Prevalence and Response to Needle Stick Injuries among Health
Care workers in Kenyatta National Hospital, Nairobi County, Kenya

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15th December, 2017, Rome, Italy

Introduction

- Needle stick injuries (NSI) are preventable global occupational hazards that are quite prevalent among Health Care Workers (HCW) [1].

- Optimal health of HCW is essential for efficient delivery of health care services [2].

- NSI can result in blood borne infections such as hepatitis B virus, hepatitis C Virus and human immunodeficiency virus [3].

- The infections have adverse outcomes to the HCW such as long term illness, disability and even death [4].

Problem statement

- 90% of global NSI occur in Africa, reporting is poorly done limiting estimate of problem magnitude (Mbaisi *et al.,* 2013)

- 40%–65% of Hepatitis B (HBV) and Hepatitis C virus NSI consequences to HCW like infections, disability, psychological trauma and death (Saia, *et al.,* 2010)

- NSI can lead to Public health and economic burden in health care settings (Rapiti *et al*., 2014)

- Increased cases of NSI have been reported at KNH

Objective

Broad objective

- The aim of this study was to determine the prevalence and response to needle stick injuries among HCW at KNH.

Specific objectives

- To determine the prevalence and incidence of NSI among HCW at KNH

- To establish contributing factors to NSI among HCW

- To establish response to NSI among HCW

Conceptual Framework

Independent variable

Intervening variables

Dependent variable

Demographic characteristics:
(Age, sex, marital status, religion, profession, work experience, department, education level)

Control measures:
Precautions to NSI

Prevalence, Response to NSI

Practices among HCW:
Sharps disposal methods/ bins, shift duty, daily activities

Policies

Adapted from NASCOP 2007

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Methods

- A cross-sectional descriptive study design among 331 professional HCW who performed invasive patient procedures at KNH.

- Study was conducted between 2014 and 2015 by quantitative and qualitative methods using self administered structured questionnaires.

- Data was analyzed using SPSS version 20.0. at significance level of 0.05.

- Benefits of the study findings were to identify gaps in prevalence and response to NSI.

Sample Size Determination

- Fishers *et al*(1998) formula was used

- **n= (z² pq)/d²**

- **n=** desired sample size for target population ≥ 10,000

- **z=** normal standard deviate

- **p=**probability of desired characteristic

- **q=** 1-p = (1- 0.5)

- **d=** level of significance set at (0.05)

- Cochrane`s formula (1999) was used to determine respondents since population was   ≤ 10,000)

- n_f = n/(1+n/N) **= 301**

- 10% was added to take care of non response

 sample size was 331 HCW
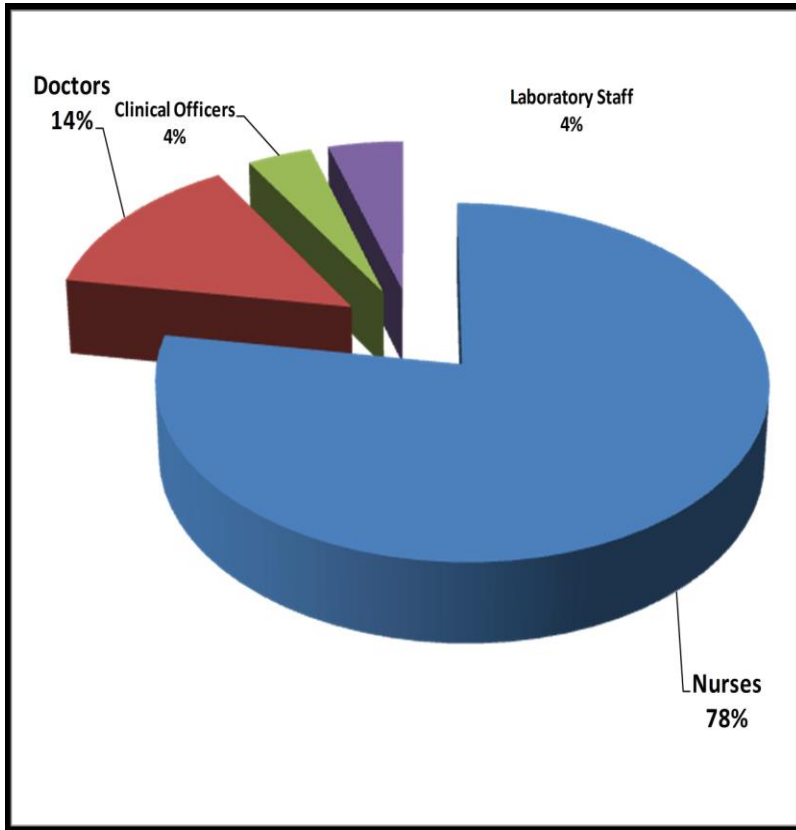
RESULTS
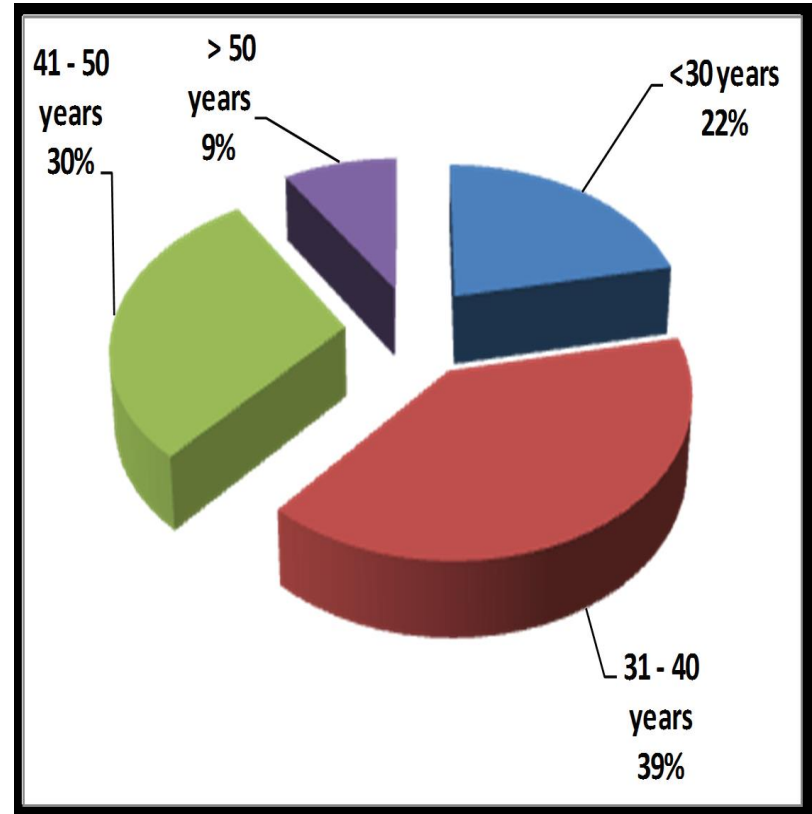## (1) Sociodemographic characteristics

