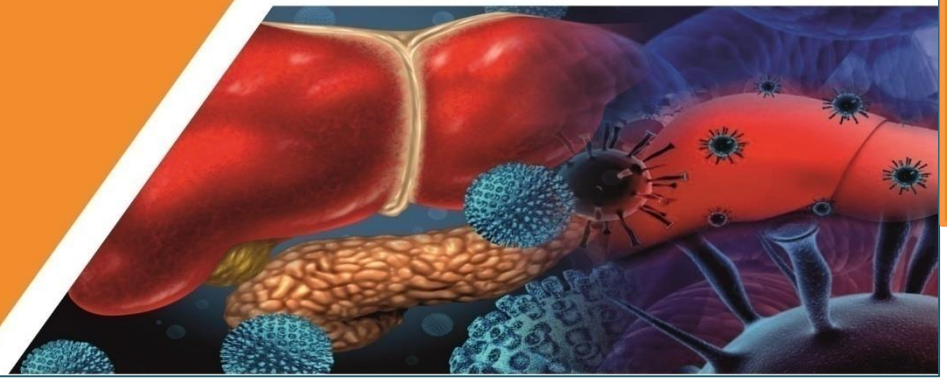
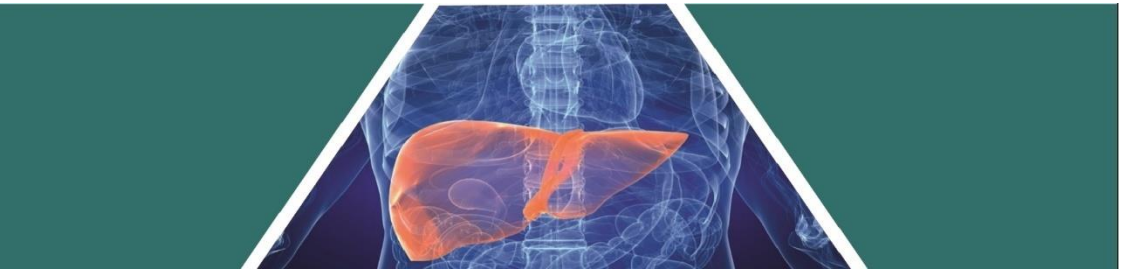
ilbs

PROJECT PRAKASH

Pogrammed Approach to Knowledge and Sensitization on Hepatitis





HEPATITIS INDUCTION PROGRAM

FOR NURSES

NEEDLE STICK INJURY AND INJECTION SAFETY IN CONTEXT OF VH

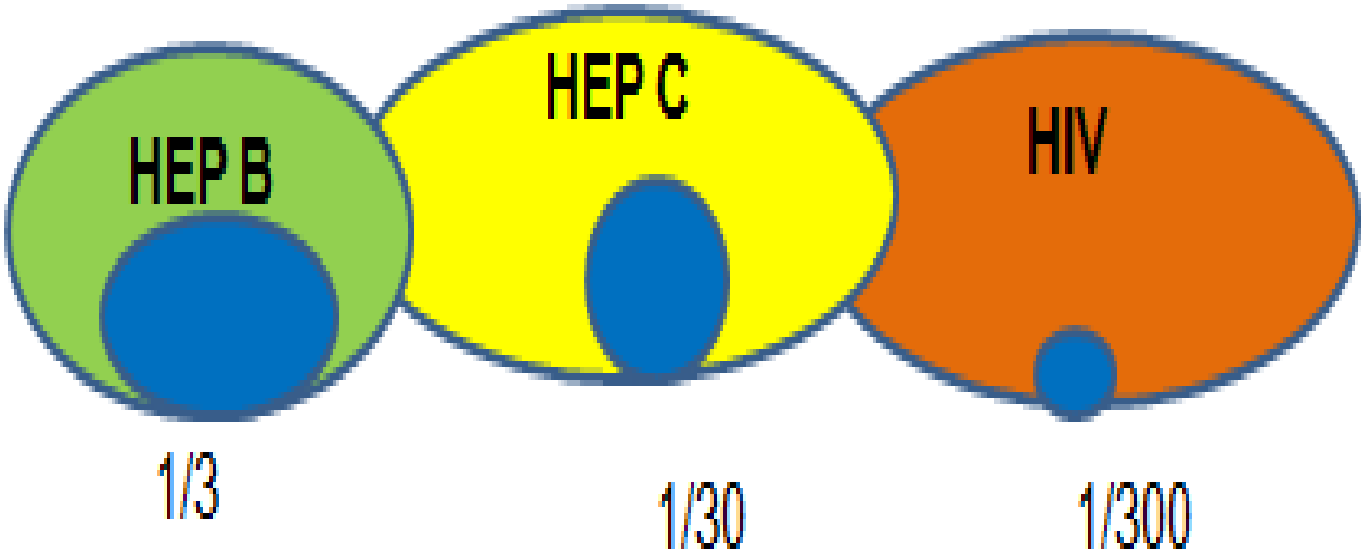
Ms. Tarika Sharma
Lecturer,
College of Nursing, ILBS

