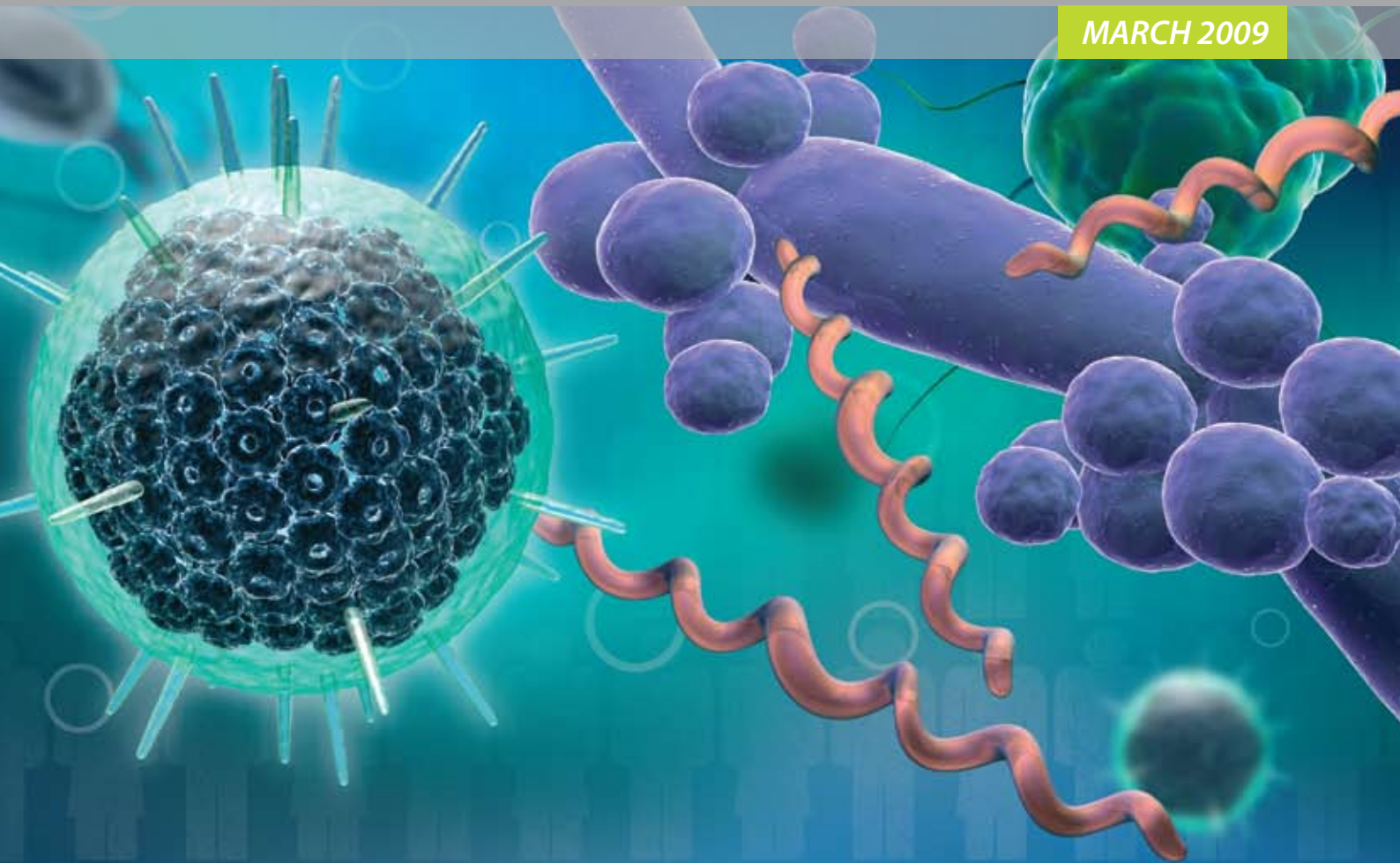


# *best tests*

MARCH 2009



**Monitoring diuretics in  
primary care**

**Sexually transmitted  
infections – what testing is  
needed and when?**

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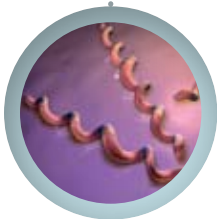
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### Monitoring diuretics in primary care:

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### Sexually transmitted infections:

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Dr Jill McIlraith, General Practitioner, Aurora Health Centre; Director, Dunedin Sexual Health Clinic, Dunedin.

Drug monitoring

# Monitoring diuretics in primary care



## Why do we monitor patients taking diuretics and what do we monitor?

Monitoring a person on diuretics is necessary to assess response to treatment and to prevent adverse events, particularly electrolyte imbalances and decline in renal function (see Tables 1 and 2).

People with hypertension should have their blood pressure measured every six months and more often if uncontrolled or unstable. People with heart failure should be assessed at least six monthly and more often if clinical condition or medication is changed.

