

**Centre for
Excellence in Rural
Sexual Health**

Emissions trading - sexually transmitted infections in 2010.

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Sexual history – the two critical questions.

- Sex overseas (or with someone from a poor country) ?
- Ask all males about male partners (get wife out of room).

Also worth asking:

- Ask women if their boyfriend has symptoms
- Number of partners within incubation period
- Also useful: injecting, involuntary sex, alcohol, past STIs

Chlamydia trachomatis

- Intracellular bacteria, columnar epithelium
- 2-3 day life cycle (gono is hours)
- Trachoma serovars
- Genital serovars
- L serovars – lymphogranuloma venereum

- Urethritis, cervicitis, conjunctivitis, epididymitis
- Pelvic inflammatory disease, then ectopic pregnancy, infertility
- Neonatal conjunctivitis, pneumonitis
- Macrolides or tetracyclines eg azithromycin 1g

Neisseria gonorrhoeae

- Fastidious Gram negative cocci: requires incubation on enriched agar (chocolate agar with iron, glucose, vitamins, cofactors antibiotics) at 35 – 37 degrees, with 5% CO₂
- May die on the way to the lab (but PCR available)
- Treat with ceftriaxone 500mg IM
- Similar disease spectrum to chlamydia but:
 - faster incubation, more purulent
 - Gonococcal ophthalmia can cause blindness
 - Gonococcal arthritis
 - Disemminated gonococcal infection

Trichomonas vaginalis

- Protozoan – motile, flagellae
- Motile organisms visible in wet prep (50% sensitivity at bedside, much less after transport)
- Specialised culture medium used at MSHC
- Sensitive PCR now available at Royal Women's
- Often asymptomatic, causes itch and discharge
- **Now uncommon in Melbourne, common in populations with poor health care**
- Tinidazole 2g single dose – resistance can occur

Victorian STI notifications

Infection	Year	notifications
Gonorrhoea	2006	1300
	2008	992 (82% male, 60% resistant to cipro)
Early syphilis	2007	423 (>95% male)
	2008	376
Chlamydia	2009	13000 (57% female)
HIV	2008	256 (88% male, 70% MSM, 2% IDU)

discharges



Jenny, 27, has 4 days: vaginal itch, discharge, pain.

- What might cause each of these symptoms?
- How would the sexual history help?
- How should she be investigated?
- Can you make a provisional clinical diagnosis?

Typical symptoms – beware stereotypes

(+ may cause this symptom, ++ characteristic)

	BV	Candida	Trichomonas vaginalis	Chlamydia or gonorrhoea	Herpes simplex
itch	-	++	+	-	-
odour	++	-	-	-	-
pain	-	-	-	+ (pelvic)	++
dysuria	-	+	-	+	++
discharge	+	+	+	+	-

Epidemiology – beware stereotypes

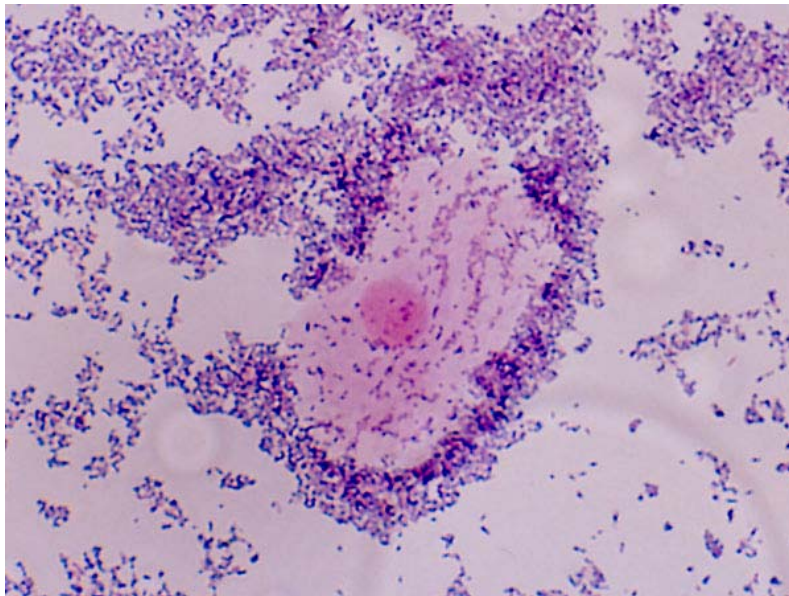
	Candida	BV	Chlamydia	HSV	Trichomonas or Gonorrhoea
Certain populations eg overseas	-	-	-	-	+
Very common STI in Australia	-	-	+	+	-
Prevented by condoms	-	-	+	+/-	+
Occurs in virgins	+	?	-	-	-

