LRI Emergency Department and Children's Hospital

Management of Needlestick Injuries in Children

Staff relevant to:	All staff working within the Children's ED and Children's Hospital
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Contents

1. Introduction and Scope

This guideline details the assessment and management of needlestick injuries in children. The overall risk of viral transmission from community-acquired needlestick injuries in children is low. The risk of transmission is highest for Hepatitis B, then Hepatitis C and then HIV. Seroprevalence data for blood-borne infections in people who use intravenous drugs in England, Wales and Northern Ireland (data end 2021)1

	Antibody positive	Detectable viraemia in those with positive antibody
HIV Prevalence	1.5%	6%*
HBV Prevalence	5.9%	0.2%
HCV Prevalence	57%	18%**

*98% of adults living with HIV and retained in care are on suppressive ART with an HIV viral load <200 copies/ml, however this will be an underestimate of prevalence of viraemia as it does not include people undiagnosed and those not retained in care.

** Wide spread availability of short course curative HCV therapy is rapidly reducing HCV viraemia within the UK population and rates of detectable viraemia in those with a positive HCV antibody is likely to be significantly lower in 2023.

The risk of acquiring HIV from a community acquired needle stick injury can therefore be assessed as:

Risk that source has HIV with a detectable HIV viral load x Risk of exposure ie 1.5/100 x 6/100 x 0.3/100 = 0.0000027 i.e. less than 1 in 100,000

Note that quoted risks are based on injuries from needles contaminated with fresh blood and therefore should only be used, and PEP considered if the needle is known to be freshly discarded. Old blood in a syringe and a needle found in a community setting is likely to carry a lower risk of transmission. In studies where a small amount of blood is retained in a syringe, viable HIV cannot be detected after 24 hours.[2]

The risk of HBV seroconversion following a needle-stick from a known high risk source with HBV (HBe Ag +ve) is 37-62% and around 5% following needle-stick from a known low risk source with HBV (HBe Ag –ve).3 The average HCV seroconversion rate following needle-stick from known source with HCV (RNA positive) is 1.8%.[3]

This guideline is relevant to all staff working within the Children's ED and Children's Hospital that may come into contact with a child presenting with a needlestick injury.

Related Documents:

