Genito Urinary Medicine

Key Topics to Consider

The following pages contain information on some of the key topics you need to think about while you are learning about GU Medicine. Much of the content is based on material from:

- material produced for the Sexually Transmitted Infections Foundation (STIF) Course by the British Association for Sexual Health and HIV
- the BHIVA (British HIV Association) Treatment Guidelines

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Self-Directed Learning

During your placement in GU medicine there will be sessions which are allocated to self-directed learning. During these sessions we recommend students take the opportunity to do some of the following:

- Look at all e-lectures in GU medicine which are available on Canvas
- Work through the virtual cases on Canvas and prepare the cases for your GUM case based tutorial
- Access the website www.bashh.org and review the guidelines for management of some sexually transmitted infections
- Read through the information provided within this handbook and make a note of any questions you may have to discuss either during your attachment or at the case-based GU tutorial
Case-Based GUM Tutorial

At some point during your 18 week medical specialties attachment you will attend a GUM case-based tutorial. The timing of this session will vary between academies. During the session you may be asked to comment/perform on any of the cases which you will find on Canvas in section ‘Virtual Cases for GUM Tutorial’. Please have a look at the topics and make sure you are familiar with them. Most of the information you need is in your handbook but you may wish to sit together with another student and think through some of the issues.
1. **STI Management principles**

1. In general:
   
   a) To be aware of the risk factors that may make individuals more at risk of STIs
   b) To know when and how to test people for STIs, or refer to an appropriate setting
   c) To help increase health seeking behaviour

2. The objectives of the management of patients with STIs are:

   a) To make a correct diagnosis
   b) To provide effective treatment which should:
      - Eliminate the organism from all sites
      - Minimise the potential for continued transmission
      - Minimise risk of complications from infection
      - Circumvent difficulty by ensuring appropriate follow up
   c) To reduce / prevent future risk taking
   d) To advise on treatment adherence - single dose treatment options where appropriate
   e) To promote and provide condoms
   f) To ensure sexual partners are informed and appropriately treated
   g) No sexual intercourse, even with a condom (wherever possible), until patient and partner(s) screened and finished treatment to minimise re-infection.

Treatment of co-infections should not compromise or be compromised by the treatment of any infection.
2. Risk Factors for STD

Risk factors for acquiring sexually transmitted diseases (STD) apply to all infections and not to any one infection in particular. These are:

1. **Young adult age** (peak age group 18 - 24 years).
2. **Female gender** (virtually all STD more efficiently transmitted from male to female).
3. **Civil status** - rates of STD steadily rise in the following order:
4. **Occupation** - particularly those involved in frequent travel and those in the armed forces and merchant navy carry a greater risk of exposure to STIs.
5. **Contraception** - barrier methods protect. The oral contraceptive pill promotes transmission of STIs due to effects on behaviour, but also due to increasing cervical ectopy and resultant increase in susceptibility to Chlamydia.
6. **Number of sexual partners** - clearly the more sexual contacts a person has the more the risk of exposure to STIs. However, the converse is not true, and most people who contract an STI have only had an “average” numbers of sexual partners.
7. **Men who have sex with men** - mainly due to having more sexual partners than average. Also, anal intercourse transmits certain infections more efficiently than vaginal sex.
8. **Commercial sex work** (the term used for all practices involving the trading of sex for payment, from street prostitution to the multi-million pound porn industry) - There have been recent reports of a general decline in bacterial STIs and HIV amongst female CSWs, however studies have shown that this decline has not been experienced by street sex workers. The rate of STIs amongst trafficked and pimped female “indoors” sex workers and male sex workers is unknown. Recent enhanced syphilis surveillance has identified that women who sell sex and their clients are at greater risk of syphilis.
9. **Overseas Travel** (overlap with 4 above) - many STIs are more prevalent in resource poor countries. It is more likely therefore that having unprotected sex outside of the UK holds a greater risk of infection with an STI.
10. **Drug use** – both licit drug use (e.g. alcohol) and illicit drug use (e.g. crack cocaine). In the under 25s alcohol use is strongly associated with high risk taking behaviours including unplanned and unprotected sexual intercourse.
11. **Young age at first coitus** - partly physiological due to more ectopy being present immediately after puberty so increasing susceptibility to chlamydia. Also known to be a risk factor for cervical cancer, probably because the immature cervix is more susceptible to other oncogenic effects of HPV
12. **Socio-economic status** - generally speaking, STIs are commoner in more deprived populations but this depends on the infection e.g. gonorrhoea very much confined to inner city pockets of deprivation but Chlamydia is more egalitarian and genital herpes is actually commoner in higher socio-economic groups (probably due to less cross immunity from pre-existing HSV 1 infection plus more widespread practice of oral sex). This socio-economic gradient is probably more due to differences in health seeking behaviour than to differences in sexual behaviour.
3. Sexual Practices

Sex and sexual intercourse means different things to different people. It is important therefore to establish exactly which sexual practices have taken place and who did what to whom.

**Wet sex** - sex involving the sharing of body fluids

**Dry sex** - sex which does not involve the sharing of body fluids. Dry sex is also a particular cultural practice in certain communities in East Africa and involves actively drying the vagina with certain herbs, barks and more recently detergents prior to penetration.

**Oral sex** may be:

1. Oral genital
   - Cunnilingus - licking or sucking a woman's clitoris, vulva, vagina
   - Fellatio (with or without ejaculation in the mouth) Blow job, cock sucking

2. Anal-oral contact
   There are a variety of practices from licking just around a man or a woman's anus (rimming, anilingus or tonguing)
   The other extreme is playing with quantities of faeces (scat, shit)

**Group sex** (swinging, daisy chaining)

**Chem sex** - use of recreational drugs (metamphetamine, mephedrone or GHB) by MSM before or during sex. Leads to disinhibition, prolonged and risky sex therefore increases the risk of STI transmission

**Fingering and fisting** (anal or vaginal) - insertion of finger, hand or forearm into either the vagina or anus

**Water sports** (piss or golden showering) - pissing in their own clothes, or in or on, someone else's clothes or skin

**Sex toys**

**Mutual masturbation** - where sex partners bring each other to non-penetrative climax during sex

**Frottage** - Body rubbing and massage

**Fucking** (penetrative sex) - insertion of penis into vagina or anus
Not all men having sex with men practice anal sex and some heterosexuals (up to 10% in the UK) have anal sex

Synonyms for commercial sex worker include *prostitute, working girl, and escort*
4. Condoms

Can reduce this risk of some STIs, but only if used consistently for every act of sex and applied before all genital contact commences and removed after ejaculation.

Condoms can be:
- Lubricated with non-spermicide (e.g. sensitol)
- Low allergy non latex polyurethane versions (expensive) e.g. Avanti, Femidom
- Available in many contours, colours and sizes

Latex allergy is rare - most causes or reactions to condoms are related to the lubricant on the condom which can be an irritant.

- Check that condoms are British Standard kite marked or European CE marking
- Condoms have expiry dates
- Heat can damage rubber
- Use each condom only once
- Don’t use two condoms at once as this does not increase safety. The condoms are likely to rub against one another and more likely to tear.
- Use water based lubricants e.g. KY jelly, Aquagel, supermarket/high street own label products

Any oil-based lubricants should be avoided with latex condoms as they make the rubber more likely to tear. These include baby oil, skin moisturisers, olive or other vegetable oils, massage oils, butter, margarine or petroleum jelly (including Aqueous Cream) + anti-fungal pessaries. These can however all be used with non-latex condoms.
5. Taking a Sexual History

*What to Ask*

The details below are the principal parts of a sexual history. You may not need to ask about all these points with every patient.

1) **Presenting complaint**
   The person may present simply requesting a check up and be asymptomatic, they may have actual genital symptoms e.g. discharge, itch, soreness, pain, lumps or rashes, or they may have non genital symptoms which could be due to an STI. It is important in all circumstances to ascertain their risk of exposure to STIs and ask about the presence of relevant symptoms.

2) **History of Presenting Complaint**
   - Description of symptoms e.g. site, appearance, duration, variation over time
   - Associated symptoms e.g. dyspareunia, dysuria, abdo pain, testicular pain
   - Bowel or bladder symptoms

3) **Past medical history: should include previous STI diagnoses**
   - What was diagnosed and when?
   - How was it treated (consider possibility of treatment failure)?
   - Adherence
   - Was partner/s treated (consider possibility of re-infection)
   - Serious medical conditions
   - Operations

4) **Drug history**
   - Allergies / All recent medication - especially antibiotics

5) **Menstrual / reproductive history**
   - Date of last normal menstrual period
   - Associated menstrual abnormalities (inter-menstrual bleeding, post-coital bleeding)
   - Contraception, method, usage
   - Pregnancies

6) **Smear history**
   - Last cervical cytology timing and result
   - History of abnormal cytology

7) **Social History = SEXUAL HISTORY**
   In this section substitute the standard social history you would take in a routine medical history for a sexual history.
   The sexual history is in 2 parts.
   The first section is related to recent sexual contacts in the last 12 months with specific focus on sexual contacts in the last 3 months.
   The second part which is a blood borne virus (BBV) risk assessment questions would look back at risks over the lifetime of the individual unless already screened previously in which case the assessment period would go back as far as the last BBV screen.
Partners/Sexual Contacts
- Last sexual intercourse?
- Sex (i.e. gender) of Contact?
- Regular or casual partner(s) - duration of relationship?
- Type of sex (where relevant e.g. oral, vaginal or anal/ insertive/ receptive or active/ passive)
- Condom use (always, sometimes or never)?
- Symptoms or diagnosis of partner?
- Where is the partner from? e.g. locality/country
- Last sexual contact with anyone else?
- Any other partners in the last three months?
- Any other partners in the last year?

BBV Risk Assessment
This is a risk assessment based on risk factors for HIV but consideration should be given to Hep B and Hep C which share many of the same risk factors

- Have you ever had an HIV Test? – When? Result?
- Partners from abroad?
- Intravenous drug use (IVDU)?
- Partners who are IVDU
- Blood transfusion (before 1985 for HIV ; 1994 for Hep C)/Blood donor?
- Blood transfusions or medical treatments abroad?
- Had sex with a man (if male)
- Had a sexual partner who had sex with men as well as women (if female)?
- Paid for or been paid for sex?
  (This is not a routine question in all GU clinics. Paying for sex or being paid for sex is associated with significant risk of HIV in resource poor countries. Currently the main risk in the UK is related to syphilis and Hepatitis B, however with the changing profile of sex work in the UK and higher levels of migrant sex workers from resource poor countries HIV may become an issue)

Once a full history has been completed, then the time has come to explain to the patient what examination, tests or investigations will be offered to them.

In the majority of patient attending GUM clinics the standard STI screen will be offered. This includes testing for chlamydia, gonorrhoea, syphilis and HIV infection. There are other tests that can be included depending on the history and examination findings for individual patients.

Guidance on Taking a Sexual History
Doctors and nurses are trained to be skilled and comfortable with obtaining a general health history, however they may initially find taking a sexual history difficult for two reasons:

- Lack of experience
- Embarrassment for the patient and doctor
To take a successful sexual history you may wish to consider the following points.

**Privacy and Confidentiality:** It is worth noting that if a partner or relative is present, some people will be reluctant to reveal personal information. Therefore, if possible, the patient should be seen alone and reassurance given of the confidential nature of the discussion.

**Ask permission and explain:** It is advisable to start off with the least intrusive questions before asking the ones that are potentially more embarrassing. Before starting, you should explain why you are asking these questions and that the answers will help you to assess the risk for STI/HIV infection and enable you to determine which sites to take swabs from.

**Don't make assumptions:** Listen to the patient and watch carefully to be sure you understand them, and to ascertain when you need to go further with a line of questioning. Pay particular attention to non-verbal clues. Even though during the history taking you may be developing theories about what is going on, be sure to give yourself enough time to check it out further before sharing it with the patient. Avoid the temptation to reassure the person prematurely.

Don't make assumptions about sexual orientation. Use terms such as "partner" or sexual contact of "person" until you have confirmed the person's sexual orientation. When asking about their sexual orientation, ask if they have sex with men, with women, or with both? Speak slowly when asking this question.

**Use the right terminology:** Avoid terms such as "gay" because some men who have sex with men may not identify themselves as being homosexual or gay. If, at some stage during the interview, they have already referred explicitly to a partner of one gender, you still need to ask if they have partners of the other gender (Any of the following questions can be used to determine the gender of the partner):

- Have you ever had sex with a man? / woman?
- Is your partner male or female?

**Only ask what you need to know:** Think carefully about what information you need to manage the patient correctly. Don't ask intrusive and unnecessary questions. Don't ask general questions like "do you have anal sex". Focus on a particular sexual act that relates to possible risk and formulate your question: e.g. “on that occasion did you have vaginal or anal (or oral etc.) sex?”

**Use closed questions:** patients may be embarrassed to use words like vaginal or anal. It is therefore better to ask closed questions like “was it vaginal sex?” or “did you have anal sex?” Do not use questions like “what kind of sex did you have?” as this would require the patient to use words that might embarrass them. Remember:

Oral sex is two different sexual acts depending if the patient is giving or receiving oral sex. The same is true of anal sex.
6. Intimate Examinations

The GMC regularly receives complaints from patients who feel that doctors have behaved inappropriately during an intimate examination. An intimate examination, that is, examination of the breasts, genitalia or rectum, can be stressful and embarrassing for patients. When conducting intimate examinations you should:

- Explain to the patient why an examination is necessary and give the patient an opportunity to ask questions.
- Explain what the examination will involve, in a way the patient can understand, so that the patient has a clear idea of what to expect, including any potential pain or discomfort.
- Obtain the patient's permission before the examination and be prepared to discontinue the examination if the patient asks you to. You should record that permission has been obtained.
- Keep discussion relevant and avoid unnecessary personal comments.
- Always have a chaperone/nurse and record the chaperone's identity.
- Give the patient privacy to undress and dress and use drapes to maintain the patient's dignity. Do not assist the patient in removing clothing unless you have clarified with them that your assistance is required.

Also see the GMC guidance on intimate examinations: www.gmc-uk.org/guidance/ethical_guidance/21168.asp
7. Partner Notification (Contact Tracing)

Partner notification is a process which supports the identification, notification and treatment of the sexual partners of an individual diagnosed with an STI.