Figure 1: profession

Figure 2: Age Distribution
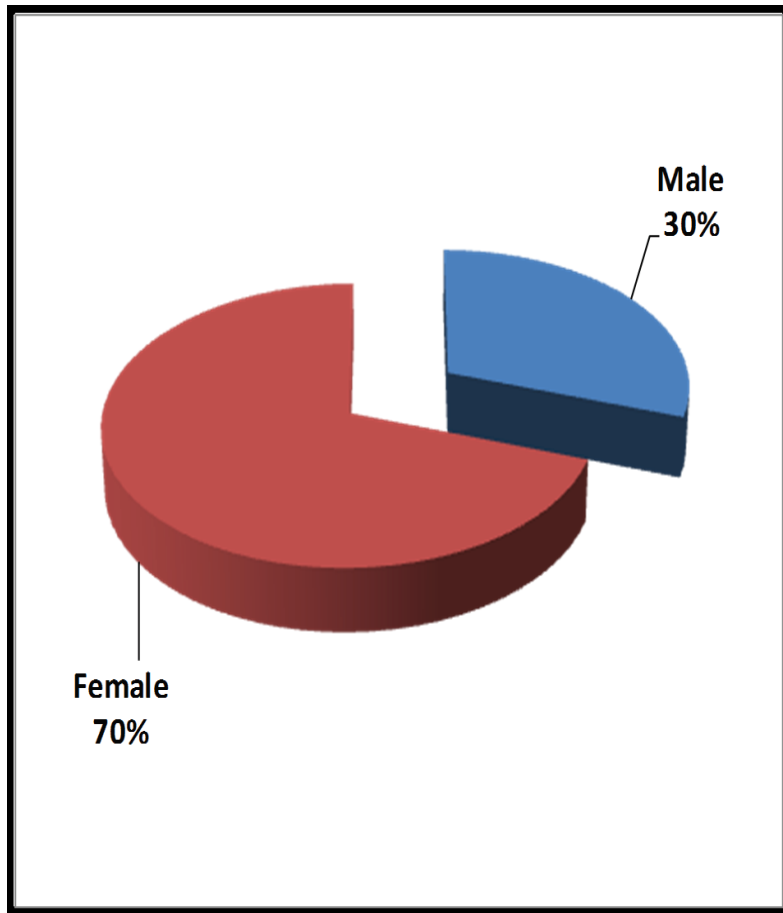
(2) Sociodemographic Characteristics
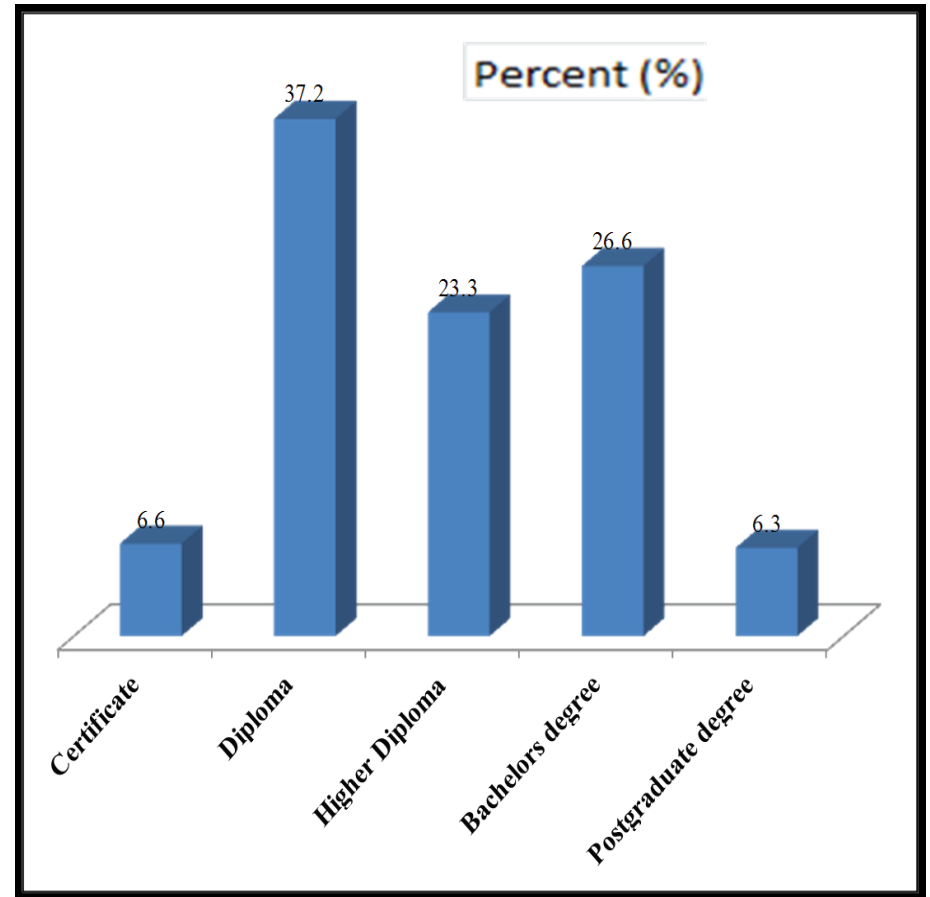