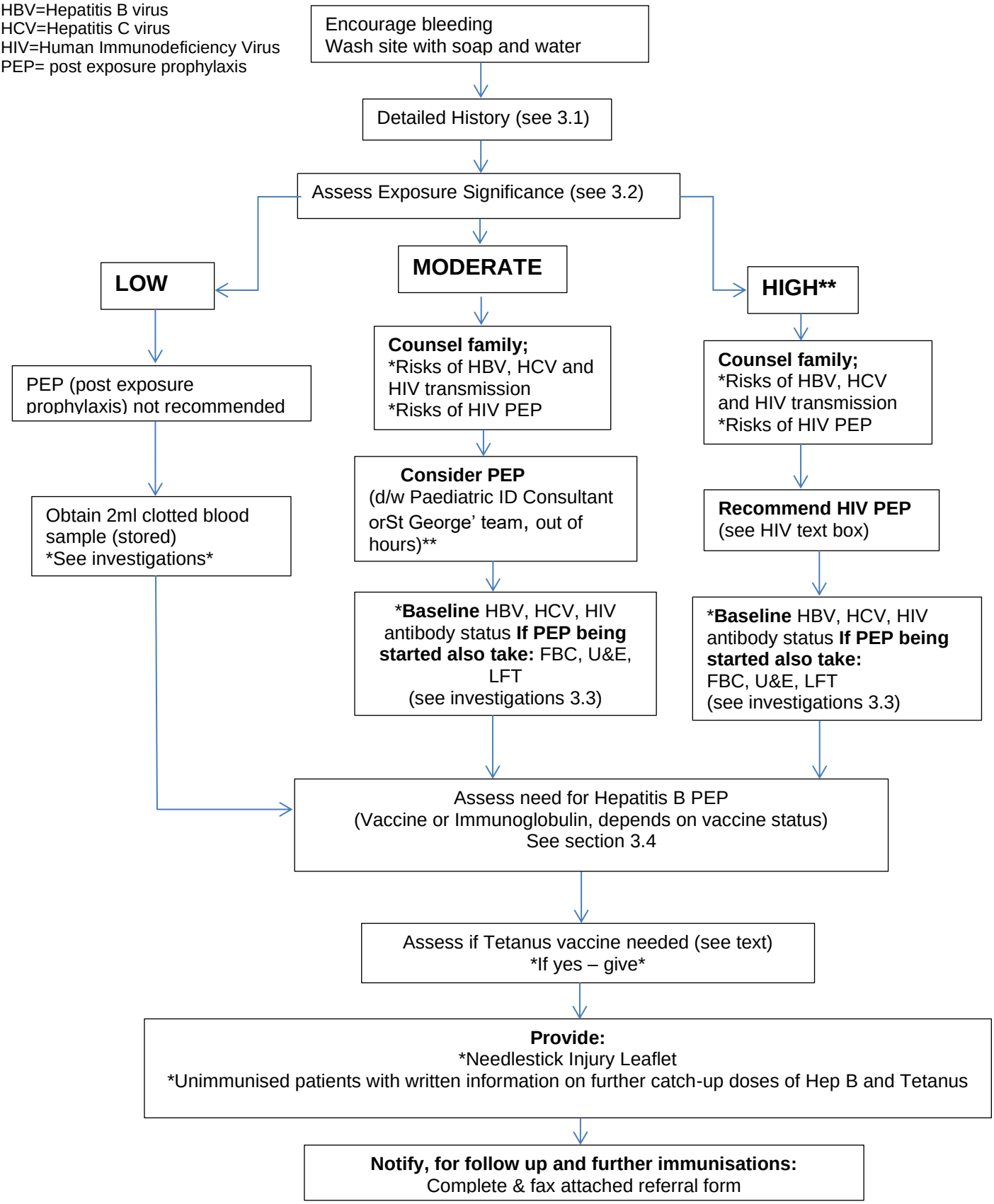
- **Infection Prevention UHL Policy B4/2005**
- **Consent to Examination or Treatment UHL Policy A16/2002**
- **Aseptic Non Touch Technique UHL Guideline B20/2013**

Please see main body for detail*

2. Management of Needlestick Injuries in Children: Flow Chart

Key:

HBV=Hepatitis B virus
HCV=Hepatitis C virus
HIV=Human Immunodeficiency Virus
PEP= post exposure prophylaxis



****Note: If Paed Infectious Diseases (ID) Consultant unavailable for advice, please contact on call Paed ID consultant, St Georges Hospital 020 8672 1255****

3. Management of Needlestick Injuries

3.1 Detailed History

- Include time, date and location of Incident
- Appearance of Needle
- Immunisation history

3.2 Assess Exposure Significance

LOW RISK

- No visible blood or body fluid on needle/ instrument
- Superficial injury that does not draw blood

MODERATE RISK

- Fresh blood on needle and penetrating Injury drawing blood[4,5,6]

HIGH RISK

- Exposure to blood or body fluids from known HIV, HBV, HCV source.

3.3 Investigations

Baseline Bloods (after informed consent)

- HBV (HBsAg & HBsAb), HCV serology , HIV 1 & 2 antibodies (1 white top bottle to Virology)
- Add FBC, U&E, LFT if PEP being started

3.4 Post Exposure Prophylaxis

Hepatitis B

HB vaccine Status of person exposed	HBsAg positive source	Unknown Source	HBsAg negative source
≤ 1 dose HB vaccine pre exposure	Accelerated course HB vaccine HBIG x1	Accelerated course HB vaccine	Accelerated course HB vaccine
≥ 2 doses HB vaccine pre exposure	1 Dose of HB vaccine, immediately, followed by a second 1 month later	1 Dose HB vaccine immediately.	Complete course of HB vaccines, dose can be given if due.

HB – Hepatitis B, HBIG – Hepatitis B Immunoglobulin
Note that Hep B has been in the primary Immunisation schedule since 2017.

