Meningococcal Disease- Adults

Presentations can be divided into four groups:

- **Meningococcal Septic Shock**
- **Meningitis**
- **Both of above**
- **Non-specific: arthralgia, rash, collapse or confusion/psychosis**

The typical rash is non-blanching but there may be any or no rash!

Treatment
- **ABC – O_2 NRRM**
- **Benzyl Penicillin 2.4 grams slow iv**
- **Cefotaxime 2 grams slow iv**
- **Vigorous resuscitation with IV crystalloid + colloid**
- **Notify Anaesthetist and inpatient medical team**
- **Ensure that Public Health are notified (immediate family will need prophylaxis)**
- **DO NOT send PCR from EMERGENCY DEPARTMENT**

Toxic Shock Syndrome

Gram positive bacteria : Usually Staphylococcal. Occasionally streptococcal

Fever >38.9
Hypotension
Macular Rash (mucous membrane involvement)
Diarrhoea
Collapse

Treatment is supportive and high-dose flucloxacillin

Septic Shock (Non specific) see p68-70

Usually caused by pneumococci or gram negative organisms.

Focus of infection (may not be apparent initially)
Fever >38 or <36

Heart Rate >90
Respiratory Rate >20
WCC >12, 000or < 4,000 /mm3

- Recognise early & seek advice (see Early recognition of the sick patient p45)
- Give oxygen 100% via NRRM
- Give N saline 1 litre rapidly and monitor response
- Check Blood Cultures (x2 from different sites)
- Give empiric antibiotics (eg Tazocin 4.5g iv plus Gentamicin 1.5mg/kg slow iv (reduce if renal function abnormal)
- Catheterise bladder and measure urine output
- Check FBP, coag, blood gas, u&e, glucose, lactate, CRP, LFT, bone profile
- Perform ECG and CXR

Cellulitis- Lower Leg

Cause

- Usually streptococcal
- Occasionally staphylococcal
- More rarely may involve gram negative organisms if complicating a significant wound
- May be polymicrobial if occurring in patients with diabetic foot disease

Risk Factors

- Athlete's foot (recurrent disease)
- Lymphoedema
- Varicose eczema
- Obesity

Diagnosis

- Malaise and fever
- Progressive painful swelling and erythema
- UNILATERAL

Differential Diagnosis

Lower leg eczema	Itchy, non tender. Scaling or crusting
Acute oedema/blisters	Usually bilateral
Chronic lymphoedema	Can be red but no fever/malaise. Usually bilateral
DVT	Usually not well demarcated proximal margin of erythema. May be calf tenderness. Can co-exist ▸
Peripheral Vascular Disease (including DM)	Delayed cap refill. Can co-exist
Compartment Syndrome	Sharply localised and extreme tenderness
Vasculitis (eg E.N.)	Usually bilateral. Mainly anterior shin
Necrotising Fasciitis	SEVERE / CRESCENDO PAIN. High WCC. Positive blood cultures, low Na+, Blistering / superficial necrosis.

Investigation

- FBP, ASOT(if present>10days), Blood cultures (if Temp >38.5)
- U&E, LFTs if unwell and Streptococcal Toxic Shock Syndrome suspected

Treatment

- Admission rarely required unless severe, antibiotic resistant or co-morbidity
- Flucloxacillin 1g qid or Co-Amoxiclav 1.2g TDS iv via ACAHT for 48 hours if non-responding to oral antibiotics or severe at presentation
- Clindamycin for penicillin-allergic patients (Consultant Exemption form required)
- Affected areas should be elevated if possible – hands or fingers should be splinted in a volar slab
- Failed treatment with above -seek senior advice
- Consider admission to observation ward for anti-pressure mattress if resistant
- Avoid NSAIDs (associated with higher incidence of Nectrotising Fasciitis)
- *Refer suspected Necrotising Fasciitis to surgeons immediately: ill septic patient, rapidly progressive skin change and severe pain are all pointers to this diagnosis*

Management of Suspected Infective Gastroenteritis

This protocol applies to all adult patients with non-specific vomiting and/or diarrhoea. C Difficile Toxin should be checked and if positive (or has been positive within 12 weeks of presentation) must be isolated according to Trust Protocol.

1. **Assessment should take place in an "enteric precaution" area unless <u>definitely not</u> a gastroenteritis case (eg vomiting due to mi)**
2. **The patient should have a full doctor's assessment to exclude surgical/non-infective cause for symptoms (ie pancreatitis, obstruction etc).**
3. **Faeces should be sent to lab urgently for C/S if possible**
4. **If a surgical cause for the illness is excluded the patient's state of hydration should be assessed (including U&E) *and***
5. **Re-hydration using combined iv /oral method described below should be attempted over four hours in an infection-control cubicle in the Emergency Department. Patients should be monitored for this period.**
6. **If they require admission to another ward, the Bed manager should be asked to find an appropriate bed according to Infection Control Guidelines**
7. **Take care in elderly patients consider Mesenteric ischaemia in patients with significant associated abdominal pain and check venous lactate if elevated repeat after fluids and if not improved significantly consider ct scan/ surgical review**

Combined IV / Oral Hydration

(Rough guide: For moderate dehydration – 50mls/kg or ~3 litres over 4 hours)

- **Patient should be on an I/O chart**
- **IV fluids should be prescribed according to the state of hydration *<u>and cardiovascular status</u>* (eg 1.5 litres over six hours for a fit dehydrated patient)**
- **Oral fluids should be given as dioralyte or water, taken as sips over a minimum of 4 hours (eg 1.5 litres of fluid in a jug beside patient, warned to "drink little & often")**
- **Patient can be discharged if**
  - **tolerating oral fluids,**
  - **mobile,**
  - **passing urine**
  - **suitable home circumstances**
- **give infection precaution advice if discharging (if employed in food-handling refer to GP)**

Immunisation Enquiries and Infection Exposure (see also Needlestick injuries, Tetanus)

Don't guess the answer - You must check the Green Book ("Immunisation against Infectious Diseases" 2006) every time.