INSTITUTE OF LIVER & BILIARY SCIENCES, NEW DELHI

Introduction

- NSIs are **common** and to an extent **inevitable** in health-care workers (HCWs) during execution of their patient care services.
- These events are of concern because of the risk to transmit blood-borne diseases through the passage of the
  - hepatitis B virus (HBV)
  - the hepatitis C virus (HCV), and
  - the Human Immunodeficiency Virus (HIV)
- **Due to NSIs, the risk of infections ranges from as low as 0.2–0.5% for HIV to as high as 3–10% for HCV and 40% for HBV**

BLOOD BORNE VIRUSES & NSI



Needle Stick Injury (NSI)

- A NSI, is a percutaneous piercing wound typically set by a needle point, but possibly also by other sharp instrument or objects.

- Needle stick injury (NSI) is defined as percutaneous exposure where the skin is breached by a needle or any sharp object contaminated by blood or other bodily fluid due to accidental pricks. *(Bidira K et al)*

Incidence

- 100,000/year in the UK
- 6,00,000–10,00,000/year in USA *(Ghauri AJ et al, 2011)*
- CDC estimated 3 million HCWs are exposed to blood and body fluids in USA alone
- The reported authentic data of NSI in India are scarce due to infrequent reporting. *(Muralidhar S et al, 2010)*
- 44.1% Staff Nurses had percutaneous injury at least once in their professional career *(Srinivasan M et al, 2013)*

Who are at Risk?

- Nurses
- Doctors
- Laboratory Staff
- Housekeeping staff
- Patient itself

What kinds of needles usually cause needle stick injuries?

- Hypodermic needles
- Blood collection needles
- Suture needles
- Needles used in intravenous delivery systems

When Needle-stick Injuries Occur?

- **Needle-stick injuries are most often associated with the following activities**
  - Sudden patient movement during the injection
  - Recapping needles
  - Transferring body fluid between containers
  - Failing to dispose off used needles properly in a puncture-proof safety box

What happens with Recapping

- The needle could miss the cap and stab the hand holding it.



- The needle could pierce the cap and stab the hand holding it.
- The poorly fitting cap could slip off a recapped needle and stab the hand holding it.

J Lab Physicians. 2017 Jan-Mar; 9(1): 20–25
doi: 10.4103/0974-2727.187917
PMCID: PMC5015493
PMID: 28042212

Occurrence of Needlestick and Injuries among Health-care Workers of a Tertiary Care Teaching Hospital in North India

Varun Goel, Dinesh Kumar, Raghavendra Lingaiah, and Sarman Singh

Author information ▶ Copyright and License information ▶ Disclaimer

Abstract

Go to:

Introduction:

Go to:

Occupational hazards such as accidental exposure to sharp, cuts, and splashes are common among health-care workers (HCWs).