The following is assessed:<sup>1</sup>

- clinical assessment of functional status (e.g. using the NYHA classification to grade severity of functional impairment, see box 2 at end of article)
- fluid status (e.g. body weight, JVP, peripheral oedema, postural hypotension)
- cardiac rhythm (ECG may be required if arrhythmia is suspected), heart sounds, chest crepitations
- cognitive and nutritional status

### Box 1: Patients at higher risk of adverse effects:<sup>2</sup>

- Those with existing renal dysfunction (e.g. stage 3 or above chronic renal disease – GFR = 30–59 mL/min/1.73m<sup>2</sup>)
- Those aged 60 years or over
- Those receiving combination therapy (e.g. ACE inhibitors and diuretics or potassium sparing drugs)
- Those with concomitant medical conditions such as peripheral vascular disease, diabetes

## When do we monitor?

The frequency of monitoring depends on the clinical condition of the patient and which diuretic they are taking.

See Tables 1 and 2 for diuretic monitoring advice

### Patients with heart failure require closer monitoring than those with hypertension

Patients with heart failure require more frequent monitoring than those with hypertension because they are more likely to be taking multiple medicines and their clinical condition is often less stable.

People with heart failure should have their electrolytes and creatinine assessed before initiation of diuretics and then at one week. Creatinine and electrolytes can be monitored annually in lower risk patients but up to every three to six months in higher risk patients (see box 1). Additional monitoring may be required after dose increases, if interacting drugs (Table 3) are added and during illness.

People with hypertension taking diuretics should have their electrolytes assessed within four to six weeks of initiating therapy and thereafter can be assessed every six to twelve months unless their clinical condition changes or a potentially interacting drug is added (Table 3).

### Spironolactone can cause hyperkalaemia and requires close monitoring initially

Spironolactone carries the risk of hyperkalaemia which is asymptomatic and potentially hazardous.<sup>2</sup> Those at greatest risk of hyperkalaemia are elderly people, people with diabetes, and people who have impaired renal function. These people may already have reduced renal excretion of potassium.

Drugs taken concurrently with spironolactone may also increase the risk of hyperkalaemia. These include NSAIDs, ACE inhibitors and cyclosporin (see Table 3). Patients should be advised to avoid use of over-the-counter NSAIDs and herbal products that contain potassium and advised to avoid foods rich in potassium such as bananas, orange juice and melons and to avoid use of salt substitutes or other products that contain potassium.<sup>3,4</sup>

**Table 1:** Recommended monitoring for diuretics in hypertension<sup>2,5</sup>

Thiazide or loop diuretics in hypertension			
Monitor	Frequency	What to look for	What to do
Electrolytes	<ul style="list-style-type: none"> <li>▪ Within 4–6 weeks of starting treatment</li> <li>▪ Thereafter, every 6–12 months.</li> <li>▪ If clinical condition changes or a potentially interacting drug is added (Table 3)</li> </ul>	Potassium < 3 mmol/L (or < 4 mmol/L in high risk patients)	Review diuretic therapy  Increase intake of potassium e.g., eat potassium rich food such as bananas, oranges, melons or consider potassium supplementation  Consider elevated aldosterone (primary and secondary)
		Serum creatinine rises >20% or eGFR falls >15%	Re-measure within 2 weeks, if renal function continuing to worsen specialist advice may be required

Potassium-sparing diuretics in hypertension (e.g. amiloride)			
Monitor	Frequency	What to look for	What to do
Electrolytes	<ul style="list-style-type: none"> <li>▪ Baseline (should not be initiated if potassium &gt; 5 mmol/L)</li> <li>▪ After 5–7 days with dose titration if required</li> <li>▪ Every 5–7 days until potassium values are stable</li> <li>▪ Thereafter, every 6–12 months for low risk patients</li> <li>▪ High risk patients (older people, renal or cardiac dysfunction), every 4–8 weeks</li> </ul>	Potassium > 6 mmol/L or a significantly rising trend	Stop diuretic and seek specialist advice

**Close attention to medication regimens, particularly for patients with heart failure, is required in situations where blood volume changes or electrolyte disturbances occur**

One example is vomiting and diarrhoea due to gastroenteritis or food poisoning. In this situation,

- Blood volume is depleted, impairing renal function
- Potassium level can be low because of diarrhoea or high because of renal failure from volume depletion. Changes in potassium status can be aggravated by

diuretics, ACE-inhibitors or spironolactone

- Digoxin levels will increase because of failed renal excretion and hypokalaemia can predispose patients to digoxin toxicity

A simple management strategy is to withhold medications with serial assessments including both volume status (weight, level of hydration) and blood results. This is particularly important for people with heart failure.

