Occupational Exposure to Blood Borne Viruses

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[BBV]
2014
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.

Thursday, December 11, 2014
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,
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.
BBV Prevention Measures Follow

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/spillages from sharps container/spillage from blood and body fluid

• Incident reporting - Datix & Investigation System
Incidents by Type of Sharps/Other Injuries across NHSL

NHSL 2013 [Total n=217]
NHSL Sharps/Other Injuries Cause:

- Inappropriate handling/disposal e.g. in clinical/domestic waste, laundry, drawers
- Re-sheathing needles
- Over-filled sharps boxes
- Sharps spillage – no temporary closure, inappropriate management
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

**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
- Do not dispose of sharps with other domestic/clinical waste
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

- **Assess** Source patient for BBV risk factors and document

- **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**
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 !!

<table>
<thead>
<tr>
<th>Body Fluids etc., Which Should Be Handled With The Same Precautions As Blood</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Cerebrospinal fluid</em></td>
</tr>
<tr>
<td><em>Peritoneal fluid</em></td>
</tr>
<tr>
<td><em>Pleural fluid</em></td>
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<tr>
<td><em>Pericardial fluid</em></td>
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<tr>
<td><em>Synovial fluid</em></td>
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<tr>
<td><em>Amniotic fluid</em></td>
</tr>
<tr>
<td><em>Semen</em></td>
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<tr>
<td><em>Vaginal secretions</em></td>
</tr>
<tr>
<td><em>Breast milk</em></td>
</tr>
<tr>
<td><em>All unixed tissues, organs and parts of bodies</em></td>
</tr>
<tr>
<td><em>Any other body fluid containing blood</em></td>
</tr>
</tbody>
</table>

*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.

Thursday, December 11, 2014
Complete a Rapid Assessment of the Source [blood] Patient for Risk Factors

NHS Lanarkshire
Health Protection Committee

Section G – Blood Borne Virus Infection: Prevention

Effective From: Jan 2010
Replaces: Jan 2003
Pages: 25 of 46
Review Date: Feb 2014

Note: Completion of Review
Health Protection Committee approved review date extension to February 2014

SAMPLE FORM A
Appendix 1

EXPOSURE TO BLOOD BORNE VIRUSES
IMMEDIATE ASSESSMENT OF SOURCE PERSON FOR RISK FACTORS
TO BE COMPLETED BY THE PERSON ASSESSING THE RISK
FOR GUIDANCE ON CONSENT TO SHARE SOURCE PATIENT INFORMATION (SECTION 4.4)

ACTION BOX
1. Discuss the incident with Healthcare Worker (HCW) concerned
2. Speak to the source person (see notes below)
3. Ascertain the level of risk
4. Telephone Occupational Health & Safety Service or A&E
5. Advise injured HCW of the next step

Immediate risk assessment is necessary to determine whether HIV prophylaxis should be started immediately on the injured person, it is concerned with possible risk factors in the person who is the source of the blood or body fluids. Source persons will later be asked to undergo BBV testing following appropriate counselling.

To make this assessment ask the source person if any of the following would apply to them. If YES, ask which risk factor and obtain more information where appropriate. If the source person cannot be questioned directly (e.g., deceased, unconscious, uncontactable, confused, detained or a child), seek the information from other sources such as the case notes, relatives of the source person.

Is the source person known to have tested positive for:
- Hepatitis B (BBV)
- Hepatitis C (HCV)
- HIV

What sex is the source person?
- Male
- Female

If male, have they had sex with another male?
- Yes
- No

Has the source person injected drugs (e.g., heroin) in the past?
- Yes
- No

Assume that a child has no risk factors unless they are a known carrier of BBV, HCV or HIV

Source Person:
Address (or Ward):
Date of Incident:
Time of Incident:

Name of Risk Assessor (block capitals):
Signature (Risk Assessor):

AS SOON AS YOU HAVE COMPLETED THIS ASSESSMENT TELEPHONE:
A&E or OHSS and GIVE THE INFORMATION

Monday to Friday 8 am - 4.30 pm OHSS Needlestick Helpline: 07818456618
Weekends or after 4.30 pm weekdays nearest Accident & Emergency Department
Monroslades 01236 712247, Hamiryers 04105 384700, Wishaw 01698 366009

SEND THIS FORM WITH FORM B TO LHAHIC

SAMPLE FORM B
Appendix 2

EXPOSURE TO BBV
SOURCE PERSON INFORMATION FORM
To be completed by local assessor at time of incident

COMPLETE PARTS 1 AND 2 OF THE FORM THEN:
1. Telephone information to the Lanarkshire HIV, AIDS & Hepatitis Centre 01236 712247 or 712246
(09.00-17.00 hours Mon – Friday/Answering Machine out with office hours)
2. Post Part 1 of the form to: The Lanarkshire HIV, AIDS & Hepatitis Centre Monklands Hospital, Airdrie ML6 0SB
3. Give Part 2 of the form to: The source person

PART I
EXPOSURE
Date:
Time:
Place:

SOURCE PERSON
Name:
Date of Birth:
Address:

IS SOURCE PERSON AN IN-PATIENT?
Yes
No

If YES give details where:
Ward:
Hospital:
Assessor's signature:
Assessor's designation:
Assessor's name (block capitals):

PART II (decide and give to source person)
As you know an accident occurred in ......................................... (place of accident) on .......................................... (date of accident) and a healthcare worker was exposed to your blood or body fluids.

We know that you were in no way to blame for the accident. However, it may be necessary to offer treatment to the healthcare worker involved. To help decide whether this is required we would value your help.

In Lanarkshire when such an accident occurs it is routine for a member of the Counselling Service to visit and ask a few questions. An explanation of the reason for the visit will be given, and with your agreement, a few personal questions will be asked. You are not obliged to answer any of these questions. However, if you do your answers will remain confidential to those involved in the management of this incident.

Think you in anticipation of your help.

If you are being visited at home and you wish to check the validity of the counsellor who will visit you, please phone the Co-ordinator of the LHACH 01236 712247 or 712246
The LHACH Infectious Diseases Unit, Monklands Hospital, Airdrie ML6 0SB
Classification of Risk Assessment

Actions: Advise injured HCW of the next step

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

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

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Section G is Under Review:

*Under Review ‘New Section G Policy’

1. *Consent, take blood, send to lab for testing
   Phone labs. 
   **URGENT** sample

2. *Leave contact details as to who will receive and action the results

3. *Arrange for reporting of blood results to patient.
   Contact LHAHC.


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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


• 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


Questions?

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Photos courtesy of pixabay.com

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