Figure 3: Gender

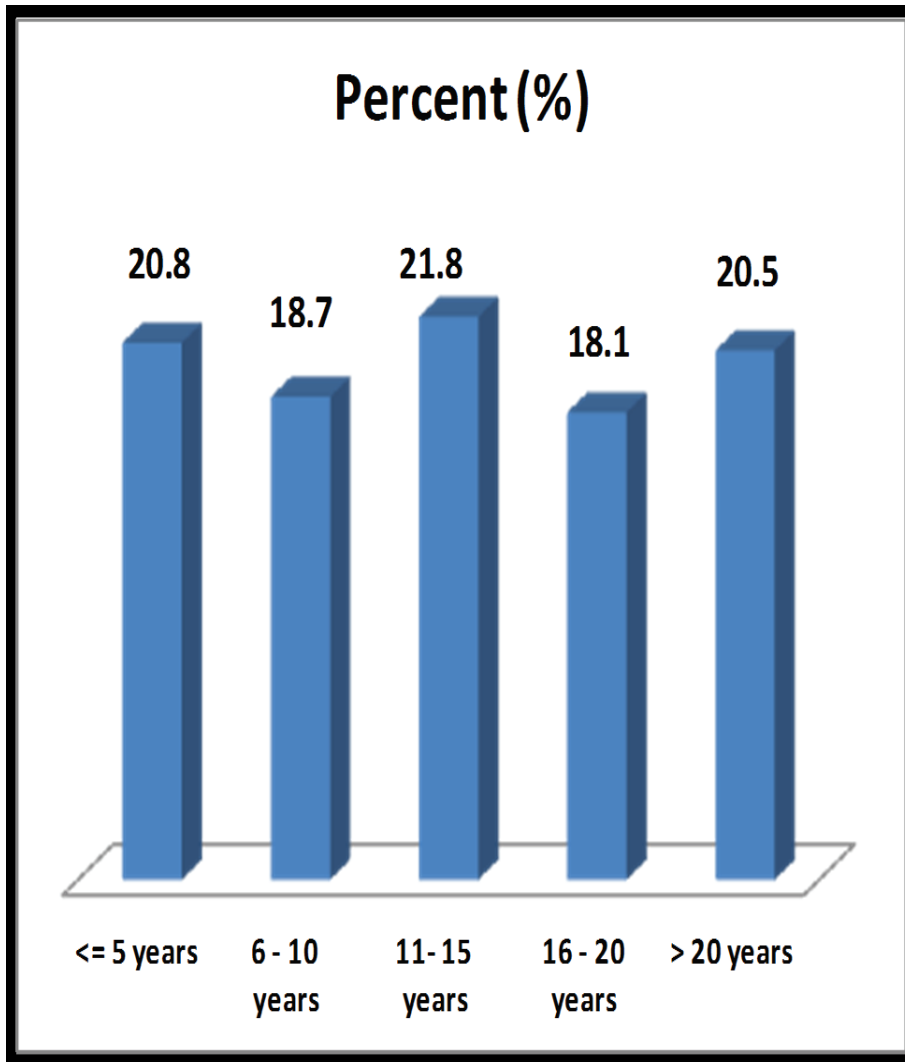**Figure 4: Education   Level**

(3) Sociodemographic characteristics

Figure 5: Work Experience
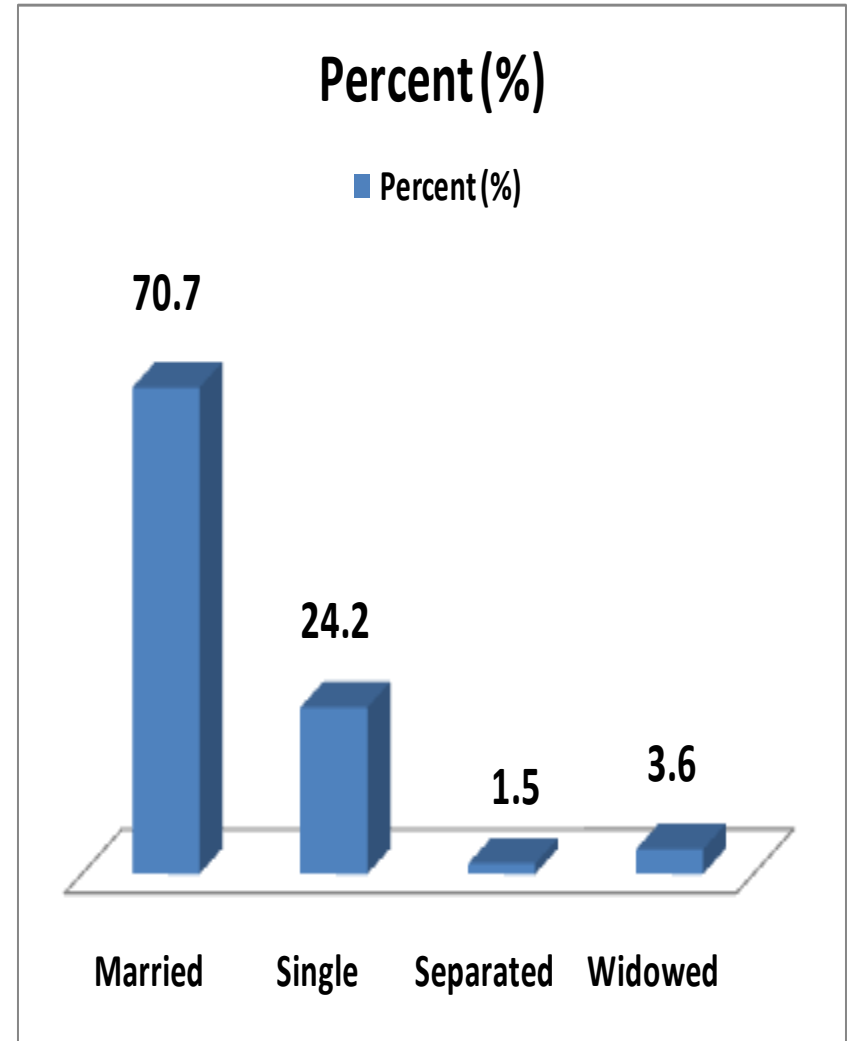
Figure 6: Marital Status

