

# Guideline

## Management of occupational exposure to blood and body fluids

2017

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## 1. Purpose

This guideline provides recommendations regarding best practice to support the immediate assessment, management and follow-up of individuals who have been exposed (or suspect they have been exposed) to blood borne viruses (BBV), and recommendations for initiation of post-exposure prophylaxis (PEP) in occupational settings.

Occupational exposures to blood and body fluids in healthcare settings have the potential to transmit hepatitis B virus (HBV), hepatitis C virus (HCV), and/or human immunodeficiency virus (HIV). An exposure that might place a healthcare worker at risk of HBV, HCV or HIV infection is defined as:

- a percutaneous injury (for example a needlestick or cut with sharp object); or
- contact of mucous membranes or non-intact skin with blood, tissue or other bodily fluids that are potentially infectious.<sup>1</sup>

For non-occupational exposures these guidelines should be read in conjunction with:

- [Post-exposure prophylaxis after non-occupational and occupational exposure to HIV: National guidelines](#)

## 2. Scope

This guideline provides information for all Queensland public health system employees (permanent, temporary and casual) and all organisations and individuals acting as its agents (including Visiting Medical Officers and other partners, contractors, consultants, volunteers and students/trainees).

## 3. Related documents

### Standards, procedures, guidelines

- [Post-exposure prophylaxis after non-occupational and occupational exposure to HIV: National guidelines](#)
- [Management of human immunodeficiency virus \(HIV\), hepatitis B virus and hepatitis C virus infected healthcare workers](#)

## 4. Guideline for management of occupational exposure to blood and body fluids

### 4.1. General requirements

Facilities should ensure:

- local systems are in place for reporting and managing exposures of healthcare workers (HCW) to blood and body fluids
- processes are in place to ensure that healthcare workers whose work places them at risk of direct contact with blood or body substances provide evidence of vaccination or proof that they are not susceptible to hepatitis B
- all staff receive education regarding the appropriate use of standard precautions at induction and again annually
- an emergency system is in place for the management of occupational and non-occupational exposures to BBVs. The system should identify a local contact and a specialist in infectious diseases as a resource person for that facility (Attachment 1 includes contact details for the expert information network). This system and contact numbers should be prominently displayed.

### 4.2. Immediate care of the exposed person

Immediately following exposure to blood or body fluids, it is recommended that the exposed person undertakes the following steps as soon as possible:

- wash wounds and skin sites that have been in contact with blood or body fluids with soap and water<sup>2</sup>
  - apply a sterile dressing as necessary, and apply pressure through the dressing if bleeding is still occurring
- do not squeeze or rub the injury site<sup>1</sup>
- if blood gets on the skin, irrespective of whether there are cuts or abrasions, wash well with soap and water
- irrigate mucous membranes and eyes (remove contact lenses) with water or normal saline<sup>3</sup>
  - if eyes are contaminated, rinse while they are open, gently but thoroughly (for at least 30 seconds) with water or normal saline<sup>4</sup>
  - if blood or body fluids get in the mouth, spit them out and then rinse the mouth with water several times<sup>4</sup>
- if clothing is contaminated, remove clothing and shower if necessary.<sup>4</sup>

When water is not available, use of non-water cleanser or antiseptic should replace the use of soap and water for washing cuts or punctures of the skin or intact skin.<sup>4</sup> The application of strong solutions (for example, bleach or iodine) to wounds or skin sites is not recommended.<sup>5</sup>

For human bites, the clinical evaluation should include the possibility that both the person bitten and the person who inflicted the bite were exposed to BBVs.<sup>1</sup>

The exposed person should inform an appropriate person (e.g. supervisor or manager) as soon as possible after the exposure so assessment and follow-up can be undertaken in a timely manner. After reporting the incident, the worker should be released from duty so that an immediate risk assessment can be performed.

### 4.3. Risk assessment

The designated person should assess and document the risk as soon as possible after every incident of occupational exposure, referring to the expert information network as required (see attachment 1). This should include:

- information about the exposure
  - date and time of the exposure
  - type of exposure including blood or body fluid involved
- information about the source person
  - the BBV status of the source individual
  - demographic factors e.g. gender, country of origin etc.
- information about the exposed person
  - the status of the exposed person with respect to BBVs, including vaccination
  - pregnancy risk and lactation
  - medical history.

In an occupational setting a risk assessment should be conducted on the basis of the type of exposure and the amount and type of infectious material involved. A risk assessment should be undertaken based on the degree of exposure, guided by the information in Table 1 and Table 2.

<b>Table 1: Exposure classification of an occupational exposure</b>		
<b>Exposure Classification</b>	<b>Risk Factors</b>	<b>Follow up</b>
<b>Exposure</b>	<ul style="list-style-type: none"> <li>• injection of large volume of blood/body fluid (&gt;1mL)</li> <li>• parenteral exposure to laboratory specimens containing high titre of virus</li> <li>• any skin penetrating injury e.g.               <ul style="list-style-type: none"> <li>– with a needle contaminated with blood or body fluid</li> <li>– which causes bleeding and is produced by an instrument that is visibly contaminated with blood or body fluid</li> <li>– mucous membrane or conjunctival contact with blood</li> <li>– human bite or scratch with blood exposure</li> </ul> </li> <li>• prior (not fresh) wound or skin lesion contaminated with blood or body fluid</li> </ul>	<ul style="list-style-type: none"> <li>• immediately identify the source individual (if known)</li> <li>• as a minimum undertake baseline screening of the exposed person</li> <li>• provide follow up as per section titled: “Treatment of the exposed person”</li> <li>• seek advice from the expert information network (attachment 1) as appropriate</li> </ul>

