Region of Waterloo
PUBLIC HEALTH

August 2015

Significant Blood Exposure: refer for medical assessment ASAP. 5-day HIV PEP starter kits available at local hospitals if indicated (start within 1-2 hrs, maximum 72 hrs)
Public Health Role: consultation/liaison only
Follow Up: done by primary health care provider or, if HIV PEP is given, by a physician with a special interest in HIV

BLOOD AND BODILY FLUID EXPOSURES – GUIDELINES FOR PRIMARY HEALTH CARE PROVIDERS
Updated 2015 - Not intended to replace hospital protocols

1. FIRST AID - immediately:
Remove contaminated clothes. Allow wound to bleed freely, wash thoroughly with soap and water. Thoroughly flush mucous membranes with water.

2. ENSURE TETANUS UP TO DATE (preferably as Tdap/Adacel™)

Guide to Tetanus Prophylaxis in Wound Management [1]				
History of Tetanus Immunization	**Clean, minor wounds**		**All other wounds**	
	Td/Tdap*	**TIg†**	**Td/Tdap***	**TIg**
Uncertain or < 3 doses of an immunization series	Yes	No	Yes	Yes
≥3 doses received in an immunization series	No‡	No	No§	No¶

* Adult-type tetanus and diphtheria toxoids or combined diphtheria, tetanus and acellular pertussis. If the patient is < 7 years old, a tetanus toxoid-containing vaccine is given as part of the routine childhood immunization. **(Tdap i.e., Adacel™ is preferred for adults ≥18 yrs** if not yet received an adult dose of pertussis**)**
† Tetanus immune globulin, given at a separate site from Td/Tdap (TIg available from local hospital blood bank)
‡ Yes, if > 10 years since last booster.
§ Yes, if > 5 years since last booster.
¶ Yes, if individuals are known to have a significant humoral immune deficiency state (e.g., HIV, agammaglobulinemia), since immune response to tetanus toxoid may be suboptimal.

3. ASSESS IF EXPOSURE OCCURRED (for hepatitis B [HBV], hepatitis C [HCV] and HIV)
An exposure includes the following (if involves blood, tissue or other potentially infectious body fluids, see chart below)**:**
- Percutaneous – e.g. skin puncture or laceration by needle or sharp object
- Mucosal – splash to mucous membranes (e.g. eyes, nose, mouth)
- Cutaneous – contact through **non intact** skin (e.g. blood on open cut or dermatitis)
- Bites where skin is broken – risk to victim for HBV from saliva; risk for HCV and HIV **only if** saliva contains blood from oral lesion or injury; biter is also at risk if the bite drew blood

Not an exposure if: blood/bodily fluid onto intact skin, bites without broken/bleeding skin

Bodily Fluids Potentially Infectious			Bodily Fluids NOT Potentially Infectious Unless Visibly Bloody except: HBV is found in feces, nasopharyngeal washings, saliva and sweat		
blood/plasma	vaginal secretions	amniotic fluid	Feces	sputum	urine
Semen	CSF fluid	peritoneal fluid	nasal secretions	sweat	vomitus
pleural fluid	synovial fluid	pericardial fluid	Saliva	tears	

4. LEVEL OF RISK:
1. Source - highest risk includes known positive - consider viral load/treatment; if status unknown consider risk factors (prevalence rates e.g., HIV 0.2% in Canada)[2]: injection drug user, men who have sex with men, sexual partner of known positive, multiple sexual partners, history of incarceration, tattoo/body piercing, from endemic country, recipient of blood transfusion in Canada before 1986 for HIV, 1990 for HCV and 1970 for HBV
2. Type - higher to lower: hollow-bore needle > solid needle - deep injury > superficial scratch/mucous membrane
3. Volume - more blood = higher risk
4. Time out of body - fresh blood = higher risk than dried blood (survival outside the body: HBV- at least 7 days; HCV- up to 3 weeks; HIV does not live long outside the body)[3,4,5,6,7]