Aims and Objectives:

Go to:

To determine the occurrence of self-reported occupational exposures to these hazards and to know the prevalent practices following the exposure. The second aim was to know the baseline antibody levels against hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) immediately after these accidents.

Methods:

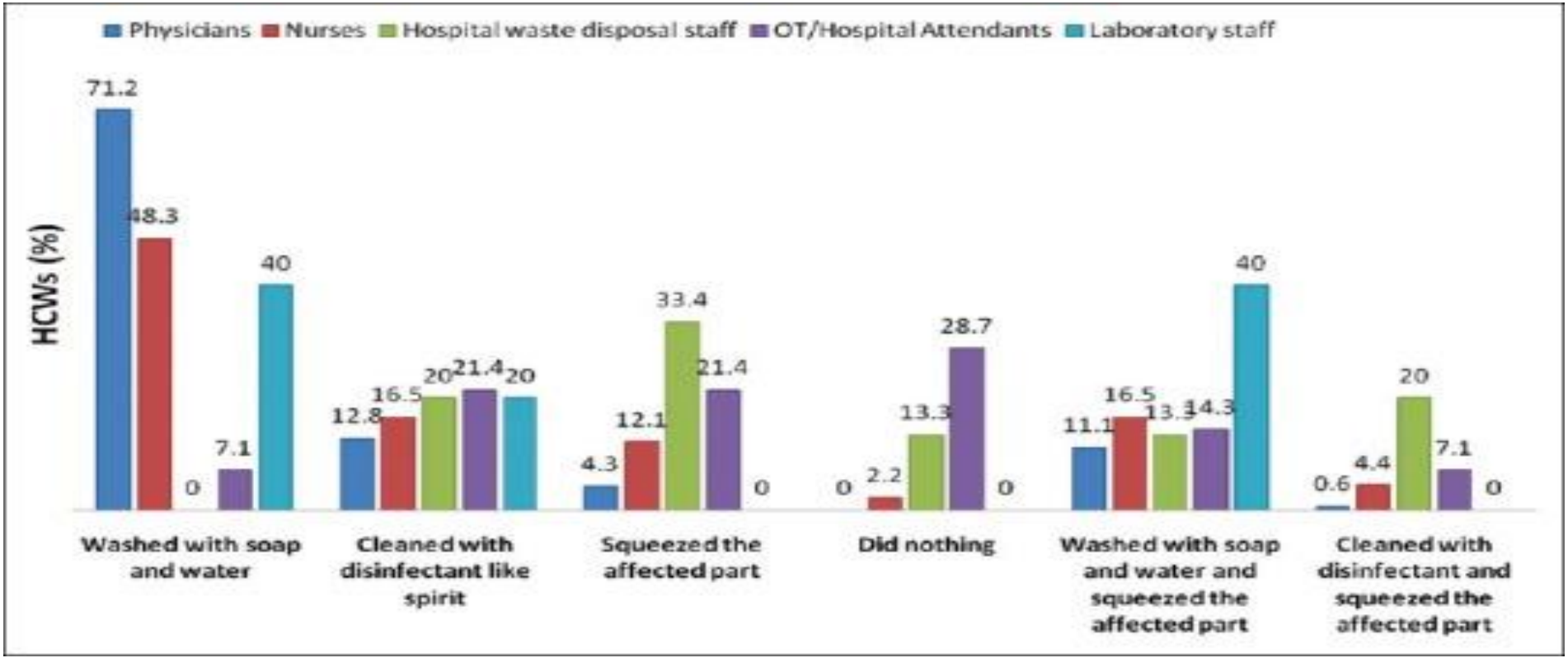
Go to:

An observational prospective study was done in the HCWs of a tertiary care academic health organization of North India from January 2011 to December 2013. At the time of self-reporting of injury, a questionnaire was administered. Blood sample of HCWs and of the source, if identified, was collected for baseline HBV, HCV, and HIV serum markers. The exposed HCWs were followed up and repeat testing was

