



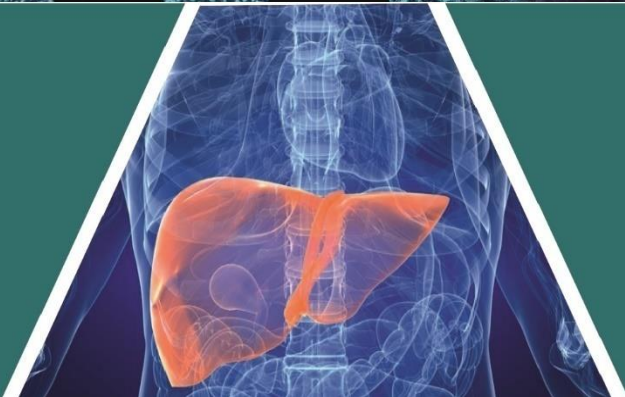
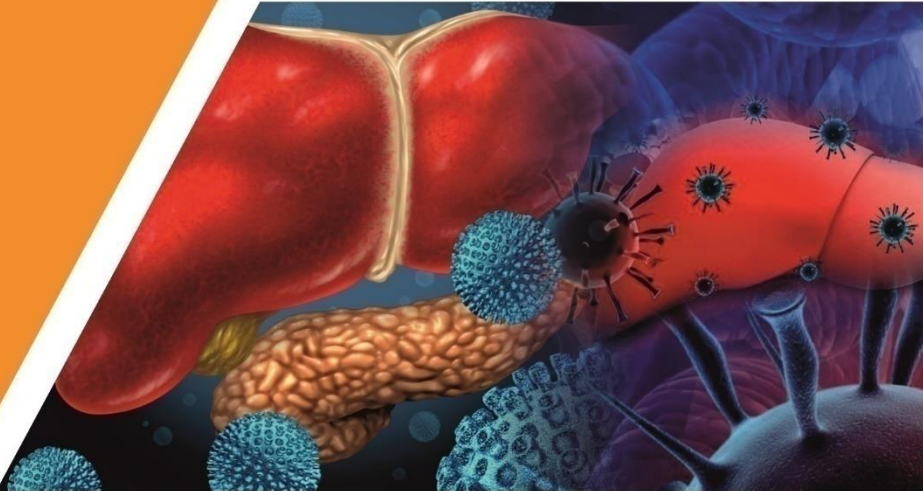
PROJECT PRAKASH

Programmed Approach to Knowledge and Sensitization on Hepatitis

HEPATITIS INDUCTION PROGRAM FOR LAB TECHNICIANS

Needle Stick Injury and PEP

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Introduction

Health care personnel (HCP)- are potentially exposed to blood borne pathogens

Bloodborne viruses (BBVs) - HIV 1&2, HBV and HCV

Immunization and **post-exposure management-** crucial elements in preventing infection by BBVs

Exposure

a percutaneous injury (e.g. needle-stick or cut with a sharp instrument)

contact with the mucous membranes of the eye or mouth,

contact with non-intact skin

contact with intact skin when the duration of contact is prolonged (e.g. several minutes or more)with blood or other potentially infectious body fluids.

Post exposure prophylaxis (PEP) - comprehensive management given to minimize the risk of infection following potential exposure to blood-borne pathogens

Who is at risk?????

- Interns and medical students
- Nursing staff and students
- Physicians
- Surgeons
- Emergency care providers
- Dentists
- Labour and delivery room personnel
- Laboratory technicians
- Health facility cleaning staff and clinical waste handlers

CDC estimates that about 385,000 sharps-related injuries occur annually among health care workers in hospitals



Risk of BBVs following occupational exposure

Virus	Risk following NSI (%)
HBV	5-30 HbeAg (+) 22-30 HbeAg(-) 1-6
HCV	0-7
HIV	0.3 (percutaneous) 0.09 (mucosal)

