



International Research Journal of Public Health (ISSN:2573-380X)



Assessment of Injection Safety Practices among Health Workers in Ekiti State, Nigeria

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ABSTRACT

Safety of injections been administered on daily basis is becoming of significant Public Health importance considering the increasing prevalence of complications and the negative impact this could have on the overall good intention of the Healthcare providers. It is on the basis of this that we assessed the level of awareness and compliance with injection safety practices among Healthcare workers in Ekiti State.

A descriptive cross-sectional study was conducted using multistage sampling technique to recruit 582 HCWs across the State. In Stage One, 2 LGAs were selected from each of the 3 senatorial districts by simple random sampling technique through balloting and in stage two, a list of all the Health Facilities (Public and Private) in the selected LGAs was compiled and all were included in the study. In Stage three, A cluster sampling method was used to select all the staff who are eligible to administer injections in the selected HFs at the time of survey. A semi-structured questionnaire and an observational checklist was used for data collection. Data analysis was done using SPSS version 21.

A total of 582 HCWs were interviewed and 151 HFs were directly observed for compliance with Injection safety procedures. The mean age of the respondents was 38.2 ± 9.6 years. Females constituted about 86.8% while 83.5% were married. Majority of the respondents were CHEW, Nurses, Doctors and Health

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How to cite this article:

KOLUDE, Olufunmilola, EMMANUEL, Eytayo E, MARCUS, Oluwadare, OGUNLAJA, Omotunde, AJAYI, Paul, ILESANMI, Mary, IBIKUNLE, Funmi, ONWU, Victor A, ONYIBE, Rosemary, SUME, Gerald, BRAKA, Fiona. Assessment of Injection Safety Practices among Health Workers in Ekiti State, Nigeria. International Research Journal of Public Health, 2020; 4:42.



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Website: <https://escipub.com/>

Attendants. Awareness of injection safety was generally high as about 93.6% of respondents were aware. However, only about 62.9% of them has ever had any form of training on Injection safety. Only about 3% of the respondents have not reused syringes, while only about 41% has ever used an AD syringe, among whom about 32% always use AD syringes. Safety boxes were available and used in about 93% of the HFs, however, the final method of sharp waste disposal is transportation to a predetermined site for onward final disposal in about 50% of the HFs. Similarly, general waste disposal is predominantly by Open burning. Recapping of needles is still being practiced occasionally by about 78.5% of the respondents, while about 13% are still regularly recapping needles. Hand washing with soap and water was a regular practice among about 88% of the HWs before attending to patients and about 93.1% after attending to patients. On the contrary, only about 20.5% of those observed actually washed their hands before/after giving injections. Majority (75.4%) of the prescribers preferred oral medications for the treatment of uncomplicated malaria, while exit interview revealed that about 34.2% of the patients preferred injections to other forms of treatment. Although the awareness of the HCWs on injection safety is generally high, compliance with the standard safety precaution still needed to be accorded greater attention. Practices such as needle recapping, open burning of waste, poor hand hygiene, reuse of syringes and non-adherence to multidose vial policy should be totally discouraged. Regular training and unscheduled assessment of compliance could ensure that these instructions are clearly adhered to and confidence of the consumers could be built again.

Keywords: Injection safety, Nosocomial infections, injection neuritis, Ekiti state

Introduction

Injections are among the most common health care procedures worldwide, and indiscriminate use of injections is worse in developing countries where health workers and patients exhibit some bias for injections as a better alternative to other forms of treatment. Health workers, caregivers and entire community are exposed to numerous hazards some of which are linked to unsafe injection practices.¹

In an era of intensified global AFP surveillance towards polio eradication, injection neuritis which is a differential diagnosis of AFP is being increasingly detected and reported hence creating avoidable burden on the laboratory and

resources allocated for polio surveillance. Efforts to reduce indiscriminate use of injection and adherence to injection safety practices would go a long way in reducing this avoidable burden.