**Table 2:** Recommended monitoring for diuretics in heart failure<sup>2,5</sup>

Thiazide or loop diuretics in heart failure			
Monitor	Frequency	What to look for	What to do
Renal function (electrolytes + creatinine)	Baseline then at 1 week after initiation, then: <ul style="list-style-type: none"> <li>1–2 weeks after each dose increase/relevant drug addition (Table 3) in low risk patients</li> <li>5–7 days after each dose increase/relevant drug addition (Table 3) in high risk patients (e.g. those receiving spironolactone, or combination therapy, those with existing renal dysfunction)</li> <li>During illness</li> <li>Thereafter, every 3–6 months in stable higher-risk patients up to annually in stable lower-risk patients</li> </ul>	Potassium < 3 mmol/L (or < 4 mmol/L in high risk patients)	Review diuretic therapy  Increase intake of potassium e.g., eat potassium rich food such as bananas, oranges, melons or consider potassium supplementation
		Serum creatinine rises >20% or eGFR falls >15%	Re-measure within 2 weeks, if renal function continuing to worsen specialist advice may be required

Spironolactone in heart failure			
Monitor	Frequency	What to look for	What to do
Renal function (electrolytes + creatinine)	<ul style="list-style-type: none"> <li>Baseline (should not be initiated if potassium &gt; 5 mmol/L)</li> <li>After 5–7 days with dose titration if required</li> <li>Every 5–7 days until potassium values are stable</li> <li>Thereafter, every 6–12 months for low risk patients</li> <li>High risk patients (older people, renal or cardiac dysfunction), every 4–8 weeks</li> </ul>	Potassium between 5.5 and 5.9 mmol/L or creatinine rises significantly above baseline (but less than 200 µmol/L)	Reduce dose to 25 mg on alternate days, and monitor renal function frequently to ensure it is not worsening
		Potassium > 6 mmol/L or creatinine rises > 200 µmol/L	Stop diuretic and seek specialist advice

**Table 3:** Drug interactions with diuretics<sup>6,7</sup>

Interacting drug	Thiazide or loop diuretics	Spironolactone
<b>NSAIDs</b>	NSAIDs cause fluid retention and antagonise the effects of diuretics. The nephrotoxic effect of NSAIDs is exacerbated by diuretics especially if also combined with ACE inhibitors – more frequent monitoring of renal function and blood pressure may be required	NSAIDs antagonise the effects of spironolactone and may increase the risk of hyperkalaemia and renal failure. Concurrent ACE inhibitor use would increase this risk further – avoid combination if possible
<b>Digoxin</b>	Thiazide and loop diuretics can cause hypokalaemia which may predispose patients to digoxin toxicity particularly if other electrolyte abnormalities are present (e.g. calcium, magnesium) – increased monitoring of potassium is recommended if these are used concurrently	Spironolactone may increase the plasma concentration of digoxin and lead to digoxin toxicity but because spironolactone and its metabolite may interfere with the digoxin assay methods, this interaction can be difficult to evaluate. Patients on this combination require close monitoring.
<b>ACE inhibitors and angiotensin II receptor antagonists</b>	First dose hypotension may occur, especially with high initial doses of diuretic  Diuretics can potentiate ACE inhibitor-induced acute renal failure. This risk is further increased by concurrent use of NSAIDs – increased monitoring is warranted	Concurrent use increases the risk of severe hyperkalaemia particularly if renal impairment is present – regular monitoring of renal function and electrolytes is indicated. The dose of spironolactone is best kept below 25 mg daily.
<b>Lithium</b>	Thiazide and loop diuretics increase lithium levels. This combination should only be used when the patient and lithium levels are able to be closely monitored. Patients should be advised to report any signs of toxicity such as lethargy, muscle weakness, or lack of coordination	Lithium clearance may be reduced and toxicity is possible. Lithium levels and the patients clinical status should be monitored closely
<b>Cyclosporin</b>	Nephrotoxicity has been reported and there may be an increased risk of gout – monitor serum uric acid and renal function if these agents are to be used concurrently	Concurrent use may result in hyperkalaemia – monitor potassium levels



## Thiazide and loop diuretics can cause hyponatraemia and hypokalaemia

Thiazide and loop diuretics both cause hyponatraemia and hypokalaemia, however thiazide diuretics are more often associated with hyponatraemia. Hypokalaemia may increase the risk of arrhythmias and is a particular problem for people also taking digoxin due to the increased risk of toxicity.<sup>1</sup>

## Assess electrolytes and renal function in patients whose clinical condition changes

Hyponatraemia can occur even after prolonged treatment and more commonly occurs in elderly people. Lethargy, dizziness or vomiting may be a sign of hyponatraemia and it is recommended that any patient presenting with these symptoms should have their electrolytes and renal function measured.<sup>2</sup>

**Note:** sodium levels slightly below the reference range can occur in the absence of symptoms. It is more important to look for changes in sodium levels and symptoms rather than isolated measurements.

## Other drugs may increase the risk of adverse effects

Additional monitoring may be required when other drugs are added to current diuretic therapy. Other medicines that affect renal function or electrolyte status may increase the risk of adverse events occurring. Diuretic drug interactions are described in Table 3.