Objective 1
Table 1 Prevalence of NSI

	No of respondents	Percent
NSI prevalence in working lifetime		
Yes	151	45.6
No	180	54.4
Lifetime NSI frequency (n=151)		
1	78	51.7
2-4	62	41.1
5-7	8	5.3
8 and above	3	2
NSI incidence in the last one year		
Yes	62	41.1
No	89	58.9
last one year NSI frequency of NSI (n=62)		
1	52	83.9
2	8	12.9
3	2	3.2

Objective 1
Table 2: NSI prevalence by department

Department	NSI			Significance
	Yes	No	Total	
Accident & Emergency	20(76.9%)	6(23.1%)	26(100.0%)	
Critical Care	6(37.5%)	10(62.5%)	16(100.0%)	
Dental	3(21.4%)	11(78.6%)	14(100.0%)	
Diagnostic Services	9(47.4%)	10(52.6%)	19(100.0%)	
Medicine	20(51.3%)	19(48.7%)	39(100.0%)	χ^2 = 17.143
Orthopaedics	14(37.8%)	23(62.2%)	37(100.0%)	
Paediatrics	23(47.9%)	25(52.1%)	48(100.0%)	df = 10
Private Wing	12(46.2%)	14(53.8%)	26(100.0%)	
Reproductive Health	14(38.9%)	22(61.1%)	36(100.0%)	p = .071
Surgery	21(46.7%)	24(53.3%)	45(100.0%)	
Theatre	9(36.0%)	16(64.0%)	25(100.0%)	
Total	151(45.6%)	180(54.4%)	331(100.0%)	

Table 3: Relationship between NSI prevalence and Sociodemographic characteristics

	Lifetime NSI		Total	
	Yes	No		
Age				
<= 5 years	20(29.0%)	49(71.0%)	69(100.0%)	**Significance**
6 - 10 years	38(61.3%)	24(38.7%)	62(100.0%)	$\chi^2 = 16.819$ **df=4**
11- 15 years	28(38.9%)	44(61.1%)	72(100.0%)	**P=.002**
16 - 20 years	32(53.3%)	28(46.7%)	60(100.0%)	
> 20 years	33(48.5%)	35(51.5%)	68(100.0%)	
Gender				**Significance**
Male	54(54.0%)	46(46.0%)	100(100.0%)	$\chi^2 = 4.057$ **df=1**
Female	97(42.0%)	134(58.0%)	231(100.0%)	**p=.044**
Education				
Certificate	9(40.9%)	13(59.1%)	22(100.0%)	**Significance**
Diploma	51(41.8%)	71(58.2%)	122(100.0%)	$\chi^2 = 12.911$ **df=5**
Higher Diploma	33(42.9%)	44(57.1%)	77(100.0%)	**P=.024**
Bachelors degree	40(45.5%)	48(54.5%)	88(100.0%)	
Postgraduate degree	17(81.0%)	4(19.0%)	21(100.0%)	
Profession				
Nurse	110(42.8%)	147(57.2%)	257(100.0%)	**Significance** $\chi^2 =$
Doctor	30(65.2%)	16(34.8%	46(100.0%)	**8.404 df = 3 p =**
Clinical Officer	5(38.5%)	8(61.5%)	13(100.0%)	**.038**
Laboratory Staff	6(40.0%)	9(60.0%)	15(100.0%)	

Objective 2:
(1) Contributing factors to NSI
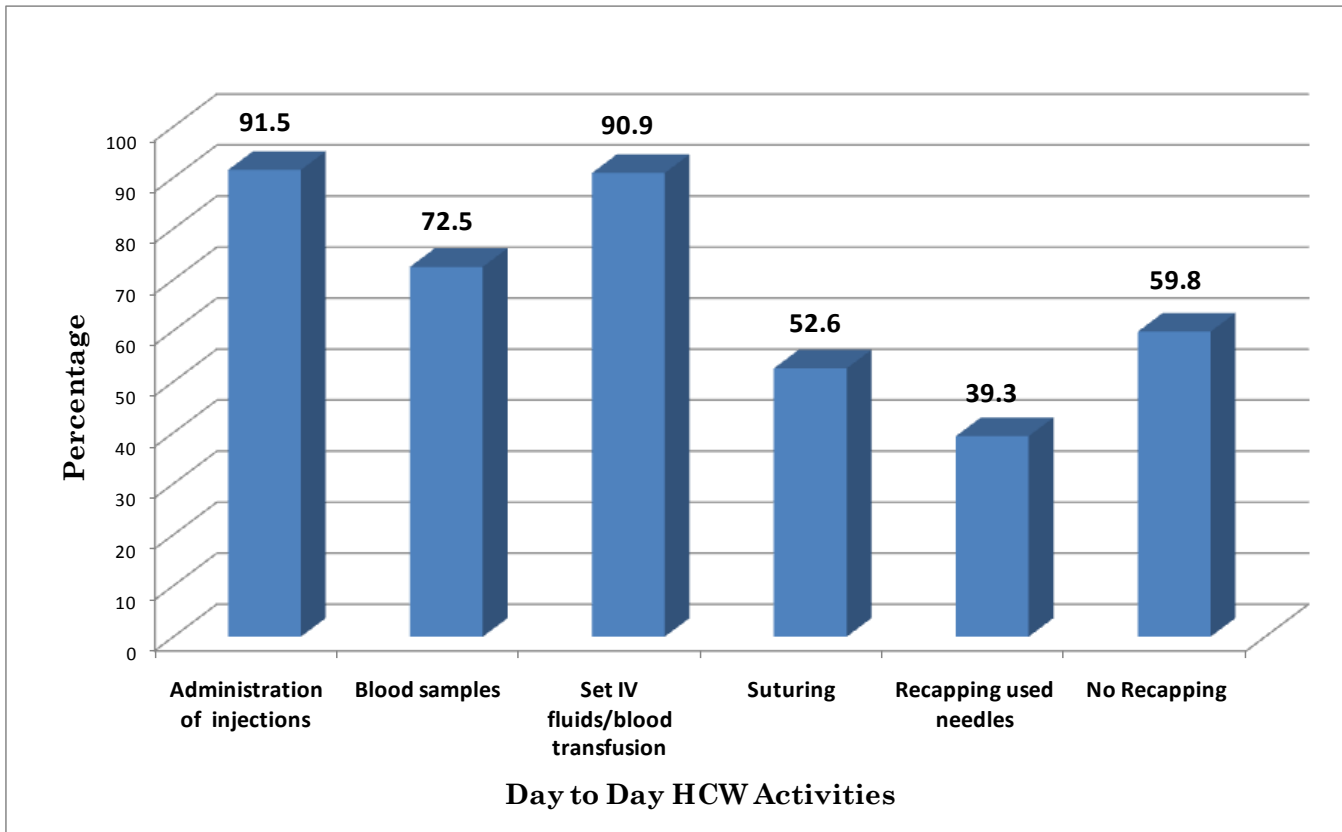
Figure 7: Day to day activity