	<ul style="list-style-type: none"> <li>• in laboratory settings, any direct inoculation with HIV tissue or material, or material likely to contain HIV, HBV or HCV not included above</li> </ul>	
<b>Doubtful Exposure</b>	<ul style="list-style-type: none"> <li>• intradermal ('superficial') injury with a needle considered not to be contaminated with blood or body fluid</li> <li>• a superficial wound not associated with visible bleeding produced by an instrument considered not to be contaminated with blood or body fluid</li> <li>• prior wound or skin lesion contaminated with a body fluid other than blood and with no trace of blood e.g. urine</li> <li>• human bite with no blood exposure (e.g. saliva)</li> </ul>	<ul style="list-style-type: none"> <li>• conduct baseline screening of the exposed person</li> <li>• documentation by the way of incident reporting and the possibility of further counselling may still be required</li> <li>• follow up at 3 months may be indicated based on risk assessment.</li> </ul>
<b>Non-exposure</b>	<ul style="list-style-type: none"> <li>• intact skin visibly contaminated with blood or body fluid</li> <li>• needlestick with non-contaminated (clean) needle or sharp</li> </ul>	<ul style="list-style-type: none"> <li>• no further follow-up, although documentation by the way of incident reporting and the possibility of further counselling may still be required</li> <li>• clean needlestick injuries should be documented only, to allow facilities to identify all causes of needlestick injury to facilitate appropriate risk management</li> </ul> <p>refer to Attachment 2–Medical management of Blood and Body Fluid Exposures for additional information</p>

Source blood	Route	Estimated risk of transmission
HbsAg positive and HbeAg negative	Percutaneous	23-37% (1-6% risk of developing clinical hepatitis) <sup>1</sup>
HbsAg positive and HbeAg positive	Percutaneous	37-62% <sup>1</sup> (22-31% risk of developing clinical hepatitis) <sup>1</sup>
HCV Ab positive	Percutaneous	1.8% (range 0%-7%) <sup>2</sup>
HCV Ab positive	Mucosal	Rare <sup>1</sup>
HIV Ab positive	Percutaneous	0.227% <sup>1</sup> (if source not on antiviral treatment with a negligible viral load)
HIV Ab positive	Mucosal	<0.01% <sup>1</sup> (if source not on antiviral treatment with a negligible viral load)

Please note: All estimates above are assuming contact with infected blood.

#### 4.4. The exposure

The designated person should estimate the significance of the exposure for BBV transmission, based on consideration of the following factors:

- the nature and extent of the injury
- the nature of the item that caused the injury e.g. gauge of the needle
- the nature of the body fluids involved<sup>1</sup>
- the volume of blood and body substances to which the healthcare worker was exposed (refer Table 1)
- the infectious status of the source<sup>1</sup>
- the susceptibility of the exposed person.<sup>1</sup>

#### 4.5. The source

The designated person should assess the HIV, HBV and HCV status of the source, to adequately determine risk to the exposed person.<sup>1</sup> This is important in all cases exposure (see table 1).

If the status of the source individual is unknown at the time of the exposure, the designated person should undertake baseline testing to determine the source's infectious status.<sup>1</sup> Baseline testing should be undertaken by testing for HIV antibody (HIV Ab), HBV surface antigen (HBsAg) and HCV antibody (HCV Ab). If these baseline tests are positive, more specific testing of viral load may be indicated.

The designated person should discuss tests, obtain informed consent and provide post-test counselling to the source, for HIV and HCV tests (refer to attachment 3). Confidentiality should be maintained, not only of the source individual, but also regarding the current exposure.

If the source is HIV, HBV or HCV positive and is not already in the care of an appropriate medical specialist, they should be referred to such a specialist.

#### 4.5.1. Unknown source

If the exposure source is unknown or cannot be tested, the designated person should epidemiologically assess information about where and under what circumstances the exposure occurred, to determine the likelihood of transmission of HBV, HCV or HIV.<sup>1</sup> Certain situations, as well as the type of exposure, might suggest an increased or decreased risk; an important consideration is the prevalence of HBV, HCV or HIV in the population group from whence the contaminated source material was derived<sup>1</sup>.

When the source is unknown, the use of PEP should be decided on a case-by-case basis, and it is recommended that an expert always be consulted in this situation.<sup>3</sup>

Testing of needles or other sharp instruments implicated in an exposure, regardless of whether the source is known or unknown, is not recommended.<sup>1</sup>

#### 4.6. The exposed person

In all case of exposure, the designated person should arrange baseline testing of the exposed person for HIV Ab, HIV Ag, HBV surface antibody (HBsAb or anti-HBs), and HCV Ab<sup>1</sup> (if risk assessment indicates a significant risk of hepatitis B transmission, testing of HBsAg may be indicated in the exposed person as part of thorough baseline assessment). The designated person should discuss tests, obtain informed consent and provide post-test counselling to the exposed person for HIV and HCV tests (refer to Attachment 3). Confidentiality should be maintained, not only of the exposed person, but also regarding the current exposure or injury.

#### 4.7. HIV point of care testing (PoCT)

PoCT should not replace standard laboratory HIV tests. The purpose of PoCT is to screen for HIV status prior to standard laboratory test results becoming available, to inform the commencement of PEP as early following exposure as possible. The likelihood of the source being recently exposed to HIV, within the window period, should also be considered.

PoCT, in conjunction with comprehensive risk assessment, may be used as a presumptive screening tool that may contribute to the decision to prescribe PEP. PoCT of the source should be considered in the following circumstances:

- the HIV status of the source is unknown
- the source is assessed as at risk of having HIV.

If PoCT is used, informed consent should be obtained as per standard laboratory HIV tests.

HCWs should always seek assistance from the facility's designated person for risk assessment, testing and follow-up for occupational exposures. HCWs should never order or interpret their own tests (particularly PoCT).

Additional information about HIV testing, including PoCT, can be found in the [National HIV Testing Policy \(draft, 2014\)](#).

#### 4.8. Treatment of the exposed person

When a source is known to be positive for a BBV, or their status is unknown, testing of the exposed person for HIV Ab, HIV Ag, HBsAb and HCV Ab should be undertaken with appropriate pre and post-test discussion and consent. Serum should be stored for at least 12 months to enable parallel testing if necessary. If the exposed person is not immunised for HBV, then a course of vaccination should be offered (refer to table 6: HBV PEP and attachment 2 for further information).<sup>1</sup>

During the follow up period, the exposed person is not required to take any special precautions while at work to prevent secondary transmission other than following standard precautions as recommended for all healthcare workers.

