

**INFECTION PREVENTION PRACTICE AND ASSOCIATED  
FACTORS AMONG HEALTH PROFESSIONALS WORKING IN  
GOVERNMENTAL HEALTH CENTERS OF KEMBATA  
TEMBARO ZONE, SOUTH ETHIOPIA**



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## **Abstract**

**Background** Infection in healthcare settings is a problem for health services around the world and the main public health problem, which causes major health risks that lead to morbidity, mortality, and cost. Review of literature done shows that studies done in related topic are mainly in hospital settings, but health centers are different from hospitals in many regards. Finally, practice was assessed among health care workers, but service users witnessed it.

**Objective:** To assess infection prevention practice and associated factors among health professionals working in governmental health centers in Kembata Tembaro Zone, SNNP Regional state.

**Methods:** Institution based cross-sectional study was conducted from 23 March - 23 April 2020 in governmental health centers found in randomly selected districts and town administrations of Kembata Tembaro Zone. Out of 335 professionals found in the health centers, 329 health care professionals working in Governmental health centers were participated. In addition, out of 422 sampled study participants, 412 clients were interviewed to witness the practice of health care workers in the facilities. The data collection was employed using both methods. In the quantitative method, an interviewer-administered structured questionnaire and observation checklist was used. For the qualitative part, in-depth interview guide was used. Data entry was made using the Epidata 3.1 software. Then the data was exported to SPSS statistical package version 23 for further analysis. The multivariable logistic regression analysis was performed for those candidate variables. Observation data was analyzed descriptively and qualitative data was analyzed using thematic technique.

**Result** A total of 329 health professions were participated yielding the response rate of 98.2% in both structured questioner (285) and observation (44). The findings showed that, among 285 health professions, 158(55.4%) respondents were knowledgeable on infection prevention and 48.4% had good infection prevention practice. The overall reported hand hygiene practice was 59.8%. Report on injection and sharp segregation practice shows that 156(54.7%) health professions were using safety box for sharp waste segregation. Ever married(AOR=3.384, 95% CI [ 1.615-7.088]), service years[AOR=2 .179, 95%CI(1.142-4.158)], working hours[AOR=2.227, 95% CI(1.195-4.150)], Knowledge on infection prevention(AOR= 1.955, 95% CI [1.063-3.593]) and Attending training programs(AOR: 2.262, 95%CI: (1.008,5.078) were found to be significantly associated with infection prevention practice at P-value <0.05. From qualitative data, high professional's turnover, heavy patient load and perceived understaffing, frustration with follow up from health centers, and negligence of health professionals were classified as barriers. 51.9% of clients said providers wash their hands after touching their body.

**Conclusion** Infection prevention practice among the health professionals is low in sharp waste segregation and Personal protective equipment utilization. The study finding suggests health center need for improvement in the supply of materials for IP and Sharp Waste should be segregated and disposed per standard.

**Keywords:** infection prevention, health professionals, standard precaution, Kembata Tembaro

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# Table of content

<i>Abstract</i> .....	I
Acknowledgments.....	II
Table of content.....	III
List of tables.....	V
List of Figures.....	VI
List of abbreviations.....	VII
Chapter One: Introduction.....	1
1.1. Background.....	1
1.2. Statement of the problem.....	2
1.3 Significant of the study.....	4
Chapter Two: Literature Review.....	5
2.1. The magnitude of infection prevention practice.....	5
2.2. Factors associated with infection prevention practice.....	6
Chapter Three: Objectives.....	9
3.1. General objective.....	9
3.2. Specific objectives.....	9
Chapter Four: Methods and Materials.....	10
4.1. Study area and period.....	10
4.2. Study design.....	10
4.3. Populations.....	10
4.3.1. Source population.....	10
4.3.2. Study population.....	10
4.3.3 Inclusion and exclusion criteria.....	11
4.4. Sampling size and sampling technique.....	11
4.4.1. Sample size determination.....	11
4.4.2. Sampling technique.....	12
4.5. Data collection tools and procedures.....	16
4.5.1. Data collection instruments.....	16
4.5.2. Personnel.....	16
4.5.3. Data collection methods.....	17
4.6. Variables.....	17
4.6.1 Dependent variables.....	17
4.6.2 Independent variables.....	17
4.7 operational definitions.....	17
4.8. Data quality management.....	19