## Box 2: NYHA status: Severity based on symptoms and physical activity

**Class I:** No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnoea.

**Class II:** Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, or dyspnoea (symptomatically 'mild' heart failure).

**Class III:** Marked limitation of physical activity. Although comfortable at rest, less than ordinary physical activity results in fatigue, palpitation, or dyspnoea (symptomatically 'moderate' heart failure).

**Class IV:** Inability to carry out any physical activity without discomfort. Symptoms of congestive cardiac failure are present even at rest. With any physical activity, increased discomfort is experienced (symptomatically 'severe' heart failure).

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# Sexually transmitted infections in New Zealand – **what testing is needed and when?**

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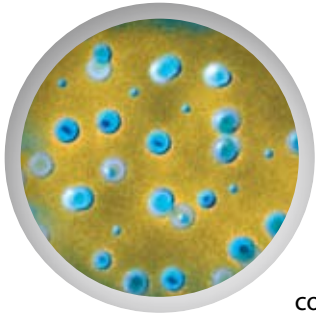
## Key points

- Sexually transmitted infections including Chlamydia and Gonococcal infections are increasing in New Zealand with young people being most at risk
- Chlamydia testing should be considered in all sexually active patients under 25 years of age when they access healthcare
- Self taken vaginal swabs for women or first void urines for men can be useful for Chlamydia testing

This is the second of a series of articles focusing on sexual health. In the recent best practice journal, we examined the prevalence of STIs in New Zealand.

This article provides an overview of some infections affecting the genital area, including some non-sexually transmitted infections. All testing is guided by sexual history and genital examination.

The next best practice journal will finish this series, with articles about the treatment of STIs, and talking about safer sex to patients.



## Chlamydia trachomatis – still most common

**Background:** Chlamydia infection is the most frequently diagnosed sexually transmitted infection (STI) in New Zealand and is most common in sexually active adolescents and young adults. The 2007 annual ESR STI surveillance<sup>1</sup> reported that the number of Chlamydia cases diagnosed had increased by 19.4% in the previous four years.

**Transmission:** Chlamydia is transmitted through contact with genital secretions resulting in infection of the endocervix, urethra, rectum and occasionally pharynx and eye.

The most accurate results will be obtained at least 1–2 weeks after potential exposure due to an incubation period of approximately 7–21 days. **Swabs taken too soon after exposure may give falsely negative results.**

Vertical transmission from an infected mother may cause conjunctivitis/ophthalmia in the newborn, this tends to occur within three weeks of delivery.

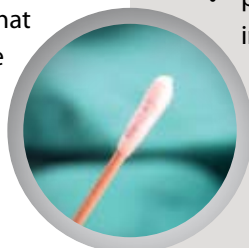
**Symptoms:** Chlamydia is asymptomatic in approximately 70% of people.

Symptomatic men may present with urethral discharge (mucopurulent, milky or clear), urethral irritation, dysuria or testicular pain/swelling. On examination there may be testicular tenderness.

Symptomatic women can present with vaginal discharge (mucopurulent, milky or clear), lower abdominal pain, dyspareunia, dysuria or irregular PV bleeding. On examination, the cervix and lower abdomen may be tender.

**Tip:** Chlamydia testing should be considered in all patients found to have a sterile pyuria, as well as women presenting with breakthrough bleeding while taking the combined oral contraceptive pill.

**Testing:** The Ministry of Health recommends that Chlamydia testing is considered in all sexually active patients under 25 years of age,<sup>2</sup> when they access healthcare whether or not they have symptoms.



## Recommendations for Chlamydia Testing in New Zealand<sup>2</sup>

### Recommendations for asymptomatic opportunistic testing

This is particularly important if the individual has not consistently used condoms.

#### Females

Testing should be offered to all sexually active females under 25 years of age if they have never been tested. The offer of testing should be repeated annually to all sexually active females under 25 years of age if they have:

- had two or more partners in the last 12 months, or
- had a recent partner change.

#### Males

Consider testing in sexually active males if they are:

- aged under 25, and
- two or more sexual partners in the last year or a recent partner change, or
- co-infection with another STI

### Recommendation for when Chlamydia testing is indicated

Testing should be routinely given to:

- those with symptoms suggestive of Chlamydia infection
- sexual partners of those with suspected or confirmed Chlamydia infection
- patients requesting a sexual health check
- patients with another STI
- pregnant women (test in first trimester and repeat in third trimester if there are ongoing risk factors)
- women undergoing a termination of pregnancy
- mothers of infants with chlamydial conjunctivitis or pneumonitis
- pre-menopausal women undergoing uterine instrumentation
- semen and egg donors
- men who have sex with men.

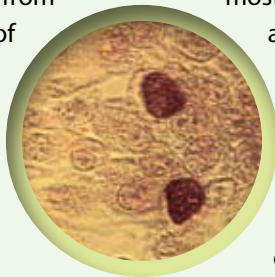
Over recent years more sensitive methods of Chlamydia testing have been developed. These methods include polymerase chain reactions (PCR) which results in Nucleic acid amplifications (NAA). This process is so sensitive that Chlamydia can be detected using samples from anywhere in the vagina, leading to the advent of self-taken swabs being practical. First void urine tests for men and self-taken vaginal swabs for women can be ideal for offering Chlamydia testing to asymptomatic individuals as they are generally well accepted by patients.