Vaginal discharge

- Key specimen is the vaginal smear (air-dried), looking for two common patterns:
 1. Clue cells, few or absent lactobacilli
 2. Yeasts – usually with pseudohyphae, PMNs
- So send a slide! Vaginal culture useless.
- Gram stain result in 5 minutes.

- Also test for chlamydia and gonorrhoea - see below.

Bacterial vaginosis



- Discharge with odour
- Diagnose if 3 of 4 Amsel's criteria:
 - pH>5
 - Clue cells*
 - Discharge
 - Positive amine test
- OR use Nugent's criteria (includes absence of lactobacilli)

*Useful when interpreting results from private labs

Vaginal candidiasis



- Itch rather than discharge often the main complaint
- Usually without characteristic white spots
- Maybe fissures, dysuria
- Often associated with dermatitis, so topical hydrocortisone useful as well as antifungal

STI specimens from women

- *C. trachomatis* and *N. gonorrhoeae* – PCR or other nucleic acid amplification from:
 - Cervical swab or
 - Vaginal swab or
 - Urine (first bit)
- Consider anal, pharyngeal swabs
- Beware false-positive gonococcal PCR, especially low-risk women or non-genital specimen
- *Trichomonas vaginalis* – wet prep insensitive, PCR at RWH

When to test women for gonorrhoea

- Symptoms of pelvic or cervical inflammation
 - Pelvic pain, deep dyspareunia eg since husband's trip
 - Post-coital bleeding
 - Purulent discharge
- Sex with
 - high-prevalence population: Asia, Africa, Aboriginal
 - Bisexual man
- Sex work - include throat swab
- When important
 - Eg sexual assault, patient request

When to test women for chlamydia

Same as for gonorrhoea (previous slide) plus:

- Past chlamydia
- Contact of chlamydia
- Consider if dysuria or morning-after pill
- Women <25 with
 - recent change in partner or
 - >1 partner or
 - not using condoms

