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.
The risk of HIV from a community acquired needlestick injury can be assessed as about 1:10,000 in London to less than 1:50,000 elsewhere².

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:
UHL Infection Prevention Policy B4/2005
UHL Policy for Consent to Examination or Treatment A16/2002
UHL Aseptic non-touch technique policy B20/2013

*Please see main body for detail*

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

Encourage bleeding
Wash site with soap and water

Detailed History (see 3.1)

Assess Exposure Significance (see 3.2)

LOW

PEP (post exposure prophylaxis) not recommended

Obtain 2ml clotted blood sample (stored)
*See investigations*

MODERATE

Counsel family;
*Risks of HBV, HCV and HIV transmission
*Risks of HIV PEP

Consider PEP
(d/w Paediatric ID Consultant or on call GU Med Reg, out of hours)**

HIGH**

Counsel family;
*Risks of HBV, HCV and HIV transmission
*Risks of HIV PEP

Recommend PEP (see HIV text box)

*Baseline HBV, HCV, HIV antibody status If PEP being started also take: FBC, U&E, LFT (see investigations 3.3)

Administer Hepatitis B Vaccine:
0-15 Yrs or renal insufficiency: 0.5ml Engerix B
16 Yrs or more: 1ml Engerix B into THIGH ONLY*

Assess if Tetanus vaccine needed (see text)
*If yes – give*

*Provide:
*Needlestick Injury Leaflet
*Unimmunised patients with written information on further catch-up doses of Hep B and Tetanus

Notify, for follow up and further immunisations:
Complete & fax attached referral form

Title: Needlestick Injuries UHL Childrens Hospital Guideline
Version No: 3 Trust Ref No:B28/2017
Approved by: Policy & Guidelines Committee: April 2019
Next Review: April 2022
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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\(^2,3,4\)

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

Hepatitis B Vaccine Schedule (accelerated):
- 1st vaccine at time of presentation
- 2nd vaccine at 1 month
- 3rd vaccine at 2 months

*Note: The Paediatric Hep B vaccine is stocked in the Childrens Emergency Department (ED) and the immunoglobulin is supplied via virology*

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.\(^2\)

Human Immunodeficiency Virus (HIV)

**Risks of Post Exposure Prophylaxis (PEP)**
- Counsel family about possible side effects; nausea, diarrhoea, headache, granulocytopenia /anaemia, myopathy. See specific medications for further detail.
- Compliance is generally poor because of these adverse effects.
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** (consider addition of anti-emetic such as Domperidone and anti-diarrhoeal such as Loperamide for PRN use).

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

- **See table 1 for detail on drug regimens**: They are based on age bandings; however **accurate weight and height measurements** should be used to calculate individual drug doses.

- **For up to date dosing**, please see the Childrens HIV Association (CHIVA) antiretroviral dosing table 4 (on pg. 7 & 8) at:

- *Main Pharmacy stock 1 bottle of each of the recommended drugs so treatment can be initiated. Packs containing Raltegravir + Truvada tablets (for use in ≥ 10 year olds who can swallow tablets) are also available*

- *Please contact main pharmacy via switchboard; or on call pharmacist out of hours*
### Table 1: Antiretroviral Therapy (ART) Regimens from CHIVA

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>PEP – preferred</th>
<th>PEP – alternative</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 +</td>
<td>Raltegravir + Truvada® (emtricitabine 200mg/tenofovir disoproxil fumarate TDF300mg)</td>
<td>1. Raltegravir + lamivudine 150mg/zidovudine 300mg combined Tablet 2.Kaletra®(lopinavir/ritonavir)+ lamivudine 150mg/zidovudine 300mg combined tablet</td>
<td>Tenofovir should be avoided in all those with renal insufficiency.</td>
</tr>
<tr>
<td>6 - 9</td>
<td>Raltegravir + lamivudine + zidovudine</td>
<td>1.Kaletra® + lamivudine + zidovudine 2.Raltegravir or Kaletra® + paediatric tenofovir +lamivudine</td>
<td></td>
</tr>
<tr>
<td>2 - &lt;6</td>
<td>Kaletra® + lamivudine + zidovudine</td>
<td>1. Raltegravir+ lamivudine + zidovudine 2. Raltegravir or Kaletra®+paediatric tenofovir + lamivudine</td>
<td>Raltegravir suitable where chewable formulations are available.</td>
</tr>
<tr>
<td>&lt;2</td>
<td>Kaletra®+ lamivudine + Zidovudine</td>
<td></td>
<td>Liquid formulations</td>
</tr>
</tbody>
</table>
Key notes on PEP medication:

Anti-emetics:

- Gastrointestinal side effects are more likely to occur with regimens that contain 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 within the preceding 2 weeks
- Aluminium/ magnesium containing antacids

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 impacting on bone metabolism.

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

3.6 Follow up when starting HIV PEP

- Email Orange Childrens admin Orange OrangeChildrensAdmin@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 on 07921545457) 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

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

6. Equality Statement

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.

7. Supporting Documents and Key References

   

   

   

   

### 8. Key Words

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

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#### DEVELOPMENT AND APPROVAL RECORD FOR THIS DOCUMENT

<table>
<thead>
<tr>
<th>Author / Lead Officer:</th>
<th>Job Title:</th>
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<tbody>
<tr>
<td>Refat Parveen</td>
<td>Paediatric SHO</td>
</tr>
<tr>
<td>Srin Bandi</td>
<td>Paediatric Consultant</td>
</tr>
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**Executive Lead:** Dr A Furlong, Medical Director

**Approved by:** Children’s Services Clinical Practice Group

**Date Approved:** March 2017

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#### REVIEW RECORD

<table>
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<th>Date</th>
<th>Issue Number</th>
<th>Reviewed By</th>
<th>Description Of Changes (If Any)</th>
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<td>1</td>
<td></td>
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<tr>
<td>March 2017</td>
<td>2</td>
<td>S Bandi</td>
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<tr>
<td>Feb 2019</td>
<td>3</td>
<td>S Bandi</td>
<td><strong>No changes</strong></td>
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</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Patient Details:</th>
<th>Parents Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Mother’s</td>
</tr>
<tr>
<td>D.O.B</td>
<td>Father’s</td>
</tr>
<tr>
<td>Address</td>
<td>Telephone:</td>
</tr>
<tr>
<td></td>
<td>Home</td>
</tr>
<tr>
<td></td>
<td>Mobile</td>
</tr>
<tr>
<td>Postcode</td>
<td></td>
</tr>
</tbody>
</table>

Details of Needlestick Injury

<table>
<thead>
<tr>
<th>Date &amp; time of Needlestick Injury:</th>
<th>Date of presentation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief description of events:</td>
<td></td>
</tr>
<tr>
<td>Risk of virus transmission:</td>
<td>Low       Moderate     High</td>
</tr>
<tr>
<td>Clotted blood sample taken (white top) for HIV, Hep B, Hep C antibodies?</td>
<td>Yes  No  N/A</td>
</tr>
<tr>
<td>If starting PEP, bloods also sent for FBC, U&amp; E and LFT?</td>
<td>Yes  No  N/A</td>
</tr>
</tbody>
</table>

HBV

<table>
<thead>
<tr>
<th>Existing status of Hep B vaccination:</th>
<th>Vaccinated</th>
<th>Unvaccinated</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>If unvaccinated or unknown, was first dose of Hep B vaccine administered in ED?</td>
<td>Yes  No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(If no, please explain why)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batch No.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thigh: Left/Right</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If unvaccinated and High Risk, was Hep B Immunoglobulin given in ED?</td>
<td>Yes  No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(If no, please explain why)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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:

Follow up:

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

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

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

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

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I have left a message/emails Deputy Sister Debbie Wilson (x6922/6317) deborah.wilson@uhl-tr.nhs.uk on Children’s Day Care:  Yes  No  (If no, please explain why)

- Please fax copies of referral form to:

  Orange Children's Admincentre:(Tel:5778,Fax:7637).

  Deputy Sister on Children's Day Care, Debbie Wilson:(Tel: 6317,Fax: 5471) Specialist Nurse for HIV(Fax 5778; only if starting HIV PEP)

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Yours Sincerely

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