

# Needlestick/Sharps Safety and Prevention

**HANDBOOK**



85 Grenville Street, Suite 400, Toronto, ON M5S 3A2  
Tel: 416-964-8833 Toll-free: 1-800-387-5580 Fax: 416-964-8864  
Website: [www.ona.org](http://www.ona.org)

# I N T R O D U C T I O N

Needlestick and other medical sharps injuries can be serious and even fatal to ONA members. Given the commercially-available advancements in medical safety technology, these inexcusable injuries can and must be prevented. The purpose of the ***Needlestick/Sharps Safety and Prevention (NSAP) Handbook*** is to educate ONA members on the recommended procedures that should be taken to prevent needlestick/sharps injuries occurrence. In addition to outlining the most important steps to injury prevention, this publication highlights the risks and costs associated with needlestick/sharps injuries.

ONA provides this booklet as a valuable resource in protecting the health and welfare of our members. *Please do not hesitate to contact your Bargaining Unit/Local/Labour Relations Officer for additional copies.*

***Based upon Vancouver Island Health Authority Exposure Control Plan (2002)***

# TABLE OF CONTENTS

|  |           |
|--|-----------|
| Problems Associated with<br>Needlestick/Sharps Injuries. . . . . | <b>1</b>  |
| Risks involved with exposure<br>to bloodborne pathogens. . . . . | <b>2</b>  |
| Steps to Prevention . . . . .                                    | <b>3</b>  |
| Understand the Risks. . . . .                                    | <b>4</b>  |
| Implement Engineering Controls . . . . .                         | <b>6</b>  |
| Work Practice Controls . . . . .                                 | <b>8</b>  |
| Education and Training. . . . .                                  | <b>10</b> |
| Post-exposure Management. . . . .                                | <b>12</b> |



“WARNING: Health Care Workers (HCW) who use or may be exposed to needles are at increased risk of needlestick injury. Such injuries can lead to serious or fatal infections with bloodborne pathogens such as hepatitis B virus, hepatitis C virus, or human immunodeficiency virus (HIV)” National Institute for Occupational Safety and Health (NIOSH) 1999.

## The Problem

Injuries from sharps devices, including needles, IV catheters, blood collection needles, suture needles, lancets and scalpels expose ONA members to serious and potentially fatal infections from bloodborne pathogens (BBPs) such as Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and HIV/AIDS.

Many workers employed in other sectors can also be exposed to needlesticks and/or sharps injuries by also using such devices at work or from inadvertent exposure. Some of the workers who may be at risk because of "down-stream" exposures are those in the waste management industry, commercial laundry industry, hospitality industry, the municipal sector, education sector, social services workers, corrections/penitentiary workers, the racetrack and gaming industry, etc.. as well as the general public. It is also a community health issue for the broader general public, including children that can be inadvertently exposed to discarded sharps/needles in schoolyards, parks and playgrounds.

### Key Info



Health Care Workers (HCWs) in Canada experience a high number of injuries from sharps devices – **more than 69,000 each year**, or 190 injuries per day. Each one of these events carries the risk of serious disease.

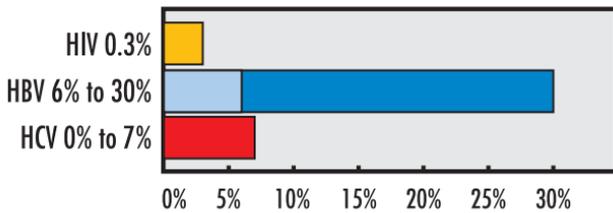
These injuries cost the Canadian health care system an estimated \$45 million to \$73 million per year. The cost is much higher if the full cost of lost time situations is factored in.

Most of these incidents are preventable through the use of safety engineered sharps devices that dramatically reduce the risk of injury to workers at the source.