**First Void Urine (FVU)** tests for men are generally as sensitive in detecting Chlamydia infection as swabs and are generally better tolerated than traditional deep urethral swabs. This test is suitable for men with or without symptoms but it is not recommended for first-line testing in women due to reduced sensitivity.<sup>3</sup>

In women the sensitivity of a **self-taken lower vaginal PCR Chlamydia swab** is comparable to a clinician obtained endocervical swab<sup>4</sup> and is generally preferred by patients.<sup>5, 6</sup> If the woman is undergoing a speculum examination, a cervical swab is recommended.<sup>2</sup>

Taking a vaginal or endocervical swab for Chlamydia gives the best chance of detecting Chlamydia as the vagina is

usually the primary site of infection. Very occasionally it may be necessary to check for Chlamydia in the bladder as it can be cause of UTIs. If this is suspected and the vaginal swab comes back negative, a first void urine may be the most practical thing to do is, as this has better patient acceptance than urethral swabs.



### Lymphogranuloma venereum

Another presentation of *Chlamydia trachomatis* is **lymphogranuloma venereum (LGV)** which can cause small painless genital ulcers and subsequent painful chronic granulomatous inguinal lymphadenopathy.

It has historically been thought of as a “tropical disease” but in 2003 it was detected in Europe amongst MSM (men who have sex with men)<sup>7</sup> and by 2005 in Australia. The first confirmed case in New Zealand was in 2007.

Any patient with symptomatic anorectal disease, positive for Chlamydia and not responding to normal therapy, should have LGV considered as a differential diagnosis.

LGV is diagnosed by rectal swab (for NAA technique) and by excluding other causes of enlarged lymph nodes or genital ulcers.



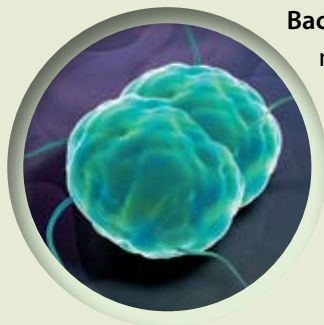
### Instructions for collection of first void urine

A first void urine (FVU) is the first 25–30 ml of urine voided, preferably two hours since the man has last urinated. If a man has recently voided urine, a deep urethral swab (5–6cm deep) may be performed instead, but most men would probably choose to wait and collect the FVU after two hours have lapsed.

### Instructions for self-taken lower vaginal PCR Chlamydia swab

The women should find a comfortable position, either sitting or standing and then insert the Chlamydia swab at least 2–3 cm into the vagina (about half way along the swab). The swab should be turned around once within the vagina and left for at least 10 seconds. Then the swab should be placed back into the tube.

## Gonorrhoea – Co-infection with Chlamydia is common



**Background:** In the last five years the number of Gonorrhoea cases in New Zealand has increased by over 50%.<sup>1</sup> Co-infection with Chlamydia is common. Gonococcal infections rates are higher among young adults and among men who have sex with men.

**Transmission:** Infection due to *Neisseria gonorrhoeae* is through contact with genital secretions and like Chlamydia can result in infection of the endocervix, urethra, rectum and occasionally pharynx and eye.

The incubation period is approximately 2–5 days (range 2–10 days), so swabs taken too soon after exposure may be falsely negative. Swabs will be more accurate if delayed until 5–7 days after potential exposure.

Vertical transmission from an infected mother may cause conjunctivitis/ophthalmia in up to 50 per cent of exposed neonates. This tends to occur three to five days after exposure and is often more severe than other causes of ophthalmia neonatorum (eg, chlamydia).

**Symptoms:** Infection can cause dysuria, vaginal discharge or lower abdominal pain in females and urethral discharge (often mucopurulent) in men. It is asymptomatic in approximately 50% of females and 5% of males.<sup>1</sup>

**Testing:** In contrast to Chlamydia, swabs need to be taken from the endocervix in women, urethra in men (1–2 cm deep), and rectum/pharynx if appropriate in either gender.

It is important that it is transported to the laboratory as soon as possible, as there is up to a 50% loss of viable organism if there is over 24 hours before the sample gets to the laboratory.

## Syphilis – on the increase

**Background:** Since 2002 there has been an increase in the number of people presenting to sexual health clinics with syphilis after being relatively rare, in New Zealand, for decades previously.<sup>8</sup> Rates have continued to rise since.<sup>9</sup> Although the overall number of cases of syphilis in New Zealand remains low compared to other STIs, case numbers have more than doubled in the past five years.<sup>1</sup>

In New Zealand sexual health clinics the highest number of syphilis cases were found in MSM.<sup>9</sup>

**Transmission:** *Treponema pallidum* can enter the body by sexual contact through the skin lining the genital tract, anus or mouth.