Gavin, 37 yr old renewable energy consultant

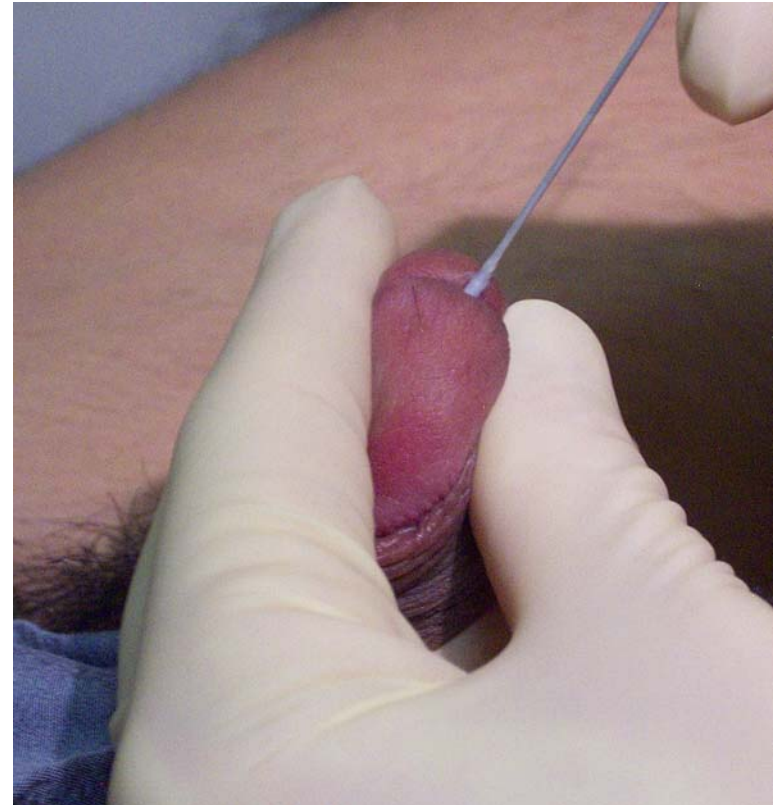
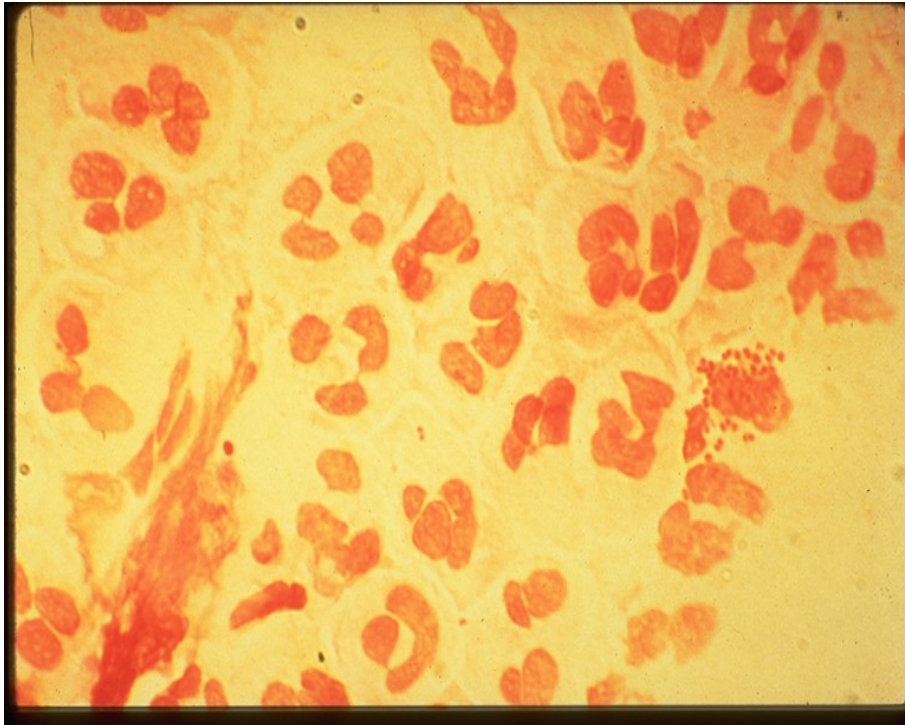
- C/o urethral discomfort and dysuria after long drive
- What's going on?
- What specimens and tests will help?

Urethral symptoms

- Dysuria, discomfort or discharge usually = urethritis
- Swab it.
- Send urethral smear (air-dried) WITH
- Swab or first catch urine for PCR gono/chlamydia
- +/- swab in medium for gonococcal culture

- Gram stain for gonococci & polymorphs – 5 minutes

If urethral symptoms- lubricated thin swab in urethral meatus for Gram stained smear enables rapid diagnosis of gonorrhoea, or NGU.



Gonorrhoea

Is it Gonorrhoea?

- Usually purulent, unless just urinated
- Risk populations: male homosexual, overseas, aboriginal
- Gram-negative diplococci
- If uncertain, treat for both chlamydia and gonorrhoea



Treatment

- Treat now: www.mshc.org.au

and THINK OF OTHERS

- Other orifices: have I swabbed all the right bits?
- Other infections: bloods in six weeks
- Other partners: provide a note saying:

“Dear Jenny/Gavin, see a doctor and get treated for chlamydia.”

OR www.letthemknow.org.au

- What if he's not better?

Causes of urethritis

- ***Chlamydia trachomatis***
- ***Neisseria gonorrhoea***
- ***Mycoplasma genitalium*** (*not hominis*)
- *Herpes simplex viruses 1 or 2*
- *Adenovirus*
- *Trichomonas vaginalis* – poor tropical countries, rare in Melb.
- *Neisseria meningitidis* – *uncommon*, can be confused with gonorrhoea
- (Ignore ureaplasma and *Mycoplasma hominis* on lab reports as probably not pathogens)
- Syndromes: Reactive Arthritis, Stevens Johnson

Characteristics of urethral infections

	Incubation	Clinical	Risk groups
Gonorrhoea	< 1 week	Purulent, occasionally scant	MSM, aboriginal, travellers, street prostitutes
Chlamydia	> 1 week	Asymptomatic to purulent	Youth
Adenovirus		Marked dysuria, red around meatus, +/- red eye	Patient or partner with URTI
Herpes simplex		Marked dysuria, no discharge, inguinal node, +/- lesions	

A common syndrome

No discharge, low risk history, anxious presentation,
often feeling guilty

Microscopy: few/no polymorphs

And no pathogen found

Is the patient checking repetitively?