4.9 Data processing and analysis plan.....	19
4.10 Ethical consideration.....	20
5. RESULTS.....	21
5.1 Socio-demographic Characteristics.....	21
5.1.1 Socio demographic characteristics of professionals.....	21
5.1.2 Socio demographic characteristics of clients interviewed.....	22
5.2 Institution based variables.....	23
5.3 Knowledge of health care providers on infection prevention.....	24
5.4 Major Infection Prevention and Control Practices.....	25
5.4.1. Hand Hygiene Practices.....	25
5.4.2. Personal Protective Equipment use.....	27
5.4.3. Safe Injection Practice.....	28
5.4.4 Sharp waste segregation practice.....	29
5.5 Observation assessment result.....	30
5.5.1 Observation done by researchers.....	30
5.5.2 Client interview result.....	33
5.5.3 Major Themes emerged in qualitative in-depth interview.....	35
5.7 Infection prevention practice of health professionals.....	38
5.6. Predicators on the infection prevention practice.....	40
Chapter Six: - Discussion.....	43
Strength & Limitation of the study.....	46
Strength.....	46
Limitations.....	46
CHAPTER SEVEN:-CONCLUSIONS AND RECOMMENDATIONS.....	46
7.1. CONCLUSION.....	46
7.2 RECOMMENDATION.....	46
References.....	48
Annexes.....	52
Annex I: English version information sheet.....	52
Annex II: English Version Consent Form.....	53
Annex III Questionnaire.....	53
Annex VII guide for in-depth interview.....	62
Annex V Observation checklist.....	63
Annex VI: English Version Consent Form and Questionnaire for Clients.....	71
አባሪቁጥር VII የአማርኛ ቅጽ መረጃ.....	73

## List of tables

Table 1 Socio-demographic characteristics of the health professional respondents of the health centers in Kembata Tembaro zone, April 2020.....	21
Table 2 Socio-demographic characteristics of client respondents who visit health centers in Kembata Tembaro zone, SNNPR, Ethiopia, April 2020.....	22
Table 3 Distribution of Factors of Healthcare Providers about guideline and norms in Selected Health Facilities of Kembata Tembaro zone, SNNP Region, South Ethiopia, April 2020.....	23
Table 4 the Distribution of knowledge of Health Care Providers on Infection Prevention in Selected Health Facilities of Kembata Tembaro Zone, SNNPR Region, South Ethiopia July, 2020.....	24
Table 5 Hand hygiene practices of health professionals in public health centers, Kembata Tembaro zone, SNNPR, Ethiopia, April 2020.....	25
Table 6 Major reasons for poor hand hygiene of health professionals in public health centers, Kembata Tembaro zone, SNNPR, Ethiopia, April 2020.....	26
Table 7 Personal protective equipment utilization of health professionals in public health centers of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2020.....	27
Table 8 Major causes for sharp injuries among health professionals in public health centers of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2020.....	29
Table 9 Shows observed result of facility related variables of health centers in Kembata Tembaro zone , SNNPR, April 2020.....	30
Table 10 Hand hygiene and Personal protective equipment utilization of health professionals in public health centers of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2020.....	32
Table 11 Safe injection practice of health professionals in governmental health centers of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2020.....	33
Table 12 shows result of client respondents' response from health centers of Kembata Tembaro zone, SNNPR, Ethiopia, April 2020.....	33
Table 13 the major themes and sub themes emerged from in-depth interview responses of participants in health centers of Kembata Tembaro zone, April 2020.....	35
Table 14 Infection prevention practice of health professionals in public health centers of Kembata Tembaro Zone, South Ethiopia, April 2020 (n = 285).....	38
Table 15 Final predictors of infection prevention practice among health professionals in public health centers of Kembata Tembaro, SNNPR, South Ethiopia, April 2020.....	40

## List of Figures

Figure 1 Conceptual framework developed after reviewing different literatures(37,38,25,39) on infection prevention practice and factors associated, April 2020.....	8
Figure 2 Diagrammatic presentation of Number of health professionals found in selected governmental health centers in Kembata Tembaro zone, April 2020.....	14
Figure 3 Diagrammatic presentation of sampling procedures and proportional allocation of the number of client required for selected governmental health centers in Kembata Tembaro zone, April 2020.....	15
Figure 4 Safe injection practice of health professionals in public hospitals of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2019.....	28
Figure 5 Sharps collection and disposal materials used among health professionals in public health centers of Kembata Tembaro Zone SNNP Regional State, South Ethiopia, April 2020 (n=285).....	29
Figure 6 Clients response about where providers put syringe with needle in health centers of Kembata Tembaro zone, SNNPR, Ethiopia, April 2020.....	35
Figure 7 Health professionals infection prevention practice in public health centers of Kembata Tembaro Zone, southern Ethiopia, April 2020.....	39



