**Guideline**

**Community needle stick injury**

### Purpose

This Guideline provides best practice recommendations for the immediate assessment, management and follow-up of children who have sustained a community acquired needle stick injury. This Guideline was developed in consultation with experienced Paediatric Infectious Diseases clinicians.

### Scope

This Guideline provides information for all Queensland Health employees (permanent, temporary and casual) and all organisations and individuals acting as its agents (including Visiting Medical Officers and other partners, contractors, consultants and volunteers) caring for paediatric patients.

### Acronyms

- **BBV** Blood borne virus
- **CNSI** Community (acquired) needle stick injury
- **ED** Emergency department
- **GP** General Practitioner
- **HBIG** Hepatitis B Immunoglobulin
- **HBsAb** Hepatitis B surface antibody
- **HBsAg** Hepatitis B surface antigen
- **HBV** Hepatitis B virus
- **HIV** Human Immune deficiency virus
- **IMPS** Infection Management and Prevention Service
Presentations of children to Emergency Departments following accidental needle stick injury are not uncommon and such injuries may be a significant source of anxiety. It is important to note that CNSI in the common scenario of accidental exposure to needles found in parks etc. are of very low risk of blood borne virus (BBV) transmission, with cases of BBV transmission by such CNSI not being documented in Australia.

Key aspects of the management of CNSI are:

- First aid
- Assessing injury
- BBV transmission risk
- Assessing and managing tetanus and hepatitis b immunity status
- Organising follow up serology and reassurance
- HIV PEP is only a consideration in exceptional circumstances with higher risk exposures

Recommendations are contained in the flow chart and notes below. The LCCH Infection Management and Prevention Service are available for advice on the management of a child with CNSI, the (unlikely) need for PEP and to discuss follow-up (contact via LCCH Switchboard).

PEP, if required, should be prescribed as soon as possible after the exposure and within 72 hours. A separate and linked guideline provides information on HIV PEP, which may be recommended in discussion with LCCH IMPS in very high risk non-occupational BBV exposures.
COMMUNITY NEEDLE STICK INJURY

FIRST AID

- Allow to bleed (if applicable)
- Wash with soap and water

HISTORY AND RISK ASSESSMENT

Details of injury
- Source status if known
  (Sections 1, 2, 3)

DEFINE BBV RISK

HIGH RISK
- Source known to have BBV or higher risk injury (Section 3)
  - If known Hep B+ source give HBIG unless immunity previously documented.
  - If known HIV source or high risk discuss HIV PEP with IMPS MO in addition to other measures

LOW RISK

Hepatitis B Immune Status?

ASSESS TETANUS IMMUNISATION STATUS
- Tetanus immunisation or TIG (Table 2)

ASSESS HEPATITIS IMMUNITY
- Establish Immunisation history.
- Request Baseline Serology: Hepatitis B (HBsAb (urgent), HBsAg), Hepatitis C, HIV ab
- HBsAb result: unless immunity previously documented, request urgently (within 72 hrs) to allow for immunisation if indicated.

HEPATITIS B IMMUNE STATUS?

HEPATITIS B IMMUNE STATUS?

- Never Hep B immunised or Incomplete Hep B immunisation (< 3 doses):
  - Give HBIG and HBV vaccine and refer to LMO or QSIS (LCCH) for completion of HBV vaccines at 1 and 6 months post exposure (Section 5)
  - Do not wait for HBsAb result if never immunised

- Hepatitis B immunised
  - Organise for HBsAb result review and patient recall by ED for HBIG/HBV if indicated and for baseline serology results to be communicated
  - HBsAb <10 IU/mL (Section 5)
    - Low risk exposure: HBV vaccine ASAP (but within one week)
    - High risk exposure: HBIG (within 72 hours) and HBV vaccine
  - Hepatitis B Immune:
    - Fully immunised and HBsAb ≥ 10 IU/L previously or on current test
    - No further action re Hepatitis B immunisation

FOLLOW UP

- For low risk exposures refer to LMO for follow up testing – HIV, Hepatitis C and B (if initially non-immune) serology at 3 months post exposure. (This guideline can be provided to GPs).
1. Details of Injury (CNSI)

**Mechanism:** e.g. accidentally picking up needle, stepping on needle, stuck by another person, unwitnessed injury and child too young to tell

**Exposure type:** e.g. hollow bore needle, syringe barrel attached / not attached, gauge of needle

**Location:** e.g. park, beach, back alley, home, others

**Disposal:** if the discarded needle(s) still need(s) to be removed from a public area, call the Clean Needle Helpline on 1800 633 353 to arrange for proper disposal.

2. Source

While it is important to ascertain the status of the source, this may not be possible if injury is sustained in a public area. The relative risk of the source being positive for BBV based on local prevalence and risk behaviours should be considered when giving recommendations concerning prophylactic measures. In Australia, the level of HIV infection in injecting drug users is below 3% and HIV incidence (percentage of new people infected each year) below 1%. (1)

3. Risk Assessment

The risk of BBV transmission is dependent on the type of injury and the infection status of the source. The risk of acquiring BBV infection from discarded injecting equipment is extremely low. No cases of HIV infection in Australia have ever been identified due to discarded injecting equipment(2). (Table 1).