Potentially infectious body fluids

Exposure to body fluids considered ' <i>at risk</i> '	Exposure to body fluids considered ' <i>not at risk</i> '	<i>unless contain visible blood</i>
Blood	Tear	
Semen	Sweat	
Vaginal secretions	Urine / Faeces	
CSF	Saliva	
Synovial, Pleural, Pericardial, Peritoneal fluid	Sputum	
Amniotic fluid	Vomitus	

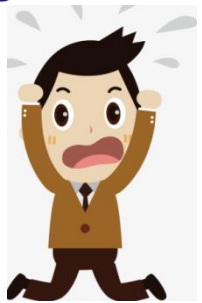
Factors influencing risk of infection

- Type of body fluid
- Quantity of blood
- Type of needle/sharp
- Depth of injury
- Infectivity of source patient- viral load
- Timely availability and efficacy of the PEP

Practices increasing risk of infection

- **Recapping needles** (Most important)
- Transferring a body fluid between containers
- Failing to dispose of used needles properly in puncture-resistant sharps containers
- Poor healthcare waste management practices





WHAT IF NEEDLE STICK INJURY HAPPEN ????????????



Occupational exposure management

Step 1	Management to exposure site – first aid
Step 2	Immediate reporting to supervisor
Step 3	Risk assessment
Step 4	Informed consent and counselling for PEP
Step 5	Laboratory Evaluation of both exposed and source
Step 6	Initiation of PEP
Step 7	Follow-up of exposed person
Step 8	Documentation and Recording of Exposure

Step 1- Management of exposure site

DO

- Remove Gloves
- Wash the exposed site thoroughly with running water
- Irrigate with water or saline if eyes or mouth have been exposed
- Wash the skin with soap and water

DO NOT



- Do not panic
- Do not put pricked finger in mouth
- Do not squeeze the wound to bleed it
- Do not apply disinfectant on the wound

Step 2- Immediate reporting to the supervisor

Step 3-Risk assessment

Categories of exposure	
Category	Definition with examples
Mild	mucous membrane/non-intact skin with small volumes (a superficial wound with a plain needle or contact with the eyes or mucous membranes, subcutaneous injections following small-bore needles)
Moderate	mucous membrane/non intact skin with large volumes OR percutaneous superficial exposure with solid needle (a cut or needle stick injury penetrating gloves)
Severe	percutaneous with large volume (an accident with a needle visibly contaminated with blood)

Step 4-Informed consent and counselling

- Psychological support
- Risk of acquiring infection from the specific exposure
- Information about exposed's risk of acquiring infection
- What is known about PEP efficacy
- Importance of adhering to medication once started
- Discontinuation of PEP drugs, if HIV test found negative
- Common side effects
- Prevention during the PEP period eg sexual intercourse and unplanned pregnancy
- Safety of PEP if pregnant/ breastfeeding

Step 5-Laboratory evaluation (source and exposed)

Source [Patient]	Exposed [HCP]
HBsAg	HBsAg
Anti-HCV	Anti-HCV
Anti-HIV 1&2 (HIV 1&2 Ag-Ab)	Anti-HIV 1&2 (HIV 1&2 Ag-Ab)
	Anti-HBs (titers)

For HIV -informed consent of the exposed person.

Other tests (specific situation):

- Viral loads of HBV, HCV, HIV
- LFT (serum ALT/AST) if PEP indicated
- CBC (if HIV PEP i.e. HAART indicated)

Step 6-Initiation of PEP (HIV)

PEP should be initiated as soon as possible
Ideally within 2 hours but certainly within 72 hrs

HIV testing of the source should not delay decision of initiating PEP

Tenofovir(300 mg)+Lamivudine (300 mg)+Efavirenz(600mg)

Should be continued till **4 weeks**

PEP (HIV)

Is the source material blood, bloody fluid or other potentially infectious material – OPIM (CSF, synovial, plural, pericardial and amniotic fluid, and pus) or an instrument contaminated with any of these substances?

Yes

No

No PEP needed

What is the type of exposure?

Mucous membrane or skin with integrity compromised

Intact skin

Percutaneous exposure

No PEP needed

What is the volume of exposure?