History of repeated negative tests and many
courses of antibiotic.

Annual STI tests for gay men

- Urine chlamydia pcr
- Throat gono pcr
- Anal gono/chlamydia pcr

- Only swab urethral meatus if urethral symptoms OR signs (have a look)
- Lubricate anal and urethral swabs (water)
- Serology: HIV & syphilis
- Vaccinate Hep A&B

Genital ulcers

- How would you have managed the following cases?
- Consider the differential diagnosis.
- Choose first-line tests and treatment.

30 year-old Vietnamese male with a painless ulcer not responding to steroid cream for four weeks.



20 yr-old student, same boyfriend 2 yrs, 5 days painful ulcers, swabbed (not treated) yesterday, dysuria, tender nodes



What's this?

- 22 year-old male with multiple red spots on glans appearing the morning after unprotected sex
- Uncircumcised
- painless



**HIV+ gay man, recently stopped ARVs, painful ulcers
CD4 = 400**



Causes of genital ulcer

- Herpes simplex virus 1 or 2
- Scratching eczema or scabies, +/- gram positive infection
- Burns or contact dermatitis from creams, antiseptics, wart paint
- Severe Candida – but always consider other causes
- Syphilis – epidemic in gay men
- Malignancy – rare, consider in >40
- Exotic STI: chancroid, donovanosis, LGV*
- *becoming more common in gay men

Herpes simplex seroprevalence in Australia

- Men 8%
- Women 16%
- Gay men >20%
- Sex workers also high
- Increases with age and lifetime no of sex partners

- HSV 1 seroprevalence 76% (Australia 2000)

When & how to test for herpes simplex

- Send swab for HSV PCR from:
 - Vesicles
 - Breaches in genital skin
 - Any painful genital sore
 - Any split in skin
- Avoid EIA serology (risk of false positive), but it may be worth the risk if:
 - Recurrent sores/pain, but nothing to swab today
 - partner has herpes – am I at risk?
- Get Western Blot if you doubt the result (lab may send to Westmead)

Herpes simplex treatment

- Start antiviral on suspicion - especially for painful initial episode
- Topical lignocaine ointment
- Reassure they are not a serious threat to public health; HSV is very common
- Condoms useful for reducing transmission
- Often require considerable reassurance – may need review appointment +/- partner

Recurrent genital herpes

- Most infections asymptomatic
- Greatly feared
- Recurrences often brief, painless and always resolve within a week or less
- A few get frequent painful recurrences
- Genital HSV 1 more benign



Syphilis epidemic in Melbourne – come back when it's over.

- *Treponema pallidum* – spirochaete
- Primary syphilis = chancre = hard genital sore – usually painless, swollen inguinal lymph nodes, self-limiting after a month or so
- Secondary syphilis – rash including palms or soles, other oral or genital lesions
- Tertiary syphilis – base of ascending aorta, meninges/cranial nerves, posterior columns of spinal cord, brain, gummata of skin, bones, anywhere
- Sensitive to penicillin

Secondary syphilis

- Primary chancres are often missed in women
- Rashes are usually not syphilis and so syphilis is not suspected
- Secondary syphilis always seropositive with high titre
- Resolves with or without therapy