The aim of partner notification is to break the chain of infection by reducing the risk of re-infection to the index case (the person presenting with the infection) and to identify previously undiagnosed infection in the population. Secondary objectives of partner notification are to reduce to risk of complications arising due to untreated infections and to facilitate behaviour change. Partner notification should be considered whenever an STI is diagnosed, irrespective of where care is provided.

The Partner Notification Discussion

The partner notification discussion and the “look back” period depend on the nature/site of infection, the incubation period and the duration symptoms have been present. Partner notification discussions should take place for all bacterial and parasitic sexually transmitted infections and for Hep B, Hep C and HIV.

A partner notification discussion usually includes:

- An explanation of the nature of the infection diagnosed including transmission, treatment and re-infection.
- A discussion about the importance of total sexual abstinence until the patient and all sexual partners have completed treatment and the importance of adherence to medication prescribed.
- Identification of potential “at risk” sexual contacts and a discussion about who and how they might be notified of the risk and tested/treated. Options for this include:
  - **Patient referral:** where the patient is given the responsibility, with support where necessary, to contact sexual partners and ask them to attend for treatment. **Contact slips** can be issued for the patient to give to their contacts which provide anonymity and confidentiality for the index patient whilst enabling the sexual contacts to seek medical advice or treatment. The contact slips also inform the receiving clinic of the index patient's diagnosis, reference number and date of diagnosis thus enabling cross-referencing and evaluation of partner notification action to be undertaken.
  - **Provider referral:** this is the situation where the patient is asked to provide names and addresses (or telephone numbers) of partners to the health worker so that members of the health staff can contact the partners. The health worker asks the partner to attend for treatment.
Partner notification resolution

Reasons for partner notification not having occurred include:

- Index patient won't identify partners e.g. rejection, violence, can't believe they're implicated, doesn't have enough details for provider referral
- Partner refuses to attend
- Index not interested in PN process
- Untraceable
- Unaware where partner went (choice of clinics to cross reference)
- Transient population in large cities - difference between urban and rural clinics
- Doesn't attend for follow up

Ask about partner notification outcomes for each partner identified

Resolution outcomes - Untraceable, Informed, Attended, Verified attended

*Partner notification is not usually carried out in the case of HSV and HPV. Viral infections such as these commonly cause latent and sub clinical infection and thus in this instance the focus of the discussion is on supporting disclosure of diagnosis to current sexual contacts, ameliorating any psychological sequelae and supporting sustained behaviour change

Specific issues with regard to HIV partner notification

- Contact informed of nature of infection
- Contact slip almost never used
- Aim is to get as many partners in for counselling and testing rather than break chain of disease
- Fear of rejection
- Need to achieve sustained behaviour change to reduce onwards transmission
- Individual versus public health ethos
- Confidentiality/rejection fear with all partner notification but increased with HIV
- Fear of legal action related to new application of the “Offences against the person act 1861” allowing someone to be convicted for deliberately or recklessly transmitting HIV to another person without their consent.
8. HIV Testing

Who should test?

People request HIV testing for a number of reasons:
- Personal or partners’ sexual risk
- Personal or partners’ injecting drug risk
- Physical symptoms which have raised concerns in patient (or their Doctor) about HIV as the cause
- A current or previous sexual partner has tested HIV positive
- As part of an STI check-up that may be for a number of reasons, but include a new relationship and wanting to stop using condoms with current partner
- Following sexual assault
- The worried well
- As part of the routine national antenatal screening programme
- As a routine during blood donation
- As part of a routine medical examination or pre-operative assessment for some procedures
- Following occupational exposure either to body fluids of a known HIV positive individual or unknown status
- An individual who feels that the new drug therapies for HIV means they would like to know their status so they have an opportunity to use the drugs and improve their survival

The British HIV Association (BHIVA, 2008) Recommend universal testing in the following setting:
- Genito-urinary medicine
- Antenatal Services
- Termination of pregnancy services
- Healthcare services for patients with TB, Lymphoma, Hepatitis B and Hepatitis C
- Drug Dependency Programmes

They also suggest routinely offering HIV tests to the following patients:
- patients presenting for healthcare where HIV, including primary HIV infection, enters the differential diagnosis (see table of indicator diseases and section on primary HIV infection)
- patients diagnosed with a sexually transmitted infection
- sexual partners of men and women known to be HIV positive
- men who have disclosed sexual contact with other men
- female sexual contacts of men who have sex with men
- patients reporting a history of injecting drug use
- men and women known to be from a country of high HIV prevalence (>1%)
- men and women who report sexual contact abroad or in the UK with individuals from countries of high HIV prevalence
Pre – test Discussion
The primary purpose of pre-test discussion is to establish informed consent for HIV testing and includes the following elements.

- A risk assessment (see sexual history section)
- A discussion about the benefits of testing
- An explanation of the window period
- Details of how the result will be given, and preparation for positive result where applicable

If doing HIV testing you must have arrangements for dealing with a positive diagnosis and onward referral.

The emphasis therefore is on discussion and information giving rather than counselling per se, and counselling skills are used to help the patient make informed decision. Examples where more in depth pre-test “counselling” may be considered are where the patient is unsure or has declined testing despite knowing that it would be beneficial for current clinical reasons, where the patient is depressed, overly anxious or has a mental health problem where collaboration with psychiatry would be helpful or where the patient has learning difficulties or is under 16.

BBV Risk Assessment
See sexual history section (page 20)

Benefits of knowing HIV status

- Medical advances, in particular the development of Highly Active Antiretroviral Therapy (HAART) have significantly improved the length and quality of life of most people living with HIV
- For pregnant women or those attempting to conceive, awareness of HIV status can dramatically reduce the transmission from mother to baby to virtually zero
- Supports behaviour change to reduce onward sexual transmission
- Prevents or allows for appropriate and effective treatment of opportunistic infections related to HIV

Although many people diagnosed with HIV take time and require support to adjust to the diagnosis, many continue in their existing relationships or are able to develop new relationships. Very few patients (less than 1%) regret their decision to test with most citing treatment availability and the reduction of the risk of transmission to others as the key benefits of knowing their status.

Difficulties in accessing life insurance are a perceived disadvantage to testing however no recent study has identified this as a barrier. Access to life insurance is usually the same as for patients diagnosed with other chronic conditions. The most likely outcome is an increase in premiums. Many insurance companies in the UK do not refuse insurance to those with HIV, but caveats do apply such as requiring the insured to attend for appointments and take medication when prescribed.
**Window period to seroconversion**

The original HIV tests only detected HIV antibodies and it may take up to 3 months for antibodies to develop after acquisition of HIV, giving rise to a 3 month window period. The current standard tests (4th generation HIV tests) directly detect virus (HIV antigen) as well as HIV antibody; this enables an earlier diagnosis to be made and reduces the window period to 4-6 weeks. A repeat test may still be recommended after 3 months to give absolute confidence that HIV has not been acquired. It is important to be aware of what test is being offered to the patient.

If a patient presents with signs of possible seroconversion illness but the initial HIV test is negative then this should be repeated after 2 weeks by which time it will be positive if HIV seroconversion is the cause of their symptoms.

**Giving HIV results**

Before calling the patient into the room, check that the result is available and in the notes. Check the patient’s date of birth to ensure you have the correct patient in front of you and then give the HIV result clearly – give it first if there are a number of results to discuss.

If the result is negative you need to consider if a re-test is necessary (i.e. are they still in the window period?) you should consider whether to offer a STI screen or hepatitis B vaccination if they are at risk from their sexual behaviour or injecting drug use. This is also an opportunity to discuss safer sex practices and injecting drug use.

If the patient is HIV positive, at the initial consultation, however much the patient is expecting a positive result, they will be shocked so keep information to a minimum. Focus on how they will cope over the next few days. Arrangements will need to be made for a confirmatory HIV test, which may involve referral to the local GUM service or ID service. This facilitates early access to expert medical assessment, treatment and care. It has been shown that people with HIV infection have an improved survival if their care is supervised by a physician looking after a large number of HIV positive individuals.

Issues that will need addressing at a follow-up appointment include:

- Ongoing support and counselling, safer sex and partner notification
- Disclosure: who and how to tell, support networks – family, friends, community
- Counselling for partners/family
- Ongoing referral e.g. psychology, welfare rights, social services

**Post Exposure Prophylaxis following Sexual Exposure (PEPSE)**

PEPSE is a combination of highly active antiretroviral drugs which are used for the treatment of patients with diagnosed HIV infection.

The aim of PEPSE is to reduce the transmission of HIV following exposure to the infection during sex. Once HIV crosses a mucosal barrier it may take up to 72 hrs before HIV can be detected within regional lymph nodes and up to 5 days before it is detected in the blood. PEPSE is thought to work by inhibiting viral replication following an exposure thus preventing the virus from entering the blood.
Who should be offered PEPSE?

The risk of an individual acquiring HIV following an exposure is calculated by multiplying the risk of the exposure (the act) and the risk that the source is HIV positive (prevalence).

E.g.: 2.3% (prevalence in MSM exc. London) x 3% (receptive anal sex transmission rate) = 0.023 x 0.03 = 0.00069 = 0.069%

However if the prevalence is 15% as is the case for MSM based in London the risk is 0.45%

Of note however, the single most important factor influencing transmission rate is viral load. If a patient requesting PEPSE has unprotected sex with an individual who is seroconverting (and therefore is unlikely to know their status) they are significantly more likely to contract HIV than through unprotected sex with a known HIV +ve patient on treatment where the viral load is undetectable.

PEPSE should be considered for patients who are assessed as at potential risk of HIV after sexual exposure as indicated below, (full details available on the BASHH website)

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<thead>
<tr>
<th>HIV POSITIVE</th>
<th>HIV STATUS UNKNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viral load detectable</td>
<td>Viral load undetectable</td>
</tr>
<tr>
<td><strong>Recommend</strong></td>
<td><strong>Not Recommended</strong></td>
</tr>
<tr>
<td><strong>Recommend</strong></td>
<td><strong>Not Recommended</strong></td>
</tr>
<tr>
<td><strong>Consider</strong></td>
<td><strong>Not Recommended</strong></td>
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<td><strong>Consider</strong></td>
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<td><strong>Recommend</strong></td>
<td><strong>Not Recommended</strong></td>
</tr>
</tbody>
</table>

** provided source has confirmed VL<200 copies/ml for >6 months

PEPSE Treatment

Truvada (emtricitabine [FTC] & tenofovir) once daily plus Raltegravir twice daily for 28 days is the recommended PEPSE regimen. Kaletra (lopinavir and ritonavir) is an older drug that is no longer routinely used for PEPSE due to its higher incidence of side effects and drug interactions.

Common Side Effects

Side effects are the main reason given by patients for not completing the 4 week course of treatment but these are much less common with the newer regimen containing Raltegravir. GI side effects are significantly less with this regimen and it is no longer routine to give anti-emetics and anti-diarrhoeals.
Factors Affecting Efficacy
- Delay in administration
- Drug Resistance
- Adherence
- Completion
- The patient may already be positive

Risks
- HAART is not licensed for this indication
- There is a known potential for side effects and toxicity
- Women should be counselled to avoid getting pregnant whilst taking PEP
- PEP should be given only when the patient fully understands the risks and still wishes to have it

Management of a patient requiring PEPSE
- Take a complete sexual and medical history
- Start PEP immediately (if indicated), must be within 72 hours of exposure
- Test for HIV and screen for STIs
- Offer emergency contraception (EC) if indicated
- Start Hep B vaccine if indicated
- Encourage HIV testing of partner (if known)
- Arrange follow up appointment ideally within 5 days
- Refer patient to health advisers
- Take baseline FBC, U&Es, LFTs
- Book a follow up for review and sexual health screen at 2 weeks and then review 2 months after completion of PEPSE for repeat HIV test
- Advise them to protect partners until definitive negative HIV test result

Where can PEPSE be accessed
- Most GUM clinics in the UK
- Most A&E departments in the UK

All NHS occupational health departments will provide post exposure prophylaxis (PEP) for occupational exposure.
9. Epidemiology of STIs in England

Effective STI surveillance provides

- Valuable and representative data in relation to new emerging infections, disease outbreaks, patterns of spread in a population and biological and behavioural determinants of transmission (WHO, 2000).

- Data that can be used by governments, healthcare services and health care practitioners to appropriately and accurately target resources effectively and develop, improve and evaluate prevention programmes (UKCGHSS, 2005. WHO, 1999).

Sources of STI surveillance data

In England, Wales and Northern Ireland, aggregate data are submitted to the respective national units of Public Health England (PHE) on the SHHAPT statistical return from all GUM clinics (GUMCAD). The Centre for Infections (CFI) also receive data on gonorrhoea, genital chlamydia and genital herpes through voluntary laboratory reporting which provides information on diagnoses made outside of GUM clinic settings, such as in primary care. In Scotland, data on anonymous individual patient episodes are submitted by all GUM clinics to the Information and Statistics Division (ISD) of the Common Services Agency in Scotland, based in Edinburgh.

Examples of type of data collected

- Quarterly Incidence reports for episodes of STIs. The data include gender, age, ethnicity and sexual orientation data.

- Enhanced data and special studies for selected STIs e.g. “enhanced syphilis and LGV surveillance data” which collects details on type of sexual contact, gender of contact, location where contact took place.

- GRASP “gonococcal resistance to antimicrobials surveillance programme”

- Activity Data for example the number of sexual health screens performed, the number of HIV tests offered and accepted, the number of Chlamydia tests performed as part of the national screening programme.

Overall, the number, of all new episodes (new diagnoses and workload services) seen each year in GUM clinics in the UK has more than doubled since 1990 and this rise continues.

- Since 1999, numbers of diagnoses in GUM clinics of uncomplicated chlamydial infections, infectious syphilis, genital warts (first attack) and genital herpes (first attack) have risen considerably. Numbers of new diagnoses of gonorrhoea, and more recently infectious syphilis, now appear to be in decline.
Number of new diagnoses of selected STIs, GUM clinics, England 2013

<table>
<thead>
<tr>
<th>STI</th>
<th>2013</th>
<th>% change 2012 - 2013</th>
<th>% change 2004 - 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia</td>
<td>208,755</td>
<td>0%</td>
<td>n/a *</td>
</tr>
<tr>
<td>Genital Warts</td>
<td>73,418</td>
<td>-1%</td>
<td>9%</td>
</tr>
<tr>
<td>Genital Herpes</td>
<td>32,279</td>
<td>1%</td>
<td>93%</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>29,291</td>
<td>15%</td>
<td>42%</td>
</tr>
<tr>
<td>Syphilis</td>
<td>3,249</td>
<td>9%</td>
<td>24%</td>
</tr>
</tbody>
</table>

*due to change in way Chlamydia diagnoses are reported

**Gonorrhoea**

Diagnoses of gonorrhoea in GUM clinics rose steadily during the 1960's and 1970's and remained at high levels until 1985. Thereafter, numbers decreased sharply and during the early 1990's the number of diagnoses fell to their lowest levels since recording began. Since 1994, diagnoses of gonorrhoea have again risen and although numbers fell briefly between 2004 and 2008 they are again rising sharply with a 15% increase in gonorrhoea diagnosis between 2012 and 2013. Considerably higher rates are seen in males and this is likely to be due to infections acquired through sex between men, and that males are more likely to have symptomatic infection.

