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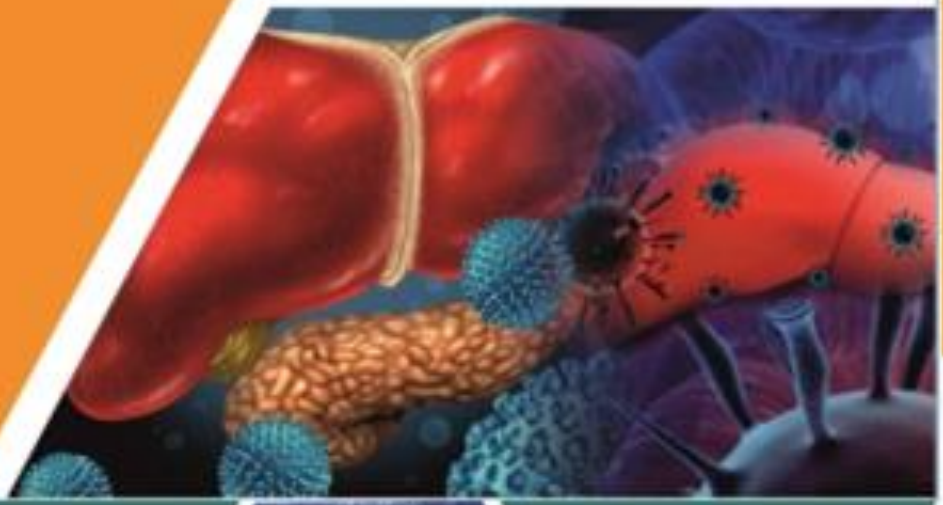
PROJECT PRAKASH

Programmed Approach to Knowledge and Sensitization on Hepatitis

HEPATITIS INDUCTION PROGRAM

FOR DOCTORS



NSI AND PEP IN CONTEXT OF VIRAL HEPATITIS

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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)

Mandell, Douglas & Bennett's Principles and Practice of Infectious Diseases, 8th Ed. (2015)

Potentially infectious body fluids

Exposure to body fluids considered *'at risk'*	**Exposure to body fluids considered *'not at risk'***	***unless contain visible blood***
Blood	Tear	
Semen	Sweat	
Vaginal secretions	Urine / Faeces	
CSF	Saliva	
Synovial, Pleural, Pericardial, Peritonial 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

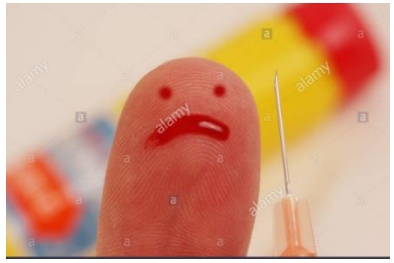
- Recapping needles (Most important)

- 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- Manage[illegible]t of exposure site

DO	DO NOT
➢ 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 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)