Objective 2:
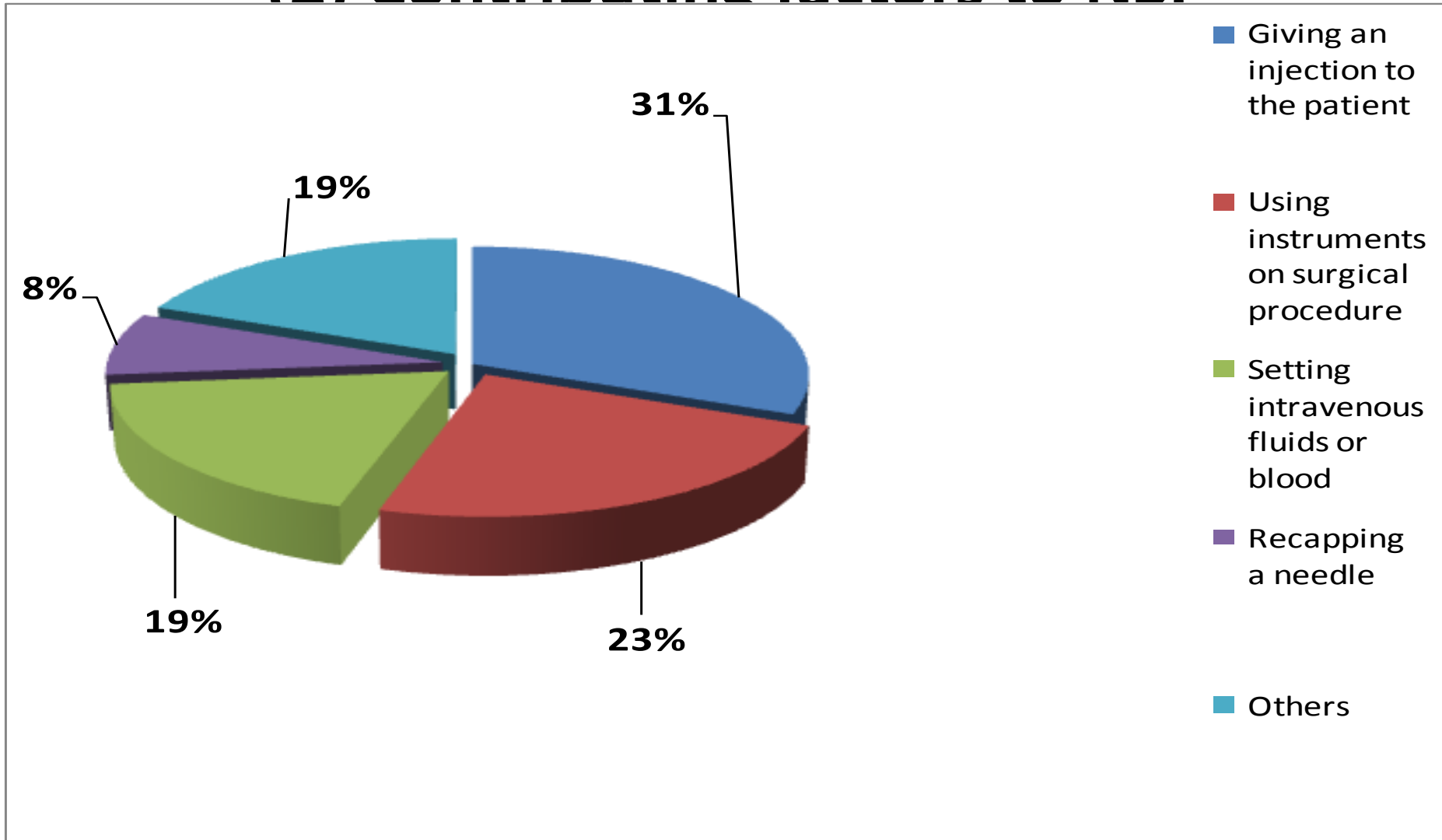# (2) Contributing factors to NSI