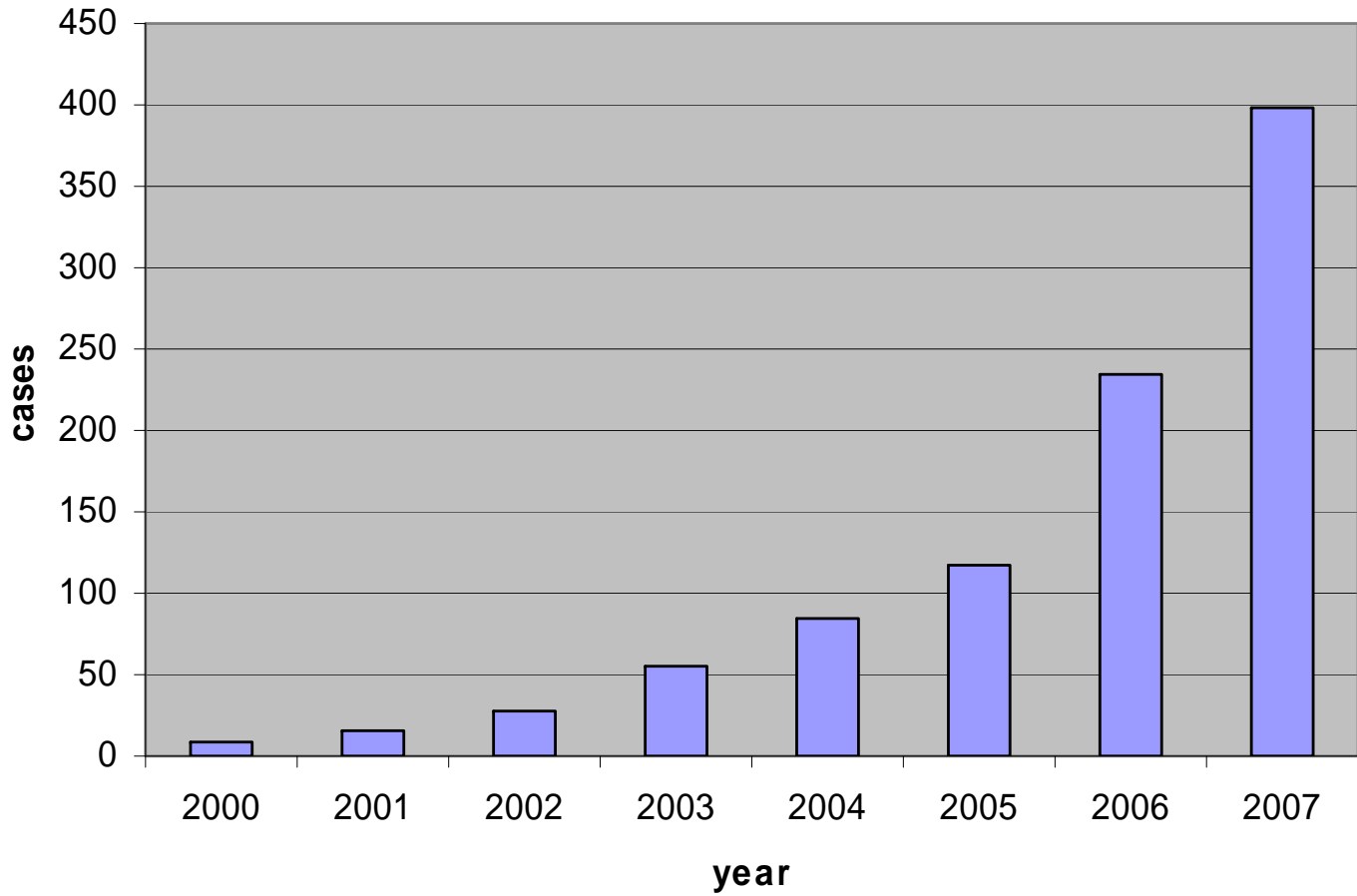


Is this pityriasis rosea or syphilis?



- Syphilitic rash may be:
- Pink
- Copper
- Macular
- Papular
- Scaly – like guttate psoriasis
- Patchy alopecia
- Often palms and soles
- Accompanied by fever, hepatitis, sore throat, GN

Infectious syphilis notifications in Victoria



Syphilis diagnosis

- Dark-ground microscopy of droplet from primary (or genital secondary) lesion – at 580 Swanston St
- PCR from same specimen.
- Culture – only in rabbit's testes in research labs.
- Serology:
 - Treponemal tests: EIA or TPPA (TPHA) are specific (after window period) and generally remain positive for life.
 - Non-treponemal tests (RPR) rise and fall with disease activity, are prone to false-positives and are used to monitor response to treatment.

Treatment

Early Syphilis – primary or secondary or latent < 2 years

- 1.8g Benzathine penicillin once IM (900mg in lignocaine into each buttock – 19g needle)
- or 1g procaine penicillin IM for ten days (beware procaine & Jarisch-Herxheimer reactions)

Late latent syphilis- > 2 years

- 1.8g Benzathine Penicillin weekly for three weeks (or procaine pen for 15 days)
- Consider lumbar puncture if RPR >8

If convincing history of penicillin allergy - doxycycline 100mg bd 14 days (early) or 28 days (late), or azithromycin 2g stat (consider LP) or desensitise in hospital (if pregnant or neurosyphilis).

