



## Assessment of Safe Injection Practices Among Private and Government Health Personnel in Jabalpur MP: A Comparative Study

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### ABSTRACT

**Background:** Despite WHO guidelines for safe injection practices, we are facing continuous boost in number of chronic infections that lead to disease, disability and death. Here our aim was to assess injection practices among private & Government health personnel in Jabalpur.

**Material & Methods:** It was a cross sectional study carried out in area around NSCB Medical College Jabalpur for period from September 2013 to December 2013. Data was collected using semi structured pre tested proforma.

**Results:** There was significant difference in injection practices among government and private health personnel like Practice of Changing the needle but reusing the syringe was more in private health personnel as shown in  $p=0.008$  and  $OR=0.52$  ( $CI=0.32-0.84$ ).

**Discussion:** Our findings are supported by many studies with similar findings like many of the prescribers and providers were observed to be reusing the syringe while changing only the needle may be due to unavailability in sufficient amount.

**Conclusion:** while nearly all the health providers are using disposable syringes & auto disabled syringes immunization programmes still there were many unsafe practices in common use among health personnel.

**KEYWORDS :** unsafe injection, syringe, blood born infections.

### Introduction

The World Health Organization 1999, defines 'a safe injection' as one that does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous to the community. A combination of several factors contributes towards injection safety. These can broadly be grouped as factors associated with injection equipments and its sterilisation and those associated with the technique of administering an injection. Safe injection practices are part of standard precautions and are aimed at maintaining basic levels of patient and provider's protections. WHO estimate: 12-16 billion injections are given every year. In India 3-6 billion injections given at the rate of 3-6 injections per person per year, out of which 62.9% are unsafe.

WHO 1999 defines, An injection is unsafe when: 1) It has potential to transmit blood borne viruses like HIV, Hep C Hep B etc. 2) It is administered using faulty technique. Criteria for considering injection unsafe on account of faulty injection administration technique are as follows Syringe/needle flushed before drawing medicine Needle wiped with a swab before injecting Not washing hands/wearing gloves before giving injection Syringe(unwrapped)picked up from open tray Drug drawn from broken/already open ampoule or multi-dose vial with needle.(WHO 1999). Despite WHO 1999 guidelines for safe injection practices, we are facing continuous boost in number of HIV, HBV, and HCV spreading due to unsafe injection practices. Unsafe injections cause a substantial proportion of infections with blood-borne

pathogens. It may also lead to complications like injection abscess, septicemia and nerve damage. Our aim was to assess injection practices among private & Government health personnel in Jabalpur.

### Materials & Method

This is a cross sectional study done around NSCB Medical College Jabalpur during September 2013 to December 2013. Sample size was determined by nMaster 2.0 version with Injection prevalence 60% and permissible error 10% and a probability level of  $P=0.05$  [WHO 1999]. The sample size was calculated to be 256. However 280 service providers are included with addition of 10% non response rate. Study subject includes Doctors and Paramedical staff such as MPW, Nurses, and Lab Technicians. For sake of uniformity our sample size is divided according to related proportion of subject in hospitals i.e. 10% Doctors, 30% staff nurses, 30% MPW, 30% Lab technicians. Study subjects were equally selected from private as well as government sectors. 140 subjects from each sector were selected accordingly 14 doctors 42 MPW, Lab technician & Staff nurses were selected from each sector. In private sectors MPW's were replaced with compounders. Nurses in government sector were selected in equal proportion that is 14 each from hospitals, Immunization (Community as well as Hospital) & from special clinics like ART, ICTC, rabies clinics. Stratified random sampling was used. A semi structured pre-tested questionnaire was administered during data collection. Data was collected compiled & analysed using Epi info 7 software.

### Results

**Table 1: Describing injection practices of Government & private Health personnel**

S NO	Government					Private					P val	OR[CI]
	Doc- 14	Nur- 42	Lab Tec-42	MPW -42	Tot- 140	Doc- 14	Nur-42	Lab Tec-42	MPW -42	Tot- 140		
1	Poor Hand hygiene prior to preparation of injection											
	10	30	36	38	78	8	25	30	35	98	0.005*	0.4[0.3-.8]
2	Syringe/needle(not wrapped) picked up from open tray											
	5	10	10	15	40	6	12	15	28	61	0.009*	0.51 (0.31-0.85)
3	Preparation of injection in areas potentially contaminated by blood or body fluids.											

S NO	Government					Private					P val	OR[CI]
	Doc- 14	Nur- 42	Lab Tec-42	MPW -42	Tot- 140	Doc- 14	Nur-42	Lab Tec-42	MPW -42	Tot- 140		
	12	25	30	30	97	11	35	28	32	106	0.23	0.72 (0.42-1.2)
4	Plastic syringe/needle picked up from steriliser/boiler for reuse											
	0	0	0	5	5	5	3	4	10	22	0.000*	0.19 (0.07-0.54)
5	Changing the needle but reusing the syringe											
	9	12	17	28	66	10	25	25	28	88	0.008*	0.52 (0.32-0.84)
6	Drug drawn from broken/already open ampoule or multi-dose vial with needle											
	8	30		25	63	6	25		30	61	0.81	1.05 (0.66-1.6)
7	Adequate skin preparation/cleaning prior to injection											
	6	12	10	10	38	5	28	32	36	101	0.78	0.14 (0.08-2.4)
8	Needle wiped with a swap before injecting medicine											
	10	30	15	20	75	9	32	30	28	99	0.003*	0.47 (0.29-0.78)
9	Always breaking/ bending/burning the needle before disposal to prevent reuse											
	8	15	17	11	51	2	5	6	8	21	0.0000*	3.4 (1.8-5.7)
10	Placing the needle with attached syringes in a puncture proof container after use											
	5	8	14	18	45	3	10	12	6	31	0.06	1.6 (0.9-2.8)
11	Use of needle destroyer for disposal											
	5	32	20	15	72	4	10	14	0	28	0.000*	4.2 2.4-7.1
12	Re-capping of needle before disposal											
	10	10	14	15	49	9	25	26	30	90	0.000*	0.29 (0.18-0.48)
13	Attempting to sterilise and reusing disposable syringe											
	0	0	0	5	5	4	5	5	7	21	0.000*	0.2 (.07-0.57)
14	Leaving used syringes in areas assessable to the public											
	2	5	6	8	21	12	25	26	25	88	0.000*	0.14 (0.05-0.18)