The incubation period is approximately three weeks.

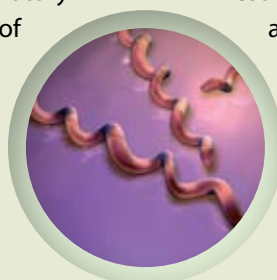
The **first stage** is highly infectious and usually presents as a solitary painless ulcer (chancre) at the site of infection which persists for between 10–100 days.

The **second stage** occurs if the primary stage is untreated and is also infectious. It begins approximately 2–8 weeks after the initial infection, when a rash may appear for 1–2 months, commonly on the hands/soles as well as the rest of the body.

**Third stage** syphilis occurs in about one third of cases some months-years after the ulcer and rash have disappeared, and can involve damage to the brain, heart or spinal cord.

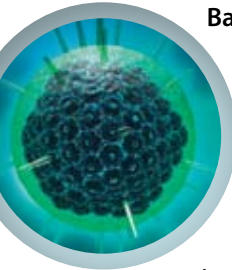
**Testing:** At the early stages, exudate from the ulcer, transferred onto a glass slide, can be examined by darkground microscopy in some laboratories.

Serological tests may include RPR, VDRL, and TPHA. Results may be negative for the first few weeks after the appearance of the chancre although 90% seroconvert by six weeks after the appearance of the chancre and 100% by twelve weeks. Serology can be repeated if initially non-reactive.



**Note:** In regions where non-venereal treponematoses (e.g. yaws) are endemic such as in the Pacific (particularly in Samoa), serological tests should be interpreted with care as these conditions can produce false positive tests.

### Genital herpes – asymptomatic transmission is common



**Background:** Genital herpes infection is caused by Herpes Simplex Virus (HSV) types 1 or 2. Traditionally HSV-1 was the usual cause of orolabial herpes (lips and mouth), while HSV-2 was the usual cause of genital herpes but increasingly there is cross-over occurring. Periodic reactivation is a feature of this infection but HSV-2 recurs six times more frequently than type 1.<sup>10</sup>

**Transmission:** HSV is spread by direct skin to skin contact. Viral shedding occurs most easily when a sore is present but can occur even when a person has no symptoms. Most new infections are transmitted via asymptomatic viral shedding.<sup>10</sup>

**Symptoms:** HSV genital infection may be asymptomatic or may cause painful genital lesions and sometimes a discharge. Only 20% people with genital herpes has a typical syndrome, 20% are asymptomatic and the further 60% are atypical symptomatic.

**Testing:** Swabs for viral typing, to differentiate between HSV-1 and HSV-2, should be obtained in all patients with newly diagnosed genital herpes, as the information can influence prognosis and counseling.

Viral swabs are taken from the genital lesion (de-roof any vesicles if necessary) and broken off into viral transport medium while awaiting transportation to the laboratory.

Type specific HSV serology is rarely clinically useful, although may sometimes be useful for people with a history of genital symptoms but have never had a successful confirmatory test, or a pregnant woman presenting with her first clinical episode of herpes while she is pregnant. It takes several weeks for an antibody response to occur following the primary exposure to HSV.



### Trichomoniasis

Up to 50% of men and women infected with *Trichomonas vaginalis* will be asymptomatic.

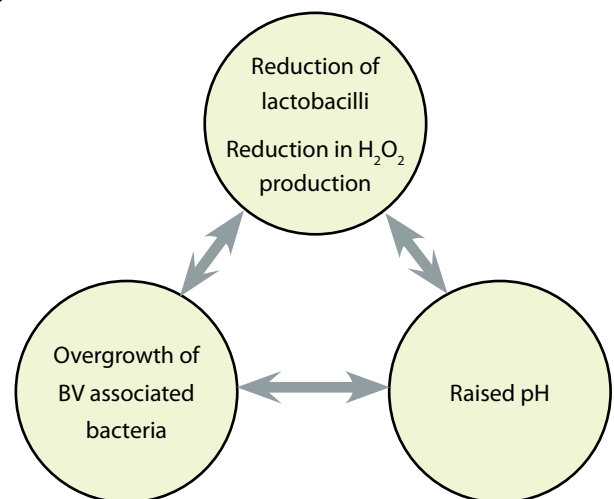
After exposure, symptoms take approximately four weeks to develop. In women this can include dysuria, vaginal irritation and sometimes a yellow-green frothy vaginal discharge. Men may experience a thin milky discharge and dysuria. The normal incubation period is 4–28 days. Testing is with a high vaginal or male urethral swab.