# Risks

There are at least 33 BBPs that can be transmitted from a patient to a HCW as a result of sharps injury. These diseases include Hepatitis B, Hepatitis C, and the Human Immunodeficiency Virus (HIV).

After a needlestick exposure to an infected patient, a HCW's risk of infection depends on the pathogen involved, the immune status of the worker, the severity of the injury, and the availability and use of appropriate post-exposure prophylaxis. CDC data suggests that the rate of transmission to HCWs after a needlestick exposure for HBV, HCV and HIV is as follows:



**Hepatitis C represents the most serious health risk** as it is ten times more transmissible than HIV and there is currently no vaccine available. Chronic infection develops in 75-80% of HCV patients, with active liver disease developing in 70%.

HCWs, workers employed in other sectors, employers and the public should not have to accept such risks as “part of the job”. There is a great deal that can be done to eliminate the risk – including the use of safety-engineered devices, improved work practices, education and training.

# Steps to Prevention:

An effective Exposure Control Plan that is developed in consultation with the Joint Health & Safety Committee (JHSC) will involve the following steps...



| STEP                                | ACTION  |
|-------------------------------------|---|
| 1. Understand the risks             | EPINet™*<br>surveillance program  |
| 2. Implement engineering controls   | Safety engineered sharps devices  |
| 3. Implement work practice controls | Infection control measures and procedures<br><br>Sharps containers maintained and used properly |
| 4. Education                        | Training program for all employees with potential for exposure                                  |
| 5. Post exposure management         | Awareness campaign  |

[\\*www.med.virginia.edu/epinet](http://www.med.virginia.edu/epinet)

## Understand the Risks (Step 1.):

Joint Health and Safety Committees (JHSCs) need to ensure they have a comprehensive understanding about the potential for occupational exposure or transmission of infectious disease. Specific objectives to prevent and manage occupational exposure should be established by the JHSC.

### Key Info

**If your health care facility has good sharps injury data, this information should be used as the basis of your risk assessment.**



Experience has shown that most institutions do not have robust data that allows for good analysis of which procedures and devices create the highest risks. If this is the case, ONA recommends that conclusions regarding which devices and activities constitute high risk be based on EPINet™ data as well as data gathered from hospitals participating in Centers for Disease Control (CDC) National Surveillance System for Hospital Health Care Workers (NaSH) (NIOSH Website) until enough hospital-specific data is obtained.

NIOSH website: [www.cdc.gov/niosh](http://www.cdc.gov/niosh)

EPINet (Exposure Prevention Information Network) was developed by Janine Jagger, M.P.H. Ph.D., and colleagues at the International Healthcare Worker Safety Center at the University of Virginia. EPINet is a program designed to provide healthcare facilities with a standardized method for recording sharps injuries. The EPINet database incorporates the incidents from a large number of institutions over an extended period of time. It is available free of charge on their website.

EPINet website: [www.med.virginia.edu/epinet](http://www.med.virginia.edu/epinet)

## ACTION

Use EPINet™ database to assess risk. Implement EPINet to build your own database.

Once risks/hazards are identified by the JHSC and /or a concerned worker, the primary goal is to eliminate them.

### Key Info



The employer must use **engineering controls**.

The most effective method of control is always "at the source" (i.e. simply eliminate the hazard as opposed to trying to work safely with it). In this instance, by replacing conventional devices with safety-engineered devices. Only when the hazard cannot be eliminated through the use of safety-engineered technology (i.e. not commercially available yet), control for risk reduction should be implemented in the following order:

### Key Info



**work practice controls** to control the hazard to the lowest possible level.

### Key Info



as a last resort, workers may need to use **personal protective equipment (PPE)** to lessen the potentially harmful effects of exposure to a hazard.

## Implement Engineering Controls (Step 2)

Health Canada data shows that 76% of sharps injuries occur between use of the device and disposal. Safety engineered sharps devices offer the best protection against risk of exposure to bloodborne pathogens.