Like other acute STIs, young people share a disproportionate burden of gonorrhoea. In 2013 >50% of all cases of gonorrhoea were diagnosed in the 16 – 25 age group. Gonorrhoea is predominantly an urban disease – mainly in inner city urban areas. The infection rate in Black British populations is consistently higher than in the white population. There is also marked regional variation. In both males and females, the highest rates are consistently seen in the London region.

**Chlamydia**

Since 1998, diagnosis rates of almost all STIs among young people attending genitourinary medicine clinics have risen in the UK and the rate of chlamydia diagnoses more than doubled from 447 per 100,000 in 1998 to 1,102 per 100,000 in 2007. ~65% of all Chlamydia infections in the UK affect the 16 – 25 year old age group.

In 2013, over 1.7 million chlamydia tests were carried out in England among young people aged 15 to 24 years. A total of 139,237 chlamydia diagnoses were made among this age group, equivalent to a diagnosis rate of 2,016 per 100,000 population and a positivity rate of 7-9%.

**LGV**

More recently we have witnessed an epidemic of severe proctitis in homosexual men. This is caused by the L2 strain of chlamydia causing lymphogranuloma venerum. This condition can mimic ulcerative proctitis and therefore can present in a variety of non-GUM settings. Currently according to national enhanced surveillance data LGV is more commonly diagnosed in HIV positive men who have sex with men.

**Genital herpes**

Between 1971 and 2007, the number of genital HSV diagnoses made at GUM clinics increased by 5 and 22 times in men and women respectively. This is reflected in the
changing women to men ratio, from 0.3:1 in 1971 to 1.5:1 in 2007. This cross over occurred in the early 1990s. The number of diagnoses stabilised and fell briefly in men and women in the late 1980s but in the female population between 1987 and 2007 there appears to be a continuing increasing trajectory. The sharp increase after 2005 may indicate the introduction of PCR testing for HSV in some GU clinics.

**Genital warts**

Between 1972 and 2007, the number of all genital warts diagnoses (first, recurrent and registered episodes) increased by 8 and 11 fold in men and women respectively. These rises may reflect increased incidence of infection, and/ or greater public awareness. Although the number of genital warts diagnosed almost trebled (2.9-fold increase) in GUM clinics between 1977 and 1986, the following years saw a more gradual increase in diagnoses. This may be due to changes in sexual behaviour that coincided with the emergence of the HIV epidemic during the mid-eighties. After 1994, numbers have continued to rise reaching a peak of 78,156 in 2008. High rates are uniformly distributed across the UK with the highest rates of first episode genital warts among 20 -24 year old males and 16 - 19 year old females. Since 2012 the HPV vaccination adopted in England will protect those vaccinated against the HPV serotypes most commonly associated with genital warts which should reduce the number of people acquiring genital warts in the future.

**Infectious syphilis**

Diagnoses of infectious syphilis made at GUM clinics in England, Scotland and Wales peaked sharply towards the end of the Second World War and then declined in the late 1980s and early 1990s as a result of behavioural change associated with the HIV pandemic. However, between 1997 and 2007, annual diagnoses of infectious syphilis have risen twelvefold (from 301 to 3789). This increase has been punctuated by a series of outbreaks, the first of which occurred in 1997 amongst heterosexuals in Bristol. Although outbreaks have occurred in many UK cities including Birmingham, most diagnoses have been reported from Manchester, London and Brighton. The largest outbreak began in London in 2001 and since then infection rates have risen steeply, particularly among men who have sex with men (MSM) who account for 73% of infectious syphilis cases. 3762 diagnoses of infectious syphilis were made in 2007, more than in any other year since 1950. Unlike other bacterial STIs the burden of syphilis does not fall solely upon young people. Since 1998, rates have increased sharply in men aged 45 and older (43 fold), 20 to 24 years (34 fold), and those aged 35 to 44 years (33 fold). Women experienced a markedly smaller increase for all age groups, but significant increases were made in the 16 to 19 and 35 to 44 age groups (15 and 9 fold respectively). The increased number of syphilis cases in women has resulted in an increase in the rate of congenital infection.
**New diagnoses of selected STIs in men who have sex with men (MSM)**

MSM are disproportionately affected by STIs. The number of diagnoses of STIs reported in MSM has risen sharply in recent years and accounts for the majority of increased diagnoses seen among men. In England in 2013, among male GUM clinic attendees, 81% (2,393/2,970) of syphilis diagnoses, 63% (13,570/21,649) of gonorrhoea diagnoses, 17% (9,077/53,143) of chlamydia diagnoses, 11% (1,343/12,258) of genital herpes diagnoses and 8% (3,139/40,796) of genital warts diagnoses were among MSM.

**Gonorrhoea**

Gonorrhoea was the most commonly diagnosed STI among MSM in 2013 and diagnoses increased by 26% from 2012 to 2013 (10,764 to 13,570). 25% (3,382) presented with rectal infections. More screening of extra-genital (rectal and pharyngeal) sites in MSM using NAATs plus ongoing high levels of unsafe sex are leading to more STI transmission in this population. High levels of gonorrhoea transmission are of particular concern, as data from the Gonococcal Resistance to Antimicrobials Surveillance Programme (GRASP) show the emergence of gonococcal isolates with decreased susceptibility to cefixime among MSM.

**LGV**

There is an ongoing epidemic of lymphogranuloma venereum (LGV) with >2000 cases being diagnosed in MSM in the UK since 2003. Cases are seen more commonly in HIV positive MSM which is likely to be due to HIV ‘sero-sorting’ behaviour.

**SYPHILIS**

Enhanced surveillance in 2007 reported 1,568 diagnoses of infectious syphilis among MSM. Between 1999 and 2008, the majority (73%; 9590/13,175) of the diagnoses of infectious syphilis have been made in MSM. HIV co-infection was common (34%). Infection was likely to have been acquired through oral sex in 33% of cases. Throughout the epidemic, transmission has resulted primarily from infection acquired within the UK. The highest proportion of cases (36%) was seen in the 35-44 age group. Primary syphilis was diagnosed in 40% of cases, with secondary and early latent syphilis being seen in 30% and 24% of cases respectively.

**HIV and STI Co-infection**

A high proportion of MSM diagnosed with a bacterial STI also had an existing diagnosis of HIV. Older MSM (over 40) were more likely to be co-infected than their younger counterparts. In 2007, 32% (105/324) of Gonorrhoea cases, 40% (556/1,394) of syphilis, 78% (118/152) of LGV and 97% of hepatitis C (28/29) cases reported through enhanced surveillance were also infected with HIV.

**HIV infection**

In 2010, 91500 individuals were living with HIV in the UK. Of whom 24% remain undiagnosed. It is predicted that by the end of 2012 more than 100000 people will be living with HIV. In 2010 alone there were 6600 new diagnoses, 3640 of which were acquired here in the UK. This represents a decline in diagnoses of 15% since the peak in 2005. Route of transmission in the UK is almost exclusively sexual whereas in Southern and Eastern Europe IVDU is still a significant factor.
Prevalence rates of HIV: United Kingdom, 2010

<table>
<thead>
<tr>
<th>People with diagnosed or undiagnosed HIV infection/1000 population</th>
<th>Source: HPA (2011) HIV in the united Kingdom 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>1.5</td>
</tr>
<tr>
<td>MEN</td>
<td>2.0</td>
</tr>
<tr>
<td>WOMEN</td>
<td>0.9</td>
</tr>
<tr>
<td>MSM</td>
<td>47</td>
</tr>
<tr>
<td>BLACK AFRICAN</td>
<td>47</td>
</tr>
</tbody>
</table>

Late diagnoses, AIDS and deaths among HIV-infected individuals

Late diagnosis is still a significant issue in the UK. 50% of all newly diagnosed individuals had a CD4 count of below 350 cells/mm3 at time of diagnosis.

AIDS diagnoses and deaths among people with HIV have remained steady since 1998. In 2010, there were 640 AIDS diagnoses and 680 people with HIV died.

Two-thirds (68%) of HIV related deaths in 2010 occurred among people diagnosed late, with most deaths occurring within 12 months of diagnosis.

Late diagnoses of HIV by exposure group: United Kingdom, 2010

These data highlight the importance of increasing testing for HIV in all health care settings to ensure earlier diagnosis and treatment.
**Hepatitis B**

Worldwide, two billion people have been infected with hepatitis B virus (HBV), 360 million have chronic infection, and 600,000 die each year from HBV-related liver disease or hepatocellular carcinoma (WHO 2010). The UK however remains a low prevalence country and is 1 of 16 countries worldwide where Hep B vaccination is not a routine childhood immunisation; instead vaccinations are offered to individuals deemed to be at risk for example IVDUs, MSM and CSWs.

Where routine vaccination is offered uptake is highly variable for example in India the uptake is < 50% whereas in Brazil the Uptake is >90%.

The rate of acute hepatitis B infection diagnosed in UK blood donors has remained fairly constant between 1996 – 2008 at 35/100,000. The most at risk population in the UK is IVDUs; however the targeted needle exchange and vaccination programme has led to a decline over a 10 year period from 28% to 17% in the proportion of IVDUs ever infected with Hep B. These figures support the practice of selective rather than universal vaccination of “at risk” populations.

**Teenage pregnancy**

The 2013 data from the ONS (office of national statistics) indicate that there was a conception rate of 24.3 per 1000 girls aged 15-17, a decrease of almost 50% from the 2007 rate and the lowest rate for over 20 years. There has also been a fall from 7.3 to 4.8 per 1000 in the under-16 conception rate since 2009. There is however regional variation with a current rate of under 18 conception rate of 25.9 per 1000 girls in the West Midlands.

Although less than 1/3 of teenagers are sexually active at the age of 16, half of those that are use no contraception the first time. Failure to use condoms puts these teenagers at risk of sexually transmitted infections as well as pregnancy.
10. STI Service Provision and Primary Care

Establishment of VD clinics

The Venereal Diseases Regulations 1916 empowered Local Authorities to set-up clinics. The principles of service included access without need for GP referral, voluntary attendance, confidentiality and free treatment. 113 clinics were established in 1917. Now there is a consultant-led service with a National network of 260 clinics in most major cities and towns and close links with other sexual health services.

In recent years there have been changing sexual attitudes and lifestyles, changing pattern of STIs and the advent of HIV/AIDS. This has led to the recognition of the importance of Sexual Health.

The essential features of GUM services today include:
- Demand-led service
- Open access
- Absence of waiting lists
- Confidentiality
- Rapid diagnostic services
- Free Treatment
- Holistic care
- Partner notification

The objectives of Genitourinary Medicine are the control of communicable diseases that have potentially serious effects upon physical, psychological and emotional well-being. STI control is essential to prevent HIV acquisition and transmission, as most STIs enhance the transmission of HIV infection.

<table>
<thead>
<tr>
<th>Core GUM services</th>
<th>Additional services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveillance</td>
<td>Outreach services</td>
</tr>
<tr>
<td>Screening</td>
<td>Contraception</td>
</tr>
<tr>
<td>Diagnosis &amp; treatment</td>
<td>Genital Dermatology</td>
</tr>
<tr>
<td>Prevention of STI/HIV</td>
<td>Vulva clinics</td>
</tr>
<tr>
<td>Partner notification</td>
<td>Adolescent health care</td>
</tr>
<tr>
<td>Sexual health promotion</td>
<td>Sexual abuse services</td>
</tr>
<tr>
<td>Teaching and training</td>
<td>Erectile dysfunction</td>
</tr>
<tr>
<td>Research</td>
<td>Psychosexual services</td>
</tr>
</tbody>
</table>

Shared care between GUM and GP

GUM contribution may include confirmation of diagnosis, exclusion of other STIs, partner investigation, initiation or management regimen after discussion of options, as an information resource and for clinical trials on new HIV therapies.

GP contribution may include screening for asymptomatic infections, surveillance, initial recognition/diagnosis of problem, referral for specialist advice, patient/partner support, supplementary information resource and prescription of long-term therapy.
11. Notes on Specific Conditions

**Vaginal discharge**

**Introduction**
Vaginal discharge may be caused by a range of physiological and pathological conditions. Vaginal discharge is commonly due to bacterial vaginosis (BV) and candidiasis, and less commonly due to trichomoniasis (TV). Cervical infection caused by chlamydia or gonorrhoea can also result in vaginal discharge and may need to be considered.

**Diagnosis**
The symptoms and signs that do occur are often non-specific to any particular infection, and a "classical appearance" may not aid diagnosis. However, some are more indicative of one condition than another:

<table>
<thead>
<tr>
<th>History</th>
<th>Candida</th>
<th>BV</th>
<th>TV</th>
<th>Physiological</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>10-20% asymptomatic</td>
<td>~ 50% asymptomatic</td>
<td>10-50% asymptomatic</td>
<td></td>
</tr>
<tr>
<td>Discharge</td>
<td>Thick/white</td>
<td>Thin/grey</td>
<td>Thin/frothy</td>
<td>Clear/white</td>
</tr>
<tr>
<td>Smell</td>
<td>Not offensive</td>
<td>Fishy</td>
<td>Fishy</td>
<td>Odourless</td>
</tr>
<tr>
<td>Associated Irritations</td>
<td>Itchy/sore Vulval oedema</td>
<td>Usually none, but may be burning</td>
<td>Itchy/sore Dysuria</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Investigations</th>
<th>pH</th>
<th>Swabs*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 4.5</td>
<td>High vaginal swab for candida culture</td>
</tr>
<tr>
<td></td>
<td>&gt;5</td>
<td>High vaginal swab</td>
</tr>
<tr>
<td></td>
<td>&gt;5</td>
<td>High vaginal swab Wet prep and TV culture</td>
</tr>
<tr>
<td></td>
<td>≤ 4.5</td>
<td>None</td>
</tr>
</tbody>
</table>

Always consider Chlamydia and Gonorrhoea if <25 years, partner change in last year, and continuation of symptoms if above have been excluded.