### Bacterial vaginosis (BV) – also referred to as gardnerella – females only

**Background:** The exact mechanism for the onset of BV remains a mystery. It is associated with a reduction in lactobacilli and hydrogen peroxide production, a rise in the vaginal pH, and the overgrowth of BV associated organisms. (See Figure 1)

*Gardnerella vaginalis* is the most common bacteria associated with BV. Other less common ones are: *Mycoplasma hominis*, *Peptostreptococcus sp.*, *Prevotella sp.*, *Mobiluncus sp.*, *Bacteroides sp.* and *Porphyromonas sp.*

**Figure 1**



**It is unknown which of these aspects happen first or which is most important.<sup>11</sup>**

**Transmission:** BV is not currently considered to be a sexually transmitted infection but can be brought on by anything that changes the balance in the vagina (e.g. new partners, increased sexual activity).

**Symptoms:** Gardnerella is found in 50% of normal healthy women without causing any symptoms. Treatment is not required in asymptomatic women unless they are about to undergo an invasive procedure such as IUCD insertion and TOP.

BV often presents with a malodorous (fishy) grey/white vaginal discharge and only sometimes causes irritation and itching.

**Testing:** Swabs for BV are taken from the high vagina. The microbiological diagnosis is best made from the gram stain appearance.

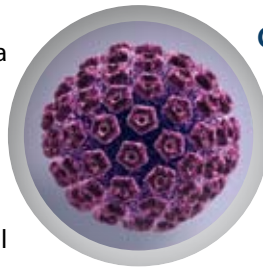
For a quick diagnosis, some doctors test the pH of the vaginal discharge using litmus paper (normal vaginal pH is up to 4.5), while others perform a “whiff” test which involves placing one drop of 10% potassium hydroxide (KOH) onto a slide (onto which some discharge has been rubbed) and if BV is present it will cause the release of a fishy amine odour.

### Non-specific urethritis – males only

Non-specific urethritis (NSU) or non-gonococcal urethritis (NGU) is a diagnosis of exclusion. It is defined as a condition where the male urethra is inflamed (i.e. there may be penile discharge, or numerous polymorphs on a urethral swab) but a diagnosis of Chlamydia or Gonorrhoea has been excluded.

The prevalence figures for NSU in New Zealand have fluctuated over the past five years with the highest case numbers seen in the age group 20–24 years.<sup>1</sup>

It is thought that some cases are caused by infection with organisms such as *Mycoplasma genitalium*, *Ureaplasma urealyticum*, HSV and *Trichomonas vaginalis* or following exposure to irritants such as detergents or chemicals. Sometimes a cause is never identified.



### Genital warts

**Background:** Genital warts are the most common viral infection diagnosed in sexual health clinics, and are most common in sexually active adolescents and young adults.

In the past five years there has been a 9.5% increase in people presenting to sexual health clinics in New Zealand with genital warts.<sup>1</sup>

Approximately 90% of genital warts are caused by Human Papilloma virus (HPV) subtypes 6 & 11. They are of public health concern because of their association with other subtypes of HPV (mainly 16 & 18) that are linked with genital cancer (cervical, penile and anal). The HPV vaccine Gardasil is now funded in New Zealand for females aged 12–18 years. For further information see BPJ 18 (Dec 2008).

**Transmission:** HPV infection is transmitted by direct skin-to-skin contact and condoms are considered only partially protective.

**Symptoms:** HPV infection can range from being asymptomatic to causing multiple fleshy or flat lumps on the genitals. Lesions on the vaginal walls and cervix may be noted during PV examination.

**Testing:** At present, diagnosis is made clinically or the presence of HPV may be detected on smears.

### Molluscum contagiosum

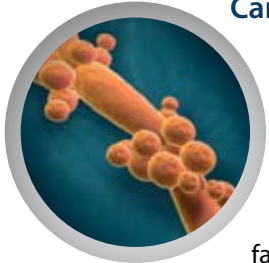
Molluscum contagiosum is caused by a pox virus. It causes a skin infection that appears as firm flesh-coloured bumps, often with waxy white centres. Molluscum contagiosum is spread by close skin-to-skin contact, and occasionally via infected clothing and towels. While it is frequently sexually transmitted, it is also common in children and people who are immunosuppressed.

Molluscum contagiosum is usually painless, although lumps may sometimes be itchy, or become infected. Lumps normally appear about 2–3 months after infection, and without treatment they may persist for up to 2 years. It is recommended sexual partners are advised to see their doctor, if they have any unusual genital lumps or itches.<sup>12</sup>

## Donovanosis (Granuloma inguinale)

Donovanosis is an STI caused by *Klebsiella granulomatis*. It can cause painless, progressive ulceration which sometimes mimics genital cancer. Although endemic in some tropical areas, it is not currently considered a problem in New Zealand.

## Candidiasis (thrush)



**Background:** Genital thrush is usually caused by the yeast *Candida albicans*, though sometimes it can be caused by atypical yeasts (such as *C. glabrata*) which can sometimes account for treatment failure. Women are more commonly affected than men. About 10–20% of women in their reproductive years may be colonised with candida sp., but will be asymptomatic<sup>13</sup> and not require treatment.