Needle prick injury reported by health-care workers (*n*=476)

Needle prick injury/blood splash	Number	Percentage
Total episodes		
Needle prick	410	86.1
Blood splash	19	4.0
Cuts from sharp	47	9.9
Distribution according to the category of staff		
Physicians	351	73.7
Nurses	91	19.1
Hospital waste disposal staff	15	3.2
OT/Hospital Attendants	14	2.9
Laboratory staff	5	1.1
Place of occurrence		
Emergency and ICUs	229	48.1
General ward	142	29.8
Operation theater	16	3.3
Labour room	39	8.1
Treatment room	43	9.0
Others	7	1.4
Site of exposure		
Finger	324	68.1
Hand other than fingers	127	26.7
Face/eye	19	3.9
Others	6	1.3
Procedure during which injury occurred		
Blood sample collection	227	47.7
IV cannulation	148	31.1
Recapping needle after use	54	11.3
Detaching needle after use	18	3.8
Surgery	29	6.1
Immediate actions undertaken by HCW following exposure (KABP)		
Squeezed the affected part	297	62.4
Cleaned with disinfectant like spirit	67	14.1
Washed with soap and water	34	7.1
Did nothing	8	1.7
Washed with soap and water and squeezed the affected part	60	12.6
Cleaned with disinfectant and squeezed the affected part	10	2.1

Source: Goel V et al. Occurrence of Needle Stick and Injuries among Health-care Workers of a Tertiary Care Teaching Hospital in North India. J Lab Physicians. 2017 Jan-Mar; 9(1): 20–25.



Source: Goel V et al. Occurrence of Needlestick and Injuries among Health-care Workers of a Tertiary Care Teaching Hospital in North India. J Lab Physicians. 2017 Jan-Mar; 9(1): 20–25.

Do's and Don'ts

DO's

- Remove gloves, if appropriate.
- Wash wound site thoroughly with running water and soap.
- Irrigate thoroughly with running water or distilled water if splashes have gone into the eye or mouth.
- Spit out any fluid - rinse the mouth with water and spit it out again.

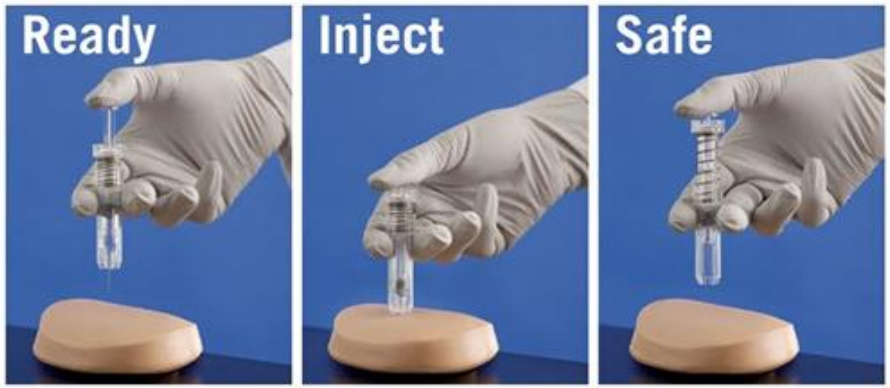
Don'ts

- Do not panic!
- Do not reflexively place pricked finger into mouth.
- Do not squeeze blood from wound, this cause trauma and inflammation, increasing risk of infection transmission
- Do not apply alcohol, betadine or any other chemical on the wound surface as this may further increase trauma..

How Can You Protect Yourself?

- WHO recommends that all HCWs should be vaccinated against hepatitis B.

- Use safety syringes with a sharps injury protection (SIP) feature as recommended by WHO.



How Can You Protect Yourself?...

- Plan safe handling and disposal of needles before using them

- If you have to transport the safety box to another room or to a disposal site, carry it carefully holding it at the top, above the level of the needles.





How Can You Protect Yourself?