**Key Info**  Engineering controls, such as safety-engineered sharps devices, dramatically decreases HCWs' exposure to BBPs by reducing the hazard at the source by either removing or isolating the hazard, or isolating workers from exposure.

According to the EPINet™ data, the greatest number of injuries result from needles attached to syringes, followed by suture needles. However, the CDC highlights that blood-filled hollow-bore needles present the highest risk for pathogen transmission. As such, blood-filled needles such as IV catheter stylets, butterfly needles and phlebotomy needles are associated with the greatest incidence of high-risk exposures.

JHSCs should ensure that risk assessments are conducted in order to determine all areas of risk, beginning with those at highest risk.

The CDC recommends giving priority to implementing safer vascular access and blood-drawing devices, as injuries from these devices have the highest risk of pathogen transmission. Next we should implement safer hypodermic injection devices because the highest number of accidents occurs with these devices. After this, blades and lancets are the next items to focus on. Lastly, we should look to implement safer suture systems.

## ACTION

### Priorities for safety engineered sharps:

1. Needleless IV systems
2. IV catheters
3. Winged blood collection sets
4. Straight blood collection needles
5. Hypodermic needles (including arterial blood gases/ABGs)
6. Lancets
7. Sutures

A number of sources have identified the desirable characteristics of safety-engineered sharps.

These characteristics include the following:

- the device is needleless.
- the safety feature is an integral part of the sharps device and not an accessory.
- the device preferably works passively (i.e. requires no activation by the user). If user activation is necessary, the safety feature can be engaged with a single-handed technique and allows the workers hands to remain behind the exposed sharp.
- the user can easily tell whether the safety feature is activated.
- the safety feature cannot be deactivated and remains protective after disposal to protect users and waste handlers, and for environmental safety.
- the device performs reliably.
- the device is easy to use and practical.
- the device is safe and effective for patient care.

According to the University of Virginia, 78% of sharps injuries can be eliminated through the use of safety-engineered sharps devices. The CDC indicates 86% of these injuries can be eliminated using safety-engineered sharps.

## Work Practice Controls (Step 3).

It is the duty and responsibility of the JHSC to review and recommend effective work practice controls specific to their respective workplaces. Work practice controls are meant to alter the way in which a task is performed so that it is done in a safer manner. Work practice controls aim at preventing contact with blood and body fluids by altering the way the task is performed. Generally, this means that work will be done in

such a way as to minimize the possibility for splattering, splashing, spraying, and creating droplets or aerosols.

**Key Info**



**Work practice controls are not an acceptable substitute for engineering controls and should only be considered after it has been conclusively established that the technology to eliminate or reduce the hazard is not yet available. The first priority must always be the implementation of safety-engineered devices.**

**ACTION**

Proper use and maintenance of sharps containers reduces risk of injuries.

The following points provide some “general” work practice controls that should be observed when working with contaminated sharps (including safety-engineered devices).

- Employees must consider all sharps items as potentially infectious and handle them with care to prevent accidental exposure.
- When disposing of a sharps device, an appropriate sharps container must be used.
- Sharps containers should be used and maintained properly. This means that the containers should be used in accordance with the manufacturer’s instructions; they should be closable, leak-proof, and puncture-resistant; and they should be placed in easily accessible locations as close to where the sharps are being used as possible.

- Sharps containers should never be over-filled.
- Employees should not attempt to access the contents of a sharps container.
- Needles should never be recapped.
- No attempt should be made to remove the needle from the body of the syringe (eg. bending, breaking or shearing).
- In areas where there may be exposures to blood, employees should wash their hands frequently.
- Personal protective equipment should be removed before leaving the work area.

## Personal Protective Equipment (PPE)

PPE is the last and least effective line of defense against the transmission of BBPs. By using PPE, health care workers create barriers and filters between themselves and the hazard; however, PPE does not protect the worker against sharps injuries. Examples of PPE include gloves, masks, goggles, gowns and aprons.

