

Needlestick Injury Prevention Assessment Tool

WHO PROJECT TO PREVENT NEEDLESTICK INJURY and HIV TRANSMISSION AMONG HEALTHCARE WORKERS

March 2005

Combined tool for assessing the safety of injections, suturing, phlebotomy, intravenous access (insertion of IV and piggybacks), and needlestick injury prevention strategy among healthcare workers (injection providers and healthcare waste handlers).

Adapted from "Tool C": Tool for the Assessment of injection safety (Who7V&B/01.30) and supplemented by new questions and questions from the WHO Rapid Assessment Response Guide, AFRO Infection Prevention & Control manual and ANA Needlestick Prevention Guide by Susan Wilburn, Project Coordinator, ICN Nurse Consultant

Introduction

Injection safety should be assessed using standardized and representative methods to allow for a reliable assessment of the country situation and for comparisons with other countries. Additionally, if the assessment is done before the introduction of changes, a repeated assessment can then measure achievements consistently. Refer to the WHO *Tool for the assessment of injection safety* (also known as Tool 'C') for methodology and sampling methods.

The assessment estimates the frequency of unsafe injection practices. It determines whether a facility where injections are given meets the necessary requirements for equipment, supplies and waste disposal. It also identifies unsafe practices that may lead to infections, such as whether the critical steps of an injection administration are executed. Furthermore, it estimates the proportion of health care facilities where injection practices are safe. Three major considerations are especially relevant in the assessment of potential unsafe injections practices: 1) the safety of the injection recipient, 2) the safety of the health care worker, and 3) the safety of the community. Recommendations following an assessment should focus upon these considerations in regard to injection safety interventions.

The objectives of an injection safety assessment are:

- 1) To determine whether a facility where injections are given meets necessary requirements for staff competence, equipment, supplies and waste disposal.
- 2) To determine whether the critical steps of an injection administration are executed according to recommended best practices.
- 3) To identify the unsafe practices that may lead to infections and that should be targeted by interventions to improve injection safety and occupational health.
- 4) To estimate the proportion of health care facilities where injection practices are safe.
- 5) To determine whether the policy and practices to protect healthcare workers from preventable exposures to sharps and bloodborne pathogens and whether post-exposure surveillance, follow-up and prophylaxis are in place.
- 6) To estimate the frequency of needlestick injuries from contaminated sharps among injection providers and waste handlers.
- 7) To determine the proportion of needlestick injuries which are not reported.

Combined Tool: Assessment of Injection Safety and Occupational Health & Safety

Table 1. Suggested reporting format for the injection, phlebotomy and IV insertion assessment surveys

Table 1A. Information elements reflecting the risk to the recipient

Instrument	Item	#/N	%	95% CI
1- Supplies	Availability of a one-week supply of disposable/AD equipment	--/--	--%	xx-xx
1- Supplies	Availability of a one-week supply of disposable IV catheters	--/--	--%	xx-xx
1- Supplies	Availability of a one-week supply of disposable phlebotomy supplies.	--/--	--%	xx-xx
1- Supplies	Absence of dirty or bloodstained swabs for skin preparation	--/--	--%	xx-xx
2- Practices	Preparation of injections in a clean dedicated area	--/--	--%	xx-xx
2- Practices	Breaking ampoules with a clean protective barrier	--/--	--%	xx-xx
2- Practices	Reconstitution with a sterile syringe and needle	--/--	--%	xx-xx
2- Practices	Reconstitution with recommended diluent (as needed)	--/--	--%	xx-xx
2- Practices	Administration with an AD-syringe and needle (vaccine)	--/--	--%	xx-xx
2- Practices	Administration with a sterile syringe and needle	--/--	--%	xx-xx
2- Practices	Absence of needles for supplemental IV connectors (piggybacks).	--/--	--%	xx-xx
2- Practices	Removal of needles from multi-dose vials between injections	--/--	--%	xx-xx
2- Practices	Temperature sensitive products kept cool during preparation	--/--	--%	xx-xx
3- Interview	Provision of sufficient energy source for sterilization	--/--	--%	xx-xx
3- Interview	No shortages of disposable injection equipment	--/--	--%	xx-xx
3- Interview	Supply of vaccines with matching quantities of AD syringes	--/--	--%	xx-xx