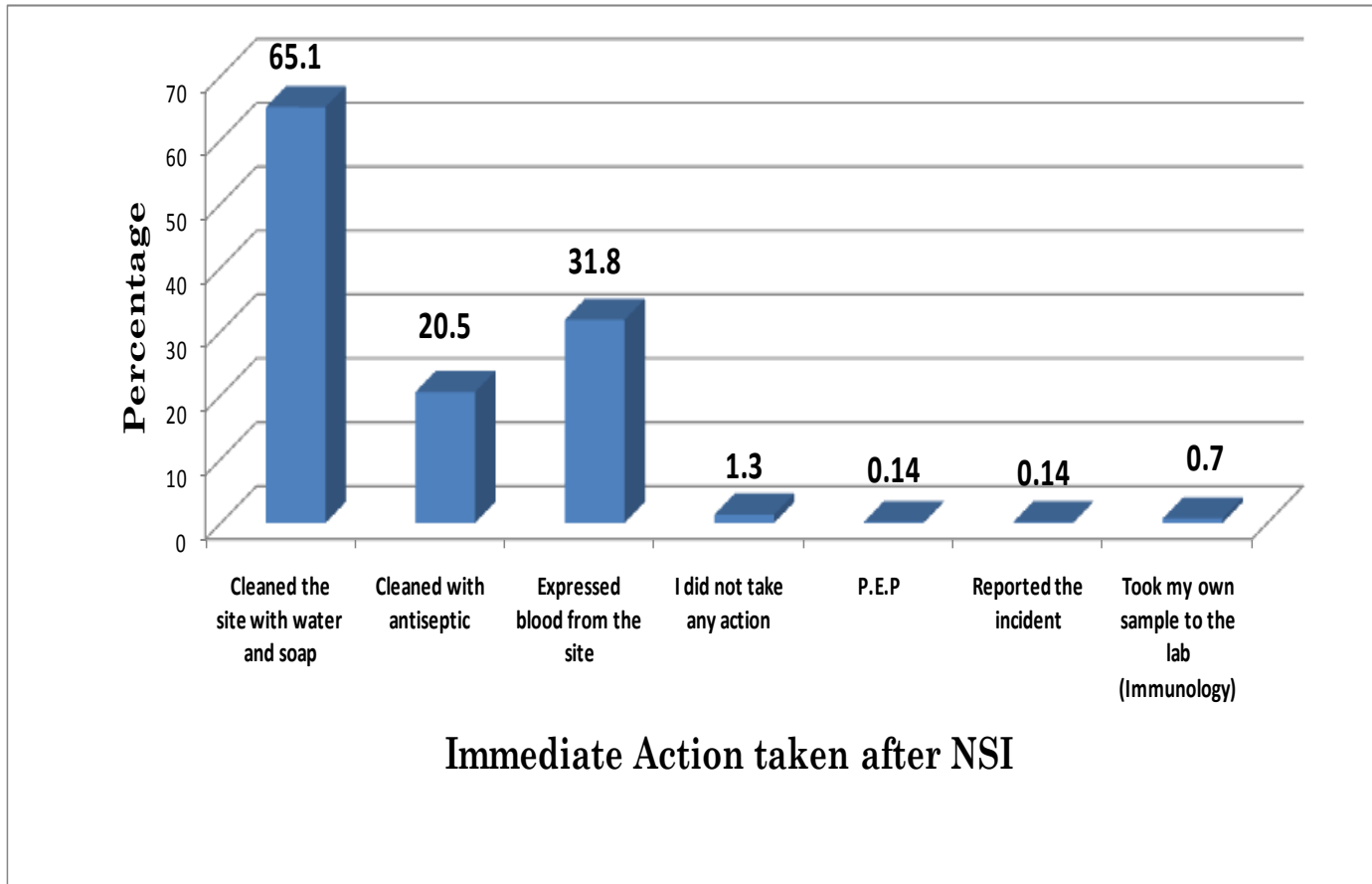Figure 8: Activity at time of NSI

Objective 3
(1) Response to NSI

Figure 9: Immediate action taken after NSI
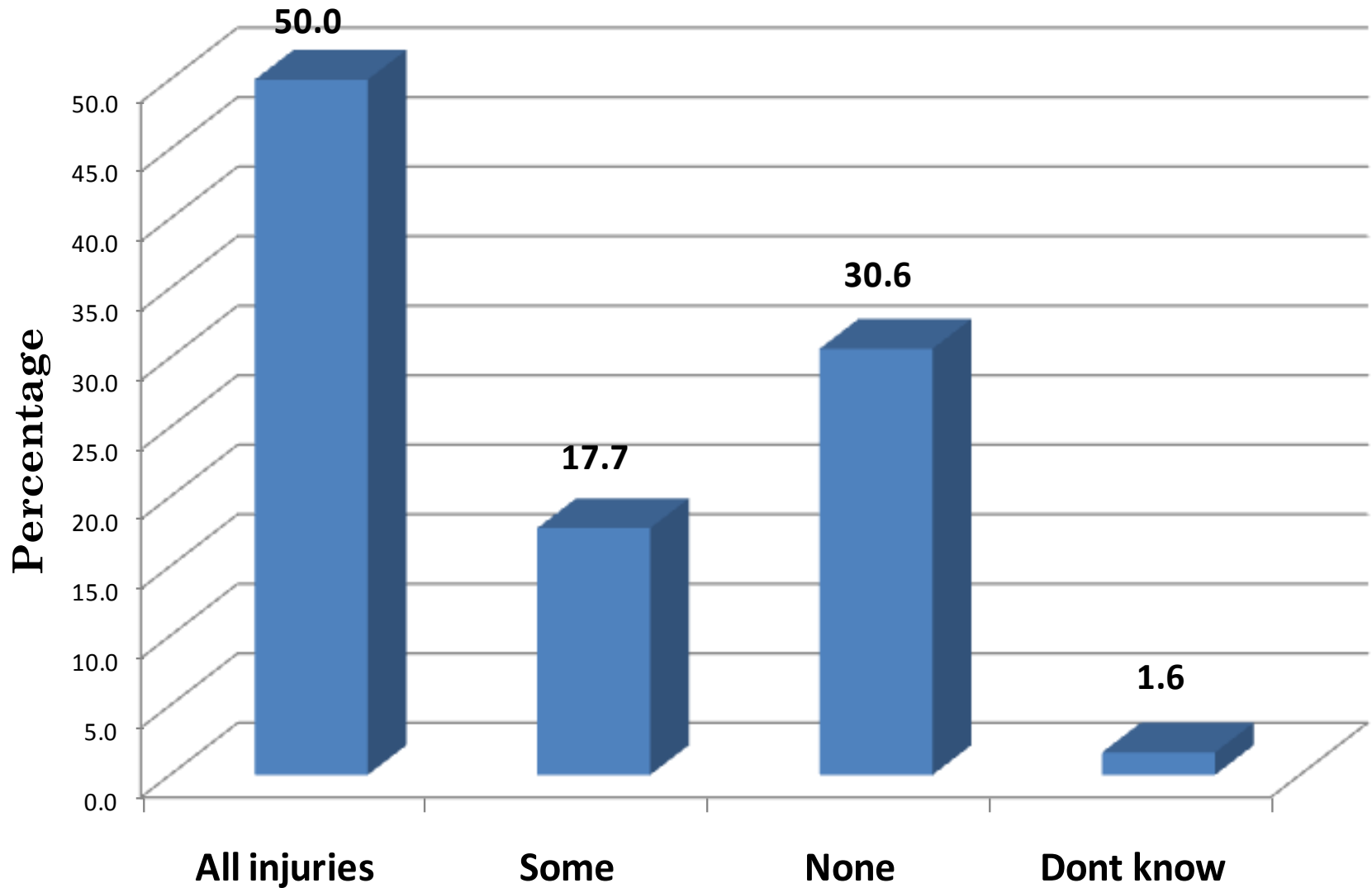
Objective 3
(2) Response to NSI