#### 4.9. Human immunodeficiency virus (HIV)

**Table 3: HIV follow up of exposed person**

Source status for HIV	Follow up
Negative for HIV	<ul style="list-style-type: none"> <li>• Provide counselling</li> <li>• Collect baseline bloods from the exposed person</li> <li>• No further action is required once the source is known to be negative for HIV, HBV, HCV and unlikely to be in the window period<sup>6</sup></li> </ul> <p>If there is a high situational risk of transmission, high level exposure, or it is likely the source may be in the window period, follow up testing of the exposed person should be considered at 12 weeks for HCV and HIV (test for HBV also if HCW not immune, i.e. HBsAb ≤10 IU/L).</p>
Unknown HIV status	<ul style="list-style-type: none"> <li>• Provide counselling</li> <li>• Collect baseline bloods from the exposed person</li> <li>• Undertake a risk assessment as per the section titled “Risk Assessment”</li> <li>• The risk of the source being positive for HIV should be considered when giving recommendations concerning prophylactic measures.<sup>1</sup> PoCT may further inform this decision.</li> </ul> <p>If the source refuses to be tested or there are factors which indicate a high risk of the source being HIV positive, then the relative risk of the source being positive should be assessed and the exposed person managed as appropriate to the level of the risk.<sup>4</sup></p>
Known or likely positive for HIV	<ul style="list-style-type: none"> <li>• Provide counselling</li> <li>• Collect baseline bloods from the exposed person</li> <li>• Inform of the potential risk of HIV transmission to others, especially in the first 6-12 weeks following a significant exposure (refer table 4). The exposed person should be advised of the following measures to prevent secondary transmission:               <ul style="list-style-type: none"> <li>- not to donate plasma, blood, organs, body tissue, breast milk or sperm<sup>4</sup></li> <li>- exercise sexual abstinence or use condoms to prevent sexual transmission and avoid pregnancy<sup>4</sup></li> </ul> </li> </ul>

- seek expert medical advice regarding breastfeeding and/or pregnancy.<sup>4</sup>
- The patient care responsibilities of an exposed person do not need to be modified based solely on HIV exposure, to prevent transmission to patients<sup>1</sup>
- The designated person should re-test the exposed person at 4-6 weeks and 12 weeks.<sup>3</sup> Further follow up should occur at intervals determined by the appropriate medical specialist

If the exposed person, on baseline testing, is found to be HIV positive and is not already in the care of an appropriate medical specialist, they should be referred to such a specialist.

If HIV seroconversion is detected, the person should be evaluated according to the [Queensland Health Guideline for the Management of Human Immunodeficiency Virus \(HIV\), Hepatitis B Virus \(HBV\) and Hepatitis C Virus \(HCV\) Infected Healthcare Workers](#).

**Table 4: Risk of transmission following exposure to HIV**

Type of exposure	Estimated risk of HIV transmission (per exposure)
Percutaneous to blood	0.227% <sup>1</sup> (if source not on antiviral treatment)
Mucous membrane to blood	<0.01% <sup>1</sup> (if source not on antiviral treatment)
Non-intact skin or wounds exposed to blood	The average risk for transmission by this route has not been precisely quantified but is estimated to be less than the risk for mucous membrane exposures <sup>5</sup>
Exposure to fluids or tissues other than HIV-positive blood	The risk for transmission has not been quantified but is probably considerably lower than for blood exposures. <sup>5</sup>

#### 4.9.1. HIV post-exposure prophylaxis (PEP)

It is recommended to follow the [Post-Exposure Prophylaxis after Non-Occupational and Occupational exposure to HIV, Australian National Guidelines \(Second edition\)](#).

PEP is usually only prescribed or continued for those who have definitely been exposed to HIV. A thorough assessment of risk, as outlined in the section titled Risk Assessment, should be undertaken prior to initiation of HIV PEP. The risk assessment should include:

- analysis of the type of exposure
- the source's stage of HIV infection
- the source's HIV viral load
- the source's history of HIV antiretroviral therapy.

The professional delivering counselling to an exposed person who is considering prophylaxis should include information on:

- the risk of HIV infection following the exposure<sup>4</sup> (refer to table 4)
- reports of seroconversion following HIV prophylaxis<sup>4</sup>
- side effects and adverse reactions associated with HIV prophylaxis<sup>4</sup> (attachment 4)
- use of HIV prophylaxis in pregnancy / breastfeeding (if appropriate)<sup>4</sup>

- the current status of knowledge regarding the efficacy of chemoprophylaxis following exposure to HIV4
- the risk of infecting others
- appropriate referral for support.

The designated medical officer should seek the advice of an appropriate medical specialist prior to commencement of antiretroviral therapy. After initial consultation with an appropriate medical specialist (see attachment 1, Expert Information Network), the exposed person may be commenced on a starter pack of PEP.

**If PEP is recommended it should be prescribed and started as soon as possible after the exposure, ideally within 2 hours and no later than 72 hours. The initiation of PEP more than 72 hours after exposure should be at the discretion of the appropriate medical specialist in consultation with the exposed person, based on risk assessment of the exposure. The diminished efficacy of delayed initiation of PEP should be considered along with the risk of side-effects.<sup>3</sup>**

It is reasonable to always offer PEP to a HCW who has had a significant exposure to a source who is HIV positive even if the source has an undetectable HIV viral load.

Attachment 4 contains an information sheet on the medication contained in the starter pack.

Re-evaluation of the exposed person should occur within 72 hours postexposure<sup>5</sup> before a 28 day course of PEP is recommended<sup>3</sup>. Exposures from a source taking antiretroviral therapy should be discussed with an expert from the Expert Information Network (Attachment 1), as the exposed person may need to be treated with a different combination of drugs.

The designated medical officer should document the decision of the exposed person to accept or decline treatment.

#### **4.9.2. PEP starter packs**

**If the source is at high risk of being HIV positive, the exposed HCW should be commenced on PEP without waiting for the pathology results.<sup>3</sup>**

##### **The source status for HIV is unknown**

If the clinician and the exposed person decide that PEP should be prescribed, the appropriate medical officer should prescribe the starter pack of PEP, with follow-up by a HIV specialist within 72 hours. The designated medical officer should consult with a HIV specialist.

##### **The source is known to be HIV positive**

If the designated medical officer and exposed person decide that PEP should be prescribed, the individual should be prescribed the starter pack of PEP, with follow-up by a HIV specialist within 72 hours. In this setting, the choice of therapy should be determined by: safety, tolerability, medical history of the exposed person, the HIV drug treatment history of the source, and drug resistance test results. The designated medical officer should consult with a HIV specialist in all circumstances.

