Community acquired needle stick injuries

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See also: CED *Nurse-led Hep B & HIV PEP for acute sexual assault in the community on Paediatric Microguide (Microguide > Paediatrics & Neonates > Paediatrics > A-Z > H)*

Background

- Risk of transmission of HIV from needle stick injuries in children is very low
- Risk of transmission from a community acquired needle stick injury is highest for Hepatitis B (HBV), then hepatitis C (HCV) and then HIV
- Children and young people are potentially at risk of contracting HBV and HIV from a variety of exposures, including needle stick injury, sexual abuse, consensual sexual activity, biting or being bitten by another person. Blood, breast milk, semen or any blood stained body fluid can transmit HIV.
- Consider pregnancy and STI in cases involving sexual activity

All needle stick injuries that penetrate the skin are considered a hepatitis risk and will need **Hepatitis B immunisation**.

Assessment

History and examination

- Time, date and location of incident – **did exposure occur within last 72 hours?**
- Appearance of Needle
- Site of wound / contact with blood or body fluids
- Immunisation history. Fully immunised children born after August 2017 will have been immunised against HBV
- Tetanus status

If known source of exposure e.g. needle stick injury to child from known person
- Discuss with HIV Registrar or Consultant / Virology URGENTLY
- They will arrange to take blood from source (HIV / Hepatitis B and C serology). This requires informed consent

Management (See management table next page for post first-aid care)

First aid

- Wash area with water and soap
- If mucous membranes are contaminated – rinse out with water or saline

Management Table see the immunisations "Green book" for further immunisation information.

Exposure	Intact skin contaminated with blood or bodily fluids	- Superficial injury that did not draw blood - Associated with needle / instrument not visibly contaminated with blood or body fluids - Mucus membrane or conjunctival contact with blood or body fluids	- Skin penetrating injury that drew blood by needle contaminated with blood or body fluids - Wound causing bleeding and produced by a sharp instrument visibly contaminated by blood	- Significant exposure to blood or body fluids from source known to be HIV, HCV or HBV infected
Risk level	**NO RISK**	**LOW RISK**	**MODERATE RISK**	**HIGH RISK**
Tests	Nil	→ Bloods for baseline HIV / Hep B / Hep C serology *(HCV IgG, HBsAg, HBsAb, HBcAb)* → If starting HIV PEP also take FBC,U&E and LFTs		
HIV PEP	Nil	Not recommended – side effects outweigh very low transmission risk	Consider – risk of side effects probably outweigh benefit	Discuss risks of PEP and recommend starting 4 week course after discussion with Dr Fidler / adult HIV Registrar or Consultant on call
HBV Immunisation	Nil	**Fully immunised pre-injury:** None required **Unvaccinated or born before August 2017:** Standard schedule HBV vaccination (see below for doses) = day 0 (**in CED**), 1 month and 6 months	**Fully immunised pre-injury:** Consider booster dose of HBV vaccine if last dose ≥ 1 year ago. **Unvaccinated or born before August 2017:** Accelerated vaccination schedule (see below for doses) = day 0 (**in CED**), 1 month, 2 months and 12 months if continued risk	
HCV	Nil	No recognised PEP for HCV (see counselling)		
Tetanus	See tetanus guidance in 'Green Book'			
Counselling prior to discharge from CED	No risk	➢ low risk of HIV transmission from needle stick injuries ➢ potential risk of HBV and HCV transmission ➢ Risks of HIV PEP drug side effects, unless HIGH risk (for HIV transmission), are likely to outweigh the risk of HIV transmission. ➢ All needle stick injuries that penetrate the skin are considered a hepatitis risk and will need **Hepatitis B immunisation**. ➢ There is no recognised post-exposure prophylaxis for HCV.		

Management table cont.

Risk level	NO RISK	LOW RISK	MODERATE RISK	HIGH RISK
Follow up	Nil	- Give patient information leaflet - Add to Green ACORNS folder – patient will be called with results and follow up plan - Verbal highlighting that GP to finish HBV vaccinations - Arrange repeat HIV / HBV / HCV serology at 3 months - If patient serology is positive, book an urgent appointment with Dr Fidler CED ACORNS consultant to chase 3 month follow up bloods providing negative results (if positive, arrange urgent follow up with Dr Fidler): – Provide written and verbal information for the child and GP regarding the results of the 3 month follow up bloods and plan for immunisations – Ensure HBV vaccination in process with GP at this time		- Give patient information leaflet - Follow up appointment within 72 hours if PEP started (see above) - Book outpatient appointment with Dr Fidler in 3 months - Continue HBV vaccination programme at GP

Further information on Post-exposure prophylaxis (PEP)

Post exposure Hepatitis B Immunisation

- Most effective if started within 48 hours of exposure, but may be beneficial up to a week after.
- Give first dose in CED, advise patient to attend GP for the remaining doses
- The risk benefit ratio favours vaccinating all exposed children after a needle stick injury unless that have previously had a successful HBV immunisation.

Hepatitis B vaccine

Engerix B - 10 micrograms I.M (16 years and over: 20 micrograms)
HBvaxPRO - 5 micrograms I.M (16 years and over: 10 micrograms)
Use 16 years and over dose in infants if smaller dose unavailable to avoid delay.

Hepatitis B immunoglobulin

Give IM HBV immunoglobulin only if the source is known to be HBV infected. Can only be given after discussion with Microbiology. Microbiology to request from Pharmacy. See Green book for dosing.

PEP for HCV

- Unfortunately there is no available PEP for HCV. In the event of HCV seroconversion, therapy is increasingly successful.

PEP for HIV

- The risk of HIV acquisition from community acquired needle stick injuries is extremely low unless the source is known to be HIV infected and is not on suppressive treatment.
- Therefore HIV PEP after the vast majority of needle stick injuries will not be required.
- If unsure or considering starting PEP discuss with Dr Fidler or the adult HIV Registrar or Consultant on call first (via switchboard) and they will guide you re: prescribing PEP and follow up plans. Follow up must be arranged before discharge.
- Be aware that HIV post-exposure prophylaxis is most effective if started within 1 hour of exposure, but may be beneficial up to 72 hours after.

Notes

Seroprevalence data for blood-borne infections in intravenous drug users in 2019 from Unlinked Anonymous Monitoring (UAM) Survey of HIV and viral hepatitis among PWID: 2020 report (Unlinked Anonymous Monitoring (UAM) Survey of HIV and viral hepatitis among PWID: 2020 report [Version 2] (publishing.service.gov.uk))

	England	London	South East
HIV Prevalence	0.8%	3.5%	0% (0.27% in 2018)
HBV Prevalence	10%	28%	5.4%
HCV Prevalence	55%	59%	54%

The average seroconversion rates following needle-stick from known positive sources is:

- HIV 0.3%
- HBV 30%
- HCV 1.8%

  - Note that quoted risks are based on injuries from needles contaminated with fresh blood: old blood in a syringe and needle found in the park or on the beach is likely to carry a lower risk of transmission – no viable HIV has been found in blood in a needle that is over 24 hours old

Be aware that reddish/brown fluid in the hub of needles is more likely to be from previously heated drugs than to be blood.

Source material e.g. discarded needle - most virologists now do NOT recommend testing of needles due to low sensitivity