## **List of abbreviations**

AD	-	Auto disable (syringe)
AIDS	-	Acquired Immune Deficiency Syndrome
AOR	-	Adjusted Odds Ratio
ARHB	-	Amhara Regional Health Bureau
CASH	-	Clean and Safe Health Facilities
CDC	-	Center for Disease Control and Prevention
COR	-	Crude Odds Ratio
HAPCO	-	HIV/AIDS Prevention and Control Organization
HBV	-	Hepatitis B Virus
HCAIs	-	Health Care-Associated Infections
HCV	-	Hepatitis C Virus
HCWs	-	Health Care Workers
HH	-	Hand Hygiene
HICPAC	-	Hospital Infection Control Practices Advisory Committee
HIV	-	Human Immunodeficiency Virus
HP	-	Health Profession
IP	-	Infection Prevention
IPC	-	Infection Prevention and Control
IPPS	-	Infection Prevention and Patient Safety
MCH	-	Maternal and Child Health
NGOs	-	Non Governmental Organizations
PEP	-	Post Exposure Prophylaxis
PPE	-	Personal Protective Equipment
SPSS	-	Statistical Package for Social Science
UP	-	Universal Precautions
WHO	-	World Health Organization

## **Chapter One: Introduction**

### **1.1. Background**

Infection Prevention and Control (IPC) is an important part of an effective risk management program to provide an appropriate quality and safe care for patients and the occupational health of staff. In addition to preventing avoidable infection, there is a legal obligation to take appropriate steps to protect patients and staff from harm. Infection prevention and control in a healthcare setting requires a comprehensive and coordinated program designed to prevent and control healthcare-associated infections (HCAIs) (1).

Placing barriers between a susceptible host (person lacking effective natural or acquired protection) and the microorganisms is said to be infection prevention. Protective barriers are physical, mechanical or chemical processes that help prevent the spread of infectious microorganisms from Person to person (patient, healthcare client or health worker); and/or Equipment, instruments and environmental surfaces to people(2).

Infection prevention and control in a healthcare setting requires a comprehensive and coordinated program designed to prevent and control HCAIs(3). HCAIs are infections that were not present or incubating at the time of admission and are received by the patient during care in a hospital or any other health care facility(4). Most of them are preventable through simple and effective strategies(3)

Hospital-acquired infections(HAIs) are an important focus of infection prevention in all countries, but in developing countries, they are a major cause of preventable disease and death(5).

Many different bacteria, viruses, fungi, and parasites may cause HAIs. Infections may be caused by a microorganism acquired from another person in the hospital or any other health care facility (cross-infection) or may be caused by the patient's flora (endogenous infection). Some organisms may be acquired from an inanimate object or substances recently contaminated from another human source (environmental infection)(2).

Major factors influencing the development of HAIs are microbial agents, patient susceptibility, environmental factors, and bacterial resistance. In developing countries, very limited number of studies assessed HCAI risk factors by multivariable analysis. The most frequently identified were prolonged length of stay, surgery, intravascular and urinary catheters, and sedative medication(6).

Health care facilities must ensure that the safety of employees, patients and visitors is upheld by preventing the acquisition and transmission of infections. The prevalence of infectious diseases such as tuberculosis, human immunodeficiency virus (HIV), hepatitis B (HBV) and Hepatitis C (HCV) and other infectious diseases in Ethiopia initiates the urgency for health care settings to implement a comprehensive infection prevention program that includes effective management, staff engagement and involvement, provision of necessary equipments and supplies, monitoring and surveillance, and training. Successful implementation of an infection prevention program requires an operational infection prevention action plan to be implemented at the health care facility level (6, 9, 10).

Even though HCAs are preventable through simple and effective strategies, resource limitation makes it difficult to control the infection rates and exposure of patients and health service providers to HCAs. Accordingly, materials, human resources, training, policies, and guidelines are needed to promote appropriate infection prevention and patient safety practices(7).

In Ethiopia, where the health care services are largely covered by mid-level health professionals particularly in governmental health centers, assessing the necessary practices on IP and associated factors in health centers as early as possible can give ways to manage the limited resource available in the facilities.

## **1.2. Statement of the problem**

Infection in healthcare settings including health centers is a problem for health services around the world and the main public health problem which is getting considerable attention and the problem related to this is very serious, which causes major health risks that lead to morbidity, mortality, and cost(8).