Injection safety is defined by WHO as, “an injection that is administered using appropriate equipment, does no harm to the recipient, does not expose the provider to any avoidable risk and does not result in any waste that is dangerous for the community”.²In developed countries, injection safety practices have generally been improved upon but sadly, this is not the case in developing countries, Nigeria being one of them.³

Since the invention of syringe in 1848, a new channel for pathogens to pass from one person to another was opened. Unsafe injection practices facilitate such transmission of blood borne pathogens such as hepatitis B virus, hepatitis C virus, and human immunodeficiency virus (HIV).^{4,5} Estimates suggest that at least 50% of the world's injections administered each year are unsafe, particularly in developing countries.⁶

Problem Statement

The World Health Organization (WHO) estimates that 16 billion injections are administered annually in developing countries of which 5% are administered for immunization and 95% for therapeutic purposes.⁷ In Ekiti State recently, it was reported that more than 90% of reported cases of AFP in the year 2017 were due to injection neuritis most of which were administered to patients for the treatment of febrile illnesses not associated with Hospital admissions.

It has however been reemphasized, that poor compliances to universal precautions and standard injection safety practices is a risk factor for injection associated injuries including injection neuritis.⁸ Another factor identified as a possible cause of unsafe injection practices is the administration of injection by unqualified/poorly trained personnel. It has been shown that a significant proportion of injections in developing countries are given by unqualified personnel. Patients' preference for injection as a faster means to cure of most illnesses have also contributed in addition to the Health workers attitude / preference for injections to oral medications even for uncomplicated malaria. Other unsafe injection practices include: Re-use of injection equipment for administering injections or to access shared medications;⁹ ¹⁰Accidental needle-stick injuries (NSIs) while giving an injection or after the injection, before, during or after disposal; Unsafe sharps waste when inappropriately collected and discarded putting the health care provider, waste handler

and the community at risk of sharps injuries and subsequent blood-borne infections.

Unsafe injection practices are common in developing country health settings. These unsafe practices predispose the health care workers to various risks and also facilitate transmission of an array of diseases to the health care professionals and the community. Injection prescribers and providers in most developing countries perceive that injection use help to prove their professional credibility which ultimately elevates their status and helps them to compete in the competitive health market.¹¹ Eliminating unnecessary injections is the highest priority in preventing injection-associated injuries.

In a study conducted in Wulong County in China, the prevalence of unsafe injection practices was put at 31.4%.¹² In a comparative study among nurses – University College Hospital (UCH) and Adeoyo Maternity Hospital Ibadan (AMTH) in Ibadan, Nigeria.¹³ Knowledge about injection safety was 13.2% and 21.2% from UCH and AMTH respectively. One-third (33.3%) of them from UCH identified a safe injection as one in which the waste does not put the people at health risk and in AMTH, 23.1% of the participant identified a safe injection as one that will not harm the recipient.

Another study to assess injection safety practices among primary health care workers (PHCWs) conducted in Ilorin, Kwara state of Nigeria.¹⁴ revealed needle recapping after administration of injection in 86.7% of their health facilities. Hand washing practices before and after injection was observed in only 6 (20%) of the health facilities.¹⁴ Ninety (65.2%) of the respondents knew the correct WHO definition of safe injection, while 34.8% did not know. Most of the respondents (65.9 %) knew that HIV, HCV and HBV could be transmitted by unsafe injection practices, while 27(19.6%) had poor knowledge.¹⁴

Unsafe Injection Practices¹⁴ include:

- i. Inappropriate and overuse of injectable medications.
 - ii. Re-using disposable needles and syringes.
 - iii. Using one syringe for many patient, while changing the needle for each patient (a practice used in some childhood immunization programs).
 - iv. Flaming needles between patients.
 - v. Recapping needles.
 - vi. Leaving contaminated sharps to be disposed off by someone other than the user.
 - vii. Bending the needle after use to eliminate the risk of reuse.
 - viii. Discarding needles and syringes into the general waste system, etc.
1. Assess the Level of awareness and knowledge of healthcare workers on safe injection practices
 2. Determine the level of compliance with injection safety practices
 3. Determine the proportion of HCW with preference for injectable as first line of treatment of uncomplicated malaria/ febrile illnesses
 4. Determine the proportion of caregivers with preference for injectable as first line of treatment for febrile illnesses

JUSTIFICATION OF STUDY

Popularity of injections and needless use of injections in many developing countries like Nigeria is becoming a major public Health problem. In Ekiti State, the last PEER Review exercise revealed that over 90% of cases of AFP reported in the state in the year 2017 were due to injection neuritis and preliminary assessment and record review revealed that most of the injections were not administered by qualified health personnel.