- **Never re-cap needles.**
  - Place them uncapped into a sharps container immediately
- **Never open a safety box.**
  - Store in a safe and secure place until it is ready for final disposal
- **Never fill a safety box more than three-quarters full.**

How Can We Protect Others?

- Ensure that all staff in your area are educated on the risks of needle-stick injuries and given appropriate training. (housekeeping and sanitation workers)

- Take time to explain risks, especially if you observe risky or dangerous procedures or behaviors among your colleagues.

- Ensure waste is disposed off properly within the facility.

If You Get a Needle Stick Injury

Take the following actions immediately

1. Wash the wound with soap and water
2. Inform your supervisor and follow the NSI reporting mechanism of your health facility
3. Identify the source patient, who should be tested for HIV, hepatitis B, and hepatitis C infections.
4. Tests should be carried out after patient consent.
5. Get tested for HIV, hepatitis B, and hepatitis C infections.

Post Exposure management (ILBS policy)

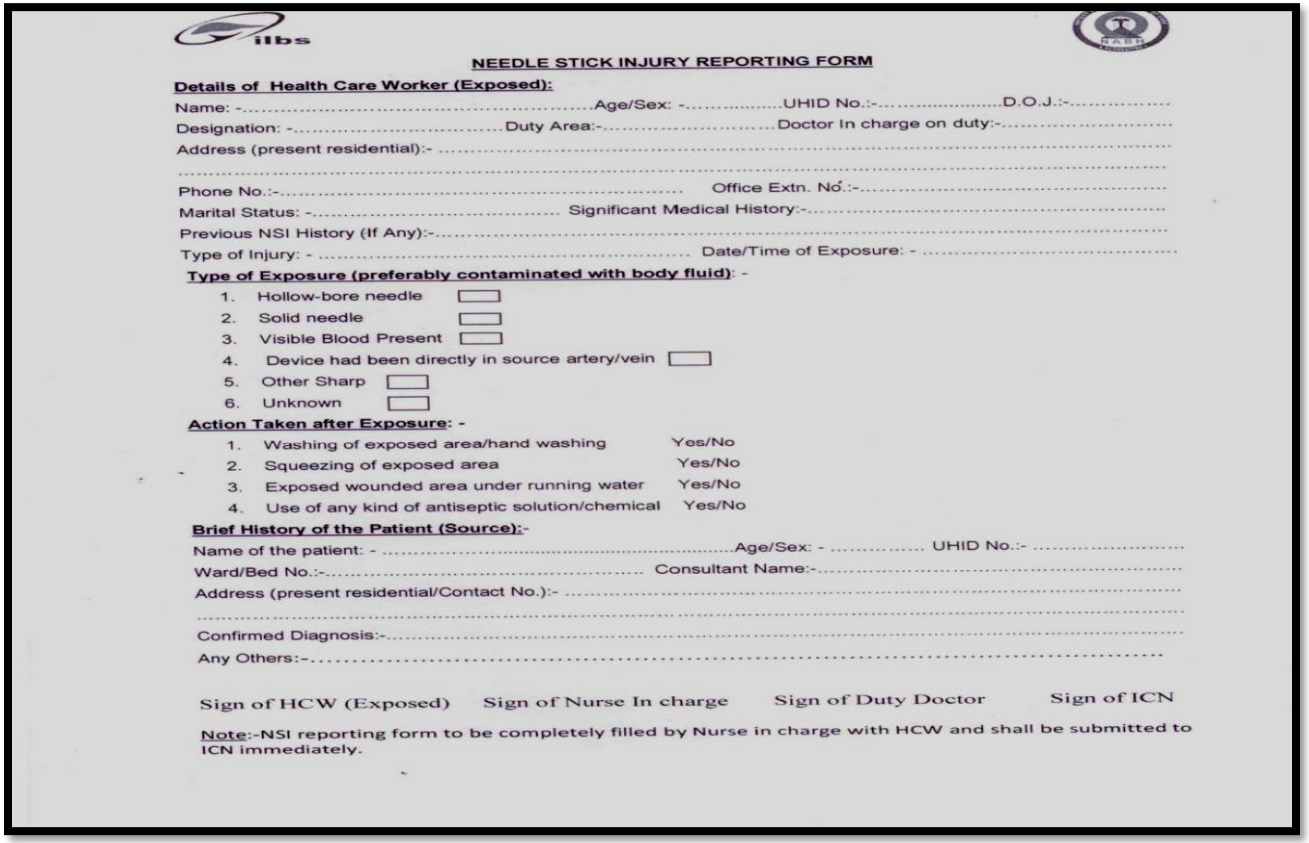
REPORT

- In the event of NSI, the **doctor on duty** as well as the **Nursing In charge** will be first to be informed
- The doctor on duty will **validate** the injury in presence of Nurse In charge
- The Nurse in charge will inform **ICN** ; fill the **NSI reporting form** along with exposed HCW

Post Exposure management

- Further information to the **Nurse Manager and Virology In charge** through ICN.
- Following **First Aid measure** initiate the **baseline investigations** ; the HCW shall be **counselled** in coordination with the ICN.
- The NSI reporting form shall be signed by HCW, Nurse in charge, duty doctor and ICN.

NSI Reporting Form (ILBS)



ilbs

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.

PEP (First Aid treatment)

Contaminated wound	Contaminated Intact Skin
DO NOT squeeze Encourage bleeding from the skin wound and wash injured area with soap and water	Wash the area under running water with soap
Contaminated Eyes	**Contaminated Mouth**