The greatest contributor to cost was increased length of stay for infected patients. Studies showed that the overall increase in the duration of hospitalization for patients with surgical wound infections was 8.2 days, ranging from 3 days for gynecology to 9.9 for general surgery and 19.8 for orthopedic surgery. Extended stay increases not only direct costs to patients or payers but also indirect costs due to lost job. The increased use of drugs, the need for isolation, and the use of additional laboratory and other diagnostic studies also contribute to costs(9)

The possibility of transmitting infections in the health care setting is higher if essential IPC practices are not accomplished and the underlined factors that increase HCAs are low knowledge and practices towards standard precautions. Health care personnel, including support staff (e.g., housekeeping, laundry staff, and maintenance), who work in health care

settings are at risk of exposure to serious, potentially life-threatening infections such as HIV, HBV, and HCV (2).

Hospital-acquired infections (HAIs) happen universally and affect both developed and developing countries. Infections acquired in health care settings are among the main causes of death and increased morbidity among hospitalized patients. They are a considerable burden for both patient and public health. According to WHO an average of 8.7% of hospital patients had HAIs. At any time, over 1.4 million people worldwide suffer from infectious complications acquired in hospital majority of this is reported from developing regions(2)

Within the member states of the European Union, an estimated 4.2 million HAIs occur every year. The Centers for Disease Control and Prevention estimate 1.7 million HAIs occur in the United States every year. In Canada each year, 220,000 patients acquire HAIs 20% to 30% of all HAIs are believed to be preventable(10).The burden of HCAIs in developing countries is high. The prevalence of HCAIs is much higher than the proportions reported from Europe and the USA. The overall HCAIs density in adult intensive-care units was 47.9 per 1000 patient-days(11).

In the resource-constrained setting like many health care facilities in Ethiopia, it is difficult to control the infection rates of patients acquiring health care-associated infection and exposure of the health professionals to such infections. Materials, human power, training, policies, and guidelines are needed to promote infection prevention practices. People receiving health and medical care, whether in health care facilities or clinics are at risk of becoming infected unless precautions are taken to prevent infection(11).

Severe financial constrains, inadequate staffing, overcrowding in Hospitals, inadequate medical and medical resources and lack of persuasion of the cost-effectiveness of infection control create difficulties for the effective implementation of the basic infection control program on health facilities(12)

In keeping with one of the main goals, which is to improve and maintain the quality of health care delivered to the population the health sector of Ethiopia has introduced sector-wide clean and safe health care facilities (CASH) initiative by Accreditation, Licensing, Monitoring, and Capacity Building. It is also part of the Ministry's strategy for providing safe, effective, and efficient quality health services. Since it is well recognized that poor infection prevention and control practices result in patient dissatisfaction, increases patient stay and overall costs including litigation; planners, evaluators, managers and health professionals should not ignore this life-threatening situation(13)

According to the assessment of infection prevention and patient safety (IPPS) commodities in Ethiopia, there is an inconsistent supply of vital IPPS commodities in health facilities in Ethiopia. This leads to a shortage and on the other side, it can lead to commodity expiration and wastage. Stock-outs for vital IPPS commodities in health care facilities in Ethiopia from July 2010 to June 2011 occurred for an average duration of 40.2 days (3) .

Despite health workers and communities who are at higher risk of infections, limited scientific studies were documented on assessing the status of standard precaution related practices for infection prevention of health professionals and associated factors in the study health facilities or governmental health centers that are settings with limited resources(15). Besides, studies conducted at hospital setting show that IP practice of health care workers was poor in near to half percent, but why poor was not well addressed and the health care workers practice shouldn't be witnessed by service users.

### **1.3 Significant of the study**

The finding will help leaders and managers of Health Centers' to intervene identified factors thereby increase infection prevention practice of their employees, which in turn will let them delivery efficient and effective service for their clients.

It will insight Health policy and strategy makers to design appropriate policy and strategy in order to have well equipped health professionals with good infection prevention practices for the health system.

Furthermore, the finding will contribute its part in filling literature gap on subject matter and serve as a reference for future researchers.

## **Chapter Two: Literature Review**

Infection prevention and control is a central component of safe and strong-quality service delivery at the facility level(16). With insufficient infection management practice, the risk of infection in health care facilities is a substantial result of exposure to blood, bodily fluids or contaminated products (18,19). To this end, develop an infection while in a healthcare setting challenges the basic idea that healthcare is meant to make people well(19). Lack of compliance with infection prevention and control measures has several consequences(21,22).