Follow Up

Complete STI work up ie HIV, gonorrhoea, chlamydia

Perform RPR 3 – 6 monthly until

- RPR falls 2 dilutions (4 fold)
- If fails to fall in 12 months or it rises, LP & treat as latent syphilis

Test CSF in latent syphilis if:

- titre rises or fails to fall
- using non-penicillin antibiotic
- congenital syphilis
- Any neurologic signs or symptoms, even tinnitus
- Latent syphilis with RPR >8

Cases

- Diane's boyfriend Greg comes to see you because you told her that he should after diagnosing her with chlamydia
- Greg thinks it is a waste of time as he has not felt a thing!
- What should you do for him?
- Test?
- Treatment?

Cases

- Gary is a friend of Diane's and has come to see you as he knows you know about this stuff!
- He tells you that he has trouble urinating for the last few days and bit of clear discharge
- He had unprotect oral sex about ten days ago with a casual partner

What else do you want to know?

What is your management and treatment for Gary?



Another common scenario...

Ngoc is a 58 year-old woman noted to have syphilis EIA positive after a battery of tests performed by an ophthalmologist.

- The eye-condition had another cause.
- TPPA positive, RPR negative
- No past history of treatment for syphilis
- 6 children – some born in Australia

Sexually transmitted infections – management checklist.

- Have I mentioned condoms?
- Other orifices – throat, rectum?
- Other STIs should I test for? (HIV, syphilis > 6wks, chlamydia now)
- How many Other partners need treatment? - abstain one week after partner treated.
- Pregnancy test?
- Do we need test of cure?
- Did we discuss condoms?

Pelvic Inflammatory Disease (PID)

- Clinical and pathological definitions vary
- Usually includes: endometritis, salpingitis, maybe even tubo-ovarian abscess and peritonitis
- Most research done with:
 - less sensitive chlamydia test (culture)
 - Abdominal pain presenting to hospital (more severe end of spectrum)
- Uncertain frequency of complications of tubal fibrosis:
 - Ectopic pregnancy
 - Tubal infertility

PID – pathogenesis theories

- Slowly-progressive, asymptomatic fibrosis, like trachoma OR
- Disruption of cervical barrier (allowing anaerobic invasion) by:
 - STI eg chlamydia or gonorrhoea
 - Menstruation – 75% PID within 7 days of menses
 - Instrumentation (eg TOP, IUD)
 - Delivery – puerperal sepsis
- Other possible risk-factors:
 - Douching
 - BV(?)

PID – clinical features may be any of:

- Pelvic pain
- Fever
- Dyspareunia
- Accompanying features of cervical STI - post-coital bleeding, purulent discharge
- Tender uterus/tubes/ovaries
- Cervical-motion tenderness
- Or it may be asymptomatic

Clinical diagnosis

In day to day practice

1. LAP or pelvic pain (with no other cause) **and**
2. At risk of STI **and**
3. One or more of
 - cervical motion tenderness
 - uterine tenderness
 - adnexal tenderness

Specificity increased by presence of inflammation in LGT

Exclude

- ectopic
- appendicitis
- endometriosis
- ovarian cyst complication.

Slide courtesy Hennie Williams

PID management

- Exclude ectopic pregnancy
- Initiate treatment today eg azithromycin 1g stat at minimum
- Supports Dx:
 - elevated CRP or WCC
 - presence of chlamydia or gono
- Hospital if severe or tender mass (?abscess)
- IM ceftriaxone 500mg stat if any possibility of gono
- Oral azithromycin 1g stat then 2 wks of either
 - weekly azithro 1g or
 - bd doxycycline 100mg
- metronidazole 400mg bd 2 wks – stat tinidazole if compliance doubtful

Script written – is that all?

- Treat boyfriend(s) azithromycin 1g, encourage tests
- Review early eg 1 – 3 days to monitor response and compliance and review diagnosis
- In suspected mild PID the full treatment course of two weeks doxycycline and metronidazole may not be justified or tolerated
- Good evidence in support of prompt azithromycin and treating partner