Gently rinse the eyes wide open with distilled water.	Spit out any fluid - rinse the mouth with water and spit it out again.

Baseline Blood Testing

Exposure	**Anti HIV 1 & 2**	**HBsAg**	**Anti HCV**
Health care Worker	To be done if source is positive	To be done if source is positive	To be done if source is positive
Source	To be repeated if results are more than 3 month old	To be repeated if results are more than 3 month old	To be repeated if results are more than 3 months old
Other tests that can be done: HIV viral load, HCV viral load, Serum ALT levels, HBV viral load, Anti HBS titer.			

Post-exposure prophylaxis (PEP)

- **HIV**
  - Risk after needle stick: Ranges from 0.2 – 0.5% depending on mechanism of injury
  - A 28-day course of a combination of three antiretroviral drugs determined on a case-by-case basis
  - Act as quickly as possible, preferably within hours to initiate prophylaxis.
- **Drug Regimen**
  - For adults and adolescents: Fixed Dose Combination of Tenofovir (300 mg)+Lamivudine (300 mg)+Efavirenz (600mg) for 4 weeks (NACO)
  - Tenofovir disoproxil fumarate + emtricitabine plus either raltegravir or dolutegravir (WHO)

Post-Exposure Prophylaxis (PEP)

- **HBV**
  - Risk after needle stick:
    - 0% in vaccinated HCWs
    - 6% to 40% in unvaccinated HCWs

PEP for HBV: As a whole

PROJECT PRAKASH
PRogrammed Approach to Knowledge And Sensitization on Hepatitis

Treatment when source is found to be			
Exposed Person	**HBsAg- positive**	**HBsAg-negative**	**Source not tested or unknown**
Unvaccinated	HBIG X 1* & initiate Hepatitis B vaccine	Initiate HB vaccine	Initiate Hepatitis-B vaccine
Previously vaccinated known responder	Test for anti-HBs 1. If adequate, no treatment 2. If inadequate, HB vaccine booster dose	No treatment	No treatment
Previously vaccinated known non responder	HBIG x 2 or HBIG X 1 plus 1 dose of HB vaccine	No treatment	If known high-risk source, may treat as if source were HBsAg-positive
Response Unknown	Test for anti-HBs 1.If inadequate, HBIG X 1 plus Hepatitis-B vaccine booster dose 2. If adequate, no treatment	No treatment	Test for anti-HBs 1 If inadequate, Hepatitis-B vaccine booster dose 2. If adequate, no treatment