- **Post Vaccination Problems**

Usually affect children and may present to the Emergency Department or helpline. Specific guidelines are given in the Green Book and in the BNF.

- **Requests for emergency immunisation**

Patients may present to the Emergency Department or phone on helpline. Check green book and get senior advice
(e.g. Rabies, Hep B, usually from travellers or Varicella Zoster following exposure during pregnancy).

Urgent active +/- passive immunisation may be required. Blood titres may need to be taken.
Northern Ireland's Public Health Supplies are accessed via the on-call microbiologist at BCH.

Tetanus Prophylaxis (see Immunisation)

Required for corneal abrasions and burns as well as other wounds

Green book has guidance on this subject.

Good wound toilet is the mainstay of prevention! Grossly contaminated wounds and uncertain immune status – give Tetanus Immunoglobulin (see BNF)

Children and Young Adults – confirm received childhood course. Refer to GP if booster may be required

Older patients – may not have received course – full course (liaise with GP) or booster if immune but ten years or more since last dose.

Managing Suspected Exposure to HIV and Hepatitis Viruses

Each case of suspected Blood Borne Virus (BBV) exposure is different – judgement and experience are essential. Contact an experienced Emergency Department doctor or the Occupational Health nurse for advice.

The commonest scenarios that you will encounter will be:

- **Healthcare workers – usually after needlestick injury. All should be followed up at their Occupational Health Department**
- **Other occupational exposure – eg police, council workers("binmen" etc) who should all be followed up at their employer's Occupational Health Department.**
- **General Public – eg children playing with needles (iv drug abuse is common in this area), people who have sustained bites and scratches. All should be followed up by their GP who should receive a typed referral letter from you.**

The general approach is that all these episodes, except those known to involve very high risk donors, do not pose a sufficient risk of HIV to warrant post-exposure prophylaxis (PEP is as hard to tolerate as chemotherapy and its long term effects, especially the attendant risk of cancer, are not known). There is however a significant risk of hepatitis so patients should have a baseline serology sample checked and an accelerated course of Hep B immunisation (ie now, 4weeks and six months) with serology follow-up. Ask for senior help.

Overview of post-BBV exposure management

STEP ONE: Assess the risk of the Donor *

The donor is classified as high risk if he/she is in one of the following categories -

- known seropositive Hepatitis or HIV
- history of IV drug abuse
- homosexual or bisexual
- from an endemic area (e.g. South East Asia - hepatitis B, parts of the African Continent - HIV)
- sexual contact with a high risk person

STEP TWO: Assess the risk of the fluid or tissue

The following contaminating fluids or tissue are classified as high risk-

- blood
- any blood-stained fluid
- breast milk, amniotic fluid, vaginal secretions or semen
- peritoneal, pericardial or pleural fluid
- synovial fluid or CSF
- saliva in association with dentistry
- any tissue (unless already "fixed")

STEP THREE: Assess the risk of the exposure

The following types of exposure are classified as high risk -

- needlestick or other percutaneous exposure (3 in 1,000 for HIV)
- exposure to broken skin

- mucous membrane (<1 in 1,000 for HIV)

STEP FOUR: Assess the overall risk
You now have a picture of the relative overall risk. Unfortunately there are no hard and fast guidelines but some situations - e.g. percutaneous needlestick with a cannula which had been placed in a HIV positive patient's vein - are clearly very high risk compared to others. Try to place the patient into either 'very high risk', 'moderate risk' or 'low risk'.

STEP FIVE*:* Decide about treatment
1. Very high risk recipients* - immediate treatment according to the regimes below.

2. Moderate risk recipients - qualified reassurance and their case should be discussed urgently with a senior doctor
(occupational health or the Emergency Department).

3. Low risk recipients - reassured and referred to Occupational Health/GP.➔

TREATMENT REGIMENS

For HIV exposure
- Wash area of contact copiously and encourage to bleed where relevant
- Give recipient post-exposure prophylaxis starter pack, which contains five days' supply of the recommended triple therapy (Zidovudine, Lamivudine and Nelfinavir). A starter pack is kept in the Emergency Department. *The recipient should take the first dose immediately*
- Obtain sample from recipient for baseline HIV analysis
- Refer to Occupational Health/GP

For Hepatitis-B exposure
- Wash area of contact copiously and encourage to bleed where relevant
- Enquire about recipient's immune status. If they have not been immunised or if their titres did not indicate immunity following their vaccination course, administer Hepatitis Immune Globulin (this is obtained from the Belfast City Hospital) and start an accelerated immunisation programme by administering the first dose of "Engerix B" which is kept in the Emergency Department (different injection site)
- Obtain sample from recipient for baseline analysis
- Refer to Occupational Health/GP

For exposure to Hepatitis-C etc
- Wash area of contact copiously and encourage to bleed where relevant
- Obtain sample from recipient for baseline analysis
- Refer to Occupational Health/GP

* The "donor" is the patient whose fluid or tissue has contaminated the "recipient" who is the health care worker.

There is more information in the Needlestick Injury file in the Computer Room, particularly in relation to procedures for Healthcare Professionals