who are sexually active should be screened for infection irrespective of sexual history.¹³

Chlamydia is asymptomatic in up to 50% of men and 80% of women.¹⁴ It is easily detected with noninvasive nucleic acid testing (PCR/LCR) from urine and is easily treated. It may have serious consequences such as pelvic inflammatory disease resulting in infertility and ectopic pregnancy if left undiagnosed.

Modelling shows that when the sero prevalence within a community reaches 3%, screening is cost effective,¹⁵ and in Australia rates as high as 27% have been reported in one adolescent population.¹⁶ Detection rates may be increased if young women are offered the option of urine testing rather than insisting on a cervical test¹⁷ due to a higher yield of samples. Screening in young men, while perceived as not as important, should be strongly encouraged.¹⁸

Gonorrhoea

Following a worldwide trend, the rate of neisseria gonorrhoea (NG) infections has increased substantially in the homosexual population.¹⁹ Other groups who may be at risk include some indigenous populations living in rural areas and those having unprotected sex while overseas.

Reservoirs of asymptomatic infection provide the key for screening, as men acquiring the infection in the urethra are often symptomatic. As the infection may remain asymptomatic and self limited in the throat and rectum, multisite swabs should be offered to men who have sex with other men. As NG may be asymptomatic in up to 80% of women a routine STI screen for infection should include a cervical culture for NG. Noninvasive nucleic acid tests (PCR/LCR) for NG in first catch urine specimens can be used for screening men, but positive results must always be confirmed with culture due the high rate of false positive tests. These tests have not yet been fully evaluated for use in women in areas of low NG prevalence, however, they may play a significant role in the future.

Asymptomatic HPV infection

Human papillomavirus (HPV) is a very common infection with most HPV infections remaining asymptomatic. It is estimated that over 50% of sexually active adults have been infected at some point in their lives.²⁰ Condoms provide no protection against HPV infection.²¹ Several HPV virus strains have been associated with precancerous cervical changes, and screening for cervical abnormalities through Pap smears have shown to reduce rates of cervical cancer in western countries.

Asymptomatic HSV infection

Most infections with herpes simplex virus (HSV) are asymptomatic with up to 80% of infections unrecognised and undiagnosed. HSV-2 is common (15–30%) and HSV-1 infection, usually acquired orally before the age of 15 years, is very common (75–80%).

Herpes simplex virus serology tests are now commercially available, however, these tests are not as specific or sensitive as tests used for research, and false positive and negative results are common. Herpes simplex virus serology is not site or symptom specific and as such, will not confirm a genital lesion to be a herpes infection.

Patients are increasingly requesting HSV serology as part of a check up, however, testing for HSV serology has the potential for psychological harm with little positive effect.²² Consider a common scenario where a couple present for serology testing. One has HSV-2 and the other is apparently not infected. It is important to consider how the result will affect the partner. If negative, there are very limited measures for protection. Oral antiviral medications are not licensed for suppression and at best decrease transmission by up to 50%. Condoms may provide some protection for women²³ but not for men and vaccines are unavailable. A positive test may require disclosure to a new partner with little intervention in a totally asymptomatic individual.

While the use of HSV serology as a screening tool continues to be debated we would not recommend routine screening for HSV infection.

Trichomonas

Trichomonas is the forgotten STI, and while the infection is more common in rural Australia, sensitive and specific screening tests are not yet commercially available. High vaginal swabs may

detect trichomonas through 'wet mount' but the sensitivity of such tests is at best 30–70%.

Conclusion

Screening for STIs should include infections that are of public health importance, that have serious consequences if left untreated, and for which there are proven interventions to reduce morbidity. In some groups additional tests or periodic screening may be appropriate.

At a minimum, the STI screen involves blood tests for HIV, hepatitis B and syphilis, and swabs or PCR/LCR urine tests for chlamydia and gonorrhoea. Depending on risk assessment, tests for hepatitis A and hepatitis C may also be considered. Patient handouts (Figure 1, Resources) can be useful to give your patients so they are aware of what tests have been conducted. A request for an STI screen may mask other issues, and further clarification may be required. Should the GP feel uncomfortable discussing sexually related issues, then referral to a sexual health centre would be appropriate.

SUMMARY OF IMPORTANT POINTS

- Screen all sexually active young people under 25 years of age for chlamydia.
- Do not refuse a persistent request for an HIV test or STI screen. The patient may not be telling you everything.
- Urine testing is okay for chlamydia PCR in women, if they are asymptomatic and do not need a speculum examination for another reason (eg. Pap smear).
- A request for an HIV test should alert the GP to the possibility of a full STI check up.
- Screen pregnant women for HIV, hepatitis B, syphilis, chlamydia and gonorrhoea to prevent neonatal infection.
- Before termination of pregnancy, test for BV, chlamydia and gonorrhoea to prevent pelvic inflammatory disease.
- Unprotected sex while travelling overseas is a big risk for HIV and other STIs.
- Screen everyone who has had unprotected sex overseas in countries of higher HIV and STI prevalence, such as Africa, Asia, eastern Europe and South America.

Conflict of interest: none declared.

Further Reading

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Resources

General STI information: www.acshp.org.au

Treatment guidelines and handouts for patients:

www.cdc.gov/std/treatment

Patient information in different languages:

www.mhcs.health.nsw.gov.au

Genital herpes information for doctors:

www.ihmf.org

For patients: www.herpess.com.au

www.thefacts.com.au

Genital warts information: www.hpv.org.nz

HIV infection information for doctors:

www.ashm.org.au

www.hivatis.org

For patients: www.acon.org.au

HIV positive patient information:

www.thebody.com

Hepatitis C information: www.hepatitisc.org.au

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