### **2.1. The magnitude of infection prevention practice**

Despite the simplicity and clarity of precautions; understanding how poor practice could fuel up the transmission, the practice among health professionals is still low. This problem is exacerbated in resource-limited settings, like Africa (26,27). For instance, Study conducted on hand hygiene practice of health professionals at Ghana Korle BU teaching Hospital indicate that the practice was 15% among doctors and 16.2% among nurses and the basic facilities were limited in all service provision centers (25). Also, research conducted at Trinidad Tobago regional Hospitals to assess attitude, knowledge, and practice of health professionals revealed that only 44% of participants had good practice to prevent Hospital-acquired infections(26)

Alike other African countries, HCAI in Ethiopia is a major public health problem with the magnitude is not known or not well studied. Besides, adherence to the precautions of infection prevention practices among HCWs is questionable and not addressed well (19,23).

Conversely, the Federal Ministry of Health (FMoH) of Ethiopia undertook a multitude of initiatives to protect patients and HCWs by setting standards and guidelines (18,19,28).

A study done in Addis Ababa on knowledge and practice of health professionals towards tuberculosis infection control indicate that 64% of health professionals follow standard guidelines, 50.2% use respiratory personal protective while only 21.3% of respondent had a surgical mask for tuberculosis (28). Besides this, Study done at Debra Markos shows that 57.3% of respondents had safe practice and 42.7% of them had unsafe practice during the assessment 44% of respondents wash hand before patient care and the overall practice of PPE was 28%(4)

## **2.2. Factors associated with infection prevention practice**

WHO suggests several basics of infection prevention and control practices. However, only a few of the national guidelines and directives provide a legally necessary framework for the IPC infrastructure and training needs to be implemented in healthcare institutions of their respective countries(10).

Studies conducted in India to assess the knowledge of infection control practice among intensive care unit nurses show that the overall awareness was good in 37% of the nurses, average in 40% and below average in 18%. Only 5% of nurses had excellent knowledge. More experienced nurses had good Knowledge of infection control practices. It also revealed that knowledge of nurses towards infection prevention practice was associated with the experience they have nurses who have >8 years of experience had good knowledge of infection control practice only 6% of nurses who have, 5 years of experience have excellent knowledge(29).

The study from Nigeria state that there was no statistically significant difference in the practice of standard precaution among the male providers compared to females, age of health workers, years of experience on the job, and marital status. Awareness of National policy on injection safety was not statistically significantly associated with the practice of universal precaution among healthcare providers. Similarly, recent training in infection control practices was not significantly associated with the practice of universal precaution(30).

Study in southeast of Ethiopia show that sex, profession, service year, availability of water for hand washing in the healthcare worker's ward or department, the presence of an infection prevention committee, availability of infection prevention guidelines, and ever having taken training on infection prevention were factors which were significantly associated with healthcare workers' infection prevention practice. Those healthcare workers who have served for >10 years were about 3.41 times more likely knowledgeable about infection prevention than those whose service years <5 years (31). Besides, research conducted at Bahir Dar shows that 54.2% of respondents had safe practice and 45.8% of them had unsafe practice during the assessment. Only 8.8% of respondents practice hand hygiene according to recommendations and the overall practice of PPE was 35.6%(32).

Study in Addis Ababa, the capital of Ethiopia shows that health professionals' infection prevention practice was significantly associated with experience, Training, Educational level and knowledge of health professionals (35).