Factors that increase risk of BBV transmission

- Deep injury
- Device visibly contaminated with blood
- Needle directly placed into artery or vein
- Shared needles used for injecting drugs
- Source known to have untreated or advanced HIV/Hep B/C infection
- Hollow bore needles (3)

HIV is a fragile virus outside the body, especially when exposed to unfavourable external environmental conditions. The blood volume in discarded needles is likely to be less than that associated with exposures in the health care settings. (4)
4. Serology

- Obtain verbal consent and provide pre-test counselling. Pre- and post-test counselling are important with respect to HIV and Hepatitis. A positive baseline test for HIV, Hepatitis B or C may indicate that the child has acquired the infection by mother to child transmission.
- Request (baseline) Hepatitis B (HBsAb & HBsAg), Hepatitis C and HIV serology. Hepatitis C and HIV are not essential for low risk exposure.
- Mark HBsAb “URGENT” and request laboratory staff to ring result through to ED.
- HBV serology is performed daily. On weekends and public holidays serology may be performed on next working day; this will generally be able to provide the result to action within 72 hours of exposure. If a long weekend, contact laboratory and discuss availability of earlier testing. Where this guideline is being used outside of LCCH, please confirm testing arrangements with relevant Pathology provider.
- Do not send the needle or syringe for testing, as results on discarded injecting equipment are unreliable (and not generally performed by diagnostic laboratories).

5. Hepatitis B immunisation

HBIG – to obtain at LCCH Call Blood Bank ((07) 3068 3555)
- Administer within 72 hours of injury (IM injection)
- Recommended schedule:
  - Up to 30kg 100 international units (IU)
  - More than 30kg 400 international units (IU)
- Note: HBIG comes in vials of 100 IU and 400 IU (concentration is approximately 100 IU per mL)
• HBIG can be given and HBV vaccination commenced as soon as possible, but up to 7 days after exposure. (Note: limited evidence for efficacy for later treatment – early treatment preferred).

**Hep B vaccine (IM)**
- For all <20 year olds: Paediatric Engerix B® (10 microgram) 0.5mL at 0,1 and 6 months
- **Alternative for 11-15 year olds (only):** Adult Engerix B® (20 microgram) 0.5mL at 0 and 6 months
- Arrange appropriate follow up with local medical provider (e.g. GP)
- Hep B vaccine repeated at 1 (if required; see above) and 6 months after 1st dose.
- Repeat serology Hep B (HBsAb & HBsAg), Hep C antibody and HIV antibody at 3 months

**6. HIV post exposure prophylaxis**

If due to exceptional circumstances, HIV PEP may be appropriate, see LCCH Paediatric guideline: HIV PEP and discuss with LCCH Infectious Diseases to discuss.

**7. Management of Tetanus Immunisation Status**

Needle stick injuries are regarded as ‘tetanus prone wounds’.

For full details on management of tetanus immunisation, please refer to the Australian Immunisation Handbook.

**Table 2: Tetanus prophylaxis in CNSI**

<table>
<thead>
<tr>
<th>History of tetanus vaccination</th>
<th>Time since last dose</th>
<th>Give appropriate tetanus booster vaccine</th>
<th>Tetanus immunoglobulin</th>
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<td>≥3 doses</td>
<td>&lt;5 years</td>
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<tr>
<td>&lt;3 doses or uncertain</td>
<td>-</td>
<td>YES</td>
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Also refer to the CHO Guideline: Tetanus Prophylaxis in Wound Management, which has information on appropriate booster vaccines.

**Acknowledgement**

Children’s Health Queensland would like to acknowledge the contribution made by:
- Dr Pam Palasanthiran, Dr Mathew O’Meara and Dr Emma Best, Sydney Children’s Hospital, Emergency Department Community Needle Stick Injury: Management Protocol
Consultation

Key stakeholders who reviewed this version:

- Dr Julia Clark, Director – Paediatric Infectious Diseases, Rheumatology and Immunology
- Dr Clare Nourse, Paediatric Infection Specialist
- Dr Vikram Vaska, Paediatric Infectious Diseases Consultant, Microbiologist Mater Pathology.
- Dr Sophie Wen, Paediatric Infection Specialist
- Nicolette Graham, Antimicrobial Stewardship Pharmacist

Definition of terms

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References and suggested reading


**Guideline revision and approval history**

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<td>Medicines Advisory Committee (CHQ)</td>
<td>Executive Director Hospital Services</td>
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Post exposure prophylaxis, PEP, HIV, antiretroviral, paediatric, non-occupational, community acquired needle stick injury, hepatitis B, hepatitis C, blood borne viruses, BBV, 65665

**Accreditation references**
EQuIP National standard: 3.4.1