* Different laboratories will process a high vaginal swab in a variety of ways. You will need to be clear what your local lab does.

**Management**
Management depends on cause.
**Bacterial Vaginosis**

**Causative organism**
Bacterial vaginosis is characterised by a reduction in lactobacilli and an overgrowth of predominantly anaerobic organisms in the vagina (Gardnerella vaginalis, Prevotella spp., Mycoplasma hominis, Mobiluncus spp.) and an increase in vaginal pH.

**Transmission**
It can arise and remit spontaneously in women regardless of sexual activity.

**Symptoms and signs**
- Asymptomatic (approx. 50% of women)
- Offensive fishy-smelling vaginal discharge
- Less commonly vaginal irritation
- Examination may reveal a thin, greyish/white homogenous discharge

**Diagnosis:**
Amsels Criteria - (three of four should be positive)
1. Thin grey/white homogenous discharge
2. +ve amine test (release of fishy odour on adding alkali /10% KOH )
3. Clue cells on Microscopy
4. PH of vaginal fluid > 4.5

There are a variety of other scoring systems for diagnosis of BV, some clinics may use a combination of symptoms, vaginal pH and the Nugents score (very cumbersome), or a more recent alternative is the Hay-Ison scoring system based on the results of the vaginal gram stain alone. This is a microscopic score based on the presence/absence of Lactobacilli and “clue cells” on a gram stained vaginal slide.

**Hay-Ison score:**
Grade 0 = epithelial cells only with no bacteria
Grade 1 = normal vaginal flora (predominance of lactobacillus morphotypes)
Grade 2 = intermediate vaginal flora (reduced number of lactobacilli with mixed bacterial flora)
Grade 3 = mixed bacterial flora only
Grade 4 = gram positive cocci only
**Grades 2 & 3 are considered consistent with a diagnosis of BV**

**Treatment** is indicated for:
Symptomatic women and pregnant women with a history of recurrent miscarriage or premature births.

**Recommended Regimens**
- Metronidazole 400mg twice daily for 5 days or 2g stat (avoid single dose in pregnancy)
Alternative Regimens
- Intravaginal metronidazole gel (0.75%) once daily for 5 days
- Intravaginal clindamycin cream (2%) once daily for 7 days
- Balance Activ™ is sometimes considered for treatment (intravaginal gel for 7 days) or prevention (intravaginal gel weekly or before/after periods)

Pregnancy
Metronidazole can be used in all stages of pregnancy and during breastfeeding, however manufacturers recommend that single 2g dose regimens are best avoided in these circumstances.

Complications
There is an association with post-termination of pregnancy endometritis and pelvic inflammatory disease. BV is associated with recurrent late miscarriage.

General advice
Patients should be advised to avoid vaginal douching, use of shower gel, and use of antiseptic agents or shampoo in the bath. Patients should be informed that condition may be recurrent and why.

Follow up
None required if symptoms resolve. Recurrence is very common (up to 50% by 3 months) and can be difficult to manage; specialist advice may be beneficial. Using metronidazole on days 1-4 of the cycle repeated again days 14-17 of the cycle often works but may need to be continued for some months. Intravaginal preparations such as balance activ have also been found useful by women experiencing recurrent BV. Contact tracing is not required.

Candida in Women (Thrush)
Causative organism
The most common species is Candida albicans. The majority of women will have at least one symptomatic episode in their lifetime. During reproductive years, women may harbour Candida species in the absence of symptoms. These women do not require treatment.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pruritus / itching</td>
<td>vulvo-vaginitis</td>
</tr>
<tr>
<td>Vulval / vaginal soreness</td>
<td>Swelling</td>
</tr>
<tr>
<td>superflcial dyspareunia</td>
<td>linear fissures</td>
</tr>
<tr>
<td>discharge (very variable)</td>
<td>+ or - variable (non-offensive) discharge</td>
</tr>
<tr>
<td></td>
<td>satellite lesions</td>
</tr>
</tbody>
</table>

Candidiasis is often diagnosed on the basis of clinical features alone. None of these symptoms or signs are specific for the diagnosis of candidiasis and as many as half of these women may have other conditions e.g. allergic reactions. These conditions need appropriate exclusion and management in order to control the symptoms.

Complications
None described.
Diagnosis in primary care

- Clinical
- pH <5
- High vaginal swab (HVS) but 10-20% women are asymptomatic vaginal carriers and their symptoms may not be due to the candida isolated
- Tests may be negative if recently self-treated (check recent use of over the counter preparations)

Management
If no symptoms/signs - do not treat

Recommended regimen
- Antifungal pessary +/- cream for external areas

Alternative regimen
- Fluconazole 150mg stat (avoid in pregnancy)

Recurrent or persistent problems - if symptoms persist or recur following treatment consider:
- HVS to confirm the diagnosis and document frequency
- Full screening for other infections
- Other causes of vulvovaginitis
- Non-Candida albicans species (e.g. Candida tropicalis)

For women who have frequent symptoms, it is important to consider associated precipitants (e.g. soaps, shower gels, sanitary towels) which may increase the risk of a localised inflammatory response. The management of Candida in these cases involves the exclusion and treatment of these precipitants as well as treating the underlying fungal infection.

Exclude risk factors
Diabetes mellitus, thyroid disease, iron deficiency with or without anaemia, underlying immunodeficiency, corticosteroid use or frequent antibiotic use. The use of hormonal contraceptives is not associated with candidiasis.

Management of persistent/recurrent candida
- if no risk factors and persistent candida, seek advice
- use of oral anti-fungal agents or antifungal pessaries weekly or every two weeks for 4-6 months will prevent recurrences and provide greatly appreciated symptomatic relief.

Pregnancy and breastfeeding
Asymptomatic colonisation with Candida species is higher in pregnancy (30-40%). Symptomatic candidiasis is more prevalent throughout pregnancy. Treatment with topical azoles is recommended. Longer courses may be necessary. Oral therapy is contraindicated.

Contact tracing/partner notification
There is no evidence to support treatment of asymptomatic male sexual partners.

Follow up
Unnecessary if symptoms resolve. Test of cure unnecessary.
**Candida in Men**

Usually presents as mild balanitis with pruritus. May complicate balanitis due to other causes.

Candidiasis (particularly in a male) may be the first sign of previously undiagnosed diabetes mellitus.

**Treatment**

Avoid irritants and drying agents such as soaps. Advise use of soap substitute and emollient +/- azole cream

In men, may be sexually acquired and female partner may be asymptomatic/have high yeast carriage. If recurrent, investigation and treatment of female partner may be beneficial.

---

**Chlamydia trachomatis**

**Causative organism**

An obligate intracellular bacterium with a long life cycle.

**Transmission**

It is the most common bacterial STI in the UK. Perinatal transmission results in neonatal conjunctivitis in 30-50% of exposed babies, usually presenting in the second week of life, or less commonly pneumonitis which presents between 4 and 12 weeks of age.

<table>
<thead>
<tr>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptoms</strong></td>
<td></td>
</tr>
<tr>
<td>• Asymptomatic in approximately 80%</td>
<td>• Asymptomatic in up to 50%</td>
</tr>
<tr>
<td>• Post coital or inter-menstrual bleeding</td>
<td>• Urethral discharge</td>
</tr>
<tr>
<td>• Purulent vaginal discharge</td>
<td>• Dysuria</td>
</tr>
<tr>
<td>• Lower abdominal pain</td>
<td>• Testicular/ epididymal pain</td>
</tr>
<tr>
<td>• Can cause proctitis</td>
<td>• Can cause proctitis</td>
</tr>
<tr>
<td><strong>Signs</strong></td>
<td></td>
</tr>
<tr>
<td>• None (this the most common)</td>
<td>• None</td>
</tr>
<tr>
<td>• Cervicitis, mucopurulent discharge</td>
<td>• Urethral discharge and/or dysuria</td>
</tr>
<tr>
<td>• Cervical contact bleeding</td>
<td>• Local complications e.g. epididymitis</td>
</tr>
<tr>
<td>• Local complications e.g. bartholinitis, signs of pelvic infection</td>
<td></td>
</tr>
</tbody>
</table>

**Complications**

In men, the most common complication of untreated infection is epididymitis. In women ascending infection leads to pelvic inflammatory disease (PID): endometritis, salpingitis, tubal damage and chronic pelvic pain. PID increases the risk of ectopic pregnancy and infertility. Perihepatitis (FitzHugh Curtiss Syndrome) and Reiter’s syndrome may occur. Auto-inoculation may result in chlamydial conjunctivitis.
**Diagnosis**

NAATs (nucleic acid amplification tests) are now the tests of choice for the diagnosis of C. trachomatis genital infections in most GUM clinics. This is because of their high sensitivity and specificity, and the fact the tests can be done on range of sample types, including non-invasive and self-taken samples. They are also used by the Chlamydia screening programme and increasingly being used for the detection of rectal Chlamydia, LGV and gonorrhoea.

There are several commercial NAATs available which make use of different technologies for example PCR and real-time PCR; strand displacement amplification (SDA); transcription-mediated amplification (e.g. Gen Probe); and nucleic acid sequence-based amplification. You should be aware of what test is used locally for your samples.

A variety of sites may need to be sampled and the sensitivity and specificity of the different tests needs to be taken into consideration for each site, as well as the prevalence of the infection in the local population which can impact on the positive predictive value of the tests. If uncertain which sample or test to use you should liaise with your local GUM clinic or microbiology department.

**Swab samples:**

As Chlamydiae are intracellular organisms, swabs and/or urine samples must contain cellular material for the diagnosis.

Men with symptoms may have a urethral swab taken for Chlamydia at the same time a sample for gram stain and microscopy is collected, but in most cases the NAATs will be done on first void urine (FVU). Traditionally in symptomatic women a sample is taken from the endocervix when a swab is inserted inside the cervical os and rotated against the endocervix. Recent study data however indicates that a self-taken vulvo-vaginal swab (tested by NAAT) identifies more infections than an endocervical swab in both symptomatic and asymptomatic women therefore in some clinics vulvo-vaginal swabs are routinely done in all women. Chlamydia cannot be diagnosed on genital swabs sent for MC&S e.g. HVS.

**Urine based tests**

In men “first catch” urine samples can be tested for chlamydia. It is important to collect a first void urine sample (not mid-stream urine). Men should hold their urine for at least 1 hour before testing.

**Treatment Recommended** (including conjunctivitis)

- Azithromycin 1g stat
- Doxycycline 100mg bd for 7 days (not if risk of pregnancy or breast feeding)
Alternative regimens

- Erythromycin 500mg bd for 14 days (if pregnancy possible or breast feeding)
- Erythromycin 500mg qds for 7 days
- Ofloxacin 200mg bd or 400mg od for 7 days

Complications PID / epididymitis
See separate sections

Pregnancy

Chlamydial infection is associated with:
- Low birth weight
- Post-partum endometritis
- Neonatal conjunctivitis and pneumonitis.

Contact tracing/partner notification

Partner notification should be discussed with all patients identified with chlamydial infection. It is essential that all recent (last three months or previous partner if longer) and current sexual partners should be informed and advised to attend for evaluation.

Note: epidemiological treatment for C. trachomatis should be given even if tests are negative.

Patient Advice

- C. trachomatis is a sexual infection
- It is often asymptomatic, but if left untreated can have serious complications
- The need to see and treat sexual partners
- The need to abstain from sexual intercourse (even with a condom) until the completion of therapy
- The side effects and importance of complying fully with treatment
- Advice on safer sexual practices and how to avoid infection in the future

Follow up

- Ensure that partner notification has taken place
- Exclude reinfection
- Ensure compliance of the medications

Routine tests of cure are not indicated. All NAAT tests, may detect dead organisms up to 4 weeks after commencing therapy. If a test of cure is performed it should be done at least 4 weeks after completion of treatment. Tests of cure are essential in pregnant women and other cases where erythromycin had been used for treatment.
**Epididymo-orchitis (Epididymitis)**

Epididymo-orchitis is defined as inflammation of the epididymis and testicles triggered by an infectious agent.

**Symptoms and signs**

Usually unilateral, but may be bilateral. The patient may complain of scrotal swelling, and pain. Examination will usually reveal unilateral testicular tenderness with tender swollen epididymis and erythema of the overlying skin.

**Differential diagnosis** (usually unilateral presentations)

- Torsion (<20 years)
- Inguinal hernia
- Tumour (uncommon, usually non painful)

**Causes** - Infective agents that cause epididymo-orchitis

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. gonorrhoea</td>
<td>Up to 50% also have Chlamydia</td>
</tr>
<tr>
<td>C. trachomatis</td>
<td>Most common cause under 35 years of age</td>
</tr>
<tr>
<td>E. coli, enterobacteriaceae</td>
<td>Usually &gt;35 years of age and/or structural urinary tract abnormality</td>
</tr>
<tr>
<td>M. tuberculosis (rare)</td>
<td>Chronic epididymitis</td>
</tr>
</tbody>
</table>

**Assessment**

- Sexual history is important
- STI screen and MSU

**Management**

Patients under the age of 35 are more likely to have an STI and therapy should cover this possibility whilst waiting for microbiological results. Patients aged older than 35, with a low risk of an STI are more likely to have a UTI.

If no significant urinary symptoms and the patient is under 35 (or older with a high suspicion of STI) most likely due to chlamydia or other non-gonococcal, non-enteric organism. If high suspicion of Gonorrhoea (GC) liaise with local GUM department.

**Recommended regimen**

- Doxycycline 100mg bd for 14 days

**Alternative regimen**

- Ofloxacin 200mg bd for 14 days

Rest, simple analgesics and supportive underwear may also help recovery. If significant urinary symptoms, over 35 and low suspicion of STI treat as for a complicated UTI infection following local prescribing policy.
Follow up
Review at 2 weeks and continue therapy for one month if not fully recovered. The patient should be advised that full recovery may take some time. If not responding reassess to check antibiotic compliance, avoidance of sexual intercourse, risk of reinfection and use of analgesic. Ultrasound scan may be indicated if symptoms persist.

Contact tracing/partner notification
Current partners should be contact traced and treated unless a urinary pathogen is isolated. If a specific STI is isolated then contact trace as per recommendations.