Scenarios

- Source is found to be HBsAg- positive
- Source is found to be HBsAg-negative
- Source is not tested or unknown

PEP for HBV: Scenario 1

Exposed Person	Treatment when source is found to be HBsAg- positive
Unvaccinated	HBIG X 1* & initiate Hepatitis B vaccine
Previously vaccinated known responder	Test for anti-HBs 1. If adequate, no treatment 2. If inadequate, HB vaccine booster dose
Previously vaccinated known non responder	HBIG x 2 or HBIG X 1 plus 1 dose of HB vaccine
Response Unknown	Test for anti-HBs 1.If inadequate, HBIG X 1 plus Hepatitis-B vaccine booster dose 2. If adequate, no treatment

PEP for HBV: Scenario 2

Exposed Person	Treatment when source is found to be HBsAg-negative
Unvaccinated	Initiate HB vaccine
Previously vaccinated known responder	No treatment
Previously vaccinated known non responder	No treatment
Response Unknown	No treatment

PEP for HBV: Scenario 3

Exposed Person	Source not tested or unknown
Unvaccinated	Initiate Hepatitis-B vaccine
Previously vaccinated known responder	No treatment
Previously vaccinated known non responder	If known high-risk source, may treat as if source were HBsAg-positive
Response Unknown	Test for anti-HBs 1 If inadequate, Hepatitis-B vaccine booster dose 2. If adequate, no treatment

Post Exposure Prophylaxis for HCV

- In case source is HCV positive test of HCW is recommended for Anti HCV antibodies and baseline serum ALT test.
- Follow up recommended at 1, 6 months and one year by Anti HCV antibody test.
- Refer to a Hepatologist.

Injection Safety

Injection Safety

- Goals
  - Increase understanding and implementation of safe injection practices among healthcare providers
  - Ensure patients are protected each and every time they receive a medical injection

Why Unsafe Injection Practices Are Unacceptable?

- Injection safety is part of Standard Precautions
- Healthcare practices should not provide a pathway for transmission of life-threatening infections
- Patient protections regarding injection safety should be on par with healthcare worker safety

When Safe Practices are Used…

Each Patient is an Island

SOURCE
Infectious person,
e.g. chronic, acute

HOST
Susceptible,
non-immune person

Unsafe Injection Practices
Can Lead to Transmission of Life-Threatening Infections

SOURCE
Infectious person,
e.g., chronic, acute

CONTAMINATED NEEDLE OR MEDICATION

HOST
Susceptible,
non-immune person

LIMIT OR ELIMINATE REUSE

4 Things Every Provider Needs to Know About Injection Safety

1. Needles and syringes are **single use devices**. They should not be used for more than one patient or reused to draw up additional medication.
2. Do not administer medications **from a single-dose vial or IV bag to multiple patients**.
3. Limit the use of multi-dose vials and dedicate them to a **single** patient whenever possible.
4. Always use **aseptic technique** when preparing and administering injections.

Unsafe Injection Practices Result In

- Patients placed **at risk for life-threatening infections**
- Referral of providers to licensing boards for **disciplinary actions**
- **Legal actions** such as malpractice suits filed by patients