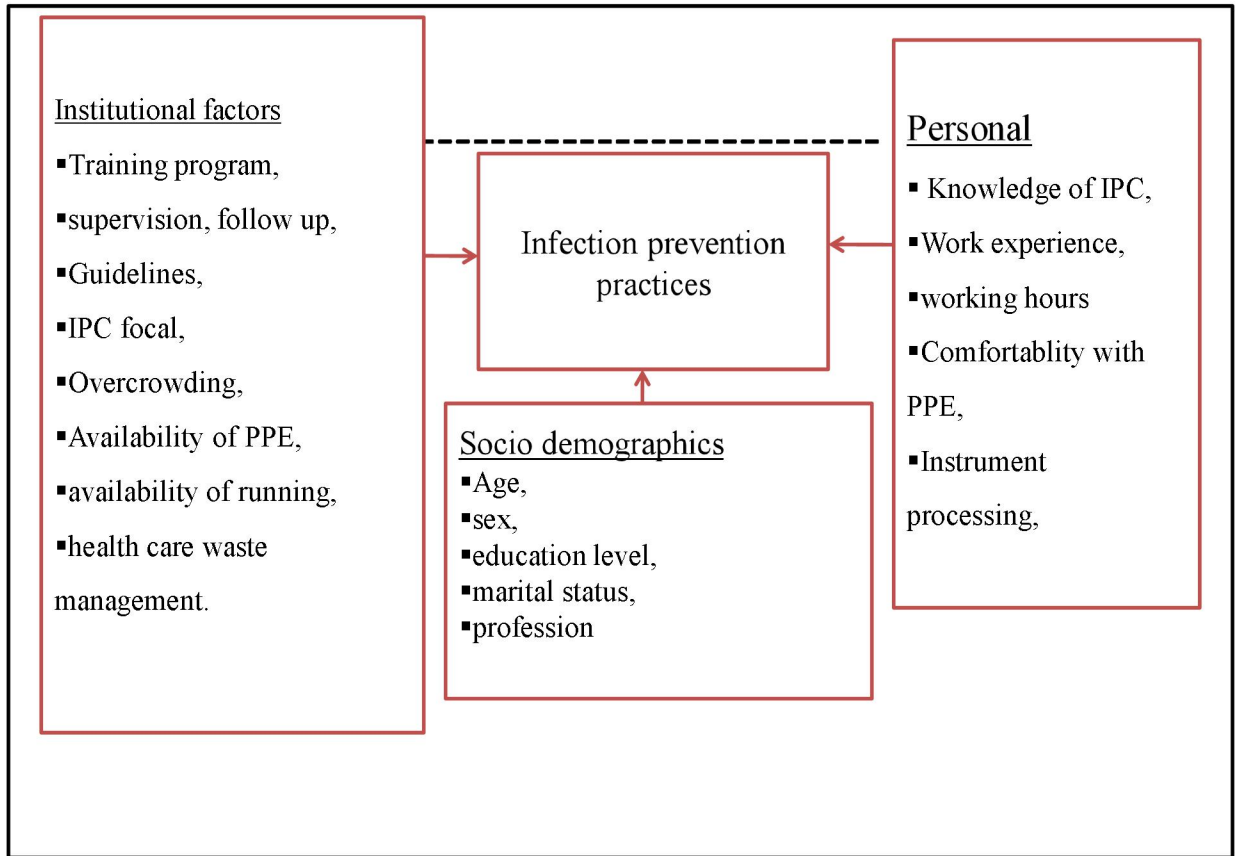
Studies in Bahirdar city administration shows that there is no significant difference in practicing infection prevention among different level health professionals (32). Other analysis of studies from Amhara region showed that nurses were 2.09 times more likely to practice infection control practice compared to physicians with The result showed that other professions like the health officer and Health assistants were 69% less likely to practice infection control compared to physicians(34)

The study at Mizan Aman General Hospital shows that Among 135 health professionals 89 (65.6%) of them had ever participated in any training program about infection prevention/ standard precaution. All of the respondents know that contaminated needle and sharp materials could transmit disease-causing agents. Some of the mentioned diseases were HIV (98.5%), hepatitis (HBV) (84.4%), hepatitis (HCV) (80.0%), tetanus (*Clostridium tetani*) (57.8%), malaria (*plasmodium*) (17.0%), and tuberculosis (*M.tuberculosis*) (2.2%)(35)

Compliance with infection prevention measures is the only way to reduce and protect HCWs, patients and the community from the occurrence of HCAs and unnecessary injuries (18,19). On top of this, various multifaceted factors extremely play a great role to achieve the goal of infection prevention, like availability of personal protective materials, adequate knowledge towards infection prevention, training, human power, policy and guidelines and essential environmental health conditions. But in many healthcare settings, resources are constrained, control of the risk of acquiring HCAs is a bit challenging, HCWs lack adequate knowledge and motivation to implement the recommended infection prevention practice. (17,19, 20,22,25).

Hence, HCWs must know and use the recommended infection prevention measures accordingly (18,25). Aware of this, no matter what HCAs can effectively be prevented by applying infection prevention principles, without adequately giving the due attention and assessing the current infection prevention practice of HCWs, it is impossible to enhance infection prevention practice of HCWs, improve quality of service and thereby reduce HCAs. In addition, there are limited studies in Ethiopia that focused on infection prevention practices of HCWs especially in governmental health centers. Thus, assessing infection prevention practices and identifying associated factors with infection prevention practices among HCWs is crucial to develop strategies for successful infection prevention programs and interventions in Ethiopia.