Table 1B. Information elements reflecting the risk to the provider

Instrument	Item	#/N	%	95% CI
1- Supplies	Availability of sharps with safety features (engineered sharps prevention features such as a needle that retracts after use)	--/--	--%	xx-xx
1- Supplies	Presence of at least 10 sharps containers	--/--	--%	xx-xx
1- Supplies	Presence of needleless intravenous piggyback connectors	--/--	--%	xx-xx
1- Supplies	Absence of Intravenous equipment requiring a needle to administer supplemental medication	--/--	--%	xx-xx
1- Supplies	Absence of pierced, overflowing, or open sharps containers	--/--	--%	xx-xx
1- Supplies	Absence of sharps in open containers	--/--	--%	xx-xx
2- Practices	Absence of two-handed recapping	--/--	--%	xx-xx
2- Practices	Absence of syringe and needle used for phlebotomy and insertion of blood sample directly into test tube	--/--	--%	xx-xx
2- Practices	Immediate collection of sharps in sharps boxes	--/--	--%	xx-xx
3- Interview	Absence of reported needle-stick injuries in the last 12 months	--/--	--%	xx-xx
3- Interview	No shortages of sharps containers	--/--	--%	xx-xx
3- Interview	Provision of sharps containers for vaccination injections	--/--	--%	xx-xx

Table 1C. Information elements reflecting the risk to the community

Instrument	Item	#/N	%	95% CI
1- Supplies	Absence of sharps around the health care facility	--/--	--%	xx-xx
1- Supplies	Absence of full sharps containers in unsupervised areas	--/--	--%	xx-xx
1- Supplies	Waste disposal in incinerators or transport of site	--/--	--%	xx-xx
3- Interview	Presence of an health care waste management policy	--/--	--%	xx-xx

1. Structured observations of equipment and supplies available at the facility

I would like to start by observing some of the equipment and supplies available in this facility

(This section is based upon observation only)

1- Yes

2- No

3- Cannot be assessed

Reuse of syringes or needles in this facility, either for immunization or for curative injections.

Total number of syringes available (including those in sterilizer racks and those kept in the store)						Total number of needles available (including those in sterilizer racks and those kept in the store)				
Size/type ¹	Sterilizable ²	Disposable ³	Auto-disable ^{3,4}	Safety syringe*	Cannot be assessed	Size/type	Sterilizable ¹	Disposable ²	Retracting sheathed*	Cannot be assessed
0.05 ml						25-27G				
0.5 ml						21-23G				
5 ml						18G				
Other (specify)						Other (specify)				

¹ Might need adjustment if different types of syringes are distributed.

² Number of syringes or needles manufactured for re-sterilization.

³ Number of disposable syringes and needles in sealed packets or fitted with 2 caps

⁴ Number of AD syringes and needles in sealed packets or fitted with 2 caps

*Needles and syringes with needlestick prevention features such as retractable or sheathed

Presence of swabs used for skin preparation that are dirty, bloodstained or kept wet

Number of puncture-proof safety containers (safety boxes) in stock

Presence of safety boxes in areas where injections are given

Presence of overflowing, pierced, or open sharp box(es)

Number of full sharps box(es) waiting for disposal/incineration stored safely

Number of full sharps box(es) waiting for disposal/incineration stored in unsupervised fashion

Sharps in plastic bottles, or open containers exposing staff to needle-stick injuries

Evidence of used sharps around the health centre and/or the disposal site

Type of waste disposal facility used for the disposal of the majority of sharps (circle only one)

- 1- Open burning on the ground
- 3- Incinerator
- 4- Burial
- 6- Dumping in an unsupervised area