A study to assess compliance of Health care workers in the various PHC facilities to WHO guidelines on injection safety practices has become imperative in Ekiti State since similar studies has not been conducted in the State before now. This study aims to bridge the gap by assessing the practices of injection safety among health care workers in various primary care facilities in Ado-Ekiti, Ekiti State.

OBJECTIVES

GENERAL OBJECTIVE

The general objective of this study was to assess injection safety practices among HCW in Public and Private Health Care facilities in Ekiti State

SPECIFIC OBJECTIVES

The specific objectives of the study were to;

METHODOLOGY

Study Location

Study was conducted in Ekiti State. The State has 16 LGAs and is politically divided into 3 senatorial districts, there are 457 public and private HFs in Ekiti State.¹⁵ The target population is the HCW in Ekiti State.

Study Design

Descriptive cross sectional study design was used for the study.

Study Population

The study population included Doctors, Nurses, Pharmacists, Community Health Extension Workers and other Paramedical Health workers in the selected Health Facilities of the state.

Sample Size

The study size was determined using Fishers formula and the p of 37% (Kwara State)

$$(n) = \frac{(Z_{\alpha})^2 p(1-p)}{d^2} \quad 16$$

About 450 HCW were to be selected after correction for non-response of about 10%. However, to increase the power, a total of 582 respondents were eventually recruited for the study.

Sampling Technique

A multistage sampling technique was used for this study.

In Stage One, 2 LGAs were selected from each of the 3 senatorial districts by simple random sampling technique through balloting.

In stage two, a list of all the Health Facilities (both Public and Private) in the selected LGAs was compiled and all the Health Facilities (Public and Private) were selected for in the LGA

In Stage three, A cluster sampling method was used at this stage where all the staff who are eligible to administer injections in the selected Health facilities were interviewed.

Data Collection and Instrument

Quantitative

Structured questionnaire and observational check list was used for the study. The questionnaire to be used was adapted from WHO/Safe Injection Global Network (SIGN) recommended revised Injection Safety Assessment Tool.

Observational Checklist

A walk – through survey was conducted with the use of an observational checklist to identify safety measures put in place during the administration of injection and the potential injection hazards. The walk through survey was carried out in all the selected Health facilities during the study to minimize biases.

Health Facility Review of Records for Injection Use

The records of patients of all the selected Health facilities were reviewed over a period of six months to ascertain the trend of injection use. This served as a baseline for the determination of the level of indiscriminate use injection.

Methods of Data Collection

For the quantitative method of data collection, structured, interviewer-administered questionnaires was used. Twelve research assistants were recruited and trained for a day on the appropriate use of the questionnaire, observational checklist and on maintenance of ethical standards. Thereafter their knowledge was tested using role plays. The questionnaires were administered over a period of 10days. Each filled questionnaire was cross checked daily for accuracy and completeness. Daily briefing and review of activities was also carried out.

Data Analysis

Quantitative data collected was entered into Statistical Package for Social Scientists (SPSS) version 23, cleaned and analyzed using same package.

Ethical Consideration

Ethical approval was obtained from the Ethical Review Committee of the Ministry of Health, Ekiti State. Consent was obtained from the subjects and assurance was given to the respondents that responses will be treated with high level of confidentiality and their identities will be kept anonymous during and after the research. The research did not in any way harm the respondents, while the overall interest of the project will improve the safety of injections in Public and Private Health facilities.