**\*significant**

Table 1 showing practices that there was significant difference in not using hand hygienic practices [p<0.005] between government and private health practitioner. Here poor hand hygienic practice was more in private health personnel as shown in odds ratio-0.4 [CI=0.3-0.8]. Practice of picking up Syringe/needle (not wrapped) from open tray also significantly more in private health personnel p=0.009 and OR0.51 (CI=0.31-0.850). There was no significant difference in Preparation of injection in areas potentially contaminated by blood or body fluids between both groups but nearly 70% of health personnel do this practice. There was more use of syringe/needle picked up from steriliser/boiler for reuse in private groups with significant association p=0.005 and odds ratio0.19 (CI=0.07-0.54). Practice of Changing the needle but reusing the syringe was also more in private groups with significant association p=0.008 and OR=0.52 (CI=0.32-0.84). There was no significant difference in Drug drawn from broken or already open ampoule or multi-dose vial with needle and skin preparation prior to injection and also in placing the needle with attached syringes in a puncture proof container immediately after use. Again practice of Needle wiping with a swap before injecting medicine was more in private health personnel [p=0.003 and OR=0.47(CI=0.29-0.78)]. Practice of breaking or bending or burning the needle before disposal to prevent reuse and Use of needle destroyer for disposal was more in Government health practitioner than private ones (p=0.000). While practice of Re-capping of needle before disposal, Attempting to sterilise and reusing disposable syringe and Leaving used syringes in areas assessable to the public were more in private health personnel (p=0.000).

**Discussion**

In modern medical care, injections occupy an important role. In all health care facilities invasive procedures are often followed for prophylactic, diagnostic and therapeutic purposes. Still Jajua NZ, 2003 found that nearly two thirds (65.7%) were unaware of guidelines for safe injection practices. Salelkar Set al, 2010 found in their

study that needle stick injuries among health care workers at a tertiary care hospital was also seen. In addition, in this modern society injections are abused by drug addicts exposing themselves to various infections like Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV). In our study there were significant differences in injection practices among private & Government health providers on many aspects. [WHO 1999] In present study nearly all the health providers are using disposable syringes & immunization programmes were running by using auto disabled syringes. No Hand washing or wearing gloves before giving injection was significantly poor in private sectors [p= 0.005]. Garapati S et al, 2014 (18 %) & Bhattacharya et al, 2001(5%) found similar finding in their study among health service providers. Unavailability of running tap water, sanitizers & gloves were the main reason behind these findings. In government institutions special Clinics like ART, ICTC, Rabies and DOTS have all those facilities whereas inpatients department, emergency casualty & immunization session sites had poor observations. In our study we found significant difference in reusing the syringes among private health care providers p=0.008 & OR= 0.52 (CI= 0.32-0.84). YAN Y 2006 also supports the findings. For this adequate supply in government was one of the reasons but this number was more among private personnel was due to lack of awareness and low qualifications. Similar findings was found in other studies like Kotwal et al, 2004 in their study found that many of the prescribers and providers were observed to be reusing the syringe while changing only the needle.

In our study there was no significant difference found between two groups in adequate skin preparation prior to injections but Whereas Kotwal et al, 2004 found that In the private sector, though all prescribers and providers cleaned skin, prior to injection, only 30.4 percent (18.8 - 44.1) used sterile swab for this with 10 percent (4.4 - 18.7) even using dirty/used swabs. Again practice of Needle wiping with a swap before injecting medicine was significantly more in private health personnel [p=0.003 and OR=0.47(CI=0.29-0.78)]. similar finding was found in Garapati et al, 2014 & Bhattacharya et al, 2001. In our

study we found significant difference in practice of breaking or bending or burning the needle before disposal & in using needle destroyer among government health providers. It may be due to proper waste management awareness among them & availability of equipments. Needle destroyer was mostly used by Staff nurses & ANM in immunization. Kotwal et al, 2004 found that thin polythene bags or ordinary cardboard boxes were used in place of sharps containers and all biological wastes were dumped in these non puncture-proof containers. In a few of the settings, the waste was burnt in an open space and the residue was left without further treatment. Pandit et al, 2005 found that most of the hospitals (83%) were disposing their waste by open air burning. Only civil hospital has incinerator since one year and they incinerate all types of waste. 10% of hospitals were throwing waste in open field, without any pretreatment, they were all private hospitals. Garapati S et al, 2014 found that indiscriminate disposal of syringes was seen in 19%. Whereas studies like Vong S, 2004, Riaz R, 2009 also giving different results.

### Conclusion

Based on the observation of our study it was concluded that injection practices were significantly different in government health facilities. Situation was poor in private sector. Almost all the health providers were using Disposable syringes but some of the private providers were reusing the disposable syringes. Waste management was poor among the private health providers. There would be a centres for pre- and in- service training of health professionals from all sectors. Workshop should be held by government authorities to train private health personnel for safe injection practices. Regular monitoring authorities should be set up to monitor as well as for supervision of injection safety

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