**Key Info**



**PPE does not protect the worker against sharps injuries.**

## Education and Training (Step 4)

This applies to all workers who have, or may have occupational exposure to BBPs including those workers that do not necessarily use needles or sharps devices as part of their job but could potentially suffer inadvertent "downstream" exposure. Such workers may include housekeeping, maintenance, laundry, dietary and even clerical staff. **Employers must**

### Key Info



**inform all workers about the contents of the exposure control plan and must provide them with adequate education and training to work safely with biohazardous**

**material. This applies to all workers who have, or could potentially have occupational exposure to BBPs.** The education and training should be appropriate to the worker's educational level and language. Under the Occupational Health & Safety Act (OHSA), it is the JHSC's legal duty and responsibility to regularly review and make recommendations regarding all aspects of workers' health and safety education and training.

Periodic training is needed to refresh the HCWs' knowledge of BBP-related material as recommended by the JHSC.

Workers should be educated and trained before they are initially assigned to work in areas where potential BBP exposure may occur. In addition, training is needed when there are changes in the job that would affect a worker's BBP exposure potential, such as the introduction of new equipment. When there are changes to the exposure control plan, additional training is also needed. Periodic training is needed to refresh the HCWs' knowledge of BBP risks/hazards and related material.

Records must be kept of all training sessions on biohazardous material for the length of time required by provincial law.

Education and training should include the following topics:

- The OHSA and applicable regulations, Codes of Practice, as well as the relevant sections of the Workplace Safety Insurance Act and its regulations.
- Explanation of bloodborne diseases, their modes of transmission, symptoms and treatment options.

- The exposure control plan and where to access it.
- Identification of tasks and procedures involving potential exposure to BBPs.
- The hierarchy of controls, including engineering, administrative, work practices controls, and personal protective equipment to eliminate or minimize exposure to BBPs.
- The proper use of engineering controls and their limitations.
- Hepatitis B vaccination, its purpose, benefits, safety and availability at no cost to workers.
- Emergency procedures in case of an exposure incident, including how to get medical attention and how to complete the reporting.

The JHSC should ensure that workers have been properly informed by their employer by regularly identifying their ability to answer the following questions:

- Do you work with biohazard materials? If so, what are they?
- What precautions are required for preventing exposure?
- What do you do in the case of exposure?
- Where would you go for more information?
- What does the law say about your health & safety protection regarding needlestick/sharps injury and what remedies/rights do you have regarding the same?

**Key Info**



**These questions should be incorporated into the workplace inspections as required by the OHSA.**

**ACTION**

All employees with potential for exposure should be trained to work safely with biohazardous material. The employer must consider any recommendation of the JHSC, and must consult the JHSC regarding additional training.

## Post Exposure Management (Step 5)

**Key Info**  Employers are required to have written policies and procedures describing employer and worker responsibilities in the event that a worker is exposed to **biohazardous material**. In the case of an exposure, the employer needs to ensure that first aid and medical attention are immediately made available to the worker. Details of the exposure need to be recorded, the significance of the exposure assessed, and follow-up advice provided.

For harmful exposures, follow-up actions shall include:

- medical evaluation/intervention
- post-exposure prophylaxis within two hours of the exposure (if so determined by medical authority)
- confidential counseling
- filing a worker's compensation claim

### **ACTION**

Employers must make workers aware of the post-exposure procedures they must follow. Incidents of exposure to biohazardous materials must be reported as soon as possible to a supervisor and first aid attendant.

53% of HCWs are not aware of their institution's post-exposure protocol.

# S U M M A R Y

A comprehensive approach to reducing needlestick/sharps injuries includes an exposure control plan incorporating:

- Risk assessment – use EPINet for data collection
- Implement safety engineered sharps devices
- Proper disposal of sharps
- Training on risks and risk prevention

This will lead to a 96% reduction in injuries according to the International Healthcare Worker Safety Center at the University of Virginia.