Figure 10: Reported NSI
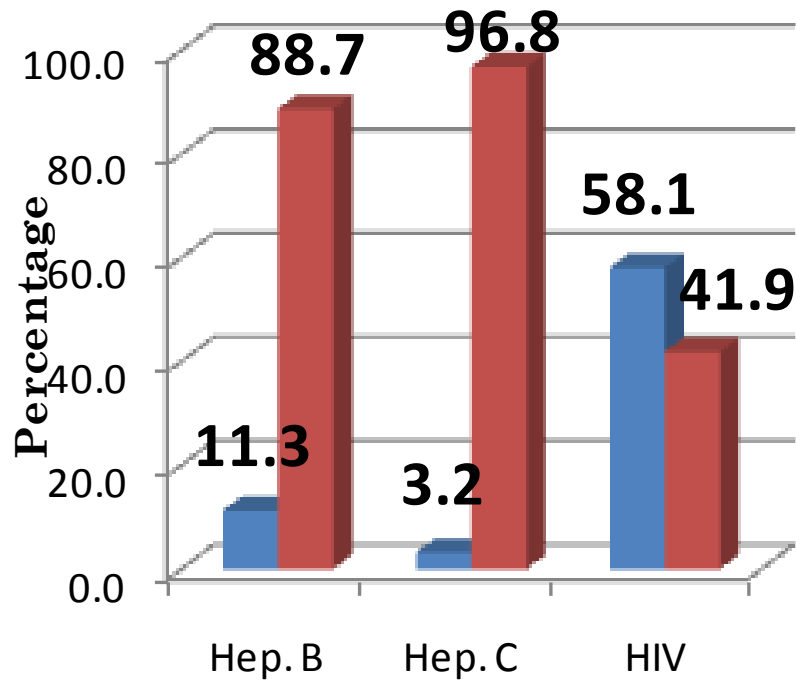
OBJECTIVE 3
(3) Response to NSI
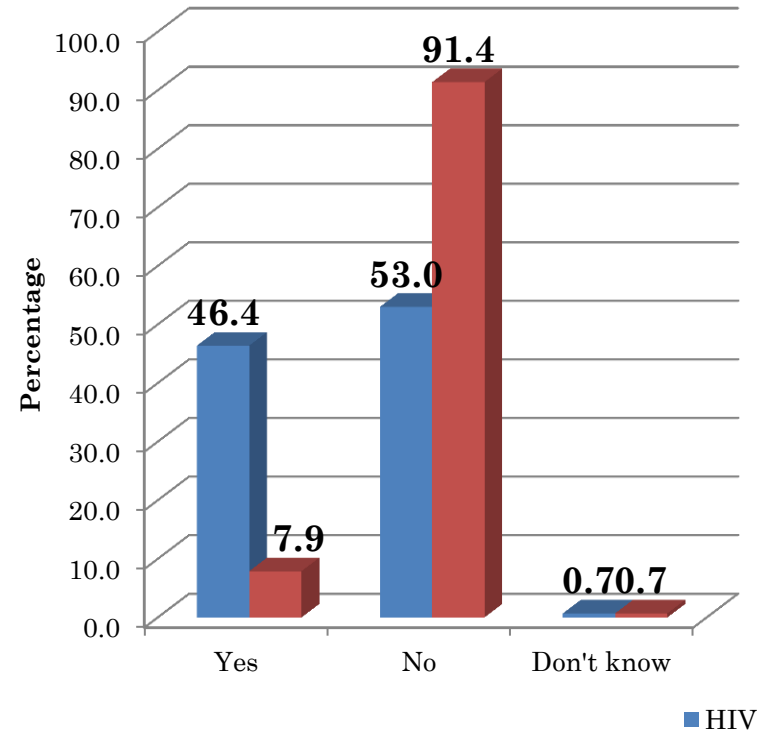
Figure 11: Screening