A Call to Action

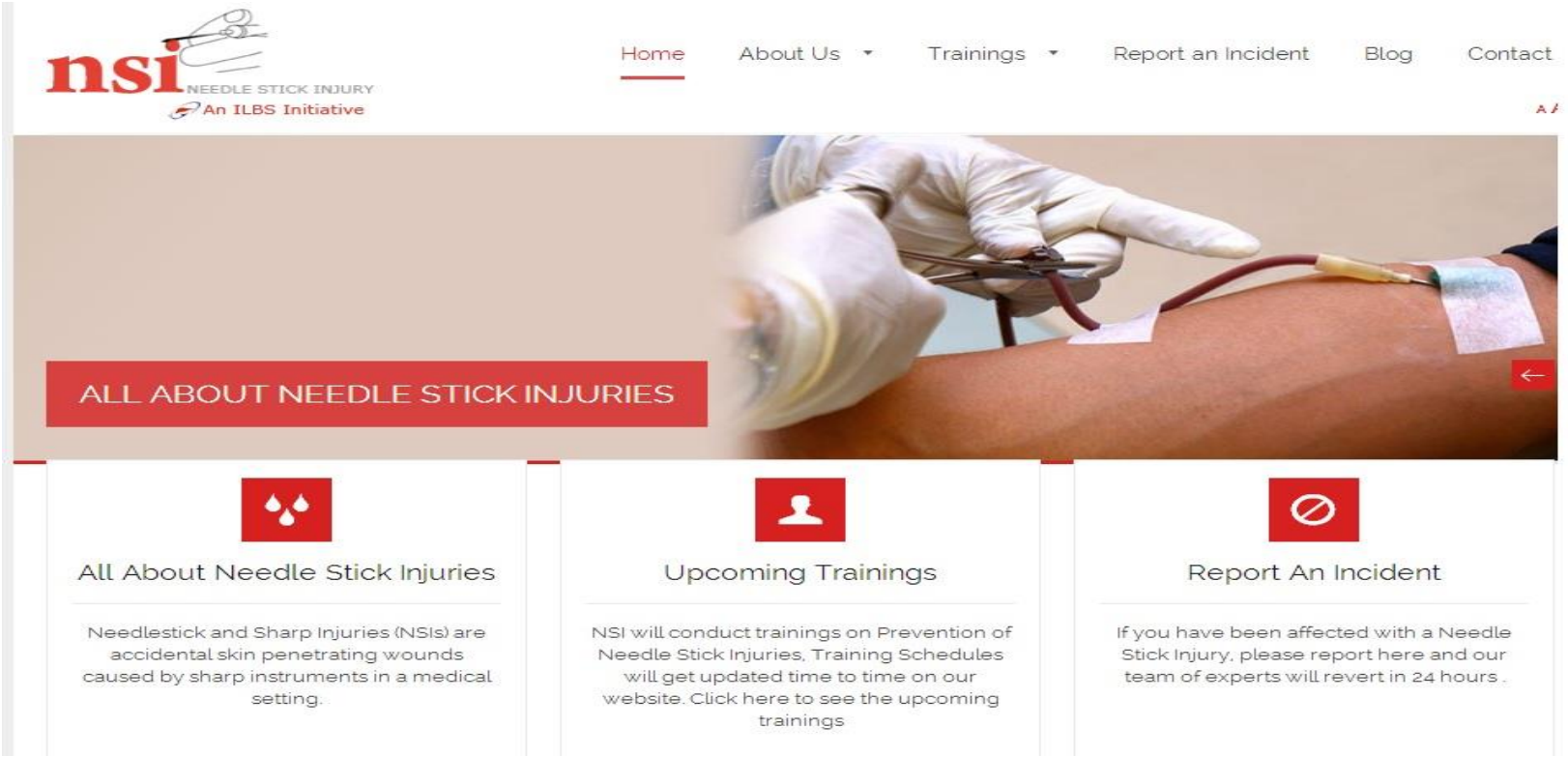
- Injection practices should not provide a pathway for transmission of life threatening infections
- Injection safety is every provider's responsibility
- Safe injection practices should be discussed and reviewed frequently among colleagues

Take Home message

- Vaccination against Hepatitis B.
- Treat all patients as potentially infectious.
- Getting acquainted to Hospital protocol for NSI.
- Follow safe injection practices.
- Avoid recapping of needles.
- Spread awareness.
- Don’t ignore if any NSI occur.

Conclusion

- Prevention of Needle stick injury/sharp injury and Injection Safety prevents HCWs and patients from communicating HBV, HCV, HIV and other infectious diseases from others.
- Safe practices ensures the safety of not only the patients but also the HCWs.



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

Thank You!