What is the severity of exposure?

Small
e.g., few drops, small duration

Large
e.g., several drops, major blood splash, and/or duration of several minutes or more

Less severe
e.g., solid needle, superficial scratch

More severe
e.g., large bore hollow needle, deep puncture, visible blood on device, needle used in patient's artery or vein

EC 1

EC 2

EC 2

EC 3

Exposure code

HIV status code

What is the HIV status of the exposure source?

HIV Negative

HIV Positive

Status unknown

Source unknown

No PEP needed

Low titre exposure
e.g. asymptomatic, high CD4 count

High titre exposure
e.g. advanced AIDS, primary HIV infection, high or increasing viral load, low CD4 count

HIV SC 1

HIV SC 2

HIV SC Unknown

Exposure Codes *	HIV Source Code**	PEP Recommendations
1	1	Not warranted
1	2	Recommended
2	1	
2	2	
3	1 or 2	
2/3	Unknown	Consider PEP, if HIV prevalence is high in the given population & risk categorisation



PEP (HBV)

The ideal time frame is within **48 hours of exposure**, although it can be considered up to one week

A complete series - consists of three doses administered at 0, 1, and 6 months

Responder - person with **anti-HBs ≥ 10 mIU/mL** after completing the hepatitis B vaccine series

Nonresponder - person with **anti-HBs < 10 mIU/mL** after completing two hepatitis B vaccine series

HBIG- 0.06mL/kg intramuscularly

Post vaccination serologic testing- should be performed one to two months after the last dose of the hepatitis B vaccine using a quantitative method

PEP (HBV)

Health care personnel status	Post exposure testing		Post exposure prophylaxis		Post vaccination serology
	Source (HBsAg)	HCP (anti-HBs)	HBIG	Vaccination	
Documented responder after complete series	No action needed				
Documented non responders after 2 complete series	Positive/unknown	Not indicated	HBIGx 2	-	No
	Negative	No action needed			
Response unknown after complete series	Positive/unknown	<10mIU/mL	HBIGx 1	Initiate revaccination	Yes
	Negative	<10mIU/mL	None		
	Any result	>10mIU/mL	No action needed		
Unvaccinated/incompletely vaccinated/vaccine refusers	Positive/unknown	-	HBIGx 1	Complete	Yes
	Negative	-	None	Complete	Yes

PEP (HCV)

No post-exposure prophylaxis currently available/approved

Source
Anti-HCV - Non-reactive

No further action needed

Source
Anti-HCV –
Reactive/unknown

Source - Confirm HCV status, HCV
RNA

Exposed - Follow up,
Refer to Hepatology

HCV RNA ← Positive

Baseline- anti HCV within
48 hours

Negative
HCV RNA at 3 weeks/ anti-HCV at
6 months

Symptoms of a viral illness compatible with acute HCV at any point up to 6 months post-exposure should prompt immediate evaluation

Step 7- Monitoring of exposed

- ✓ Testing for at least 6 months after exposure (6 weeks, 12 weeks and 6 months) for HIV
- ✓ If source is HCV positive or has potential HCV risk factors, exposed should be tested for:
 - HCV RNA after 3 weeks/ anti-HCV at 6 weeks and after 6 months
- ✓ HBV- baseline and 6 months
- ✓ Transaminases should be checked at week 2 and 4 to detect hepatitis in case the exposed contracted HBV
- ✓ Advised to use precautions (e.g., avoid blood or tissue donations, breastfeeding, unprotected sexual relations or pregnancy) first 6–12 weeks following exposure
- ✓ Advised to seek medical evaluation for any febrile illness that occurs within 12 weeks of exposure
- ✓ Adherence and side effect counseling

Step 8- Documentation of exposure

- **Date, time, and place of exposure**
- **Type of procedure done**
- **Type of exposure: percutaneous, mucus membrane, etc**
- **Duration of exposure**
- **Exposure source and volume; type of specimen involved**
- **Explanation of how the incident occurred**



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ALL ABOUT NEEDLE STICK INJURIES



All About Needle Stick Injuries

Needlestick and Sharp Injuries (NSIs) are accidental skin penetrating wounds caused by sharp instruments in a medical setting.