Figure 12: Post exposure prophylaxis
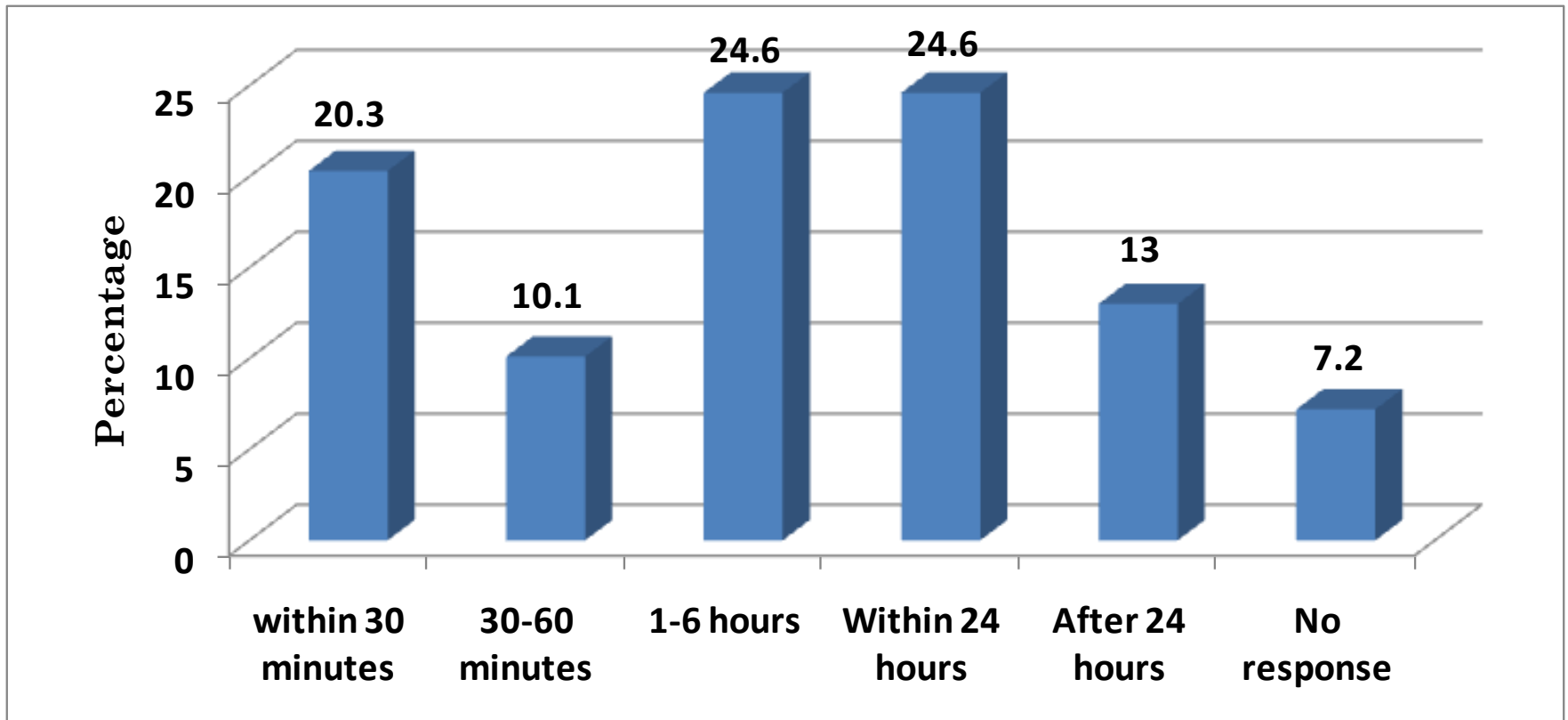
Objective 3
(4) Response to NSI

Figure 12: Duration between NSI and HIV screening

Discussion 1

- NSI prevalence was 46/100 HCW, while Incidence was 22 out of 100 concurs with (Kaweti and Abegaz,2015) prevalence of percutaneous injuries HCW in Ethiopia, was (46%)

- Majority of HCW in A&E (76.9%) had NSI contrary to a study by Mbaisi *et.al* NKR PGH majority where majority were in obstetrics (22%)

- Department and NSI were not statistically associated, χ^2 = 17.143, df = 10, p = .071

Discussion 2

- Recapping was done by (31.9%) while (8%) had NSI in the process, (NASCOP, 2007) reported that (46%) NSI are due to recapping, which is higher than this study

- This study found that (30.6%) HCW did not report NSI, differing with (Prakash, 2012) who reported that over (50%) NSI were not reported

- Majority HCW (96.8%) did not take PEP, differing with (Makhoha, 2012) at MTRH AGUH where (31%) HCW did not take PEP

Conclusion

- Prevalence of among HCW at KNH NSI was found to be high (45.6%) while the incidence rate was (22%), 2 NSI/HCW/year

- Majority HCW (83.9%) got one NSI in the last one year

- HCW in A&E department had Majority (76.9%) NSI

- Administrations of injections was the major HCW activity (91.5%) in the process, majority of them (31.9%) got NSI

- Both Reporting and Uptake rate was low

- Recapping used sharps was done by (39.3%) HCW, in the process (8%) got NSI

- Only (30.6%) HCW reported NSI, (41.9%) did not screening for blood borne infections and (96.8%) did not take PEP

Recommendations for Further Research

- A research to establish barriers to reporting and screening of NSI among KNH HCW.

- Cohort study to determine the long term effects of NSI among KNH HCW

References

- 1. NASCOP. (2007). National Policy on Injection Safety and Health Care Waste Management. Kenya: Ministry of Health

- 2. Ministry of Health, Government of Kenya. (2013). Safe Phlebotomy Training Curriculum, Safe Phlebotomy training for health care workers in Kenya (p. 8). Nairobi: NASCOP.

- 3. Abdhalah K Ziraba, J. B.-K. (2010). Sero-prevalence and risk factors for hepatitis B virus infection among health care workers in a tertiary hospital in Uganda. BioMed Central Infectious Diseases , 10:191.

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Acknowledgement

- Kenyatta National Hospital Management for financial support

- Research and programs department for facilitating the entire research at KNH

- Infection prevention and control department for recommending the study

- Professionals health care workers for participating in the study

END