**\*At a workplace with fewer than 20 workers a Health and Safety Representative appointed by workers would perform the same functions as a Joint Health and Safety Committee (JHSC) as noted in this document.**

# ONTARIO MINISTRY OF LABOUR CONTACTS

Occupational Health & Safety Branch  
655 Bay St., 14th Floor, Toronto, ON M7A 1T7  
Tel: (416) 326-7770 • Toll-free: 1-800-268-8013 (province-wide) • Fax: (416) 326-7761  
Web Site: [www.gov.on.ca/LAB/ohs/ohse.htm](http://www.gov.on.ca/LAB/ohs/ohse.htm)

## REGIONAL OFFICES

To report fatalities and critical injuries during day-time hours, contact the number for the region applicable to you.  
To report fatalities and critical injuries after hours, call (416) 325-3000 or toll-free 1-800-268-6060.

### **NORTHERN REGION (Sudbury, Timmins, Thunder Bay, Sault Ste. Marie)**

#### **Sudbury East/Sudbury West**

159 Cedar St., Ste 301  
Sudbury, ON P3E 6A5  
Tel: (705) 564-7400  
Toll-free: 1-800-461-6325  
Sudbury East Fax: (705) 564-7076  
Sudbury West Fax: (705) 564-7437

#### **Timmins**

Ontario Government Complex  
P.O. Bag 3050 "D" Wing  
Highway 101 E.  
South Porcupine, ON PON 1H0  
Tel: (705) 235-1900  
Toll-free: 1-800-461-9847  
Fax: (705) 235-1925

#### **Thunder Bay**

435 James St. S., Ste. 222  
Thunder Bay, ON P7E 6S7  
Tel: (807) 475-1691  
Toll-free: 1-800-465-5016  
Fax: (807) 475-1646

#### **Sault Ste. Marie**

70 Foster Dr., Ste. 480  
Sault Ste. Marie, ON P6A 6V4  
Tel: (705) 945-6600  
Toll-free: 1-800-461-7268  
Fax: (705) 949-9796

### **WESTERN REGION**

(Hamilton, Halton, Brant, Niagara,  
London, Windsor, Kitchener)

#### **Hamilton/Brant**

1 Jarvis St., Main Floor  
Hamilton, ON L8R 3J2  
Tel: (905) 577-6221  
Toll-free: 1-800-263-6906  
Fax: (905) 577-1200

#### **Halton**

1 Jarvis St., Main Floor  
Hamilton, ON L8R 3J2  
Tel: (905) 577-6221  
Toll-free: 1-800-263-6906  
Fax: (905) 577-1324

#### **Niagara**

301 St. Paul St., 8th Floor  
St. Catharines, ON L2R 7R4  
Tel: (905) 704-3994  
Toll-free: 1-800-263-7260  
Fax: (905) 704-3011

#### **London North/London South**

217 York St., 5th Floor  
London, ON N6A 5P9  
Tel: (519) 439-2210  
Toll-free: 1-800-265-1676  
Fax: (519) 672-0268

#### **Kitchener**

155 Frobisher Dr., Unit G213  
Waterloo, ON N2V 2E1  
Tel: (519) 885-3378  
Toll-free: 1-800-265-2468  
Fax: (519) 883-5694

