The Prevention of Infection with Blood Borne Viruses [BBV]

Control of Infection Manual
Section G Study Morning
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Aim

To raise awareness of the key information and procedures in **NHS Lanarkshire's Control of Infection Manual - Section G** to ensure you are aware of your role and responsibilities in BBV infection prevention in order to protect staff, patients, the public and yourself.
By the end of the session you will be able to:

• Identify the different types of BBV
• Understand the routes of BBV transmission, risk factors associated with BBV infection and treatment options available
• Identify key information and procedures involved in NHSL’s Section G that can assist in the prevention of BBV infection transmission
• Discuss your role and responsibilities in relation to undertaking a risk assessment and management of an injured healthcare worker following BBV exposure
Types of blood borne viruses

Hepatitis B

Hepatitis C

HIV
HEPATITIS B

- **What is it?** DNA virus. At least 10 genotypes (NHSL 2011)

- **Most infectious BBV** – 100 times more infectious than HIV. **How is it transmitted?** Unprotected sex, BBV route e.g. shared injecting equipment/snorters, tattooing/piercing, needle-stick, mother to child (uncommon in UK)

- **At risk groups include:** child born to HBV mothers, injecting drug users [IDU], sexual partners of infected people, MSM, household contacts, HCW, immigrants

- **Signs & symptoms of acute infection:** ‘flu like’, acute hepatitis +/- jaundice may occur in adults and adolescents. None if mother to child transmission but can reduce risk: antenatal screening & treatment

- There is a good chance of full recovery and clearing the virus for adults who become infected with Hepatitis B [90%]. Up to 10% of adults, and the majority of babies [90%] infected from their mothers if left untreated develop chronic Hepatitis B

- **Signs of chronic infection:** Varies greatly. Usually none, unless advanced liver disease; liver fibrosis, cirrhosis (2-3 decades) (NHSL 2011)

- **Good News:** Very effective antiviral treatments available, a vaccine exists 95% effective, harm reduction interventions IDU, condom use as prevention [NES, 2012]
HEPATITIS C

- What is it? RNA virus with 6 major geno-types

- How is it transmitted? mainly via BBV route – e.g. shared injecting equipment/snorters, tattooing/piercing, needlestick, *blood transfusion. Sexual transmission is uncommon other than in HIV+ men, Mother-to-child transmission can occur but is uncommon <5%

- Treatment offered will vary according to specific geno-type. No vaccine

- Progression: Hepatitis: slow, silent disease, takes 10-20 years to develop and progress. –ve impact: heavy alcohol consumption, obesity, smoking, co-infected with HIV/Hep B, age, gender

- Acute Hep C: Usually asymptomatic. Occasionally acute hepatitis/jaundice. <10% of infected people experience any symptoms. 25-30% of infected people spontaneously clear virus in acute phase

- Chronic Hep C: 70-75% people fail to clear virus and develop chronic Hep C infection. Of this group >:
  - 5-15% liver cirrhosis
  - 4-9% liver failure
  - 2-5% carcinoma per annum

- Good News: Very effective anti-viral treatment is available with good success rates. Harm reduction interventions IDU, condom use as prevention (SIGN, 2013, NHSL 2011)

- Prevalence varies ranging from 50% injecting drug users to 0.004% new blood donors. Approx 0.8% of Scottish population infected (SIGN, 2013, NHSL 2011)
HIV Human Immunodeficiency Virus

- **What is it?**
  A retrovirus that attacks the body’s immune system – mainly the CD4 T lymphocytes (NHSL 2011)

- **How is it transmitted?** Sexual transmission, BBV route e.g. via shared injecting equipment/snorters, needlestick, *blood transfusion, small risk from mucous membrane exposure, mother-to-child transmission

- **Compromises the immune system** - leaves person at risk of life-threatening opportunistic infections (TB, pneumonia)

- **Advanced stage of illness is known as Acquired Immune Deficiency Syndrome [AIDS]