##### **High risk exposures**

If a high risk exposure is sustained, and PEP is to be prescribed, the person should be commenced on the starter pack of PEP and followed up by a HIV specialist within 72 hours. High risk exposures include:

- deep needlestick or other percutaneous injury with a device visibly contaminated with blood
- exposure injuries from patients that are known to have:
  - advanced HIV disease
  - recent testing that shows high plasma viral loads
  - HIV antiretroviral drug resistance testing that shows that the source individual has evidence of drug resistance involving primary mutations to drugs from at least two drug classes.<sup>3</sup>

#### 4.10. Hepatitis B virus (HBV)

**Table 5: Hepatitis B virus exposure follow up**

		Source status	
		Known or likely to be HBsAg positive, or source status unknown	Known to be negative for HBsAg and unlikely to be in the window period
Exposed person status	No prior history of HBsAb $\geq$ 10 IU/mL (not immune)	<p><b>Immediate actions:</b></p> <ul style="list-style-type: none"> <li>• Provide counselling, including the risk of developing clinical hepatitis (see Table 2). This should occur both on presentation and within a few days at follow-up</li> <li>• Collect baseline bloods</li> <li>• PEP should be considered (see below)</li> </ul> <p><b>Follow up:</b></p> <ul style="list-style-type: none"> <li>• Liver function test (LFT) at 6 weeks</li> <li>• Another LFT and HBsAg test at 12 weeks</li> <li>• Another HBsAg test at 6 months</li> </ul>	<p><b>Immediate actions:</b></p> <ul style="list-style-type: none"> <li>• Provide counselling</li> <li>• Collect baseline bloods from exposed person</li> </ul> <p><b>Follow up:</b></p> <ul style="list-style-type: none"> <li>• No further action is required once the source is known to be negative for HIV, HBV, HCV and unlikely to be in the window period<sup>6</sup></li> <li>• If there is a high situational risk of transmission, high level exposure or it is likely the source may be in the window period, follow up testing of the exposed person should be considered at 12 weeks for HBV if HCW not immune</li> </ul>
	Previously documented HBsAb $\geq$ 10 IU/mL	<ul style="list-style-type: none"> <li>• Provide counselling</li> <li>• Immune - risk of acquisition negligible</li> <li>• Consider risk for other BBVs</li> </ul>	<ul style="list-style-type: none"> <li>• Provide counselling</li> <li>• Immune - risk of acquisition negligible</li> <li>• Consider risk for other BBVs</li> </ul>

#### 4.10.1. HBV PEP with hepatitis B immunoglobulin

The role of antiviral drugs in PEP for hepatitis B has not been established. Initiation of HBV PEP is dependent on the type of exposure, the source's HBsAg status and the exposed person's HBsAb status. Hepatitis B vaccination or proof that an individual is not susceptible to hepatitis B is a condition of employment for all Queensland Health staff who have direct contact with patients or who in the course of their work may be exposed to blood/body fluids or contaminated sharps.

Where hepatitis B immunoglobulin (HBIG) is indicated, it should be administered as soon as possible after the exposure and within 72 hours of exposure.<sup>7</sup> When hepatitis B vaccine is indicated, it should also be administered as soon as possible after exposure and within 7 days of exposure and can be administered simultaneously with HBIG at a separate site.<sup>7</sup> For detailed information regarding HBV PEP refer to table 6 and the current edition of the [Australian Immunisation Handbook](#).

Counselling of the exposed person should include information on:

- appropriate referral for support
- the risk of HBV infection following the exposure
- side effects and adverse reactions associated with hepatitis B vaccination and HBIG
- use of hepatitis B vaccine and HBIG in pregnancy / breastfeeding
- the risk of infecting others.

The decision to accept or decline treatment is that of the exposed person, and should be documented.

**Table 6: Hepatitis B virus post-exposure prophylaxis**

		Source status		
		Known or likely to be HBsAg positive <sup>i</sup>	Known to be negative for HBsAg and unlikely to be in the window period	
Exposed person status	Previously vaccinated	Known vaccine responder, current HBsAb $\geq$ 10 IU/mL	No treatment	No treatment
		Known vaccine responder, current HBsAb < 10 IU/mL	No treatment	No treatment
		Vaccine non-responder <sup>ii</sup> (primary course)	HBIG x 1 Initiate booster doses as per <i>Australian Immunisation Handbook</i>	Initiate booster doses as per <i>Australian Immunisation Handbook</i>
		Vaccine non-responder <sup>ii</sup> (primary course and subsequent additional doses)	HBIG x 1	No treatment

Not vaccinated	Vaccine response (seroconversion) unknown	<p>Check HBsAb:</p> <ul style="list-style-type: none"> <li>• If <math>\geq 10</math> IU/mL, no treatment</li> <li>• If <math>&lt; 10</math> IU/mL, HBIG x 1, initiate booster doses as per <i>Australian Immunisation Handbook</i></li> </ul>	<p>Check HBsAb level.</p> <p>If HBsAb <math>&lt; 10</math> IU/mL, initiate booster doses as per <i>Australian Immunisation Handbook</i>.</p>
	Not vaccinated	<p>HBIG x 1</p> <p>Initiate 3 dose HB vaccination course:</p> <ul style="list-style-type: none"> <li>• First dose within 7 days of exposure</li> <li>• Further doses as per <i>Australian Immunisation Handbook</i></li> </ul> <p>Check HBsAb level 1 month after final dose</p>	<p>Initiate 3 dose HB vaccination course:</p> <ul style="list-style-type: none"> <li>• First dose within 7 days of exposure</li> <li>• Further doses as per <i>Australian Immunisation Handbook</i></li> </ul> <p>Check HBsAb level 1 month after final dose</p>
	Primary course incomplete	<p>HBIG x 1</p> <p>Administer remaining “missed” doses of vaccine, first dose within 7 days of exposure</p> <p>Check HBsAb level 1 month after final dose</p>	<p>Administer remaining “missed” doses of vaccine</p> <p>Check HBsAb level 1 month after final dose</p>
	Past history or resolved infection	No treatment	No treatment
	Current infection <sup>iii</sup>	No treatment	No treatment

**When HBIG is indicated, it should be administered as soon as possible and within 72 hours of exposure<sup>7</sup>.**

**When HB vaccine is indicated, it should be administered as soon as possible after exposure within 7 days and can be administered simultaneously with HBIG at a separate site<sup>7</sup>.**

<sup>i</sup> Management of health care workers following a body fluid exposure where the source is unknown or is HBV positive should always be done in consultation with an Infectious Diseases Physician (refer attachment 1) or appropriate medical officer.