Gonorrhoea

Causative organism
Neisseria gonorrhoeae infects mucosal surfaces of genital tract, rectum, oropharynx and eye.

Transmission
Gonorrhoea is always sexually transmitted in adults. Perinatal transmission results in eye infection in the neonate, presenting in the first week of life and is a notifiable disease. In older children the isolation of gonorrhoea should raise the suspicion of sexual abuse.

Symptoms
Depend upon the site of infection
- 85% of men with urethral infection develop symptoms within 10 days, most commonly discharge or discharge with dysuria, but some remain asymptomatic.
- Rectal infection is usually asymptomatic (approx. 80%), but may cause rectal/anal pain or discharge. Rectal infection can occur in the absence of anal intercourse.
- Pharyngeal infection is usually asymptomatic.
- Cervical infection in women is asymptomatic in about 70% of episodes, and the symptoms that do occur, such as vaginal discharge and low abdominal or pelvic pain are non-specific for gonorrhoea.

Signs
Examination may be normal, although other signs depend upon the site of infection.

<table>
<thead>
<tr>
<th>Urethra</th>
<th>Cervix</th>
<th>Rectum</th>
<th>Pharynx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge mucoid – purulent</td>
<td>Cervicitis</td>
<td>Proctitis</td>
<td>Exudate</td>
</tr>
<tr>
<td>Meatitis</td>
<td>Discharge mucoid – purulent</td>
<td></td>
<td>Pharyngitis</td>
</tr>
<tr>
<td>Signs of local complications (See below)</td>
<td>Cervical excitation (cf.PID)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Signs of upper genital tract infection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Complications

<table>
<thead>
<tr>
<th>Local complications in men</th>
<th>Local complications in women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epididymitis</td>
<td>endometritis</td>
</tr>
<tr>
<td>Infection of various penile glands</td>
<td>salpingitis, peritonitis, tubo-ovarian abscesses</td>
</tr>
<tr>
<td>Risk of abscess formation</td>
<td>bartholinitis</td>
</tr>
</tbody>
</table>

Much less commonly disseminated infection (DGI) occurs by haematogenous spread. In such cases, complications include septicaemia, arthritis, tenosynovitis, and skin lesions.

Diagnosis

In men
A presumptive diagnosis of urethral gonorrhoea can be made via gram stain and microscopic examination of discharge from a urethral swab in symptomatic men. Confirmation of diagnosis is via culture and/or NAATs dependent on local clinic protocols. For asymptomatic men the BASHH guidelines indicate NAATs on a FVU as the test of choice in GU clinics. In the case of positive results however, culture should be performed to check for resistance to antibiotics.

Pharyngeal and rectal samples are tested via culture and/or NAATS. Practice varies between GU clinics.

In Women
Gonorrhoea may be isolated from an endocervical swab taken in primary care, or very occasionally a HVS (not recommended) but if a charcoal transport medium is used this must be transported to the lab for immediate incubation within 6 hours. In the GU clinic asymptomatic women can be tested via a dual NAATS (testing for Chlamydia and gonorrhoea). This is usually via a self-taken vulvo vaginal swab. For symptomatic women and contacts of gonorrhoea national guidelines suggest an endocervical swab for culture and NAAT +/- a urethral culture. Other STI’s, in particular chlamydial infection and trichomoniasis, frequently co-exist with GC and all patients should be screened for these. The treatment varies locally depending upon current resistant patterns. Thorough evaluation and sometimes tests of cure are necessary to ensure eradication of the organism. For these reasons it is advised that patients with gonorrhoea should be managed in a GUM department.

Treatment
The treatments recommended locally will depend upon local antibiotic resistance patterns, source of the infection, and anatomical site of infection. Either refer to, or seek advice from your local clinic. In Birmingham the best treatment is ceftriaxone 500mg IM as a stat dose PLUS Azithromycin 1g po as a stat dose. There are second-line treatments which may be used if there is a contraindication to the first-line treatment. 30% of patients with gonorrhoea will be co-infected with Chlamydia which is one of the reasons that Azithromycin is included in the treatment. It is recommended that all patients with gonorrhoea return for a Test-of-Cure and the timing of this varies between clinics depending on local practice but is usually 2-4 weeks after treatment.
Contact tracing/partner notification
It is essential that all recent (last three months or previous partner if longer) and current sexual partners are seen and tested for gonorrhoea.
In some situations, epidemiological treatment (treatment given to named contacts of patients after a history of exposure to disease, but without or in advance of confirmatory pathological findings) may be given. This is justified if it is considered that the risk of unnecessary treatment is outweighed by the risk of complications of the infection or the likelihood of infecting others.

Follow up
Review at 2 weeks. If not responded reassess antibiotic compliance and sensitivities, check avoidance of sexual intercourse and no risk of reinfection.

Herpes Simplex Virus (HSV)

Causative organism
There are two types of HSV, 1 and 2. Both can infect either mouth or genitals.

Transmission
HSV is transmitted by close physical contact, either sexual and/or oro-genital. It can only be transmitted when an already infected individual is shedding virus, which happens sporadically and not necessarily in association with symptoms (asymptomatic shedding).

Clinical presentation
This is variable. Most patients acquire the infection asymptptomatically, presumably from an asymptomatic partner. A minority will develop a severe primary attack or first clinical episode within 2 – 12 days of acquisition of the virus. Some develop minor lesions only and 70 – 80% of individuals have no clinical symptoms and may be suspected only because a sexual partner presents with symptoms.

* It may not be possible to distinguish between a so-called primary attack, which implies new infection, and a first clinical episode where the patient may have acquired genital herpes at some time in the past, but only recently developed symptoms.

Primary infection usually more severe in females. In both sexes, the following symptoms may occur:
• Febrile illness (prodrome) lasting 5 – 7 days
• Dysuria
• Painful inguinal lymphadenopathy
• Tingling/neuropathic pain may occur in genital area, buttocks or legs
• Genital blisters, ulcers, fissures
An untreated first episode may last 3 weeks or rarely more. If HSV lasts more than 4 weeks, suspect underlying immunodeficiency.

Complications usually occur with the first episode and the risk is reduced if given antiviral therapy.
They include:
• Acute urinary retention (occurs predominantly in women)
• Constipation (may be a risk with first episode perianal disease)
• Aseptic meningitis

Clinical course
Recurrent episodes are usually mild. Presenting symptoms in men and women may typically include:
• Neuropathic prodrome, with tingling, burning, may occur in genital area, buttocks or legs
• Erythema, blisters, fissures and ulcers
• These usually resolve fully within 3 – 4 days

The risk of symptomatic recurrences is increased in patients:
• Who are young (< 20 years of age)
• Have a severe first episode
• Within three months of primary episode
• Who have genital type 2 infection
• With HIV infection or other immunodeficiency problems

Diagnosis
Patients should be seen as soon as possible during an acute episode. If possible swabs for HSV PCR should be taken from lesions, but treatment should not be delayed if these are not readily available. A negative PCR test does not exclude herpes as it may have been taken too late in an attack. If presentation is not typical, other causes of genital ulcers need excluding, especially syphilis, but again anti-viral treatment should not be delayed.

Treatment
Primary/first episode. If within 5 days of lesions developing or beyond 5 days, but still forming new lesions, commence treatment immediately.
• Recommended regimens (all for 5 days):
  o Aciclovir 400 mg 3 times a day for 5 days or 200mg five times a day for 5 days
  o Valaciclovir 500 mg twice daily for 5 days
  o Famciclovir 250 mg three times daily for 5 days
• Regular analgesics/laxatives where appropriate
• Bathing in a dilute saline solution (e.g. 1 teaspoon salt in a tumbler of warm water/1 teacup salt to medium bath) to relieve symptoms, reduce secondary infection and promote healing.

Counselling is of the utmost importance, may need to be repeated subsequently – give leaflet.

Recurrent episode. Specific antiviral therapy is not usually required. Saline washes and simple analgesics can be recommended. Patient initiated episodic treatment can be used in individuals with clear documented prodromal symptoms in an attempt to abort the attack.

Frequent/prolonged recurrent episodes. Patients experiencing six or more episodes per annum may benefit from a period of suppressive therapy where the aim is to prevent recurrences. Use 400mg Aciclovir bd for a period of 6 months with regular reviews.
Pregnancy
Advice should be sought in the case of a primary attack at any stage during pregnancy as this may be associated with a higher risk of adverse outcomes.

- Sequential cultures during late gestation to predict HSV shedding at term are not indicated
- Symptomatic recurrences of genital herpes during the third trimester are usually brief: vaginal delivery is appropriate if no lesions are present at delivery, however suppressive therapy should be offered to the pregnant woman in the 3rd trimester to reduce viral shedding at the time of delivery.
- Delivery by caesarean section is recommended if primary HSV attack occurs in the third trimester of pregnancy. Until 2015 practice in the UK was to offer caesarean section in recurrent HSV if genital lesions were present at onset of labour, but following review of the evidence new guidelines in 2014 recommend vaginal delivery can be offered to women if lesions are due to recurrent HSV.
- Pregnant partners of men with genital herpes, but without a history of genital herpes themselves, should be strongly advised not to have sex at the time of any recurrences. Conscientious use of condoms throughout pregnancy may diminish the risk of acquisition (viral shedding may occur in the absence of lesions). Any strategy for prevention of neonatal herpes needs to involve both parents.
- Pregnant women should be advised of the risk of acquiring genital HSV –1 as a result of oro-genital contact.
- HSV type specific serology is useful in distinguishing primary or recurrent attacks in pregnancy. It may also be useful for clinically discordant partners, i.e. it may help clarify transmission risk if the male partner has clinical lesions and the pregnant partner has no clinical lesions, serology may be useful in counselling regarding the prevention of acquisition if negative and may indicate treatment in the third trimester to prevent viral shedding at term if positive.

Contact tracing/partner notification
HSV is often passed within stable relationships by an asymptomatic carrier or an undiagnosed index case. It is useful to see partners to explain the diagnosis. In addition, up to 50% of apparently asymptomatic carriers will be found to have had symptomatic disease after an assessment.

Hepatitis B Infection

Causative organism. Hepatitis B virus (a small DNA virus).
It is endemic worldwide with very high rates (up to 20%) in South and East Asia, but also in Southern Europe, Central and South America, Africa and Eastern Europe. In the UK prevalence varies from 0.01-0.04% in blood donors to > 1% in intravenous drug users and gay men.

Transmission
It is 10 – 100 times more infectious than HIV

- Sexual transmission occurs in unvaccinated gay men and correlates with multiple partners, unprotected anal sex and with oro-anal sex (“rimming”). Transmission may occur after heterosexual contact e.g. 18% infection rates for regular partners of patients with acute hepatitis B. Sex workers are at higher risk.
- Parenteral (blood, blood products, drug-users sharing needles and syringes, needle-stick)
- Vertical (infected mother to infant)
- Sporadic infection occurs in people without apparent risk factors, in institutions for learning difficulties and also in children in countries of high endemicity, but means of transmission is poorly understood.

**Clinical presentation**
Incubation period 1 – 6 months. Virtually all infants and children have asymptomatic acute infection. Asymptomatic infection is also found in 10 – 50% of adults in the acute phase and is especially likely in those with HIV co-infection. Women tend to have more severe disease than men.

**Diagnosis**
- **Hep B SAg** (surface antigen) is positive in acute and chronic infection, disappearing in resolved infection. Usually appears within 3 months of infection.
- **Hep B cAb** (core antibody) is a marker of acquired infection and remains positive in resolved infection but negative in vaccinated patients.
- **Hep B eAg** (envelope antigen) is a marker of high viral activity/infectivity.
- **Hep B sAb** (surface antibody) is a marker of successful vaccination (or evidence of an old resolved HBV infection when Hep B cAb is also present) and its titre determines level of immunity.

In acute infection blood tests are repeated over time to monitor liver dysfunction and to look for the development of antibodies.
Chronic infection – in most cases the only abnormality will be mildly abnormal amino-transferase levels and in many the liver function tests (LFT) will be normal. Only in severe late stage liver disease do the LFT’s become grossly abnormal.

**Complications**

**Acute infection**
- < 1% of patients with acute infectious hepatitis will develop fulminant hepatitis. Mortality is < 1%.
- 5 – 10% will develop chronic infection, but the rate is higher in those with asymptomatic acute infection, immuno-compromised patients with HIV infection, chronic renal failure or those receiving immuno-suppressive drugs.
- Pregnancy – increased rate of miscarriage/premature labour in acute infection.
- 90% of infants born to infectious (HBeAg +ve) mothers will become chronic carriers unless immunised. 20 – 30% of this group develop chronic hepatitis, cirrhosis or carcinoma of the liver.

**Chronic infection**
- Carriers with ‘e’ antigen have a higher risk of developing complications.
- Concurrent hepatitis C infection can lead to fulminant hepatitis, more aggressive chronic hepatitis and increased risk of liver cancer.
- Concurrent HIV infection may increase the risk of progression to cirrhosis.
- 10 – 50% of chronic carriers will develop cirrhosis leading to premature death in approximately 50%. About 10% of cirrhotic patients will progress to liver cancer.
**Treatment**
Patients who present acutely in the primary care setting can be monitored and usually do not require hospital admission. In view of the possibility of chronic infection, serology should be repeated after six months even if the LFT’s are normal. Patients who develop ‘e’ antibodies, but remain HBsAg positive should have annual LFT’s and assessment by a specialist to determine if additional Ix and f/u are required. Persistent HBeAg carriers or anyone with abnormal LFT’s should be referred to a specialist.

**Pregnancy and Breastfeeding**
Vertical transmission (mother to infant) of infection occurs in 90% of pregnancies where the mother is hepatitis B e antigen positive and in about 10% of surface antigen positive, e antigen negative mothers. Most (> 90%) of infected infants become chronic carriers.

Infants born to infectious mothers are vaccinated from birth, usually in combination with Hepatitis B specific Immunoglobulin. This reduces vertical transmission by 90%.

Infected mothers should continue to breast-feed, as there is no additional risk of transmission.

**Contact tracing/partner notification**
Contact tracing should include any sexual contact or needle-sharing partners during the period in which the index case is thought to have been infectious. The infectious period is from 2 weeks before the onset of jaundice until the patient becomes surface antigen negative.