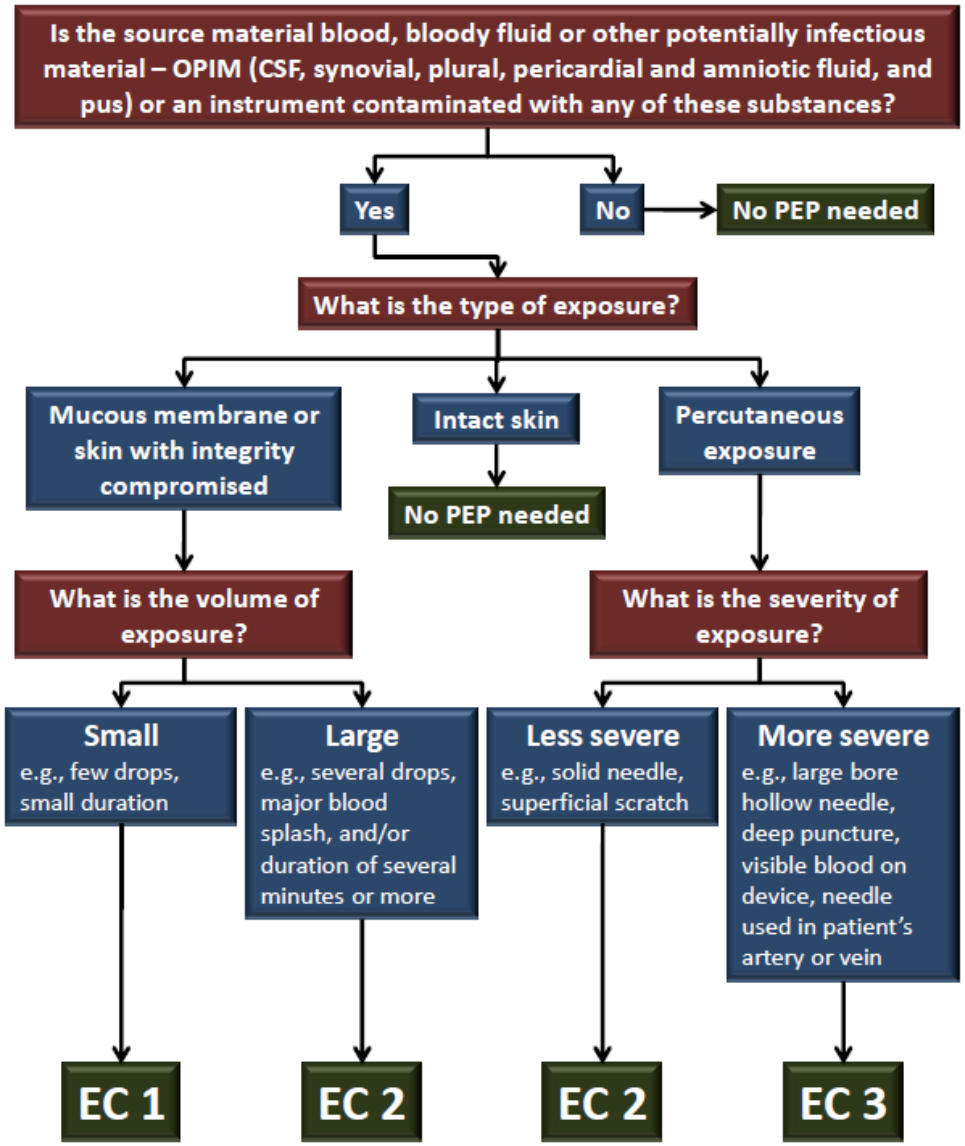
PEP should be initiated as soon as possible
Ideally within 2 hours but certainly within 72 hrs

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

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

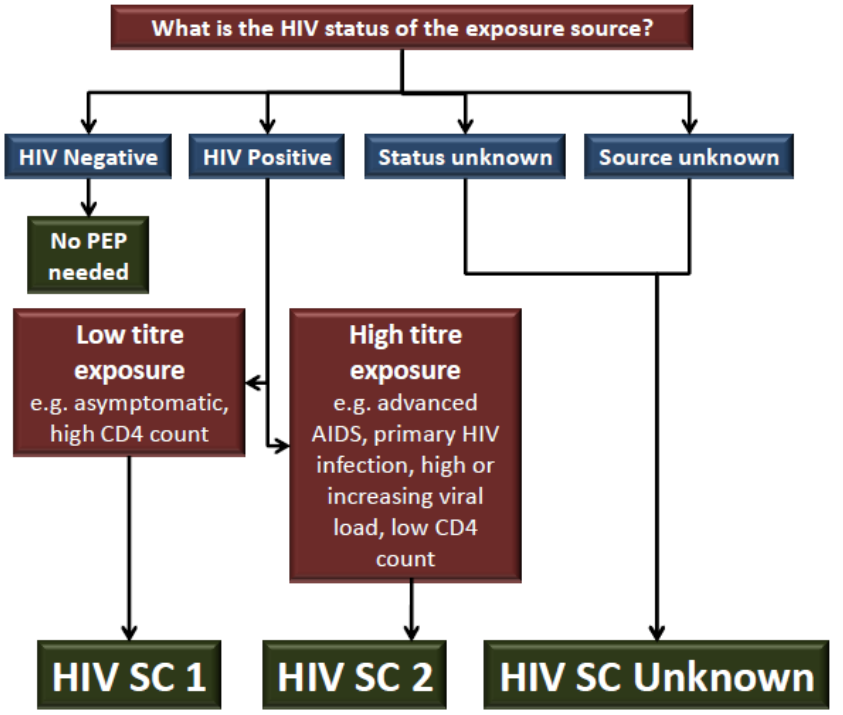
Should be continued till **4 weeks**

PEP (HIV)



Exposure code

HIV status code



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

MMWR Recomm Rep 2018;67:1.