<sup>ii</sup> An alternate method for non-responders to hepatitis B vaccination in high risk healthcare workers includes the use of intradermal injection. For further information refer to the current edition of the *Australian Immunisation Handbook*, available at: <http://www.immunise.health.gov.au/>

<sup>iii</sup> Refer to Queensland Health Guideline for the management of human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV) infected health care workers.

#### 4.11. Hepatitis C virus (HCV)

**Table 7: Hepatitis C Virus follow up**

Source status	Follow up
Source patient is HCV Ab positive, or source status unknown	<ul style="list-style-type: none"> <li>• Provide counselling. This should include:               <ul style="list-style-type: none"> <li>– appropriate referral for support</li> <li>– the risk of HCV infection following exposure (see table 2)</li> <li>– the risk of infecting others. The exposed person should be advised that during the follow up period they should refrain from donating plasma, blood, organs, body tissue, breast milk or sperm.<sup>1</sup> The exposed person is not required to modify sexual practices or refrain from becoming pregnant or breastfeeding.<sup>1</sup></li> </ul> </li> <li>• Collect baseline bloods for HCV Ab. Baseline testing for alanine aminotransferase (ALT) should also be undertaken.</li> <li>• At this time, there is no prophylaxis proven to be effective for HCV exposure; IG (immunoglobulin) and antiviral agents are not recommended for PEP after exposure to HCV-positive blood.<sup>1</sup> The aim of follow-up is to detect acute hepatitis C as soon as possible so that appropriate management can be instituted.<sup>1</sup></li> <li>• Subsequent testing for HCV Ab and ALT should occur at 12 weeks and 6 months.</li> <li>• If the exposed person is HCV Ab positive and/or has an elevated ALT on subsequent testing then HCV RNA testing should be performed. The exposed person should also be advised to attend for evaluation if they become unwell with symptoms consistent with acute hepatitis such as nausea, vomiting, abdominal discomfort or jaundice.</li> <li>• For healthcare workers who perform exposure prone procedures (EPP) testing may need to occur earlier or more frequently. (Refer to the Expert Information Network for advice-attachment 1).</li> </ul>
Source patient is HCV Ab negative and unlikely to be in the window period	<ul style="list-style-type: none"> <li>• Provide counselling</li> <li>• Collect baseline bloods from the exposed person</li> <li>• No further action is required once the source is known to be negative for HIV, HBV, HCV and unlikely to be in the window period<sup>6</sup></li> <li>• If there is a high situational risk of transmission, high level exposure or it is likely the source may be in the window period, follow up testing of the exposed person should be considered at 12 weeks for HCV.</li> </ul>

If there is evidence that the exposed person has acute hepatitis C, then they should be referred to a specialist experienced in the management of HCV.

Healthcare workers performing exposure prone procedures who are found to be HIV, HBV, or HCV positive should be managed in accordance with Queensland Health *Guideline for the Management of Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and Hepatitis C (HCV) Infected Healthcare Workers*.

#### 4.12. Care when the exposed person is a patient

When the exposed person is a patient, the same requirements as for occupational exposures should be applied. The designated person should ensure the below steps are undertaken:

- Follow the processes outlined in the section titled Immediate Care of the Exposed Person
- The exposure to blood and body fluids should be disclosed to the patient and/or their guardian as soon as possible after the exposure
- The patient's treating medical team should be informed of the blood or body fluid exposure as soon as possible after the exposure
- The designated person should undertake a risk assessment (refer to the section titled Risk Assessment). When conducting the risk assessment, the nature of the incident needs to be taken into consideration as the assessment may need to be conducted with the occupational setting criteria
- The designated person should document the incident in the patient's confidential medical record
- The designated person should report the incident through the appropriate patient incident management system. For Queensland Health facilities, staff should follow the processes outlined in the Queensland Health Clinical Incident Management Policy including Root Cause Analysis and Open Disclosure. Available from:  
<http://qheps.health.qld.gov.au/psu/clinicalincident/default.htm>
- If the source is identified, the designated person should follow the processes in section 4.4 titled The Exposure
- All staff involved should maintain confidentiality, not only of the patient, but also regarding the current exposure or injury
- Treatment of the exposed person should be in accordance with all other sections of this document Follow-up testing of the patient should be coordinated by staff in the facility unless the patient prefers to be referred back to their general practitioner
- If prophylaxis is indicated, the processes outlined in sections titled HIV PEP, PEP starter packs and HBV PEP with HBIG should be followed.

## 5. References

1. Centres for Disease Prevention and Control. Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Post exposure Prophylaxis [Internet]. MMWR 2001 [cited 2013 Jan 14];50 (No. RR11):1-42.
2. Centres for Disease Prevention and Control. Bloodborne Infectious Diseases: HIV/AIDS, Hepatitis B, Hepatitis C: Emergency Needlestick Information [Internet]. [Cited 2013 Jan 14].
3. Australian Society for HIV Medicine (ASHM). Australian national guidelines for post-exposure prophylaxis after non-occupational and occupational exposure to HIV. (second edition) 2016.
4. Department of Health, NSW. HIV, Hepatitis B and Hepatitis C – Management of Health Care Workers Potentially Exposed [Internet]. 2010 Jan 27 [cited 2013 Jan 14].
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## 6. For additional information see

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9. Schillie S, Murphy T, Sawyer M, Ly K, Hughes E, Jiles R, de Perio M, Reilly M, Byrd K, Ward J. CDC Guidance for evaluating health-care personnel for hepatitis B virus protection and for administering postexposure management. *Morbidity and mortality weekly report*. 2013; 62(10).