RESULTS

Table 1: Socio-demographic variables of Respondent

Variables	Frequency(n=582)	Percentage(%)
Age of Respondents		
Less than 25 yrs	45	7.7
25- 44 yrs	381	65.5
45 yrs +	156	26.8
Mean Age 38.2 ± 9.6		
Gender		
Male	77	13.2
Female	505	86.8
Marital Status		

Single	94	16.2
Married	486	83.5
Divorced	1	0.2
Widowed	1	0.2
Cadre		
Doctor	53	9.1
Nurse	92	15.8
Pharmacist	6	1.0
Health Attendant	76	13.1
CHEW	180	30.9
JCHEW	45	7.7
Others	130	22.3
Religion		
Christianity	540	92.8
Islam	36	6.2
Traditional	6	1.0
Ethnicity		
Yoruba	546	93.8
Igbo	28	4.8
Others	8	1.4
Location of Health Facility		
Urban	139	23.9
Rural	385	66.2
Semi Urban	58	9.9

Majority (65.5%) of the health care workers' age ranges between 25 to 44 years with the mean age as 38.2 ± 9.6 , equally a large proportion of the respondents were female (86.8%) and married (83.5%). Among the health workers, the CHEW has the largest number of respondents

38.6%, nurses 15.8%, health attendant 13.1 % and others were (22.3%). The main religion and ethnicity among the respondents were Christianity (92.8%) and Yoruba (93.8%). A higher number of health facilities for the study were located in the rural area.