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

MMWR Recomm Rep 2018;67:1.

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

Baseline- anti HCV within 48 hours

HCV RNA ⇐ Positive

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

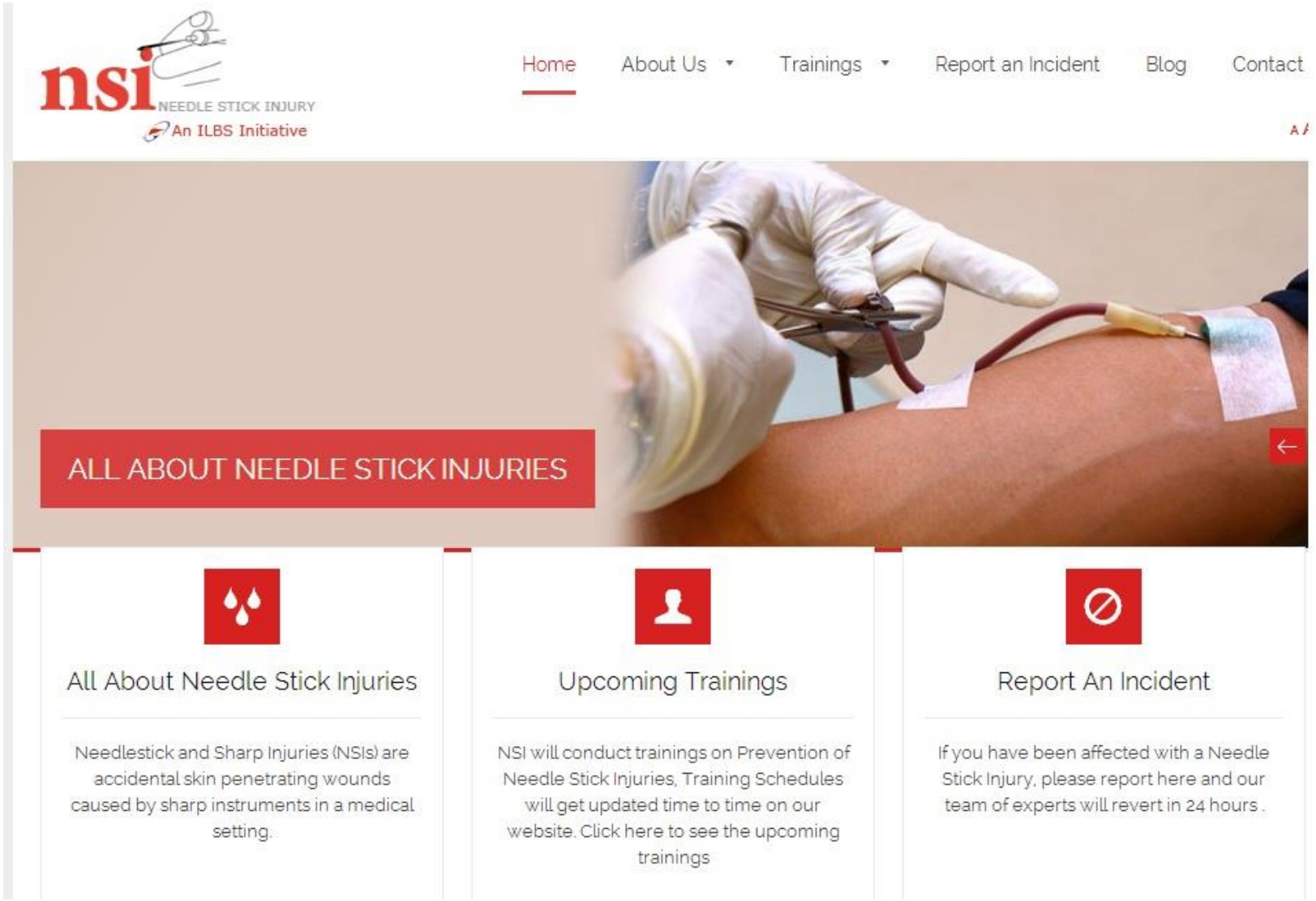
Step 7- Monitoring of exposed

- ✓ 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



Website : nsi.ilbs.in **Email: nsi@ilbs.in**

ILBS- NSI reporting form

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NABH

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

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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.