Hepatitis B Vaccine Schedule (accelerated):

- 1st vaccine at time of presentation
- 2nd vaccine at 1 month
- 3rd vaccine at 2 months

Hep B vaccine Dose (IM, Thigh only)

- 0-15 Yrs or renal insufficiency - 0.5ml Engerix B
- 16 Yrs or more: 1ml Engerix B

***Note: The Paediatric Hep B vaccine is stocked in the Childrens Emergency Department (ED).**

HBIG needs to be obtained from the Rabies and Immunoglobulin Service (RIgS).
Tel: 0330 128 1020
https://www.gov.uk/government/publications/immunoglobulin-when-to-use/rabies-and-immunoglobulin-service-rigs

HBIG Doses (IM, thigh only)

- 0-5 yrs: 250 international units
- 5-10 yrs: 300 international units
- ≥10 yrs: 500 international units

HBIG should be the same time as vaccine (but different site) as soon as possible, preferably within 24 hours and ideally within 48 hours – but no later than a week after exposure. Hepatitis B vaccine should **never** be delayed while waiting for HBIG administration.

Hepatitis C

- No post-exposure prophylaxis is available for hepatitis C. Families may be counselled that, in the event of HCV seroconversion, therapy is increasingly successful.[4]

Tetanus

The need for tetanus injection/booster should be assessed per usual practice.8

Human Immunodeficiency Virus (HIV)

Risks of Post Exposure Prophylaxis (PEP)

- Counsel family about possible side effects; nausea, diarrhoea, headache. See specific medications for further detail.

3.5 Key notes on PEP:

Most effective when started asap (within 1 hour and certainly within 48-72 hours) and continued for 28 days

Prescribe 5 days of PEP A further prescription (total 4 weeks of PEP) will be given at paediatric consultant review if PEP is to be continued.2

For up to date PEP regimens and dosing, please see the Childrens HIV Association (CHIVA) antiretroviral guidance;
Microsoft Word - CHIVA_PEP_2023 Final
***Main Pharmacy stock 1 bottle of each of the recommended drugs so treatment can be initiated.**

Packs containing Raltegravir + tenofovir 245mg/emtricitabine 200mg tablets tablets (for use in ≥ 10 year olds who can swallow tablets) are also available Please note the 600mg tablets are large and children may find difficult to swallow.*

Please contact main pharmacy via switchboard; or on call pharmacist out of hours

Antiretroviral Therapy (ART) Regimens from CHIVA

Chiva | Chiva PEP

Key notes on PEP medication:

Anti-emetics:

- Gastrointestinal side effects are more likely to occur with regimens that contain Lopinavir with Ritonavir (Kaletra®) when compared to raltegravir. For those with nausea and vomiting on Kaletra® based PEP, a switch to paediatric raltegravir should be considered.
- Alternatively the addition of an anti-emetic to a Kaletra® based regimen requires a risk benefit discussion with the family (including discussion regarding the unknown risk of prolonged QT in the paediatric population inferred from adult data) and specialist advice from a tertiary centre and/or HIV pharmacist is recommended.

Drug interactions that may reduce the effectiveness of raltegravir:

- Rifampicin, Carbamazepine or Phenobarbital within the preceding 2 weeks
- Aluminium/ magnesium containing antacids
- Calcium and Iron contained in Vitamin supplements.

Avoid co-administration of Kaletra with steroids including nasal/inhaled preparations of fluticasone and budesonide due to the interaction with ritonavir, producing extremely high steroid levels.

Further information on drug interactions with anti-retrovirals can be obtained at http://www.hiv-druginteractions.org/ or discuss with a pharmacist

3.6 Follow up when starting HIV PEP

- Email paedsgentbmailbox@uhl-tr.nhs.uk (Please mention 'The time of injury' and document 'Urgent): clinic follow up within 72 hours of Injury
- Give contact phone number (Childrens HIV Specialist Nurse on07810422148) in case of concerns during or after the treatment period.
- Please complete a letter for the GP

4. Education and Training

No new skills are required in order to implement this guideline.