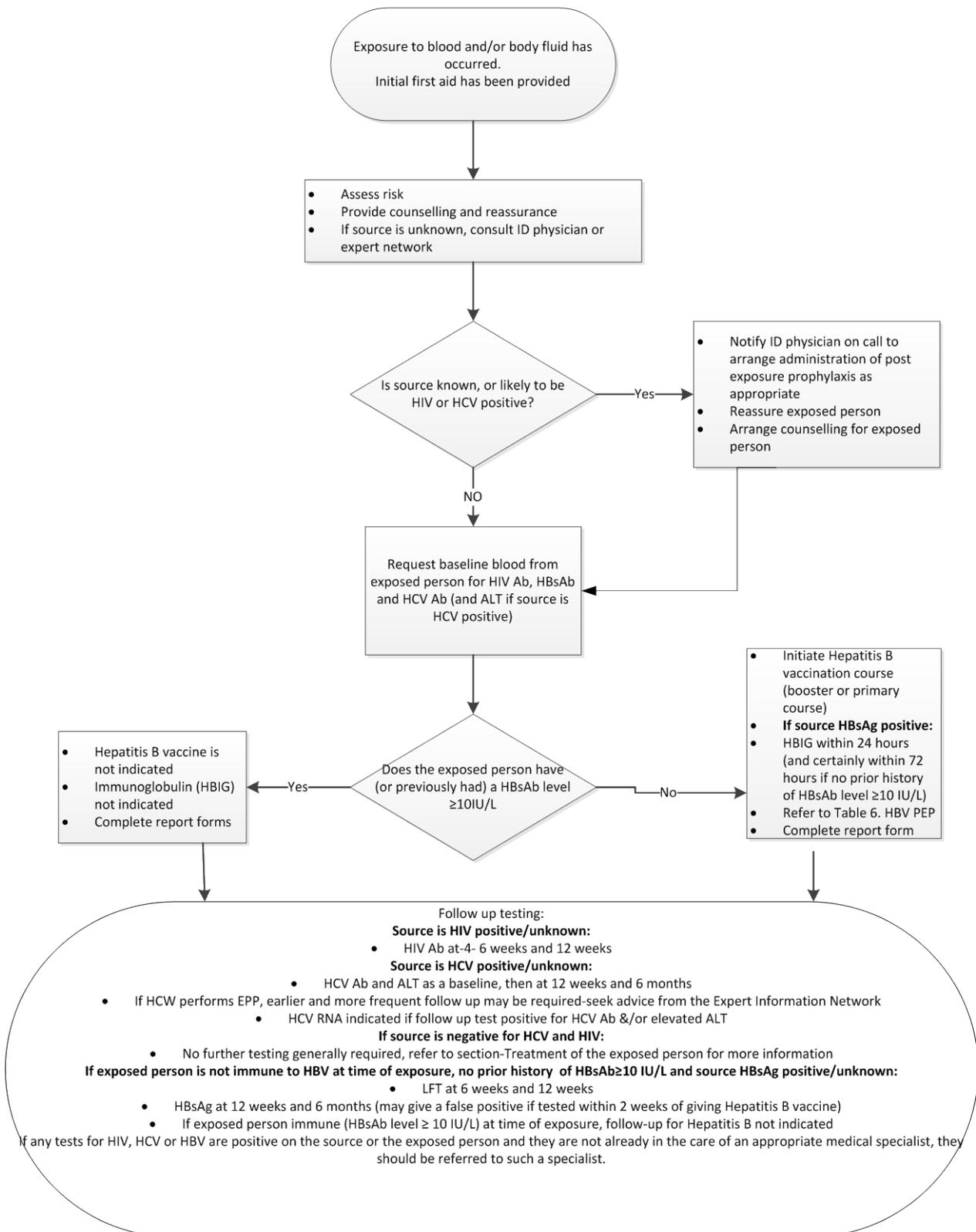
## 7. Appendices

### 7.1. Attachment 1: Expert information network

<b>Expert Information Network</b>		
Advice is available 24 hours, seven days a week by the Infectious Diseases Physician on call. They can be contacted through the switchboard in the following facilities:		
Brisbane	Princess Alexandra Hospital	(07) 3176 2111
	Mater Health Service	(07) 3163 8111
	Royal Brisbane & Women's Hospital	(07) 3646 8111
	The Prince Charles Hospital	(07) 3139 4000
Gold Coast	Gold Coast University Hospital	(07) 5519 8211
Nambour	Nambour General Hospital	(07) 5470 6600
Townsville	The Townsville Hospital	(07) 4433 1111

## 7.2. Attachment 2: Management of blood and body fluid exposures

### Attachment 2: Management of blood and body fluid exposures



### **7.3. Attachment 3: Guidelines for HIV, HBV and HCV pre and post discussion/informed consent and conveying test results**

Members of the Expert Information Network will provide initial counselling and information regarding ongoing support for the affected healthcare worker if required.

The following information is adapted from the National HIV Testing Policy Expert Reference Committee *National HIV Testing Policy v1.2 2011*, National Hepatitis B Virus (HBV) Testing Policy Expert Reference Committee *National Hepatitis B Testing Policy v1.2 2015* and the National Hepatitis C Testing Policy Expert Reference Committee *National Hepatitis C Testing Policy 2012*. These documents should be referred to for further information.

#### **Informed Consent for Testing**

Informed consent for testing means that the person being tested agrees to be tested on the basis of understanding the testing procedures, the reasons for testing and is able to assess the personal implications of the potential test results. Obtaining informed consent may take more than one consultation. Informed consent is required for HIV, HBV and HCV testing, except for rare occasions when a legal order is made for compulsory testing or in emergency settings. On these rare occasions where informed consent cannot be attained, pre-test provision of all appropriate information to the person should still take place. The person performing the test should use their clinical judgment in securing informed consent. This should be based on their understanding of the context in which the test is being performed, taking into account:

- the features which precipitate testing such as clinical presentation, risk exposure, epidemiology and prevalence and patient initiation; and
- an assessment of the person being tested with respect to their understanding of the HIV and HCV testing process and consequences of the result.

Relationships between health care providers and patients can be complex. General principles of professional conduct apply in the case of HIV, HBV and HCV testing.

People involved in HIV, HBV and HCV testing must use whatever additional support is necessary to assist the person considering testing to become adequately informed.