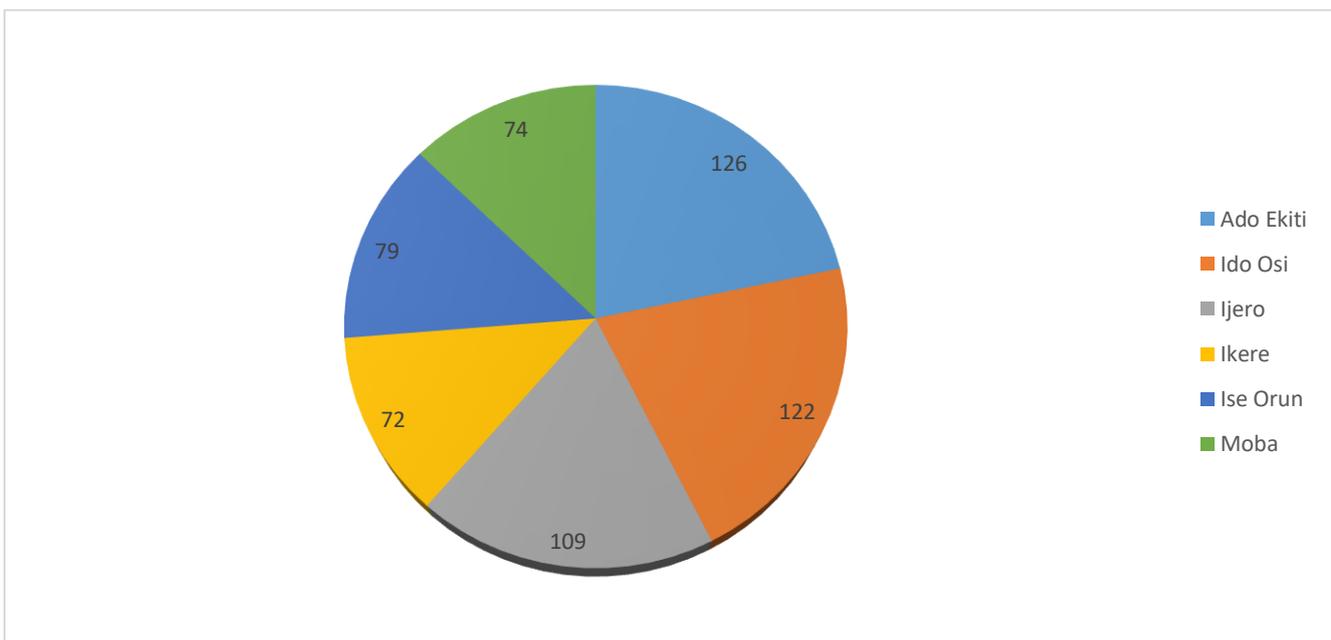


Figure 1 LGAs distribution of the respondent

Table 2 AWARENESS AND KNOWLEDGE OF SAFE INJECTION PRACTICES AMONG HEALTHCARE WORKERS

Variable	Frequency	Percentage
Heard of Injection Safety		
Yes	545	93.6
No	37	6.4
Total	582	100.0
Ever undergone Training on Injection Safety		
Yes	366	62.9
No	179	30.8
Total	545	93.6
If yes, When		
Less than 6 months	105	18.0
6-12 Months	84	14.4
More than 12 months	177	30.4
Total	366	62.9
How often should you re-use syringes while administering injections		
Always	14	2.4
Occasionally	553	95.0
Never	15	2.6
Total	582	100.0
Ever used an auto-disabled syringes		
Yes	240	41.2
No	100	17.2
Total	340	58.4
How is safe injection practiced in the health facility (<i>Multiple Response</i>)		
Safety box available and used	541	93.0%
one syringe for each dose of vaccine	372	63.9%
one mixing syringe for each vial	209	35.9%
no safety box	12	2.1%
safety box available but not used	3	0.5%
Others	1	0.2%
Method the facility use for general waste disposal		
Open burning in a pit	281	48.3%
Burning in a metal drum	41	7.0%
Incinerator	130	22.3%
Transport to a pre-defined site	121	20.7%
Pick-up by Waste Management	67	11.5%
I don't know	11	1.9%
Method of disposing Sharp wastes in the facility		
Open burning in a pit	106	19.2%
Burning in a metal drum	37	6.7%
Incinerator	82	14.9%
Transport to a pre-defined site	274	49.7%
I don't know	36	6.5%
Others	16	2.9%

About 93.6% of the healthcare workers have information on injection safety, while 62.9% of the healthcare workers have been trained sometimes in the past, while (32.4%) has been trained in the last 1 year. Only 2.6% (15) of the healthcare workers have information that needles should never be reused while 95.0% of

the HCW have an opinion that one may re-use syringes while administering injection. Moreover, 41.7% of the health workers had ever used auto- disable syringes

Major safe injection practices among health workers include the use of safety boxes (93%) 541), while about 63.9% (372) of health workers

use 1 (one) syringe for each dose of vaccine. Around 35.9% of healthcare workers (209) used one mixing syringe for each vial, while 12 (2.1%) health care workers do not have safety box and 3 (0.5%) HCWs have safety box available but

not used. General waste disposal methods are mainly by open burning (43.2%). Only 14.9% of hospital sharp wastage is disposed through the incinerator.

Tab 3 COMPLIANCE WITH INJECTION SAFETY GUIDELINES

Variable	Frequency	Percentage
How often do you re-cap needles in this facility		
Always	76	13.1
Occasionally	457	78.5
Never	49	8.4
Total	582	100.0
What is your first line of management of uncomplicated Malaria?		
Injectable Antimalarial Drug	40	6.9
Oral Antimalarial Drug	439	75.4
Combination of Oral and Injectable Antimalarial Drug	103	17.7
Total	582	100.0
How often do you wash your hands with soap and water before attending to patients		
Always	512	88.0
Sometimes	44	7.6
Never	6	1.0
Only when soap and water is available if there is glove, I do not need to wash my hands	5	.9
Total	15	2.6
Total	582	100.0
How often do you wash your hands with soap and water after attending to patients		
Always	542	93.1
Sometimes	32	5.5
Never	3	.5
Only when soap and water is available	5	.9
Total	582	100.0
Have you ever had any needle stick injury		
Yes	147	25.3
No	435	74.7
Total	582	100.0
Are there safety boxes in areas where injection are given		
Yes	564	96.9
No	18	3.1
Total	582	100.0
If any, do they overflow with syringes before being disposed		
Yes	53	9.1
No	276	47.4
Total	329	56.5
Are there training sessions for injection safety in your facility		
Yes	326	56.0
No	256	44.0
Total	582	100.0

Compliance with injection safety guidelines; Only 8.4% (49) of the HCW never re-capped needles, few of the HCWs don't always wash their hands with soap and water before (12.0%) and after (6.9%) attending to a patient. 5.5% of HCW don't cover their sores or injuries before giving injection while only 25% have ever had needle stick injury in their lifetime. There are

safety boxes (96.9%) in areas where injections are given. About 44% of HCW have had no training on injection safety, while 32% of HCW have visual guide concerning injection safety practices. Only 6.9% of HCW gives injectable anti-malarial drugs as first line treatment in managing uncomplicated malaria.