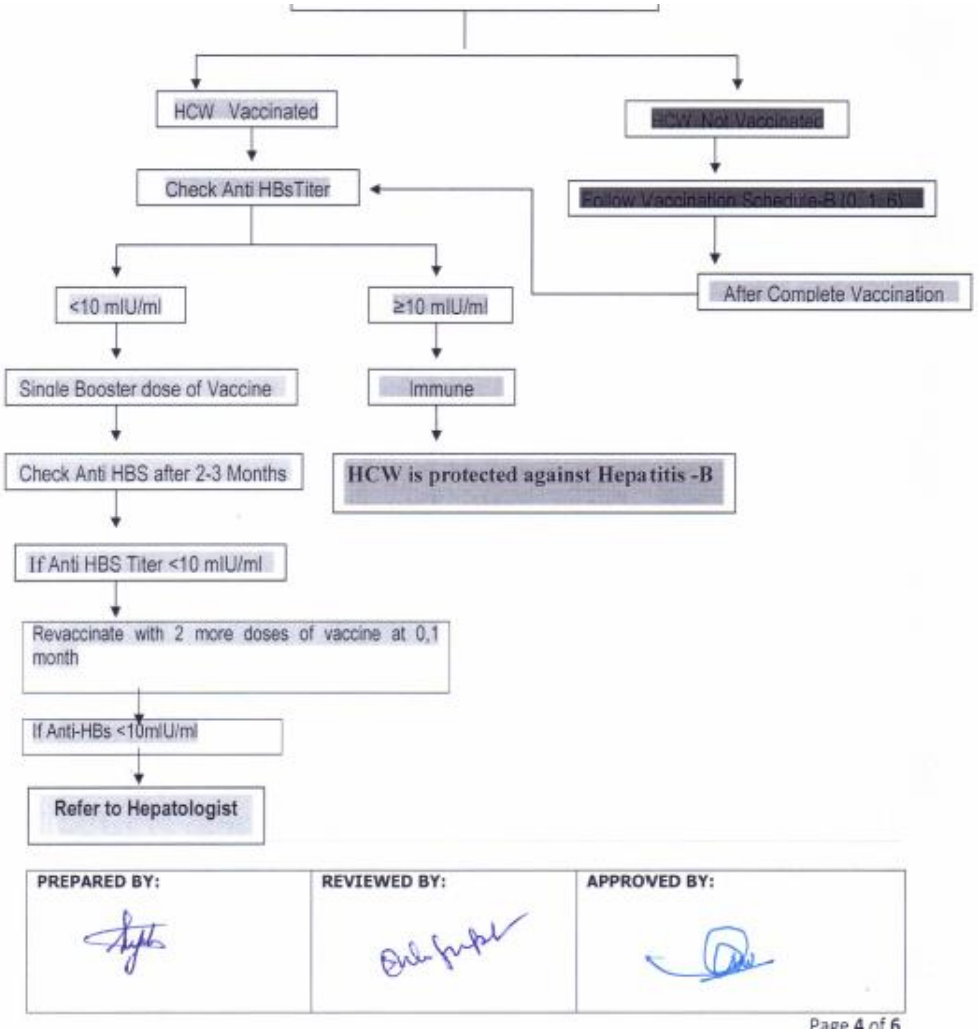
I, hereby declare that the above written details are valid to the best of my knowledge.

SIGN OF EMPLOYEE: - _____

REMARKS (by Virologist):- _____

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

FMT/ICD/01/REV/02/10/09/2013



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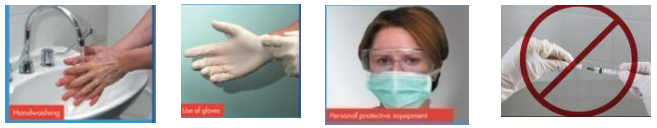
Prevention of needle stick injury