Upcoming Trainings

NSI will conduct trainings on Prevention of Needle Stick Injuries, Training Schedules will get updated time to time on our website. Click here to see the upcoming trainings





Report An Incident

If you have been affected with a Needle Stick Injury, please report here and our team of experts will revert in 24 hours.

Website : nsi.ilbs.in

Email: nsi@ilbs.in

ILBS- NSI reporting form

NEEDLE STICK INJURY REPORTING FORM

Details of Health Care Worker (Exposed):

Name: Age/Sex: UHID No.: D.O.J.:

Designation: Duty Area: Doctor In charge on duty:

Address (present residential):-

Phone No.: Office Extn. No.:

Marital Status: Significant Medical History:

Previous NSI History (If Any):-

Type of Injury: - Date/Time of Exposure: -

Type of Exposure (preferably contaminated with body fluid): -

1. Hollow-bore needle
2. Solid needle
3. Visible Blood Present
4. Device had been directly in source artery/vein
5. Other Sharp
6. Unknown

Action Taken after Exposure: -

1. Washing of exposed area/hand washing Yes/No
2. Squeezing of exposed area Yes/No
3. Exposed wounded area under running water Yes/No
4. Use of any kind of antiseptic solution/chemical Yes/No

Brief History of the Patient (Source):-

Name of the patient: - Age/Sex: - UHID No.: -

Ward/Bed No.: Consultant Name:

Address (present residential/Contact No.): -

Confirmed Diagnosis:-

Any Others:-

Sign of HCW (Exposed) Sign of Nurse In charge Sign of Duty Doctor Sign of ICN

Note:- NSI reporting form to be completely filled by Nurse in charge with HCW and shall be submitted to ICN immediately.

Pre exposure prophylaxis for HBV at ILBS



EMPLOYEE VACCINATION FORM

Note:- Please read the form and fill up the information correctly, for any Clarification contact HR department.

A. Employee Identification Data:

NAME (in block letters):- _____ AGE / SEX :- _____
 DESIGNATION:- _____ DEPARTMENT:- _____
 EMP ID:- _____ D.O.J:- _____ UHID NO:- _____
 ADDRESS:- _____
 CONTACT NO:- _____

B. Employee Vaccination History:

Are you Vaccinated for Hepatitis-B? YES NO

If you are Not Vaccinated, Kindly mention the reason; _____

Name of the Vaccine (If vaccinated):- _____

If Vaccinated for Hepatitis-B, Kindly mention the dates or year of vaccination done:

1st DOSE:- _____ 2nd DOSE:- _____

3rd DOSE:- _____ BOOSTER DOSE:- _____

If You Have Checked Your ANTI HBs TITER, Kindly mention the following: If not leave it blank for the concerned department.