The discussion should be appropriate to the gender, culture, behaviour and literacy level of the person being tested and to their intellectual capacity. Professional interpreters (accredited in the person's language, or in Auslan for people with a hearing impairment or deafness) should be used where requested or where, in the health professional's judgement, an interpreter is required. This process can also involve a referral to support groups.

The person being tested needs to be made aware of confidentiality considerations and protections.

#### **Conveying Test Results**

The process of conveying an HIV, HBV or HCV test result (previously post-test counselling) to the person being tested, irrespective of the specific result, is affected by

- the type of test performed
- the context in which the test is performed and the setting of the consultation
- the extent, if any, of additional testing required in determining the true HIV, HBV or HCV status of the person
- the attitude and health literacy of the patient, and the potential implications of the result.

The person who requests the test is responsible for ensuring that appropriate mechanisms are in place for delivering the test result.

#### Conveying a negative result

The decision on how a negative HIV or HCV test result is provided (e.g. in person, by phone, etc.) should be based on clinical judgement by the person responsible for conveying the test. This person should use whatever support is necessary; taking account of the person's being tested level of knowledge, psychological capacity to deal with the outcome of testing and understanding of the testing process that is evident at the time of the sample collection.

If the result is negative, reinforcing positive education and messages about safe behaviours, and examining any difficulties or issues that the client may have in practicing safe behaviours

It is imperative that the clinician makes all attempts to ensure that the result is being provided to the person who was tested.

#### Conveying a hepatitis B test result: susceptible (non-immune)

It is imperative that the meaning of a negative (susceptible) result is fully understood and that the person

being tested receives appropriate information about and opportunity for hepatitis B vaccination, and is made aware of other harm reduction strategies in relation to the spread of blood borne viruses and sexually transmissible infections. Further testing following a negative result (anti-HBs or HBsAg) is indicated in persons who may:

- be in a window period prior to seroconversion (negative HBsAg, anti-HBc and anti-HBs in a high-risk situation – with consideration of post-exposure prophylaxis as appropriate);
- have been completely vaccinated against hepatitis B without previous confirmation of anti-HBs seroconversion (possible non-response to the vaccine, or a fall in anti-HBs titre over time).

The person should be informed of the reasons why repeat testing after an interval may be necessary. In this situation the clinician should enter the person into a system for automatic recall, rather than relying on the person to follow up on their own initiative.

#### Conveying a hepatitis B test result: immune

When the anti-HBs titre is positive in the setting of previous completed vaccination, or anti-HBc is positive with or without anti-HBs also being positive, a person is regarded as immune. Isolated anti-HBc positive results most commonly indicate distant resolved infection (with the anti-HBs titre having fallen below the threshold of the assay). However, the result is occasionally falsely positive and, rarely, isolated anti-HBc results can indicate a different hepatitis B status.

When a person is identified as being immune, either through natural infection or vaccination, this should be clearly entered in their medical record and conveyed to the person, to avoid unnecessary repeat serologic testing or vaccination in the future.

Patients immune through natural infection should be advised that they may be at risk in settings of immunosuppression.

#### Conveying a confirmed infection

A confirmed infection should always be provided in person except in extenuating circumstances such as the possibility that the person who has been tested may not return for the result and/or may engage in risk behaviour based on the wrong assumption that they are HIV, HBV or HCV negative.

The discussion when conveying a positive result should include:

- giving the test result in person and in a manner that is sensitive and appropriate to the gender, culture, behaviour and language of the person who has been tested;
- providing information about and assisting in assessment of support mechanisms and requirements of the person and making provision for immediate referral to a support agency to be accessed at the person's discretion;
- providing information on further testing that may be required to clarify the situation;
- contact tracing and partner notification strategies;
- providing information on next steps in staging the disease and a consideration of potential treatment options: it may be necessary to cover these issues over a period of time in which case a subsequent consultation should be arranged at the time of diagnosis;
- the transmission of disease, and how onward transmission may be prevented.
- the transmission of disease, and how onward transmission may be prevented.
- Identifying the importance of lifestyle changes
- disclosure strategies to partner, family and friends; and
- legal obligations to disclose disease status relevant to where the diagnosis is made.

Positive test results must be given in person. Negative test results and the associated post-test discussion should be conducted on the basis of the person's education and HIV, HBV or HCV awareness and specific circumstances and should be appropriate to their gender, culture and language.

#### 7.4. Attachment 4 Post-exposure prophylaxis (PEP) information sheet:

### HIV post-exposure prophylaxis (PEP)

## Information Sheet

Post Exposure Prophylaxis (PEP) is a course of medication taken to reduce the chance of becoming HIV positive after a potential exposure to HIV. Studies have shown that there may be a window of opportunity in the first few hours to days after exposure to HIV where PEP medications can lessen the risk of HIV infection.

The earlier PEP is started the more effective it may be in preventing HIV. PEP needs to be started within 72 hours of the exposure and taken for 28 days (1 month). PEP is not known to be effective if started after 72 hours (3 days).

PEP is used in the community setting for exposures arising mainly from sexual contact and injecting drug use. Whilst it may help to reduce HIV transmission it does not replace the need for safe sexual and injecting practices.

#### What medication will you be given?

You have been prescribed one of the Starter Packs listed below based on clinical assessment of your risk of acquiring HIV. Each Starter Pack provides three days' supply of PEP. **You will need to make an appointment to get further supplies as the medication must be continued for a total of four weeks.**

Starter pack	Generic drug names	Trade names	You were given (please tick)
A	tenofovir 300mg and emtricitabine 200mg	Truvada <sup>®</sup>	
B	tenofovir 300mg and emtricitabine 200mg + raltegravir 400mg	Truvada <sup>®</sup> + Isentress <sup>®</sup>	

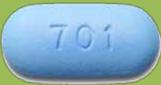
#### Important information

- Take the medication exactly as prescribed by your doctor. Do not take it more often or all at once. These drugs work together to prevent the virus spreading.
- Avoid missing any doses as the medications are most effective when there is a constant amount in the blood.
- Complete the full course as prescribed.
- Do not stop taking this medication without checking with your doctor first.
- PEP medication may interact with other medications or recreational drugs you are taking. It is important that your doctor is aware of all the medications you currently take. Some common interactions are described over the page.
- These medications are not available from your local community pharmacy and you will need to have your medication dispensed from a public hospital pharmacy. At the pharmacy, you will be required to register as a patient of the hospital so that your medication can be dispensed.