1- Yes

2- No

Cannot be assessed

0 1-4 5-9 10-20 ≥ 20

Cannot be assessed

1- Yes 2- No

3- No safety boxes

1- Yes 2- No

3- No safety boxes

Number _____

Cannot be assessed

present

Number _____

Cannot be assessed

present

1- Yes 2- No

3- Cannot be assessed

1- Yes 2- No

3- Cannot be assessed

2- Open burning in a hole or an enclosure

5- Dumping in pit latrine or other secure pit

7- Transport for off-site treatment

Total number of suture needles, IV catheters, and IV connectors available
 (including those in sterilizer racks and those kept in the store)

Size/type	Sterilizable¹	Disposable²	Retracting/ sheathed/ Blunted*	Cannot be assessed
IV insertion catheter				
Phlebotomy needle for vacuum tube collector				
Needlesless IV connectors (luer lock, reseal lock)				
Suture needles				

2. Structured observations of all injections given during the visit

I would now like to see you perform injections or intravenous infusions: (this section is based upon observation only)

Type of injection or IV insertion session (circle): 1. During routine consultation 2. During regular vaccination days 3. During campaigns (NIDs/SNIDs)	Vaccination	Curative
	"Y" when yes, "N" when no "/" if not applicable	
Preparation on a clean designated table or tray, where blood or body fluid contamination is unlikely ¹		
Type of syringe used (1= AD, 2= disposable, 3= sterilizable)		
Did the patient bring his/her own syringe & needle for the injection		
For each injection, use of syringe from sterile packet or fitted with 2 caps (disposable or AD syringes) ² , or use of syringe taken from a sterilizer using a sterile technique (sterilizable syringes)		
For each injection, use of needle from sterile packet or fitted with a cap (disposable or AD syringes) ³ , or use of needle taken from a sterilizer using a sterile technique ² (Sterilizable syringes)		
Removal of all needles from the vaccine/medication vial between injections		
(If glass ampoules are used) Use of clean barrier (e.g. small gauze pad) to protect fingers when breaking the top from the glass ampoule		
For each reconstitution, use of a sterile syringe and needle (from sealed packet, fitted with 2 caps, or taken out of a sterilizer)		
(If vaccine) Reconstitution of lyophilized vaccines with correct volume of diluent from the same manufacturer		
(If other medication) Reconstitution of powdered substances with diluent from a single-dose diluent vial		
(For heat sensitive vaccines and medications only) Vial kept between 2°C and 8°C during period of use		
Two-hands re-capping of the needle after the injection (compared to other items on the checklist, two-hands recapping is an undesirable practice)		
(Disposable or AD syringes) Collection in a puncture-proof safety container immediately after the injection		
(Sterilizable syringes) Flushing, disassembling and dropping of syringes and needles immediately after use into bowl containing enough water to cover them		

¹ Not an area also used for procedures that may lead to blood contamination (e.g. blood sampling, wound dressing etc.)

² If reuse of injection equipment is about to occur without sterilization, intervene to interrupt the procedure as tactfully as possible and an "N" should be marked on the checklist.

³ If reuse of injection equipment is about to occur without sterilization, intervene to interrupt the procedure as tactfully as possible and an "N" should be marked on the checklist.

3. Interview of injection provider, phlebotomy practitioner, and/or IV insertion provider⁴

I would like to ask you a few questions about how you give injections and start IVs

How many injections are given per week on average in your facility? _____ Immunizations/week _____ Other injections/week

How many IVs are started and IV piggybacks given per week on average in your facility? _____ IV insertion/week _____ IV piggyback/week

Could you name diseases that may be transmitted through unsafe infections and/or needlestick injuries? (Circle when spontaneously mentioned) 1. HIV 2. HCV 3. HBV

Others, list:

*Circle Answer
(1only)*

Do patients provide their own injection equipment for injections (immunization or therapeutic)? 1- Always 2- Sometimes 3- Never 4- Don't know