Have You Checked your ANTI HBs TITER? YES NO

DATE OF ANTI HBs TITER:- _____ ANTI HBs TITER RESULT:- _____

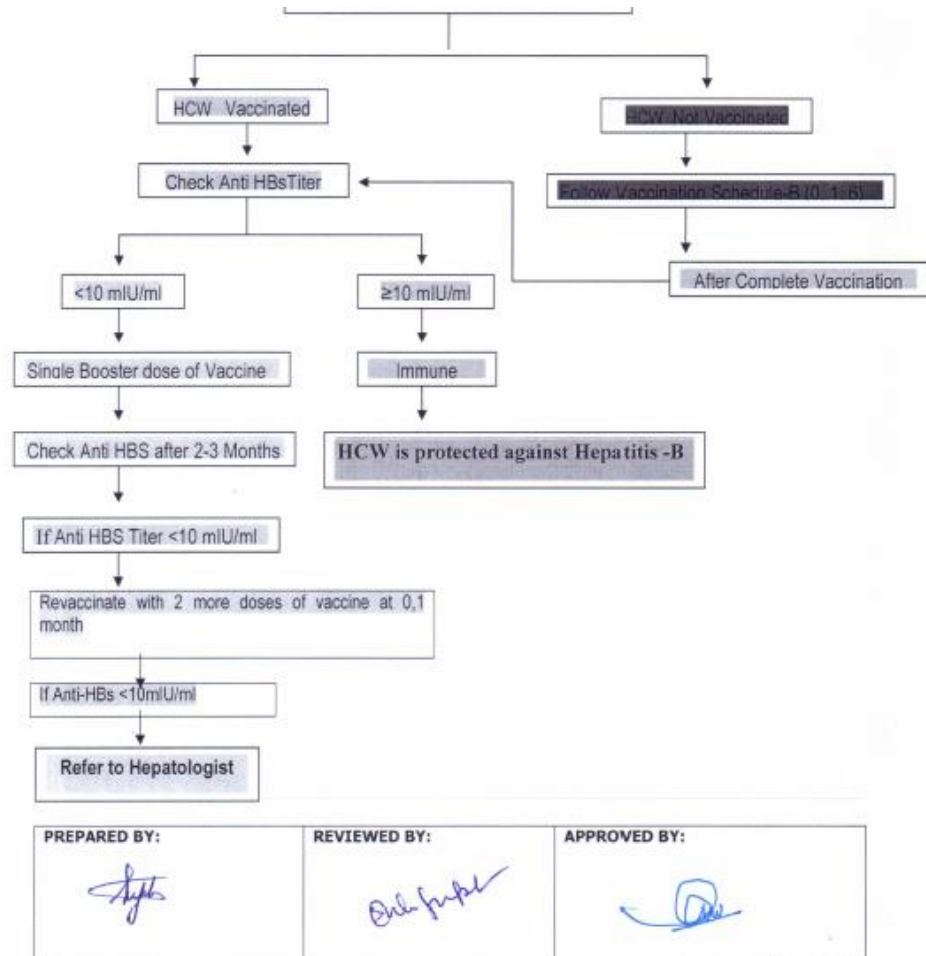
Note:- In case you are not vaccinated for Hepatitis-B, kindly contact infection control nurse for further details.

I, hereby declare that the above written details are valid to the best of my knowledge.

SIGN OF EMPLOYEE:- _____

REMARKS (by Virologist):- _____

SIGN OF ICN:- _____ SIGN OF INCHARGE VIROLOGY:- _____



PREPARED BY:

[Signature]

REVIEWED BY:

[Signature]

APPROVED BY:

[Signature]

Prevention of needle stick injury

➤ Training

safe injection procedures
proper use and disposal of sharps



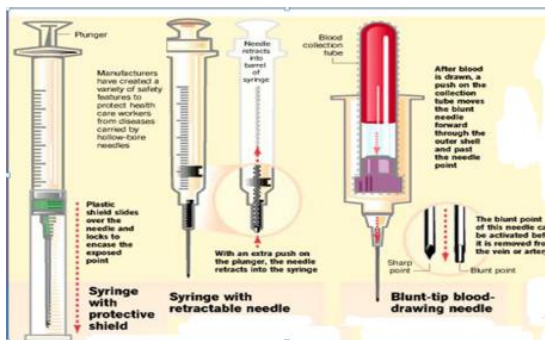
White Container: All infected sharps waste

- Waste Sharps including Metals
- Needles
- Syringes with Used Needles
- Needles from Needle Tip Cutter or Blunter
- Scalpels
- Blades
- Contaminated Sharp objects