Where there is evidence of chronic carriage and especially if eAg +ve the patient should be advised of the importance of vaccination for future sexual contacts and testing and vaccination should be arranged for children in the household if not already vaccinated at birth. Consideration should also be given to testing and screening any other long term household contacts e.g. parents, carers or residents in the case of institutional care.

Specific hepatitis B immunoglobulin 500 i.u. i.m. (HBIG) may be administered to a non-immune contact after a single unprotected sexual exposure or parenteral exposure/needle-stick injury if the donor is known to be infectious. This works best within 48 hours and is of no use after more than 7 days (arrange via local virology department).
- An accelerated course of recombinant vaccine should be offered to those given HBIG plus all-sexual and household contacts (at 0, 1, 2 and 12 months). It is possible to give even more rapid courses (ultra-rapid day 0,7,21 and 12 months).
- Avoid sexual contact, especially unprotected penetrative sex, until vaccination has been successful (anti-HBs titres > 100 i.u./l.)

**Screening and Primary Prevention**
Hepatitis B testing in asymptomatic patients should be considered in:
- Men who have sex with men
- Sex workers (of either sex)
- Intravenous drug users
- HIV positive patients
- Sexual assault victims
- Individuals from endemic areas
- Needle-stick victims
Sexual partners of positive or high-risk patients

Vaccination should be offered to non-immune patients in most of the above groups. The main exception is those who have been sexually assaulted and people born in countries of high endemicity, but not at continuing risk that are being screened primarily to detect chronic carriage.

- HIV positive patients show a reduced response rate to the vaccine (approximately 40%). Repeat courses may be offered (sometimes double dose vaccination), or alternatively await rise in the CD4 count >500 and revaccinate.
- The standard vaccination schedule is 0, 1 and 6 months.
- HIV negative non – or poor responders usually respond to further 3 injections at normal dose.
- Booster dose can be given after 5 years.

**Pelvic Inflammatory Disease (PID)**

PID is a syndrome, and initial diagnosis is based on the history and clinical findings. Symptoms range from:

- Very severe to mild
- Intermittent to asymptomatic
- PID is usually the result of infection ascending from the endocervix
- It may be: acute (<1 month) or chronic (>1 month)
- Negative microbiological tests do not exclude a diagnosis of pelvic inflammatory disease: in at least 50% cases no specific organisms are identified
- Common long-term sequelae of untreated infection are:
  - Chronic pelvic pain
  - Ectopic pregnancy
  - Infertility

**Infective agent(s)**

<table>
<thead>
<tr>
<th>Infective agent(s)</th>
<th>Specific tests often negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia trachomatis</td>
<td>Specific tests often negative</td>
</tr>
<tr>
<td>Mycoplasma genitalium</td>
<td>No commercial test available yet</td>
</tr>
<tr>
<td>Neisseria gonorrhoeae</td>
<td>Up to 30% also have chlamydia</td>
</tr>
<tr>
<td>Anaerobes</td>
<td>Usually secondary to damage following the above</td>
</tr>
<tr>
<td>Ureaplasmas</td>
<td>Possibly implicated</td>
</tr>
<tr>
<td>Streptococci</td>
<td>Post-surgical, but must exclude gonorrhoea/chlamydia</td>
</tr>
<tr>
<td>M. tuberculosis</td>
<td>Rare cause (usually chronic presentation)</td>
</tr>
<tr>
<td>S. typhi</td>
<td>Rare cause</td>
</tr>
<tr>
<td>Actinomycyes</td>
<td>Rare cause of chronic disease; actinomyces-like organisms may be reported in Association with IUD</td>
</tr>
</tbody>
</table>

**Diagnosis**

A bi-manual examination is required to make the diagnosis. To avoid missing women with mild, subtle symptoms, in principle have a low diagnostic threshold (i.e. be prepared to over diagnose and over treat). Damage to the fallopian tubes and hence long term sequelae can
be reduced by avoiding treatment delay (within 3 days of presenting with symptoms) and is
less when infection is mild.

<table>
<thead>
<tr>
<th>Useful indicators</th>
<th>Symptoms</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young (&lt; 25 years)</td>
<td>Pelvic pain (constant or intermittent)</td>
<td>Uterine tenderness Cervical excitation</td>
</tr>
<tr>
<td>Sexual activity  - recent partner change - non-barrier contraceptive</td>
<td>Vaginal discharge Deep dyspareunia Heavy menses Intermenstrual/post-coital bleeding</td>
<td>Adnexal tenderness Pyrexia (unusual in chronic infection and not necessary for the diagnosis)</td>
</tr>
<tr>
<td>Cervical instrumentation -TOP - Recent IUD change (within 3 weeks) - recent miscarriage</td>
<td>Vaginal discharge May include some or all of the above</td>
<td></td>
</tr>
</tbody>
</table>

Differential diagnosis includes:
- **Ectopic pregnancy**
- **Irritable bowel syndrome**
- **Endometriosis**
- **Appendicitis**
- **Ovarian cysts**
- **Uterine cramps related to insertion of an IUD**

Investigations
- **Pregnancy test**
- Endocervical swab N.gonorrhoeae culture
- Endocervical or vulvo-vaginal swab for dual NAATs (Chlamydia trachomatis and N. gonorrhoea)
- HVS for MC&S will rarely identify a causative organism and alone is not useful
- Hx of urinary symptoms and MSU specimen may assist in the differential diagnosis of lower abdominal pain
- Pelvic ultrasound if a mass is palpable and laparoscopy for patients who fail to respond to therapy

Treatment
Because of the lack of definitive diagnostic criteria, a low threshold for empiric treatment of PID is recommended.

**Out-patient treatment for PID**
Ofloxacin 400 mgs bd for 14 days plus Metronidazole 400 mg bd for 14 days*

**Second line treatment include**
Doxycycline 100 mg bd for 14 days plus Metronidazole 400 mg bd* for 7 days (NB if infection acquired abroad or high incidence of gonococcal infection in local population add Ceftriaxone 500 mg i.m. stat dose).
Or Moxifloxacin 400 mgs od for 14 days (this produces equivalent results to the above regimen, and is easier to take, but causes liver toxicity in a small number of patients

*If patient intolerant of Metronidazole it can be dropped in mild/moderate disease.

*Alternative regimen*
Erythromycin 500 mg q.d.s. for 14 days plus Metronidazole 400 mg b.d. for 5 – 7 days plus cover for gonorrhoea as above.

If an IUD is present and this is the woman's preferred method of contraception, this can be left in situ and only removed if the condition fails to respond to treatment and the other causes of pain have been excluded.

*In-patient management for PID*
Admission for in-patient therapy, observation, further investigation and/or possible surgical intervention should be considered in the following situations:

- Diagnostic uncertainty
- Severe symptoms or signs or worsening whilst on treatment
- Presence of a tubo-ovarian abscess
- Immunodeficiency
- Inability to tolerate an oral regimen

*Contact tracing/partner notification*
Current male partners should be contacted and screened for infection or referred to local GUM department even if no organism isolated in woman. Empirical treatment for chlamydia with Azithromycin 1 g stat or Doxycycline 100 mg b.d. PO for 7 days is recommended for all sexual contacts.

*General Advice*

- Advise to avoid intercourse (even with a condom) until they and their partner have completed treatment
- Rest is recommended for those with severe disease
- Appropriate regular analgesia should be provided
- Provide written information

*Follow-up*

- Patients should be advised to return if their symptoms worsen, they should all be seen at the completion of therapy, and a bi-manual examination performed.
- Ensure compliance, sexual abstinence and partner treatment
- If better or improving no further action is necessary
- If infection is unresponsive, and the diagnosis reviewed then a further 2 weeks of antibiotics may be worth trying.

If there is still no response then other causes should be considered including gynaecological or gastroenterological diagnoses and referral for laparoscopy.
**Syphilis**

**Causative organism and transmission**
Treponema pallidum, a spirochaete. Syphilis is most infectious through sexual contact during the primary and secondary phases of infection, but transmission can occur during the early latent phase. Perinatal transmission may also occur later in the disease course.

**Symptoms and signs**
*Primary syphilis* presents as an ulcer (chancre) and regional lymphadenopathy 9–90 days after exposure. The chancre is classically single, painless and indurated with a clean base discharging clear serum in the anogenital region. However they may be atypical: multiple, painful, purulent, destructive, extragenital.

*Secondary syphilis* can present as multi-system involvement within the first 2 years of infection: generalised polymorphic rash (classically non-itchy) often affecting the palms and soles, condylomata lata, mucocutaneous lesions, generalised lymphadenopathy; less commonly, patchy alopecia, anterior uveitis, meningitis, cranial nerve palsies, hepatitis, splenomegaly, periostitis and glomerulonephritis.

*Early latent syphilis* is characterised by positive serological tests for syphilis with no clinical evidence of treponemal infection and within the first 2 years of infection.

*Late latent syphilis* is infection diagnosed on serological testing and which is of more than 2 years’ duration symptoms or signs of late manifestations of syphilis.

*Symptomatic late syphilis* is found in up to 40% of individuals. This consists of 3 major clinical manifestations, which may co-exist:
- Neurosyphilis - the most common manifestations are related to dorsal column loss (tabes dorsalis) and dementia (general paralysis of the insane/GPI). Neurosyphilis may be asymptomatic and is diagnosed when individuals have late syphilis with abnormal CSF examination, but with no associated neurological symptoms or signs.
- Cardiovascular syphilis is characterised by aortitis usually involving the aortic root and may result in aortic regurgitation, aortic aneurysms and angina.
- Gummata are inflammatory fibrous nodules and plaques that can be locally destructive. They most commonly occur in skin and bone, but can affect any organ.

**Diagnosis**
Most diagnoses are made on syphilis serology. The diagnosis may be suspected on the basis of the sexual history and symptoms. In GUM the diagnosis may be made on the basis of finding T. pallidum on dark field microscopy from material obtained from the lesions or via a PCR test.

**Recommended treatment**
Long acting penicillin. The regimen and preparation vary depending upon the disease stage, co-existing HIV infection and pregnancy. Management should be discussed with the local GUM department.
Contact tracing/partner notification
Current partners should be screened for syphilis and other STIs and treated if found to be infected. Repeat serology may be necessary after 3 months. The look back period for other partners and children will depend on the disease stage at presentation and on occasions may be some years.

Follow-up
Depends upon the stage of infection, but is for a minimum of 1 year with repeat serology.

Trichomonas vaginalis

Causative organism and transmission
Trichomonas vaginalis (TV) is a flagellated protozoon. In adults, it is almost exclusively sexually transmitted.

Symptoms and Signs
Women – The organism is found in the vagina and urethra. Fifty percent of women are asymptomatic. The remainder complain of vaginal discharge – offensive, yellow, thin and frothy, vulval irritation, superficial dyspareunia or dysuria. Signs include vulvitis, vaginitis and excessive vaginal discharge, which is characteristically yellow, commonly cervicitis with contact bleeding.

Men – Infection is usually of the urethra although TV has been isolated from the sub-preputial sac and from lesions of the penis. Men are usually asymptomatic and examination is normal. Some have symptoms and signs of urethritis or rarely balanitis.

Complications
There is an association with preterm delivery and low birth weight.

Diagnosis
It may be diagnosed on a high vaginal swab in females. The vaginal pH is usually > 5.0. Trichomonads are sometimes reported on cervical cytology: sensitivity is approximately 60%, but there is a high false-positive rate. In such cases, it is prudent to confirm the diagnosis by a high vaginal swab. The diagnosis is much more difficult in men and as a result male partners of female patients should always be treated.

Recommended treatment
- Metronidazole 400mg twice daily for 5 days
- Metronidazole 2 g orally in a single dose

The single dose has the advantage of improved compliance; however there is evidence to suggest that the failure rate is higher, especially if partners are not treated concurrently.

Pregnancy
Metronidazole can be used in all stages of pregnancy and during breastfeeding; however, manufacturers recommend that single 2g dose regimens are best avoided in these circumstances. In symptomatic disease in early pregnancy where the woman declines Metronidazole, local therapies (Clotrimazole pessaries 100 mg daily for 7 days or Balance
Activ) could be used, but systemic therapy will ultimately be necessary to eradicate the infection.

**Contact tracing/partner notification**

Current partners should be screened for STI’s and treated for TV regardless of the results of their tests. Sexual abstinence should be advised until treatment of all partners is completed.

Tests of cure should be undertaken if the patient remains symptomatic, or if symptoms recur.

Persistent/recurring symptoms after therapy
- Check compliance and exclude vomiting
- Check possibility of re-infection from new or untreated partners
- Patients who fail to respond to first course of treatment often respond to a repeat course of increased dose treatment

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**Urethritis**

This is a syndrome characterised by dysuria and/or discharge. Examination may reveal objective evidence of discharge.

Causative organisms
- N.gonorrhoeae
- C.trachomatis
- Mycoplasma genitalium
- Trichomonas vaginalis (esp in non-white populations)

If specific pathogens such as N.gonorrhoeae or C.trachomatis are isolated the condition is termed either gonococcal or chlamydial urethritis. In the absence of specific pathogens, the term non-specific urethritis (NSU) or non-gonococcal urethritis (NGU) is used.

**Transmission**

NSU is predominantly sexually acquired. The causative agent(s) may be transmitted through unprotected genital or oro-genital contact. Female contacts are commonly asymptomatic and need to be treated as they run the risk of developing pelvic infection if not treated. Asymptomatic men are more likely to have female partners who present with complicated infection.

**Investigations**

In primary care the diagnosis may be suspected by the history and examination. The commonest cause of urinary symptoms in men < 35 years is urethritis i.e. an STI. Sterile pyuria in any man with urinary symptoms is suggestive of urethritis. Ideally the tests that should be undertaken include:
- Urethral smear for Gram stain (symptomatic patients only)
- Urine (or urethral swab) dual NAATs test for C. trachomatis and N gonorrhoea
- +/- Urethral swab for N. gonorrhoeae culture

It is recognised that many of these cannot be performed in primary care and therefore referral to GUM is the ideal.
If no cause for urethritis is identified then urinary tract infections should be considered and an MSU sample sent.