- **Early diagnosis is important** to prevent significant damage to immune system and prevent onward transmission. Late diagnosis = worse outcome

- **Statistics** - By end of 2012 est. **100,000** people living with HIV in UK. 22% remain undiagnosed/unaware (HPS, 2013)

- **Treatment available is very effective** – anti-retroviral drugs [but not curable] (HIS, 2011)

- **Good News** – Normal life expectancy, particularly if diagnosed promptly (HPA, 2013)
Estimated number of people living with HIV (both diagnosed* and undiagnosed): UK, 2012 (HPS, 2013)

Total living with HIV = 98,400 (93,500 – 104,300)
Total diagnosed = 76,500 (75,000 – 78,000)
Total undiagnosed = 21,900 (17,200 – 27,600)
Health Benefits of Testing

Early access to treatment, monitoring and care

Detecting and diagnosing:

- number of people in the community who don’t know their BBV status
- Take control of their health, take actions to prevent onward transmission:
  - Sexual contact – condoms, reduce number of sexual partners
  - Household contacts - Hep B vaccine
  - Mother to child – Hep B vaccine
  - Injecting drug use contacts – Needle and syringe programme – ‘substantially and cost effectively reduce the spread of HIV among IDUs’ [WHO, 2013]

Testing available:
GP, Sexual Health Clinics, Addiction Services & Harm Reduction Teams

Treatments for all 3 BBV are available and highly successful
What can BBV not do?

- They cannot infect a person if there has been no exposure of infected blood or bodily fluids to broken skin or mucous membranes.
- They cannot infect a person if they have not entered a person’s body.
- They cannot be passed via social contact: hugging, kissing, shaking hands, sharing cutlery, sitting same toilet seat.
STANDARD INFECTION CONTROL PRECAUTIONS

- Hand-washing, don personal protective equipment [PPE] e.g. gloves/apron/ (eye and face protection high risk procedures)
- Safe handling & disposal of sharps
- Correct management of sharps injuries/containers/spillage from sharps container
- Correct management of spillage from blood and body fluid: refer to Control of Infection Manual - Section I : [Appendix 11 National Infection Prevention & Control Manual; Chapter 1]
- Incident reporting - Datix & Investigation System
Incidents by Type of Sharps/Other Injuries across NHSL

NHSL 2013 [Total n=217]

- Care Provider
- Contractor
- ISS Staff
- Patient
- Member of Public
- Employee/Staffing
- Student
- Bank/Agency Staff

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NHSL Sharps/Other Injuries Cause:

- Inappropriate handling/disposal e.g. in clinical/domestic waste, laundry, office drawers
- Over-filled sharps boxes
- Re-sheathing needles
- Sharps spillage – no temporary closure, inappropriate management
- Inadequate provision of sharps containers to patients self-administering drugs
BBV Prevention Measures: Sharps disposal containers – handle with extreme care

Sharps containers
• Ensure base & lid securely fitted together
• Label initialled, dated and point of origin identified
• Temporary closure mechanisms in use
• Close box and dispose when ¾ full, or at a minimum of quarterly intervals
• Safe positioning: Off the floor, out of reach children
• Do not dispose of sharps with other domestic/clinical waste

Safe Handling of sharps
• Never re-sheath needles
• Never leave sharps lying around
• Never walk around with unguarded sharps
• Never keep sharps in pocket
• Take sharps box to point of use
• Seek help with un-co-operative patients
• Care provision in Community - put all sharps in sharps container & ensure secure to negate risk of spillage

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Prevalence of needle stick injury (NSI)

- It is difficult to estimate number of NSI in UK - Under-reported!

- Estimates suggest 100,000 reported by health professionals each year in UK (Adams, 2011)

- Relative risk is higher when injuries are deep and from blood filled needles (SIGN 2013)

- The risk of BBV transmission following needlestick/similar injury from a known positive source is estimated to be:
  - HBV - 6-30%
  - HCV - 1.8%
  - HIV - 0.3%
What are my responsibilities following injured HCW?