Tab 4 PREFERENCE OF INJECTION BY PRESCRIBER

Variable	Frequency	Percentage
Average number of patients per week		
Less than 16	233	40.0
Greater than 16	107	18.4
Total	340	58.4
How many of them (patients) are prescribed an injection		
Most	74	12.7
Half of them	90	15.5
Less than Half	126	21.6
Only those who genuinely needs one	201	34.5
Those who demand	82	14.1
Others	9	1.5
Total	582	100
Do patients demand an injection or is it your decision		
Patient Demand	57	9.8
I decide	140	24.1
Both	143	24.6
Total	340	58.4
If you don't prescribe an injection do you think you will lose your clients		
Yes	32	5.5
No	250	43.0
It doesn't Matter	58	10.0
Total	340	58.4
Do you know what reuse prevention or AD syringes are		
Yes	193	33.2
No	112	19.2
Don't Know	35	6.0
Total	340	58.4

About 340 HCWs that prescribe were identified; around 40% of the prescribers attended to < 16 client per week, while 21.6% of the prescribers give less than half of their clients' injection for various illnesses. In 24.1% of cases the

prescriber alone determines whether client receive injection. Some HCW (5.5%) think they will lose the client if they don't prescribe injection while about 19% don't know what re-use prevention is or what AD syringes are.

Tab 5 CAREGIVERS WITH PREFERENCE FOR INJECTABLE AS FIRST LINE OF TREATMENT FOR FEBRILE ILLNESSES**Socio Demographic of Caregivers**

Variable	Frequency	Percentage
Gender		
Female	362	65.9%
Male	187	34.1%
Total	549	100.00%
Age of Respondent		
Less than 35 yrs	299	54.5
35 yrs and above	250	45.5
Total	549	100.0
Mean 34.1±13.5		

Variable	Frequency	Percentage
During the last six months have you received an injection?		
Yes	247	45.07%
No	288	52.55%
Don't remember	13	2.37%
Total	548	100.00%

If yes, who provided the injection?

A family member	1	0.40%
Any other:	2	0.81%
CHEW	116	46.96%
Dentist	3	1.21%
From the pharmacy	1	0.40%
Nurses	80	32.39%
Prescriber (doctor)	44	17.81%
Grand Total	247	100.00%

Do you remember whether the syringe was new and opened in front of you

Don't know for sure whether it was new or used	1	0.4
No I did not notice	11	4.5
Yes it was new and opened in front of me	235	95.1
Grand Total	247	100.0%

During the last six months have you received an IV infusion (drip)?

Yes	57	10.38%
No	478	87.07%
Don't Remember	14	2.55%
Total	549	100.0

If yes, who provided the infusion?

Any other:	2	3.51%
CHEWs	18	31.58%
Nurses	20	35.09%
Prescriber (doctor)	17	29.82%

If Yes, Do you remember how long ago you received your last Injection/IV infusion?

Yes	53	92.98%
Don't Remember	4	7.02%
Grand Total	57	100.00%

If Yes, when last did you receive an Injection/IV infusion?

< 3 months	47	31.76%
> 6 months	53	35.81%
3-6 months	48	32.43%
Grand Total	148	100.00%

When you go for treatment for minor illness like malaria, the prescriber for any illness do you ask for injections or do you leave it to the prescriber to decide?