#### **Windsor**

4510 Rhodes Dr., Ste. 610  
Windsor, ON N8W 5K5  
Tel: (519) 256-8277  
Toll-free: 1-800-265-5140  
Fax: (519) 258-1321

### **CENTRAL REGION (Toronto East, Durham, Toronto North, Toronto West, Peel, York, Barrie)**

#### **Toronto East**

2275 Midland Ave.  
Unit #1, Main Floor  
Scarborough, ON M1P 3E7  
Tel: (416) 314-5300  
Fax: (416) 314-5410

#### **Durham**

67 Thornton Rd. S.  
Oshawa, ON L1J 5Y1  
Tel: (905) 433-9416  
Toll-free: 1-800-263-1195  
Fax: (905) 433-9843

#### **Toronto North**

1201 Wilson Ave.  
Building E., 2nd Floor  
Downsview, ON M3M 1J8  
Tel: (416) 235-5330  
Fax: (416) 235-5080

#### **Toronto West**

1201 Wilson Ave.  
Building E., 2nd Floor, West Building  
Downsview, ON M3M 1J8  
Tel: (416) 235-5330  
Fax: (416) 235-5090

#### **Peel North/Peel South**

1290 Central Parkway W., 4th Floor  
Mississauga, ON L5C 4R3  
Tel: (905) 273-7800  
Toll-free: 1-800-268-2966  
Fax: (905) 615-7098

#### **York**

1110 Stellar Dr., Unit 102  
Newmarket, ON L3Y 7B7  
Tel: (905) 715-7020  
Toll-free: 1-888-299-3138  
Fax: (905) 715-7140

#### **Barrie**

114 Worsley St., Ste. 201  
Barrie, ON L4M 1M1  
Tel: (705) 722-6642  
Toll-free: 1-800-461-4383  
Fax: (705) 726-3101

### **EASTERN REGION (Ottawa, Kingston, Peterborough)**

#### **Ottawa West/Ottawa East**

1111 Prince of Wales Dr. Ste. 200  
Ottawa, ON K2C 3T2  
Tel: (613) 228-8050  
Toll-free: 1-800-267-1916  
Fax: (613) 727-2900

#### **Kingston**

Beechgrove Complex, 51 Heakes Lane  
Kingston, ON K7M 9B1  
Tel: (613) 545-0989  
Fax: (613) 545-9831

#### **Peterborough**

300 Water St. N. 3rd Floor, South Tower  
Peterborough, ON K9J 8M5  
Tel: (705) 755-4700  
Toll-free: 1-800-461-1425  
Fax: (705) 755-4724



## HEAD OFFICE – TORONTO

400 – 85 Grenville St., Toronto, ON. M5S 3A2  
Tel: (416) 964-8833 Toll-free: 1-800-387-5580 Fax: (416) 964-8864  
Web site: [www.ona.org](http://www.ona.org)

## REGIONAL OFFICES

### Hamilton

205 – 393 Rymal R. W.  
Hamilton, ON. L9B 1V2  
Tel: (905) 383-3341  
Fax: (905) 574-0933

### Kingston

306 – 4 Cataraqui St.  
Kingston, ON. K7K 1Z7  
Tel: (613) 545-1110  
Fax: (613) 531-9043

### London

204 – 750 Baseline Rd. E.  
London, ON. N6C 2R5  
Tel: (519) 438-2153  
Fax: (519) 433-2050

### Orillia

126A – 210 Memorial Ave.  
Orillia, ON. L3V 7V1  
Tel: (705) 327-0404  
Fax: (705) 327-0511

### Ottawa

211 – 1400 Clyde Ave.,  
Nepean, ON. K2G 3J2  
Tel: (613) 226-3733  
Fax: (613) 723-0947

### Sudbury

Unit 1, 760 Notre Dame Ave.  
Sudbury, ON. P3A 2T3  
Tel: (705) 560-2610  
Fax: (705) 560-1411

### Thunder Bay

214 Woodgate Centre  
1139 Alloy Dr.  
Thunder Bay, ON. P7B 6M8  
Tel: (807) 344-9115  
Fax: (807) 344-8850

### Timmins

110A – 707 Ross Ave. E.  
Timmins, ON. P4N 8R1  
Tel: (705) 264-2294  
Fax: (705) 268-4355

### Windsor

220 – 3155 Howard Ave.  
Windsor, ON. N8X 3Y9  
Tel: (519) 966-6350  
Fax: (519) 972-0814