Are new disposable IV catheters available for IV insertion? 1- Always 2- Sometimes 3- Never 4- Don't know

Are new disposable phlebotomy needles and vacuum tube holder available for phlebotomy? 1- Always 2- Sometimes 3- Never 4- Don't know

Are needle-free connectors available for IV piggybacks? 1- Always 2- Sometimes 3- Never 4- Don't know

Are new, disposable syringes and needles available for purchase in this community? 1- Yes 2- No 3- Don't know

Do you use needle removers or needle cutters before disposing of injection equipment? 1- Yes 2- No 3- Don't know

Do you have sufficient quantities of sharps boxes to dispose of sharps safely? 1 – Yes 2- No 3- Don't know

What types of education/training programmes have you attended on infection prevention and control?

⁴ If more than one injection provider in the facility, select the one administering the largest number of injections

18. Did the education/training programme you attended explain:

The definition of a bloodborne exposure?	1- Yes	2- No	3-Don't know
The risk of becoming infected with HIV or hepatitis?	1- Yes	2- No	3-Don't know
Universal or standard precautions?	1- Yes	2- No	3-Don't know
The importance of no recapping?	1- Yes	2- No	3-Don't know
The location and use of sharps disposal containers?	1- Yes	2- No	3-Don't know
Where to report full sharps containers?	1- Yes	2- No	3-Don't know
What to do after a needlestick injury or exposure to blood?	1- Yes	2- No	3-Don't know

Demonstrate practice of safe injections?

How many accidental needle-sticks have you had in the last 12 months?

Accidental needle-sticks in the last year

In your opinion, what was the cause of the needlestick injury?

Did you report your injury?

1- Yes

2- No

If yes, to whom? Circle

Supervisor, infection control staff, occupational health programme

After your needlestick injury, were you offered post-exposure prophylactic medication?

1- Yes

2- No

How many doses of hepatitis B vaccine have you ever received?

_____doses

3 – never received

4. Interview of injection supervisor

I would like to ask you a few questions about your policy and your supplies

Do you have a copy of the injection safety policy/recommendations issued by your health services? 1- Yes 2- No 3- Don't know 4 – N/A*

Do you have a copy of the occupational health policy/recommendation regarding exposure to sharps and bloodborne pathogens issued by your health services? 1- Yes 2- No 3- Don't know 4 – N/A*

Do you have an in-service education co-coordinator in your institution? IF yes, see below 1- Yes 2- No 3- Don't know 4 – N/A*

If yes, is occupational health and prevention of exposure to bloodborne pathogens included in the topics taught at the in-service education offerings? IF Yes, 1- Yes 2- No 3- Don't know 4 – N/A*

What is the duration of the training?

Which categories of personnel attend the in-service training on bloodborne pathogens and occupational health?

How does the staff get to know about the continuing/in-service education courses being offered?

Do you have a copy of the safe sharps and health care waste disposal policy issued by your health services? 1- Yes 2- No 3- Don't know 4 – N/A*

For sterilizable equipment

In the last year, how long in total have you been out of kerosene⁵ Never < 1 month < 3 month ≥3 month 4- Don't know

For disposable or AD equipment

In the last year, how long in total have you been out of new, disposable or AD syringes and needles? Never < 1 month < 3 month ≥ 3 month 4- Don't know

⁵ Or other energy source for sterilization

In the last year, how long in total have you been out of puncture-proof, sharps containers?

Never < 1 month < 3 month ≥ 3 4- Don't know
month

Are stocks of vaccines always delivered with matching quantities of injection equipment?

1- Yes 2- No 3- Don't know 4- No vaccinations here

Are stocks of vaccines always delivered with matching quantities of puncture-proof sharp containers?

1- Yes 2- No 3- Don't know 4- No vaccinations here

Thank you very much for your time. Your participation in this survey will be useful in improving injection practices and occupational health in your country.

* For example, if no policy/recommendations exist