Ask for injection	69	12.66%
Prescriber decides	476	87.34%
Grand Total	545	100.00%

Which do you prefer

Both	35	6.38%
Indifferent	60	10.93%
Injection	188	34.24%
Oral Medicine	266	48.45%
Grand Total	549	100.00%

Among the Caregivers, about two-third of the respondents were females while male respondents were 34.1%. More than half of the Caregivers were >35yrs of age, with the mean age of 34.1±13.5. The prevalence of clients that received injection in the last 6months is 45.1%, with CHEWs (47.0%) being the highest provider of injection followed by Nurses (32.4%). About 10.4%of clients had received IV infusion in the last 6 months, mainly from nurses (35.1%) and CHEWs (31.6%).

About 12.7% of Clients usually request for injection, while 34.2% prefer injection as a form of treatment.

Majority (94.0%) of the client knows that contaminated syringe and needle transmit infections, but 17.9% of client don't know these specific diseases. Only 14.2%of clients knows what AD syringes are.

Table 4.6 Observational Checklist for Injection provider

Type of Health Facility	Frequency	%
Private	38	25.17%
Public	113	74.83%
Total	151	100.00%
Type of injection equipment used in the health facility for immunization		
AD Syringe	89	58.94%
Not Applicable	26	17.22%
Single Use	36	23.84%
Total	151	100.00%

Does the prescriber recap the needle?		
Could not be observed	100	66.23%
No	41	27.15%
Yes	10	6.62%
Total	151	100.00%
Hand washing done		
Could not be observed	102	67.55%
No	18	11.92%
Yes	31	20.53%
Total	151	100.00%
Presence of sharps in the facility vicinity		
Yes	13	8.61%
No	110	72.85%
Could not be observed	28	18.54%
Total	151	100.00%

In the observational checklist, Public Health facilities (74.8%) were observed compared to 25.2% of Private HFs. Majority of the injection equipment used in the HF was single use (82.1%), during immunization AD syringes (58.9%) was mainly used. Sharp box availability was seen in 78.8% of HF. The prescriber recap needle in 6.6% of cases, the commonest observed injection site was the buttocks (12.6%) and thigh (6.6%). Only 20.5% of HCW observed hand washing practices while 8.6% of the HF had sharps in the vicinity of the facility.

Discussion

Injection safety issues are fast becoming major Public Health issue considering the increasing number of injection administered daily and the number of complications being reported after such encounter. Notable among these complications are nosocomial infections such as HIV/AIDS and Injection neuritis a strong differential diagnosis of Poliomyelitis. This study revealed that the age of the HCWs ranged between 25 to 44 years with a mean age of 38.2 ± 9.6 years. This indicates that majority of the HCWs in the study area are within the productive age group and it is similar to the findings reported in a study in Ilorin and Imo state ^{17,18}. Also, there is female preponderance (86.5%) among HCWs in this study which is in agreement with other studies¹⁷. It is also a common occurrence amongst Community Health Extension Workers (CHEW) and Nurses ¹⁹.

About, 83.5% of the respondents are married and are mainly Yoruba by tribe. This indicates that the health workers in the HFs setting of the study area are made up of middle -aged workers who would be involved in technical role. The HFs setting in the study area are made up of both low and middle cadre staff and a reflection of good staffing. It also showed a large group of workers that may be involved in injection administrations. Interestingly, more rural HFs were used compared to urban HFs because only one LGA is urban among the six LGAs selected.

Our study revealed a high level of awareness of Injection safety among health workers. About 93.6% of the healthcare workers were aware of Injection Safety practices which is similar to a study conducted in South-South of Nigeria ²⁰ which revealed awareness level of 89.9%. In this study about 62.9% of the healthcare workers have been trained sometimes in the past on Injection Safety, while (32.4%) has been trained in the last 1 year which was similar to the result from another study in Southeast Nigeria which revealed that 67.2% of HCWs has had a form of training.¹⁸ The common good safe injection practices among Ekiti Health workers include the use of safety boxes (93%) while, 63.9% (372) health workers use 1 (one) syringe for each dose of vaccine. 35.9% (209) of healthcare workers use one mixing syringe for each vial. Further few HCWs only 2.1%(12) health care workers do not have safety box and 0.5% (3) have safety box