**Transmission:** is not usually sexually transmitted and is most often associated with recent antibiotic use, pregnancy, immunosuppression and diabetes. Many women also report thrush occurring more frequently while using oral contraceptives, or at particular stages of their menstrual cycle.

**Symptoms:** can include itching/irritation around the vulva, vagina or foreskin, the presence of a white discharge and dysuria.

The definition of recurrent thrush is four or more episodes/year, and this should trigger excluding conditions such as diabetes or atypical yeast.

**Testing:** Swabs can be taken from the high vagina or male urethra/foreskin.

## Specimen collection

Laboratories in New Zealand can usually test for Gonorrhoea, *Trichomonas vaginalis*, Bacterial vaginosis and Candida on the same swab. However, a separate Chlamydia swab is needed for Chlamydia, and a viral medium swab is needed for Herpes Simplex Virus.

Specimen collection requirements may differ from region to region, check with your laboratory provider.

## Partner notification

Partner notification is an essential component of STI management. It is worth remembering there are many ways of contacting previous sexual partners. This may include email, texting, phone, face-to-face or letter.

## Specimen labelling requirements

Every specimen should have a MINIMUM of two patient identifiers:

- Patient family name and first name
- Patient date of birth and/or NHI number

Then ideally:

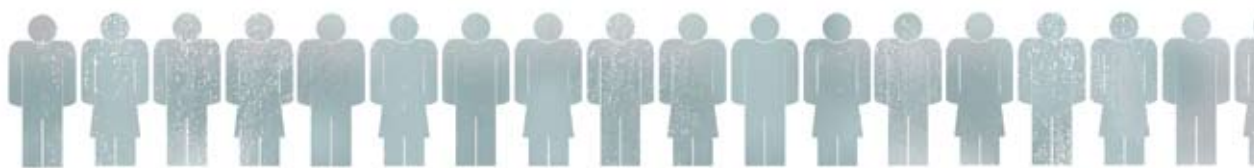
- The specimen site should be recorded on a swab label
- Date and time of specimen collection on request form and specimen label





## The current recommendations from the MOH Chlamydia guideline for partner notification are:

- All sexual contacts within the previous 60 days need to be notified that they require testing and treatment for possible chlamydia infection.
- If there have been no sexual contacts within the previous 60 days, then the most recent sexual contact should be notified, up to a maximum of six months.
- All sexual contacts within the specified time-frame should be treated for chlamydia, even if the offer of a test is declined.
- Patients should be offered the choice of:
  - patient referral, where patients themselves notify their sexual contacts to seek treatment
  - provider referral, where the health care provider agrees to undertake the task of notifying sexual contacts to seek treatment (taking care to protect index case confidentiality as much as possible).



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# Testing for STIs – four case scenarios

1

## Scenario 1: Young patient, under 25 years, attends surgery for a minor ailment.

Offering STI testing to young patients is good practice. A consultation for a minor ailment may provide time and opportunity to initiate a discussion about sexual health.

A simple non-judgmental non-threatening way of initiating the discussion might be to say something such as “... it is my usual practice to offer a sexual health check to all young people at this surgery. This does not always require an examination.”

For patients who decline examination, self collection may be appropriate. Women can perform a self taken lower vaginal swab and men can collect a first void urine for Chlamydia testing.

If the patient has symptoms, is at high risk of an STI, or the test returns a positive result, a full follow-up STI examination and testing is recommended.

2

## Scenario 2: Patient requesting an STI check.

Often patients may request STI screening for reassurance that they do not unknowingly carry an STI. A patient may ask for this at the beginning of a new relationship, when deciding to no longer use condoms in a monogamous relationship, or for just a “check-up”.

A full sexual history and examination will help to determine risk and guide testing. This would typically include a smear, if appropriate, and swab (for women), or FVU (for males) for Chlamydia. A separate swab should be obtained for gonorrhoea and trichomonas. Serology testing for HIV, hepatitis B and C, and syphilis will be guided by findings in history and examination.



### 3

#### **Scenario 3: Patient presenting within a day or two after unsafe sex.**

Sometimes patients may present worried about recent unsafe sex. Due to the incubation times of most pathogens, there is limited diagnostic value in performing any tests until at least about 2 weeks after the potential exposure. In the meantime, this provides a good opportunity to discuss good sexual health practice, contraception, arrangements for follow-up and empirical treatment if appropriate.

### 4

#### **Scenario 4: Patient presenting who practices unsafe sex – with additional risk factors.**

A detailed sexual health history may highlight any additional risk factors. These may include sexual activity such as MSM, having multiple sexual partners, previous STI, sex with a sex worker or person from a high risk country or an IV drug user.

The findings in history and examination would influence sites of sampling (eg anus, pharynx) and the range of swabs and serology tests performed. It is worth remembering that in high risk groups, the presence of more than one pathogen is not uncommon, and that certain STIs may be more prevalent (eg among MSM). Those that continue with unsafe sexual practices should be encouraged to have frequent sexual health checks.

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