5. PROBABILITY OF TRANSMISSION FROM A POSITIVE SOURCE

Hepatitis B	Percutaneous	6-30%	1 in 3-16 people exposed (no risk if immune)
	Mucosal*	Occurs	No quantitative data, but multiple cases of transmission reported in literature
Hepatitis C	Percutaneous	1.8%	1 in 55 people exposed
	Mucosal*	Very rare	Extremely low risk
HIV	Percutaneous	0.3%	1 in 300 (99.7% will NOT contract HIV). **Negligible risk if blood dried e.g., discarded needle found in community; PEP generally not indicated.**[6,7,8]
	Mucosal* Cutaneous	0.09% < 0.09%	Extremely low risk, < 1 in 1000 (in other words 99.91% will NOT contract HIV)

* mouth/eye/nose

6. SOURCE TESTING - Most efficient and effective way is by Voluntary Consent
Direct Request
- Exposed person or designate directly requests that the source be tested for blood-borne diseases
- Institutional settings – medical staff or occupational health workers can request on behalf of exposed person

Process
- Physician orders source testing stat: HIV Ag/Ab, Anti-HCV, HBsAg (unless exposed person immune)
- Source provides consent for hospital or MD to release results to exposed person (document consent, exposed person's contact information and process for communication of results)
- MD or designate provides exposed person with results of relevant serology testing

Source refuses + significant exposure: Emergency Service Workers- can submit application, Mandatory Blood Testing Act via the Ministry of Community Safety and Correctional Services http://www.mcscs.jus.gov.on.ca (within 7 days)

7. POST EXPOSURE BLOODWORK TESTING OF EXPOSED PERSON (can be arranged by primary health care provider)

	Baseline (pre-existing infection; Hep B immunity)	6 weeks	3 months	4 months	6 months
Hepatitis B*	HBsAg (infection) & Anti-HBs (titre) if unvaccinated or titre unknown	Titres 1-6 months after last dose of vaccine series (if HBIg was also given, wait 6 months to allow HBIg antibodies to wane) HBsAg and Anti-HBc at 3 and 6 months only if not immune			
Hepatitis C	Anti-HCV, ALT	HCV RNA (PCR) (if high risk)	Anti-HCV ALT 95-99% sensitivity		Anti-HCV ALT 95-99%sensitivity
HIV	HIV Ag/Ab combo screen If PEP: ALT, AST, CBC, platelets, BUN, creatinine, bHCG (females)	HIV Ag/Ab earliest Ab detection 21 days		HIV Ag/Ab ** >99.5% sensitivity	

*If exposed person has had a positive titre ever (and is not immunocompromised), considered immune, no testing is required . Titre levels decrease in most people over time, but a positive result at any time in the past indicates lifelong protection due to immune memory.
** 4 months adequate if 4th generation combination HIV Ag/Ab test is used (Public Health Ontario Lab uses), 12 months if source co-infected with HIV and HCV [1,2,3,6]

8. PEP REGIMENS (Post Exposure Prophylaxis)

a) Hepatitis B Immunization

- HBIg - hospital blood bank, Hep B vaccine complete series - obtain via primary health care provider or Public Health

Hepatitis B titre - protective level if anti-HBs > 10 IU/L (positive titre)