5. Monitoring and Audit Criteria

Key Performance Indicator	Method of Assessment	Frequency	Lead	Reporting arrangements
All children who meet the criteria should receive hep B vaccines and / or PEP	Audit	Three yearly	Paed ID Cons	Departmental audit meeting

6. Supporting Documents and Key References

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6. **Makwana N, Riordan F A I.**Prospective study of community needlestick injuries.Arch Dis Child 2005;90:523–524. *http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1720381/pdf/v090p00523.pdf* (accessed Oct 2015)
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8. **Public Health England.** Tetanus: Green Book. April 2013. Pg. 370-373, 379-381 *https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148506/Green-Book-Chapter-30-dh_103982.pdf* (accessed Jan 2022)
9. **Infection Prevention UHL Policy B4/2005**
10. **Consent to Examination or Treatment UHL Policy A16/2002**
11. **Aseptic Non Touch Technique UHL Guideline B20/2013**

7. Key Words

Needlestick, Injury, Hepatitis B, Hepatitis C, HIV, Anti-retroviral therapy, Post Exposure Prophylaxis

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The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.

As part of its development, this policy/guideline and its impact on equality have been reviewed and no detriment was identified.

DEVELOPMENT AND APPROVAL RECORD FOR THIS DOCUMENT			
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Executive Lead	Chief Medical Officer		
Approved by:	**Children's Services Clinical Practice Group**		**Date Approved:** March 2017
REVIEW RECORD			
Date	**Issue Number**	**Reviewed By**	**Description Of Changes (If Any)**
May 2016	1		
March 2017	2	S Bandi	**No changes**
Feb 2019	3	S Bandi	**No changes**
Jan 2022	4	S Bandi R Radcliffe J Dey	**Referenced to CHIVA recommended drug regime.** **Changes to Hep B Immunisation advice**
July 2023	4	S Bandi	**UHL Email contact updated**
Nov 2024	5	S Bandi	**Introduction updated** **Hyperlinks updated** **References updated** **Paediatric ID at St George's Hospital details added for out of hours contact on flow chart on page 3**

Appendix 1 : Needlestick Injury: Paediatric Referral Form to Dr Bandi, CDCU

Referring Dr: **Date Referred:**

Dear Dr Bandi

I would like to inform you about a patient who has been exposed to a needlestick injury**:**

Personal Details

Patient Details:	Parents Name:
Name	Mother's
D.O.B	Father's
Address	Telephone: Home
	Mobile
Postcode	

Details of Needlestick Injury

Date & time of Needlestick Injury: Date of presentation:

Brief description of events:

Risk of virus transmission: Low Moderate High

Clotted blood sample taken (white top) for HIV, Hep B, Hep C antibodies? Yes No N/A

If starting PEP, bloods also sent for FBC, U&E and LFT? Yes No N/A

HBV

Existing status of Hep B vaccination: Vaccinated Unvaccinated Unknown

If unvaccinated or unknown, was first dose of Hep B vaccine administered in ED? Yes No

(If no, please explain why)

Batch No.

Thigh: Left/Right

Date:

If unvaccinated and High Risk, was Hep B Immunoglobulin given in ED? Yes No

(If no, please explain why)

If Primary Immunisation incomplete / boosters not up to date / Unvaccinated / Unknown vaccination status;

Tetanus vaccine given? Yes No N/A (If no, please explain why)

Batch No.

Site: Left /Right Date:

Further doses arranged, as per schedule? Yes No NA

Tetanus Immunoglobulin given? Yes No N/A (If no, please explain why)

Batch No.

Site: Left /Right
Date:

HIV

If Moderate or High risk, PEP started? Yes No N/A

If Yes, within 72 hours? Yes No
(If no, please explain why)

If PEP started, discussed with: Dr Bandi GU med reg

Follow up:

Dr Bandi informed re: follow up within 72 hours? Yes No

Contact telephone numbers given in case of concerns about any aspect of HIV PEP? Yes No

5 days of antiretroviral therapy prescribed (with PRN anti-emetic and anti-diarrhoeal)? Yes No

A discharge letter completed for their GP? Yes No

Needlestick Injury leaflet provided to parents? Yes No

I have left a message/emailed Deputy Sister Laura Smith (x6922/6317) undefined laura.smith@uhl-tr.nhs.uk] **on Children's Day Care: Yes No**
(If no, please explain why)

Yours Sincerely