**Figure 1 Conceptual framework developed after reviewing different literatures(37,38,25,39) on infection prevention practice and factors associated, April 2020.**

## **Chapter Three: Objectives**

### **3.1. General objective**

- To assess infection prevention practice and associated factors among health professionals in public health centers of Kembata Tembaro Zone, SNNP Regional state, south Ethiopia, 2020

### **3.2. Specific objectives**

- To assess infection prevention practices among health professionals in governmental health centers of Kembata Tembaro zone, 2020.
- To assess infection prevention practices witness of clients in the facilities of Kembata Tembaro zone, 2020
- To identify factors associated with infection prevention practices by health professionals in governmental health centers of Kembata Tembaro zone, 2020.

## **Chapter Four: Methods and Materials**

### **4.1. Study area and period**

The data were collected in Kembata Tembaro Zone public health centers, SNNP Regional state from March 22-April 21, 2020.

Kembata Tembaro Zone was found at a distance of 315 km from Addis Ababa, capital of Ethiopia, and 105 km from Hawassa, capital of SNNP regional state. It has a total population of 920,012 who get health care services from one General hospital, three primary hospitals, 32 health centers, 160 health posts and private health facilities (three medium clinics, one primary clinic, three non-governmental health centers, and eight pharmacies) . It contains eight districts and three town administrations with a total of 1010 health professionals of which 612 belong to 32 public health centers (40).

### **4.2. Study design**

The facility-based cross-sectional study design was employed, in which the qualitative methods was used to supplement findings from the quantitative study.

### **4.3. Populations**

#### **4.3.1. Source population**

##### **4.3.1.1 Source population for professionals**

The source population was all health professionals who are currently working in governmental health centers, Kembata Tembaro Zone, SNNP Regional State

##### **4.3.1.2 Source population for clients**

The source population was all clients who visit governmental health centers for health services , Kembata Tembaro zone, SNNP Regional state

#### **4.3.2. Study population**

##### **4.3.2.1 Study population for professionals**

The study population was all health workers who are currently working at all governmental health centers found in randomly selected districts and town administrations, Kembata Tembaro Zone, SNNP Regional State.

##### **4.3.2.2 Study Population for clients**

All selected clients who visit governmental health centers for services in selected districts and Town Administrations.

**For In-depth interview (IDI):** purposively selected participants who were heads of cleaning and laundry unit, and health facility directors

### **4.3.3 Inclusion and exclusion criteria**

#### Inclusion criteria

For the quantitative aspect, all health care professionals (Doctors, Health officers, nurses, laboratory personnel, and midwives), who have direct contact with patients, body fluid, specimen and medical devices such as sharps including syringes, scalpels, and lancet in the study area was included. For client interview, those clients with age group >18 years were included. For the qualitative aspect (IDI), purposefully selected health workers who were heads of cleaning and laundry unit, and for observation health professionals who were in procedure rooms during data collection was study populations.

#### Exclusion criteria

- Health professionals who were not present due to different reasons (annual leave, sick leave, and training) during the data collection period.
- For client interview those clients, clients who were critically ill were not included in this study

## **4.4. Sampling size and sampling technique**

### **4.4.1. Sample size determination**

#### **4.4.1.1 Sample size determination for professionals**

The total number of health professionals in the selected districts and town administration was 335 and all health professionals in the study area were included in order to maximize the sample size that was the requirement for the selected analysis technique and for the design effect of cluster sampling.

#### **4.4.1.2 Sample size determination for clients**

For client witness of infection prevention practice  $(Z_{1-\alpha/2})^2 =$  the reliability coefficient 95% (i.e. 1.96) by taking p-value of 0.5 which gives maximum sample size. So that, the findings would be more valid. Absolute precision (d) assumed to be 5%.

$$n = \frac{(Z_{1-\frac{\alpha}{2}})^2 * p(1-p)}{d^2} \quad \text{Where } n = \text{is sample size}$$

$$\frac{1.96^2 \times 0.5 (1 - 0.5)}{0.05^2} = \frac{3.8416 \times 0.25}{0.0025} = 384$$

Since, the total number of clients that visit facilities per month in the study area was greater than 10,000, adding non-response rate 10% = 38 the final sample size is 422.

For Observation, 10% of professional respondents that were 44 which work in procedure rooms for the selected procedures were taken.

For qualitative aspect, the purposive selection was conducted by considering their role in infection prevention and control program in respective health centers, and one in-depth interview (IDI) was conducted per health center. Observation was conducted at all selected health centers. For observation emergency, outpatient, laboratory, MCH, injection and dressing unit was included meanwhile waste segregation at the site of work in the study health centers was the focus of observation. The procedures selected for observation were hand hygiene, personal protective equipment utilization, re-usable equipment processing, and safe injection administration. A total of 132 procedures (33 procedures for each) were observed in the health centers.