Please ensure you access your nearest Sexual Health Clinic or GP for review and further assessment

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Drug	Dosage	Side Effects	Other Medical Conditions	Drug Interactions
<b>Truvada®</b> tenofovir 300mg and emtricitabine 200mg 	One (1) tablet once daily as directed	<p><b>More common</b> - nausea, headache, vomiting, abdominal pain, diarrhoea, decreased weight, rash, dizziness or loss of appetite.</p> <p><b>Less common</b> - fatigue, lactic acidosis (build-up of lactic acid).</p>	<p>Inform your doctor if any of the following apply:</p> <ul style="list-style-type: none"> <li>existing liver problems including hepatitis B infection;</li> <li>existing kidney problems or currently receiving kidney dialysis treatment;</li> <li>existing bone problems;</li> <li>if you are pregnant or plan to become pregnant; or</li> <li>you are allergic to foods, dyes, preservatives or any other medicines.</li> </ul>	<p>Inform your doctor if you are taking:</p> <ul style="list-style-type: none"> <li>any other medicines, including medicines or supplements you bought without a prescription; or</li> <li>didanosine (also known as ddl or Videx).</li> </ul>
<b>Isentress®</b> raltegravir 400mg 	One (1) tablet twice daily as directed	<p><b>More common</b> - insomnia, headache, dizziness, nausea and fatigue.</p> <p><b>Less common</b> – fever, creatine phosphokinase (CPK) elevation, depression, abnormal liver function, stomach area pain, vomiting,</p>	<p>Inform your doctor if any of the following apply:</p> <ul style="list-style-type: none"> <li>existing liver problems;</li> <li>a history of a muscle disorder called rhabdomyolysis or myopathy;</li> <li>increased levels of creatine kinase in your blood;</li> <li>if you have phenylketonuria (PKU);</li> <li>if you are pregnant or plan to become pregnant; or</li> <li>you are allergic to foods, dyes, preservatives or any other medicines.</li> </ul>	<p>Inform your doctor if you are taking:</p> <ul style="list-style-type: none"> <li>any other medicines, including medicines or supplements you bought without a prescription; or</li> <li>Rifadin or rimycin (used to treat tuberculosis); or</li> <li>Phenytoin and phenobarbitone (used to treat seizures).</li> </ul>

Reference: Product information guides for Truvada, Raltegravir and Kaletra; National Association of People with HIV Australia <http://www.napwa.org.au/rx>

## 8. Definitions of terms used in the guideline

Term	Definition / Explanation / Details
Blood Borne Virus (BBV)	For the purpose of this guideline the term blood borne virus includes human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV).
Body fluids	In addition to blood and body fluids containing visible blood, the following fluids are considered potentially infectious: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid <sup>1</sup> . Although semen and vaginal secretions have been implicated in sexual transmission of HBV, HCV and HIV, they have not been implicated in occupational transmission from patients to healthcare workers <sup>1</sup> .
Clean needlestick injuries	Those not contaminated with blood/body fluids.
Designated medical officer	Person employed within the medical position that has been designated by the Hospital and Health Service or facility to provide treatment and follow-up for exposed persons. Many of the reporting, follow-up, and treatment functions may be designated to a non-medical professional; however, some functions may not. These functions are such activities as prescribing post-exposure prophylaxis for HIV, and interpretation of certain serological tests.
Designated person	Person employed within the position that has been designated by the Hospital and Health Service or facility to perform the functions of reporting and providing treatment and follow-up for exposed persons. This person may be in (but not limited to) an infection control position, occupational health and safety position, emergency department physician position or other medical or nursing position.
Exposure Prone Procedure (EPP)	EPP are invasive procedures where there is potential for direct contact between the skin, usually finger or thumb, of the healthcare worker and sharp surgical instruments, needles or sharp tissues (e.g. fractured bones), spicules of bone or teeth in body cavities or in poorly visualised or confined body sites, including the mouth of the patient <sup>8</sup> .
Exposed Person	The person who sustained the occupational exposure.
HBsAb	Hepatitis B surface antibody
HBeAg	Hepatitis B e antigen
HBsAg	Hepatitis B surface antigen
HCV RNA	Hepatitis C virus ribonucleic acid
LFT	Liver Function Test
Non-occupational exposure	Significant exposure to blood or other body substance (e.g. semen, vagina secretions) that is not work related e.g. unprotected sexual contact, sharing infection equipment, accidental needlestick and other injuries (e.g. physical and sexual abuse).
Occupational exposure	An occupational exposure is an incident that exposes a healthcare worker to another person's blood or body fluid during their work, which may place them at risk of blood borne virus infection. This can include: <ul style="list-style-type: none"> <li>• A percutaneous injury, where the health care worker's skin has been cut or penetrated by a needle or other sharp object that may be contaminated with blood or other body fluid. For example, a needlestick injury or cut with a sharp object such as a scalpel blade<sup>8</sup>.</li> </ul>

	<ul style="list-style-type: none"> <li>• A mucosal exposure, where there is contact of mucous membranes or non-intact skin (e.g. exposed skin that is chapped or abraded) with blood or body fluids. For example, a blood splash to the eyes.</li> </ul>
Sharp	An object or device having sharp points, protuberances or cutting edges capable of causing a penetrating injury to humans. This includes hypodermic, intravenous or other medical needles, Pasteur pipettes, disposable dental picks and drill bits, scalpel blades, lancets, scissors, glass slides and broken laboratory glass.
Serological Testing	Laboratory tests done on blood serum to measure antibodies against antigens of the micro-organism thought to be causing the infection e.g. HBsAg.
Source (individual)	Person from who blood or body fluids originated.
Window Period	The time from exposure to seroconversion when the source may be asymptomatic or experiencing seroconversion illness.

## 9. Document approval details

### Document custodian

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### Approval officer

Dr Sonya Bennett, Executive Director, Communicable Diseases Branch

**Approval date:** 25/11/2016

## 10. Version control

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2.0	8 April 2013		
3.0	26 June 2014		
4.0	25 November 2016	Paul Smith	Periodic review. Included information about HIV PoCT.