**Diagnosis**
The diagnosis requires the finding on a Gram-stained urethral smear, taken at least 2 hours after the last voiding, of more than 5 leucocytes per high-powered field. This is a diagnosis of exclusion (see differential below). Tests for specific causative pathogens should be negative. There should be no evidence of other localised problems, which could explain a urethral inflammatory exudate:
- Balanitis (any cause)
- Penile herpes
- Urethral warts
- Cystitis (i.e. proximal infection)

**Complications**
- Epididymo-orchitis
- Reiter’s syndrome
- Prostatitis
- Subfertility

**Treatment of NGU**
Uncomplicated first presentation – recommended regimens
- Azithromycin 1 g stat
- Doxycycline 100 mg b.d. for 7 days

**Alternative regimens**
- Erythromycin 500 mg b.d. for 14 days + metronidazole (to cover TV)
- Ofloxacin 200 mg b.d. or 400 mg o.d. for 7 days

**Contact tracing/partner notification**
All sexual contacts in last 3 months should be treated. Patients should avoid any sex (even with condoms) until both have completed anti-biotic therapy.

**Persistent or recurrent NSU**
If the history, symptoms and signs support persistent or recurrent NGU, try an alternative course of anti-biotics usually Azithromycin 500 mg stat followed by 250 mg od for 5 days with Metronidazole 400 mg b.d. for 5 days. This is a common problem area and liaison with local GUM clinic is recommended.

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**Warts – External Genital Warts (EGW)**

**Causative organism:** Human Papilloma Virus (HPV)

Genital warts are a marker for other STIs therefore patients with warts should be tested for other infections
There are more than 100 types of HPV. Some strains have a particular predilection for the genital area. Those most commonly referred to are HPV types 6, 11, 16, 18, 31 and 33, but approximately 30 types are associated with genital infection.

**Transmission and incubation period** HPV is passed through close; physical (skin to skin) contact, almost always genital for genital warts. Autoinoculation from other sites is very unusual. The incubation period for warts is usually 3 – 18 months, but can be longer. Many people infected with genital wart virus will never develop visible warts, but can still transmit the virus. It is therefore not possible to identify the source of infection in most cases. Many partners will be infected, but not have obvious warts.

**Symptoms and signs** include:
- Genital lumps, which may be hard or soft, and range from solitary to multiple
- Bleeding, especially urethral
- Occasionally itchy
- Sometimes, hyperpigmentation is present

The vulva, the perianal region (not necessarily indicating anal sex), the cervix, the vagina (less frequently), and the urethra (infrequently) are sites for warts in women. In men, warts are found frequently on the penis +/- urethra, in perianal region (again this does not necessarily indicate anal sex) and on the scrotum.

**Diagnosis**
This is usually clinical and based on the very characteristic appearance of genital warts. Patients with EGW do not generally have any associated symptoms apart from occasional itch and will present because they have noticed or felt growths. If there is any doubt about the diagnosis, for example pigmentation/ulceration/other atypical appearance/failure to respond to treatment, then a biopsy should be taken.

**Treatment**
The aim of treatment is to eradicate visible warts. It is not possible, with the currently available therapies, to guarantee to eradicate the virus.

Simple external warts
- Podophyllotoxin cream (easier for patients to apply) or solution. (*Avoid in pregnancy and if nut allergy*), adverse reactions can be minimised by careful explanation of its use.
- Weekly cryotherapy, if available

Other warts
- Cervix Colposcopy
- Oral and meatal warts Cryotherapy

**Pregnancy**
Some patients present for the first time in pregnancy. Podophyllotoxin and aldara are contraindicated. The risk of vertical transmission appears to be very low and the presence of genital warts should not influence the management of the delivery unless they are very large and may obstruct delivery. Spontaneous resolution in the puerperium may occur.
Follow-up
Other than cryotherapy most wart treatment is appropriate for home treatment. Patients should be encouraged to return for follow up if warts do not resolve or side effects occur. Smears should only be taken if indicated by the NHS cervical screening programme. The presence of extra genital warts does not require an increase in the frequency of routine cervical screening

Contact tracing/partner notification
All contacts should be offered STI screening and advice about HPV.

Complications
External genital warts (EGW) are most commonly caused by HPV 6 and 11, which are rarely associated with severe dysplasia and do not cause genital or anal cancers. Several genital strains (e.g. 16, 18, 31) however are oncogenic and can cause pre-cancerous abnormalities of cells in the male and female genitals (cervix, vulva, penis and anus) and cervical cancers. These strains rarely cause visible warts.

Cervical changes are currently screened for via the national cervical screening programme and more recently a preventative vaccination has been introduced in the UK. The bivalent vaccine contains inactivated extracts from human papilloma virus types 16 and 18 which are responsible for approximately 70 per cent of cervical cancer cases; the quadravalent vaccine additionally contains extracts from types 6 and 11, therefore offering protection against the commonest causes of genital warts. The vaccine is currently offered to school age females between 11 – 17 years of age. Duration of protection and timing or need for booster has not yet been established.
12. Rape/Sexual Assault

In England and Wales the law defines rape as any act of non-consensual intercourse perpetrated by a man. Offences committed on or after 1 May 2004 are prosecuted under the Sexual Offences Act 2003 which has extended the definition of rape to include the penetration by a penis of the vagina, anus or mouth of another person whether male or female.

Any sexual act with a child under 13 is classed as statutory rape regardless of the child’s ability to consent. In the eyes of the law they cannot.

Non-penetrative sexual acts include:
- Kissing the breasts
- Handling the genitalia
- Cunnilingus (mouth or genitalia)
- Anilingus (mouth or anus)
- Penile contact with the genitalia or anus that falls short of penetration

Penetrative sexual acts include:
- Penetration of the mouth (fellatio), vagina and anus by a penis
- Penetration of the vagina and anus by an object

Individuals presenting to health care professionals following a recent sexual assault will have a number of immediate needs. These may include:
- Emergency contraception
- Prophylaxis/screening for STI’s including hepatitis B and HIV*
- PEPSE* (as appropriate dependent on risk factors)
- First aid for minor injuries
- Investigation and treatment of more serious injuries
- The support of a friend or family member
- Replacement clothing (if still wearing the clothes worn at the time of the assault, as these will need to be retained)
- Safe accommodation
- Details of local victim support organisation and/or rape crisis group

Once these immediate issues have been identified it is appropriate to enquire if the complainant has considered discussing the assault with the Police. Competent adult and child complainants have a choice as to whether they report the assault to the Police.

* If the complainant wishes to report the sexual assault to the Police, and forensic evidence might still be retrievable they should be given information or referred to the local SARC (sexual assault referral centre) or police station. Any medical intervention e.g. genital examination and swab taking should be deferred unless there is an urgent medical need as this could inadvertently remove any forensic evidence.

Any information provided about the assault should be recorded verbatim. It is good practice to keep these details on a separate page within the clinic notes in case a judge or other presiding officer of a court orders that the notes relating to the incident are disclosed to the
court. (If this practice is followed the clinic notes should state where the details of the assault have been recorded and stored.)

**Note:** GUM clinics or other hospital settings are not normally equipped to use chain of evidence for specimens. Thus it is vital forensic samples are taken prior to any genital examination or STI screen if the patient wishes to pursue this with the police.
13: HIV - Basic Principles

- HIV is the cause of the acquired immunodeficiency syndrome (AIDS)
- Infection with HIV is characterised by the progressive loss of the CD4+ helper/inducer subset of T lymphocytes
- Loss of CD4 cells leads to severe immunosuppression and constitutional disease
- AIDS is characterised by the presence of opportunistic infections, neoplasms and neurological complications that rarely occur in persons with intact immune function

**HIV Epidemiology**

Figure 1: New diagnoses continue to rise while cases of AIDS and deaths have dramatically reduced due to the advent of highly active antiretroviral therapy (HAART).

![HIV Infections Chart](image)

**HIV Basic Principle 1**

Throughout the course of the disease HIV replication is constant and rapid
- During primary infection plasma RNA levels are $>10^7$ copies per ml
- After about 6 months a "set point" is reached, viral RNA levels are maintained at a steady state of $\sim 10^3$ to $10^5$ copies per ml
- To maintain this steady state virions are produced at a rate of $\sim 10^{11}$ per day
- Viral load set point correlates well with subsequent progression of disease
Figure 2: How the viral load set point correlates to disease progression

Figure 3: Typical course of HIV Viral load and CD4 count
**Basic Principle 2**
- Ongoing HIV replication leads to immune system damage and progression to AIDS.
- On average in the absence of treatment the time from infection to AIDS and death is about 10 years.
- However it can be as short as 3 or as long as 15 years.

**Basic Principle 3**
- Plasma HIV RNA levels indicate the magnitude of HIV replication and its associated rate of CD4 T-cell destruction.
- CD4 T-cell counts indicate the extent of HIV induced immune damage already suffered.
- Regular CD4 & plasma HIV RNA are necessary to determine:
  - risk of disease progression
  - when to initiate treatment & when to modify treatment.

**Basic principle 4**
As a rule of thumb: The higher the viral load the faster the disease progression.

<table>
<thead>
<tr>
<th>Values for people not on therapy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50 copies per ml</td>
<td>undetectable</td>
</tr>
<tr>
<td>&lt;500 copies per ml</td>
<td>very low</td>
</tr>
<tr>
<td>&lt; 5000 copies per ml</td>
<td>low</td>
</tr>
<tr>
<td>~50,000 copies per ml</td>
<td>moderately high</td>
</tr>
<tr>
<td>&gt;50,000 copies per ml</td>
<td>high</td>
</tr>
</tbody>
</table>

**Basic Principle 5**
The CD4 count will give an indication of the degree of immune suppression.

<table>
<thead>
<tr>
<th>Rule of thumb</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4 800-1200 cells /mm3</td>
<td>normal range</td>
</tr>
<tr>
<td>CD4 &gt; 500 cells /mm3</td>
<td>minimal immune suppression</td>
</tr>
<tr>
<td>CD4 ~350 cells /mm3</td>
<td>moderate immune suppression</td>
</tr>
<tr>
<td>CD4 &lt;200 cells /mm3</td>
<td>advanced immune suppression</td>
</tr>
<tr>
<td>CD4 &lt;50 cells /mm3</td>
<td>very severe immune suppression</td>
</tr>
</tbody>
</table>
**Basic Principle 6**
The clinical presentation of the patient will be related to the degree of the immune suppression.

- As the CD4 count declines (and the HIV viral load increases – although this may be constant) during the course of infection there is an increased risk of developing infections
- The severity of these illnesses and the risks of an AIDS diagnosis is greater the lower the CD4 count. Most AIDS diagnoses occur with a CD4 count of < 200 cells/mm³

**HIV Transmission**
There are 3 main routes of transmission for HIV

- Sexual transmission
- Parenteral transmission (direct inoculation of HIV by contaminated needles or infected blood products)
- Vertical transmission (i.e. transmission from mother to child)

**Sexual transmission** remains the main route through which new HIV infections are acquired in the UK and accounted for ~6500 new cases of HIV in 2009. Trying to reduce the number of people acquiring HIV through sexual transmission is a difficult task involving educating people about the risks, promoting increased HIV testing to identify people infected and therefore at risk of transmitting HIV to others and encouraging people to use condoms to prevent both transmission and acquisition of HIV.

**Parenteral transmission** is relatively rare accounting for only ~170 new cases of HIV in 2009. The risk is reduced by encouraging safe injecting practice in IVDU's (i.e. provision of clean needles and not sharing injecting equipment), good safety procedures around use of ‘sharps’ in medical practice including the availability of Post Exposure Prophylaxis (PEP) following sharps injuries and robust screening measures for all blood and human tissue products used in medical treatments.

**Vertical transmission** is also rare in the UK accounting for ~100 new cases of HIV in 2009 (2/3 of the children identified were born outside the UK). The reason so few cases of vertical transmission occur is that through the use of antiretroviral medication and other interventions it is possible to reduce the risk of an HIV pregnant woman transmitting the virus to her baby to <1%.

**Vertical Transmission (Mother to Child Transmission, MTCT)**
If a pregnant HIV positive woman does not have access to treatment or medical intervention there is a 25-35% chance that her child will be infected with HIV. Transmission of the virus can occur during pregnancy, delivery or breastfeeding (HIV virus is present in breast milk). Worldwide many women don’t have access to medical treatment which would reduce the risk of HIV transmission. This means that globally MTCT of HIV is still a significant problem. There are several measures that can be employed to reduce the risk of MTCT that are readily available in the UK and other developed countries. If these steps are followed then the risk of a child being infected with HIV falls to <1%.
1. Universal antenatal testing for HIV
   - Currently ~ 95% of women in the UK have an HIV test during pregnancy. Once diagnosed, steps can be taken to reduce the risk of transmission.

2. Anti-retroviral treatment for the duration of pregnancy
   - All pregnant women with HIV should receive anti-retroviral treatment during pregnancy. The aim is to achieve the lowest possible viral load by the time of delivery. Some women will require treatment for their own health if they have a low CD4 count. Other women with higher CD4 counts will take treatment during the pregnancy to reduce transmission to the baby, but will be able to stop treatment after the baby has been born.

3. Appropriate mode of delivery
   - If a woman has undetectable HIV viral load at the time of delivery then a normal vaginal delivery does not increase the risk of transmission.
   - If a woman has detectable virus in her blood at the time of delivery then a caesarean section will reduce the risk of HIV transmission to the baby.
   - Interventions during delivery such as fetal scalp electrodes and instrumental deliveries should be avoided if possible as they may increase transmission.

4. Anti-retroviral treatment for the baby (post exposure prophylaxis)
   - If the mother's viral load is fully suppressed at the time of delivery the baby should receive 4 weeks of single drug anti-retroviral treatment (zidovudine (AZT) is recommended).
   - If the mother has a detectable viral load there should be an AZT infusion running prior to and throughout the delivery, the baby will then require 4 weeks of treatment with 3 antiretroviral drugs.

5. Avoidance of breastfeeding
   - When a safe alternative is available (i.e. formula feeding) breast feeding should be avoided by HIV positive women.
   - Breastfeeding alone can account for a 10-15% risk of HIV transmission to the child.

Once the baby has been born it is important to perform a series of tests to check whether the child has been infected with HIV.
This testing is performed by looking for HIV DNA in the infant’s blood at 1 day, 6 weeks and 3 months of age. Maternal HIV antibodies will be detectable in the infant’s blood for up to 18 months. Loss of these antibodies at 18 months – 2 years is the final confirmation that a child is HIV negative.

**Acute Primary HIV Infection**
Sometimes known as HIV Seroconversion illness but often occurs before the presence of HIV antibodies. This is the time when an individual first contracts the virus. Be aware that serological tests for HIV antibodies may be negative or show an indeterminate response during the acute seroconversion illness. If seroconversion is suspected and the initial HIV test is negative the test should be repeated in 1-2 weeks’ time.