available but not used. Only 22.3% of HF's sharp wastage is disposed directly through an incinerator at the LGA level, but 20.7% are transported to pre-defined site, which is usually the LGA NPI unit, who subsequently transport the sharps to the State for incineration, making a total of 43% of HF's sharp waste that get incinerated. There are areas of poor knowledge which includes 95% of HCWs occasionally re-uses syringes while administering injection. The observational checklist reveals HCWs recapping needle in 6.6%, also only 20.5% of the HCWs observed hand washing practices and 8.6% of the HF had sharps within the vicinity. Similarly, in another in Ilorin recapping was observed in 86.7% of the HCWs, poor hand washing practices observed in 20% of the HF, used needle was equally observed outside the premises (33.3% of HF). The presence of needles and syringes exposes the HCWs and community to disease and put them at high risk.

This study revealed poor practices in some areas; about 91.6% (49) of the HCW do always or occasionally re-capped needles, few of the HCWs don't always wash their hands with soap and water before (12.0%) and after (6.9%) attending to a patient. 5.5% of HCW don't cover their sores or injuries before giving injection while only 25% have ever had needle stick injury in their lifetime. There are safety boxes (96.9%) in areas where injections are given. About 44% of HCW have had no training on injection safety, while 32% of HCW have visual guide concerning injection safety practices. However in contrast to this study, another study in Calabar revealed that 59.5% of HCWs had good practice of injection safety.²⁰ In another study in the Southeast Nigeria, about half of the HCWs (45%) still recap needle and only 6.6% used AD syringes which is similar to this study. About 25% of Ekiti HCWs have had needle stick injury compared to about 50% of HCW who have had needle stick injury in another study in Southern Nigeria.¹⁸

Nevertheless, good practice was observed like there was high safety box availability (96.6%)

and usage (93%) in this study. This could be attributed to the provision of injection safety boxes for fixed and outreach immunization sessions that are rendered in most of the public health facilities. This is part of the key strategies for immunization equipment logistics which make it compulsory for needles, syringes, injection safety boxes and other injection equipment to accompany vaccines to health facilities. This observation was supported by the observational checklist that revealed up to 78.8% of the health facilities as having injection safety boxes.

Only 6.9% of HCW preferred to give injectable anti-malarial drugs as first line treatment in managing uncomplicated malaria. This study revealed that 34% of patients attending the health facilities prefer injection while 12.7% requested for injection medications this is similar to another in Ilorin which revealed that 60% of patient preferred injection¹⁴. This is a major reinforcing factor for unsafe injection practices because of the mutual relationship that exist between the patients who requested for injection because of ignorance and the health workers who prescribe injection for financial and other gains.

Among the HCWs that administer injections CHEWs (47%) and nurses (32.4%) constitute the majority of the HCWs hence emphasizes should be laid on their training to include injection safety practices. This finding is different from the study in Ilorin which revealed that doctors constitute about 34.8%, nurses 23.5%, CHEWs 6.8% while other technical staffs constitute about 25.6%.

Conclusion / Recommendation

Although, there is a high usage of safety box among HCWs in Ekiti State, the practice of safe injection is still low, evident by high level of needle recapping and risky final waste disposal methods. It is recommended that there should be on the job training and supportive supervision of HCWs on proper usage of available injection equipment by the government.

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APPENDIX

1. SENATORIAL DISTRICT IN EKITI STATE

Ekiti Central Senatorial District	Ekiti North Senatorial District	Ekiti South Senatorial District
Ado LGA** EfonLGA Ekiti-West LGA IjeroLGA** Irepodun/IfelodunLGA	Ido/OsiLGA** IkoleLGA IlejemejeLGA MobaLGA** OyeLGA	Ekiti East LGA Ekiti South – West LGA EmureLGA GbonyinLGA Ikere LGA** Ise/OrunLGA**

KEY: ** - Selected LGAs via SRS Technique

2. Map of Ekiti State showing the Local Government Areas (Source¹⁵)