➤ Safety-engineered device (SED) controls

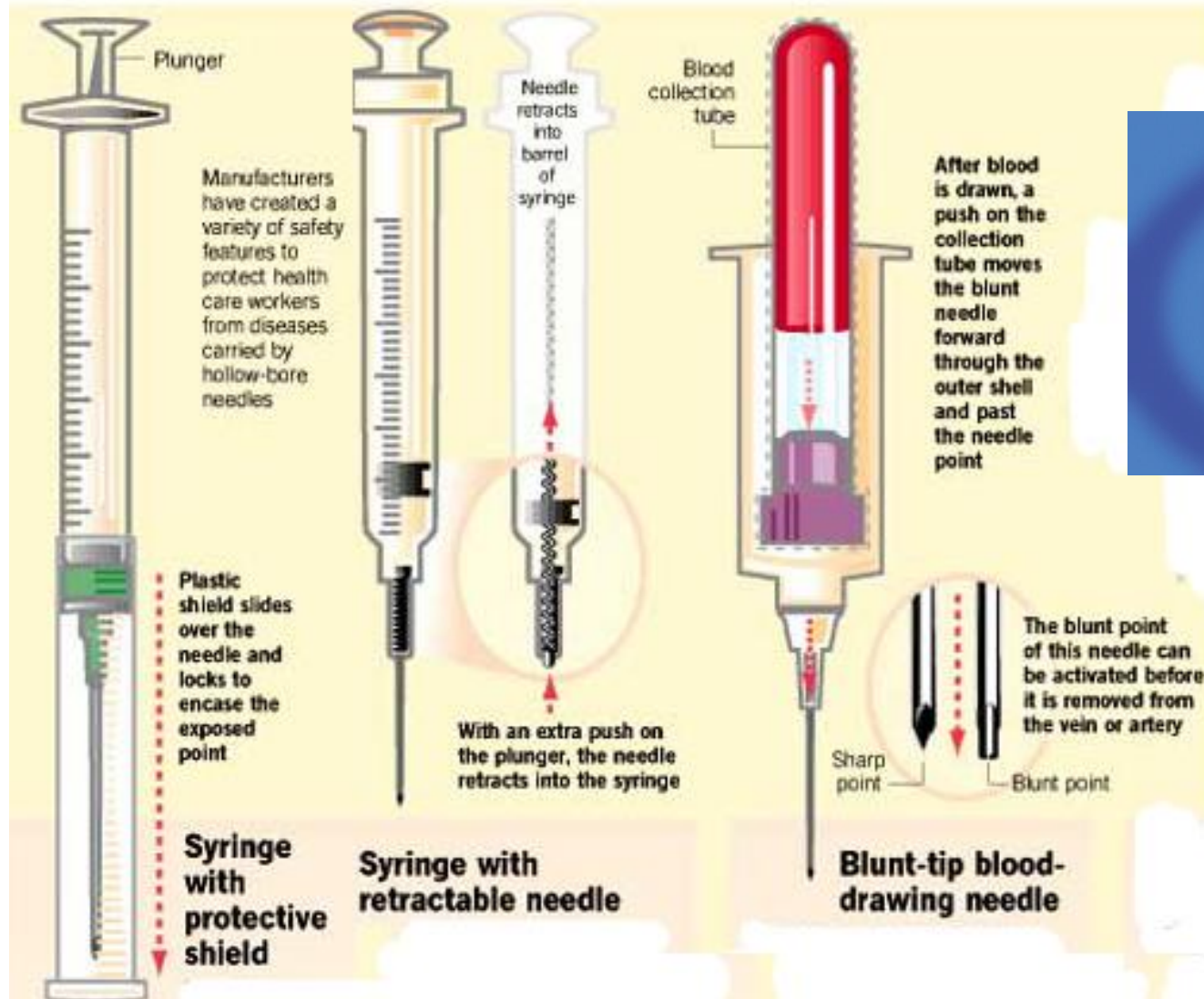
replacing “conventional” needles with safety needles
safely disposal of used needles

➤ Combination of training and SEDs



Strategies	Reduction in NSI
Training	34%
SED	49%
Combination	62%

Prevention of needle stick injury (SED)



Conclusion

- NSI- an important and common occupational injury among HCW
- HBV > HCV > HIV
- Prevalence of NSI among HCWs -30-80%.
- **Timely initiation of appropriate PEP** and monitoring of the exposed are the crucial elements

All hospital staff must know whom to report for PEP in case of occupational exposure

Any question ??????????

Thank you!