Injured HCW Must

✓ First aid (encourage bleeding, gently squeeze (don’t suck), wash thoroughly warm running water and soap (don’t scrub), cover with waterproof dressing).

✓ Report incident to supervisor who must carry out risk assessment using forms A & B from Section G

✓ Assess Source patient for BBV risk factors and obtain consent for BBV testing

✓ Telephone & Follow up: A&E [HIGH RISK] or OH [LOW RISK]

✓ Telephone Advice Occupational Health [OH] (0830-1630) weekdays or A&E out-of-hours for advise

✓ Datix

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Assessing Significance of Injury or Contamination

(1) Type of injury/contamination?

**High Risk Injury**
- Percutaneous exposure e.g. needle stick/sharps
- Exposure to broken skin
- Human bites that break the skin
- Mucous membrane exposure (e.g. eye)

**Low Risk Injury**
- Splash on intact skin [no risk]
Assessing Significance of Injury or Contamination:

(2) Which body fluids involved?

High Risk Body Fluids = Blood !!

*Low Risk Body Fluids (*Unless contains visible blood)

Urine, faeces, saliva, sputum, tears, sweat and vomit, present minimal risk of HIV or blood-borne hepatitis virus infection unless contaminated with blood, although they may be hazardous for other reasons.

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Complete a Rapid Assessment of the Source [blood] Patient for Risk Factors

- Use Forms A & B
- Consent source for BBV Testing

Section 4: Appendices

Appendix 1 (Form A): Source Patient BBV Risk Assessment Letter

The questionnaire following this letter should be completed by the source patient. However, the source patient may not wish to complete it if they are unable to read or understand some of the words in this letter or conditions.

Dear Patient,

A number of staff have come into contact with your blood or body fluids. When this happens, we assess the number of staff who have been exposed to any bloodborne viruses (BBV) and Hepatitis B and C. If this is the case, we need to give the number of staff to prevent infection occurring. This treatment needs to be given very quickly if potential infection is to be avoided.

To make the assessment, we need to ask you two questions:

1. Did you answer some personal questions? These are important to help us understand if there is a risk to the staff in contact with your blood.
2. Your permission to take a blood sample to be tested for Hepatitis B and C.

The questions are based on your medical history. Please complete the questions below. You can complete them by answering yes or no to each question. The form will be passed to the doctor looking after the injured member of staff.

The results of your medical test will be sent to the doctor looking after your medical staff to help ensure the number of staff is getting the right treatment as quickly as possible if it is required.

We are grateful for your co-operation and help in making sure that treatment is given to the staff as quickly as possible.

Yours sincerely,

[Signature]

Medical Director
Classification of Risk Assessment

Actions: Advise injured HCW of the next step

Low Risk
- Telephone
- 1. Attend OH within 72 hours
- 2. Blood Storage, Hepatitis B Immunisation
- 3. Advise, Support and follow up

High Risk
- Telephone
- 1. Attend A&E immediately
- 2. Blood storage, HIV/HEP B PEP, BBV Testing at 6, 12, 24 weeks
- 3. Advise, Support and follow up – Lanarkshire HIV Aids Hepatitis Centre

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Summary

- Compliance with NHSL Control of Infection Manual - Section G ‘BBV Infection Prevention’ is mandatory
- Promotes the safest possible working environment to prevent BBV transmission to everyone
- Ensures we influence quality and safety of care across NHSL
- Through working together we can prevent life-affecting BBV
- Emphasis must be placed on supporting people with BBV to live healthier, fulfilling lives where no one is stigmatised for their health status, life choices or lifestyle
References [with web hyperlinks]

Adams (2011) To the point: needlestick injuries, risks, prevention and the law. British Journal of Nursing [Intravenous Supplement] (20), 8, S4-S11

Health & Safety (Sharps Instruments in Healthcare) Regulations 2013


NHS Lanarkshire (2011) Blood-borne viruses educational resource pack. NHSL.

NHS Lanarkshire's Control of Infection Manual - Section G


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