Infected or High Risk Source	Uninfected or Low Risk Source
Determine vaccination status of exposed person **Unvaccinated**: administer HBIg AND start vaccine series **Fully vaccinated**: Determine titre • If positive titre now or in past: No action required* • If negative titre: give HBIg AND give one dose of vaccine AND test for titre at 6 months (HBs antibodies). If 6 month titre is positive, no action is required. If 6 month titre is negative, complete 2nd course of vaccine • If unknown at 48hrs, 1 vaccine booster, follow above once titre known **Known non-responders (tested ≤ 6 months after series)** • had 1 full series - HBIg and 2nd vaccine course*** • had 2 full series: Give HBIg X 2 (1 month apart) **Partially vaccinated (for 3 dose series**):** • 2 doses of vaccine: determine titre AND give 3rd dose of vaccine o If positive titre, no action is required* o If negative titre give HBIg AND test for titre at 6 months. If 6 month titre is positive, no action is required. If 6 month titre is negative, complete 2nd course of vaccine o If unknown at 48 hrs, HBIg, follow above once titre known • 1 dose of vaccine: determine titre AND give HBIg AND complete vaccine series (HBIg – **if indicated** give as soon as possible, best <48 hrs, efficacy unknown if given > 7 days post exposure)	Determine vaccination status of exposed person **Unvaccinated**: Vaccinate **Fully vaccinated**: Determine titre • If positive titre now or in past: No action required* • If negative titre: administer 1 vaccine booster AND test for titre at 1 month. If 1 month titre is positive, no action is required. If 1 month titre is negative, complete 2nd course of vaccine **Known non-responders (tested ≤ 6 months after series)** • had 1 full series – 2nd vaccine course*** • had 2 full series – no action **Partially vaccinated** • complete vaccine schedule **Note:** Hepatitis B vaccine is effective post exposure. HBIg is used as an adjunct for high risk exposures _____ ***Titre levels decrease over time. A previously positive titre indicates lifelong immunity** even if no antibodies are detectable, due to immune memory (unless immunocompromised) ** School hepatitis B vaccine program in Ontario (11-15yrs) began in 1994 – 3 dose series, then in 2000 – 2 dose series, both equally effective: 99% seroprotection ***Additional doses (up to 3 doses) will produce adequate protection in 50-70% of healthy non-responders

See Canadian Immunization Guide for age specific vaccine schedules and further details. [1]

b) Hepatitis C

- IG and antiviral agents are **NOT** recommended for PEP after exposure to HCV-positive blood
- if infection occurs some people clear the virus on their own ≤ 6 months, studies suggest early treatment is beneficial

c) HIV - Updated CDC/US Public Health Service Guidelines, Management of Occupational Exposures to HIV, August 2013

- only a 3 drug PEP regimen recommended for ALL exposures if:
  - meets criteria for exposure **and** source is HIV positive or there is a reasonable suspicion for HIV infection (see sections 3 and 4 to determine if exposure is significant)
  - PEP **not** justified for exposures that pose a negligible risk for transmission e.g., discarded needle, bites
- current PEP regimen (see below) better tolerated than previous regimens
- expert opinion recommended if exposed person pregnant/breastfeeding, source HIV+ with anti-retroviral resistance or PEP is delayed >72 hours (efficacy unknown but can consider up to 1 week if extremely high risk) [6]

Preferred HIV 3-drug PEP Regimen:
Waterloo Region Hospitals - 5 day starter kits (2015)

Isentress™ (Raltegravir) 400 mg PO twice daily x 28 days
Plus
Truvada™ 1 PO daily x 28 days
(Tenofovir DF [TDF] 300mg + emtricitabine [FTC] 200mg)

Refer to a physician with a special interest in HIV to monitor drug tolerance, reassess need for PEP within 3-5 days

References:

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5. CDC. (2015, January). HIV Transmission. Retrieved from: http://www.cdc.gov/hiv/basics/transmission.html
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8. Benn et al. (2011). UK guideline for the use of post-exposure prophylaxis for HIV following sexual exposure. *International Journal of STD&AIDS 22* 695-708.
9. Public Health Ontario Lab – Toronto (Personal communication, May 1, 2015).
10. St. Michael's Hospital Positive Care Clinic. (2013). Pocket P.E.P. Clinical Management of non-occupational and occupational exposure to blood borne pathogens.

Region of Waterloo Public Health
Infectious Diseases 519-575-4400 Ext 5275 TTY: 519-575-4608