- Training

  safe injection procedures

  proper use and disposal of sharps

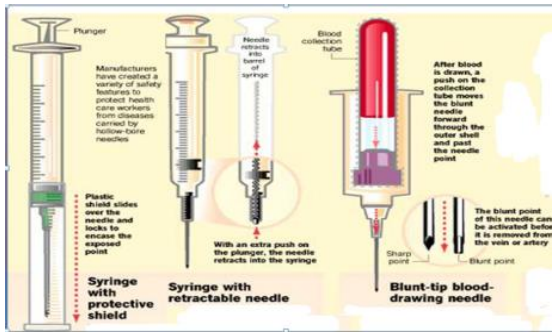


- Safety-engineered device (SED) controls

  replacing "conventional" needles with safety needles

  safely disposal of used needles

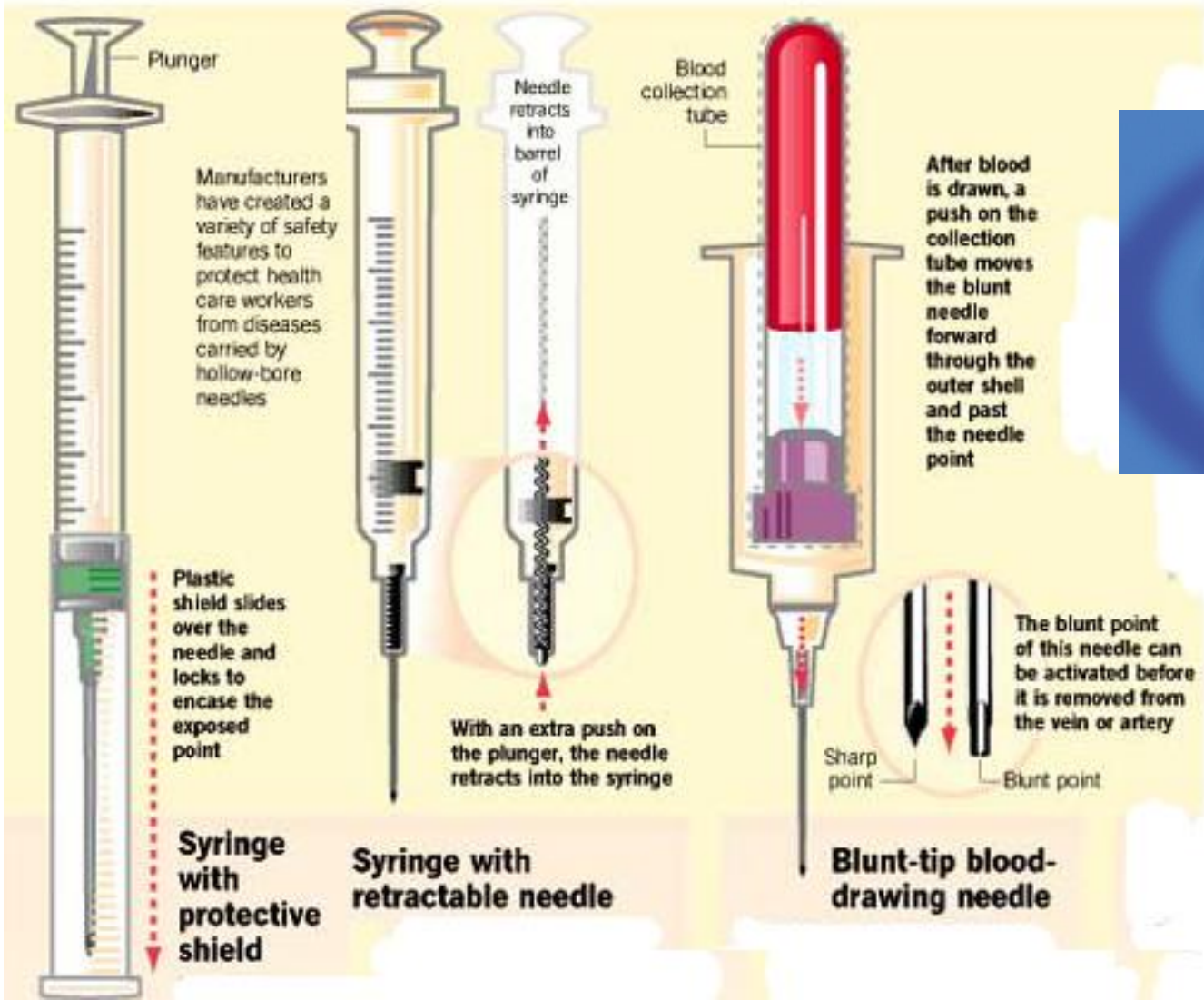
- Combination of training and SEDs



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

Tarigan LH et al Infect Control Hosp Epidemiol. 2015 Jul;36(7):823-9.

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

Thank you!