Approximately 30 – 60% of patients have a seroconversion illness.
Abrupt onset 2 – 4 weeks post exposure, self-limiting 1 – 2 weeks.
The symptoms are generally non-specific and the differential diagnosis includes a wide range of common conditions.

Be aware in high risk groups!
- MSM, IVDU’s, recent return from high risk country
- Patients presenting with Glandular fever like illness
- Fever, rash, swollen glands, sore throat, headache, myalgia
- They may even develop opportunistic infections due to acute drop in CD4 count

**Common Signs and Symptoms in primary HIV infection**

<table>
<thead>
<tr>
<th>Signs / Symptoms</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fevers</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>Fatigue</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>Rash</td>
<td>&gt;70%</td>
</tr>
<tr>
<td>Headache</td>
<td>32-70%</td>
</tr>
<tr>
<td>Lymphadenopathy</td>
<td>40-70%</td>
</tr>
<tr>
<td>Pharyngitis</td>
<td>50-70%</td>
</tr>
<tr>
<td>Myalgia, arthralgia</td>
<td>50-70%</td>
</tr>
<tr>
<td>Nausea, vomiting or diarrhoea</td>
<td>30-60%</td>
</tr>
<tr>
<td>Night sweats</td>
<td>50%</td>
</tr>
<tr>
<td>Oral ulcers</td>
<td>10-20%</td>
</tr>
<tr>
<td>Genital ulcers</td>
<td>5-15%</td>
</tr>
<tr>
<td>Thrombocytopenia</td>
<td>45%</td>
</tr>
<tr>
<td>Leukopenia</td>
<td>40%</td>
</tr>
<tr>
<td>Elevated hepatic enzymes</td>
<td>21%</td>
</tr>
</tbody>
</table>

The symptoms and signs are not unique to primary HIV infection and the diagnosis can be difficult in the primary care setting. An HIV risk history approached sensitively and in an appropriate manner may help identify those at greater risk.

There may be significant damage to the immune system at seroconversion which may result in one or more of the HIV related illnesses which are generally seen later on in the progression of the disease (e.g. oro-pharyngeal candida, zoster etc. see following sections).

**Benefits of early diagnosis of HIV infection**

- Early medical intervention with HAART (it is more effective when started with a higher CD4 count)
- Prophylaxis against opportunistic infections can be offered if appropriate
- Avoidance of inappropriate investigation for symptoms if HIV not considered
- Education about minimising the risk of infecting others
- Partner notification
- Treatment of pregnant women, delivery method and avoidance of breastfeeding (in UK) can dramatically reduce perinatal transmission
- Ability to inform important life decisions
- Relief of anxiety about knowing HIV status
- Access to help from social services, drug services etc.
**HIV associated conditions**

Most of these conditions are commonly seen in the general population. You may need to think of HIV if the presentation is atypical, a recurrent problem or the symptoms severe e.g. multidermatomal herpes zoster or oral candida without an identified cause. The suspicion may also be increased if the individual is possibly at risk of HIV infection.

**Dermatological manifestations**

Common skin and nail conditions or infections (bacterial, viral or fungal) presenting in uncommon ways should raise suspicion of immunodeficiency, including a risk history for HIV.

- Molluscum contagiosum – especially facial or widespread
- Psoriasis (newly presenting or worsening)
- Dermatophytosis – tinea pedis, corporis, capitis, cruris, onychomycosis
- Herpes infections – recurrent, disseminated, atypical severe
- Zoster infections – recurrent chicken pox, shingles, multidermatomal shingles
- Acne
- Itchy folliculitis
- Recalcitrant or mucosal warts
- Drug reactions
- Seborrhoeic dermatitis
- Xeroderma
- Crusted scabies
- Thrush – recurrent, severe – especially oral
- Syphilis

The following should suggest HIV infection unless proven otherwise

- Kaposi’s sarcoma
- Oral hairy leukoplakia
- Oro-pharyngeal candida esp pseudomembranous
- CMV ulcers

**Other manifestations**

- Recurrent respiratory tract infections without a known predisposing cause
- Tuberculosis
- Weight loss
- Persistent generalised lymphadenopathy

**Common AIDS presentations**

- Pneumocystis jiroveci pneumonia (PCP) – 80% of untreated HIV +ve patients, may present with insidious onset of increasing shortness of breath (especially on exertion), increasing dry cough, pyrexia, malaise, CXR normal in early disease, rapidly progressive and fatal
- Oesophageal candidiasis – presenting as dysphagia – usually associated with oral candida
- Mycobacterium tuberculosis – either with typical or atypical clinical presentation
- Cerebral abscess(es) – often caused by toxoplasma. Can be difficult to differentiate from a cerebral lymphoma
• Non-Hodgkin’s lymphoma is 60 times more common in HIV disease than in the sero-negative population
• Cryptococcal meningitis
• Mycobacterium avium complex
• CMV retinitis

The HAART Era
We are now in the era of HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART usually a combination of at least 3 antiretroviral drugs)

HIV is now better considered as a **chronic infection** rather than a progressive fatal disease if individuals are able to take and adhere to combination antiretroviral therapy.

In 2015 the British HIV Association changed its guidelines to recommend that all people living with HIV are offered the opportunity to take anti-retroviral therapy if they are able to commit to taking it. This recommendation is based on research evidence that ART is beneficial and reduces the relative risk of both AIDS and non-AIDS events even when the CD4 count is >500.

However taking HAART is not without its problems and side effects are common although not usually severe. Hence the risk benefit ratio has to be calculated for every individual as to the optimum time to start medication. The absolute risk of deferring therapy when the CD4 count remains above 350 is very small.

### Table 2: Licensed Antiretroviral Drugs 2015

<table>
<thead>
<tr>
<th>Nucleoside reverse transcriptase inhibitors (NRTI)</th>
<th>Non-nucleoside reverse transcriptase inhibitors (NNRTI)</th>
<th>Protease inhibitors (PI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zidovudine (AZT)</td>
<td>Nevirapine (NVP)**</td>
<td>Indinavir (IDV)</td>
</tr>
<tr>
<td>Stavudine (d4T)</td>
<td>Efavirenz (EFV)</td>
<td>Ritonavir (RTV)</td>
</tr>
<tr>
<td>Didanosine (ddI)</td>
<td>Etravirine (ETV)</td>
<td>Darunavir (DRV)</td>
</tr>
<tr>
<td>Lamivudine (3TC)</td>
<td>Rilpivirine (RPV)</td>
<td>Saquinavir (SQV)</td>
</tr>
<tr>
<td>Abacavir (ABC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emtricitabine (FTC)</td>
<td><strong>Integrate inhibitors</strong></td>
<td>Amprenavir (APV)</td>
</tr>
<tr>
<td></td>
<td>Raltegravir</td>
<td>Lopinavir/RTV (LPV/RTV)</td>
</tr>
<tr>
<td></td>
<td>Elvitegravir</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dolutegravir</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>CCR5 receptor blocker</strong></td>
<td>Atazanavir (ATZ)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nucleotide reverse transcriptase inhibitors (NRTI)</th>
<th>Fusion inhibitors</th>
<th>CCR5 receptor blocker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenofovir (TDF)</td>
<td>T20</td>
<td>Maraviroc</td>
</tr>
</tbody>
</table>

**Do not use NVP in women with CD4 > 250 or men with CD4 > 400**
Table 3: A summary of recommendations for choices of initial HAART regimens

<table>
<thead>
<tr>
<th>Regimen</th>
<th>preferred</th>
<th>alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRTI backbone</td>
<td>Truvada</td>
<td>Kivexa</td>
</tr>
<tr>
<td>third agent</td>
<td>Atazanavir/Ritonavir</td>
<td>Efavirenz</td>
</tr>
<tr>
<td></td>
<td>Darunavir/ritonavir</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dolutegravir</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elvitegravir/r</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Raltegravir</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rilpivirine</td>
<td></td>
</tr>
</tbody>
</table>

(Kivexa not recommended if high CV risk, VL >100,000 and contraindicated if HLA B5701 positive)

**Major Challenges in the HAART ERA**

**Toxicity associated with ART - significantly reduced with newer ARV drugs but may be seen in patients who have experienced older ARV’s**

- Metabolic disturbances
  - Raised LDL Cholesterol
  - Raised Triglycerides
  - Glucose intolerance, insulin resistance or frank Diabetes
  - Fat redistribution syndromes with peripheral fat wasting and/or central fat accumulation
    - Symptomatic hyperlactaemia or frank Lactic acidosis (rare with newer drugs)
- Peripheral neuropathy and mitochondrial toxicity syndromes
- Drug hypersensitivity reactions
- Hepatitis, skin reactions and Stevens Johnson reactions

**Drug Resistance**

- Due to the high replication rate of the virus and the error prone nature of the reverse transcriptase enzyme, mutations are continually being generated.
- Most single mutations which confer drug resistance already pre-exist within the virus in the body.
- If viral replication is not fully suppressed with a “combination of drugs” then drug resistant mutations will be selected out and soon overgrow the drug sensitive virus.
- The result will be failure of the drug regimen and rebound in viral load.
- Resistance to one drug in a class causes a degree of resistance to other drugs within the same class therefore the number of treatment options becomes limited.
- Selection of resistance can subsequently be sexually transmitted to other individuals.

**Adherence**

- Once starting combination therapy, therapy is life long and a very high degree of adherence to medication is required.
- In fact over 95% adherence is required to allow 80 % of individuals to fully suppress their virus. Such stringent adherence may be less important with newer preparations with longer half-lives.
- Once adherence drops to 90%, less than 60% of individuals will successfully suppress viral replication.
- Maintaining lifelong adherence is a major challenge for HIV infected individuals.
On the positive side if patients can achieve full adherence it is theoretically possible to keep the virus under control indefinitely.

**Drug interactions**

- Unfortunately many HIV drugs induce or inhibit cytochrome P450 and other liver enzymes to a greater or lesser degree
- Therefore many HIV therapies can have dangerous interactions with commonly prescribed drugs and over the counter medications this can result in toxicities or sub therapeutic antiretroviral levels.
- Information about HIV drug interactions can be found at the internet site [http://www.hiv-druginteractions.org](http://www.hiv-druginteractions.org)
- Please consider drug interactions carefully before prescribing drugs to a person taking anti HIV medication

**Important sources of information**

- [www.BHIVA.org](http://www.BHIVA.org)
- [www.aidsmap.com](http://www.aidsmap.com)

**Summary of how HIV might present to a busy clinician**

**Seroconversion Illness**

4-6 weeks post exposure. Before this, HIV antibody test may be negative, so test for **HIV antigen** as well as antibody.

A glandular fever-like disease almost indistinguishable from the real thing including atypical mononuclear cells and a false-positive monospot.

- Fever, headaches, arthralgia, myalgia
- Sore throat and lymphadenopathy
- Rash, diarrhoea, nausea, vomiting

Seroconversion illness has bad prognosis (i.e. more rapid progression of HIV) esp. if accompanied by

- Oral thrush
- Neurological symptoms and signs
## Early Disease

<table>
<thead>
<tr>
<th>Skin</th>
<th>Common problems presenting in a persistent, or refractory way</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Seborrhoeic dermatitis</td>
</tr>
<tr>
<td></td>
<td>• Acne</td>
</tr>
<tr>
<td></td>
<td>• Psoriasis</td>
</tr>
</tbody>
</table>

Infections presenting in odd ways:

- Multi-dermatomal or recurrent Herpes zoster
- Herpes genitalis: increasing attack frequency or longer duration
- Facial multiple molluscum contagiosum
- Unusual fungal infections – e.g. fungal infection of proximal nail bed
- Tuberculosis - miliary, extrapulmonary - early or late in HIV

<table>
<thead>
<tr>
<th>Mouth</th>
<th>Orals hairy leucoplakia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Candida with no other cause</td>
</tr>
<tr>
<td></td>
<td>Oral ulcerations</td>
</tr>
<tr>
<td></td>
<td>Kaposi sarcoma (also of skin)</td>
</tr>
</tbody>
</table>

| Nodes | Lymphadenopathy - persistent for over 3 months               |

**THINK! MOUTH, SKIN, NODES: TAKE RISK HISTORY**

## Late Disease

**THINK…**

<table>
<thead>
<tr>
<th>Cough, fever, dyspnoea over weeks and months</th>
<th>Pneumocystis jiroveci pneumonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focal neurological signs over several days</td>
<td>Cerebral toxoplasmosis (common)</td>
</tr>
<tr>
<td></td>
<td>Cerebral lymphoma (less common)</td>
</tr>
<tr>
<td>Headaches, photophobia without neck stiffness</td>
<td>Cryptococcal meningitis</td>
</tr>
<tr>
<td>&quot;Floaters&quot;, visual field loss</td>
<td>Cytomegalovirus retinitis</td>
</tr>
<tr>
<td>Dysphagia and oral candida</td>
<td>Candida oesophagitis</td>
</tr>
<tr>
<td>Diarrhoea over weeks</td>
<td>Infective cause including cryptosporidium</td>
</tr>
<tr>
<td>Fever and anaemia</td>
<td>Mycobacterium (tuberculosis / MAI)</td>
</tr>
<tr>
<td>Purple lesions on skin or mucus membranes</td>
<td>Kaposi sarcoma</td>
</tr>
<tr>
<td>Enlarging lymph nodes</td>
<td>Lymphoma</td>
</tr>
<tr>
<td>Weight loss and night sweats</td>
<td>Aids related complex</td>
</tr>
<tr>
<td>Dementia, unsteady gait, bladder disturbance in the young</td>
<td></td>
</tr>
</tbody>
</table>

**REMEMBER: ALWAYS SEND BRONCHIAL WASHINGS, BONE MARROW, BIOPSY SAMPLES FOR CULTURE**

Do not forget TB blood culture
14. Ethical and Legal Issues in GUM

Learning Outcomes

By the end of this rotation, students should have a good grasp of the following:

- Their duties are in relation to confidentiality in the context of infectious disease
- The ethical and legal issues related to under 16s attending for sexual health issues, including specific requirement for under 13s
- Their legal and ethical duties regarding disclosure in the context of sexually transmitted infections
- How to discuss a patient’s obligations to disclose information about infections to a/their sexual partner(s)
- Respecting a refusal of consent and gaining properly informed consent in relation to HIV testing
- GMC guidance on communicable disease, including their obligations to protect patients from infectious disease