#### **4.4.2. Sampling technique**

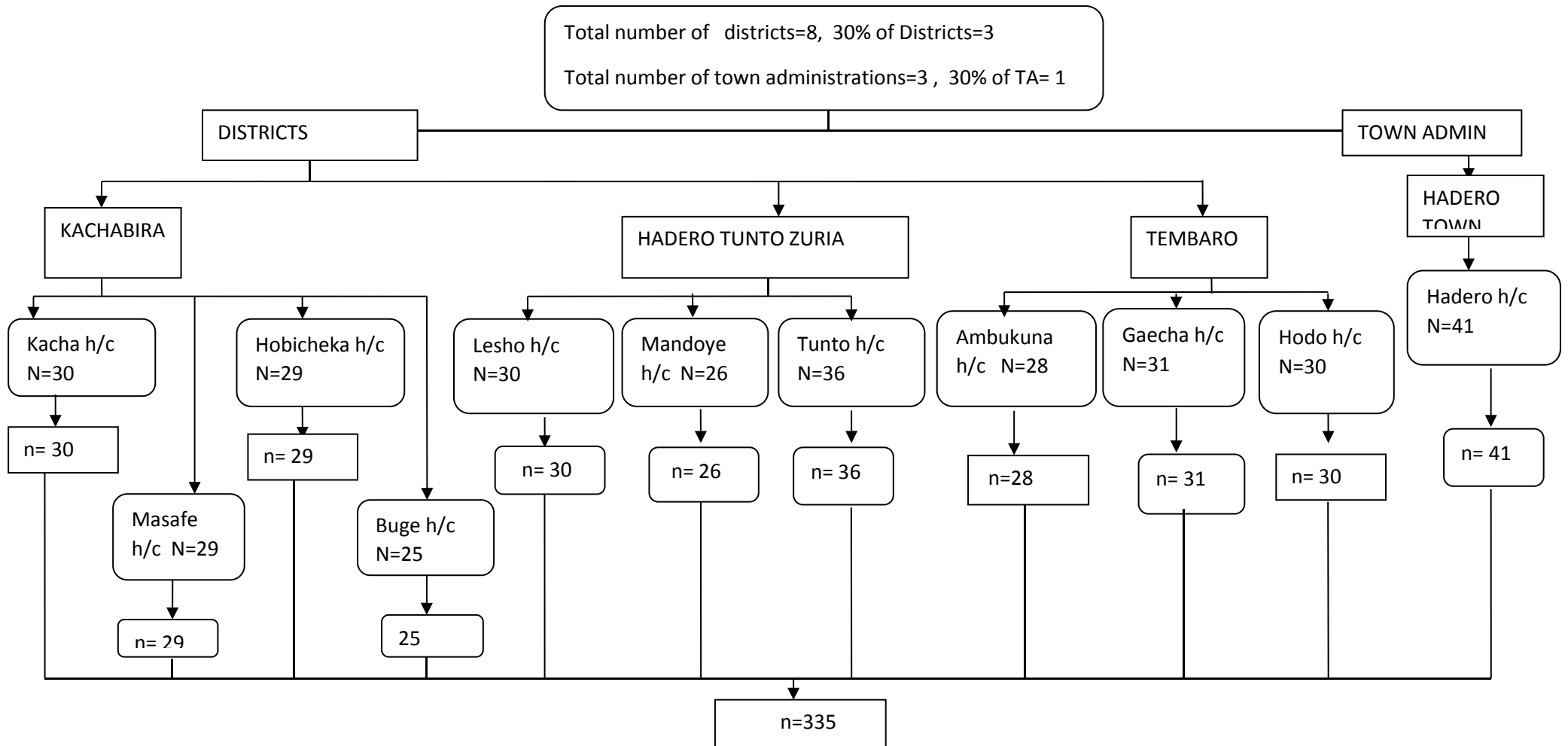
Since 30-50% of the populations are its representatives(40), out of 8 districts and 3 Town administrations found in the zone (total = 11), 30% of each of them (3 districts and 1 town administration) were randomly selected using lottery methods(41). Accordingly, Kachabira district, Hadero Tunto district, Tembaro district, and Hadero Town administration were selected. Then after, all governmental health centers (total=11) found in these districts and town administration were included in this study. Study participants were all health professionals found in the respective health center.

For client witness of infection prevention practice, clients who visit during data collection period were selected using systematic random sampling technique and exit interview conducted until the required sample reached. The total sample size (422) was proportionally allocated by

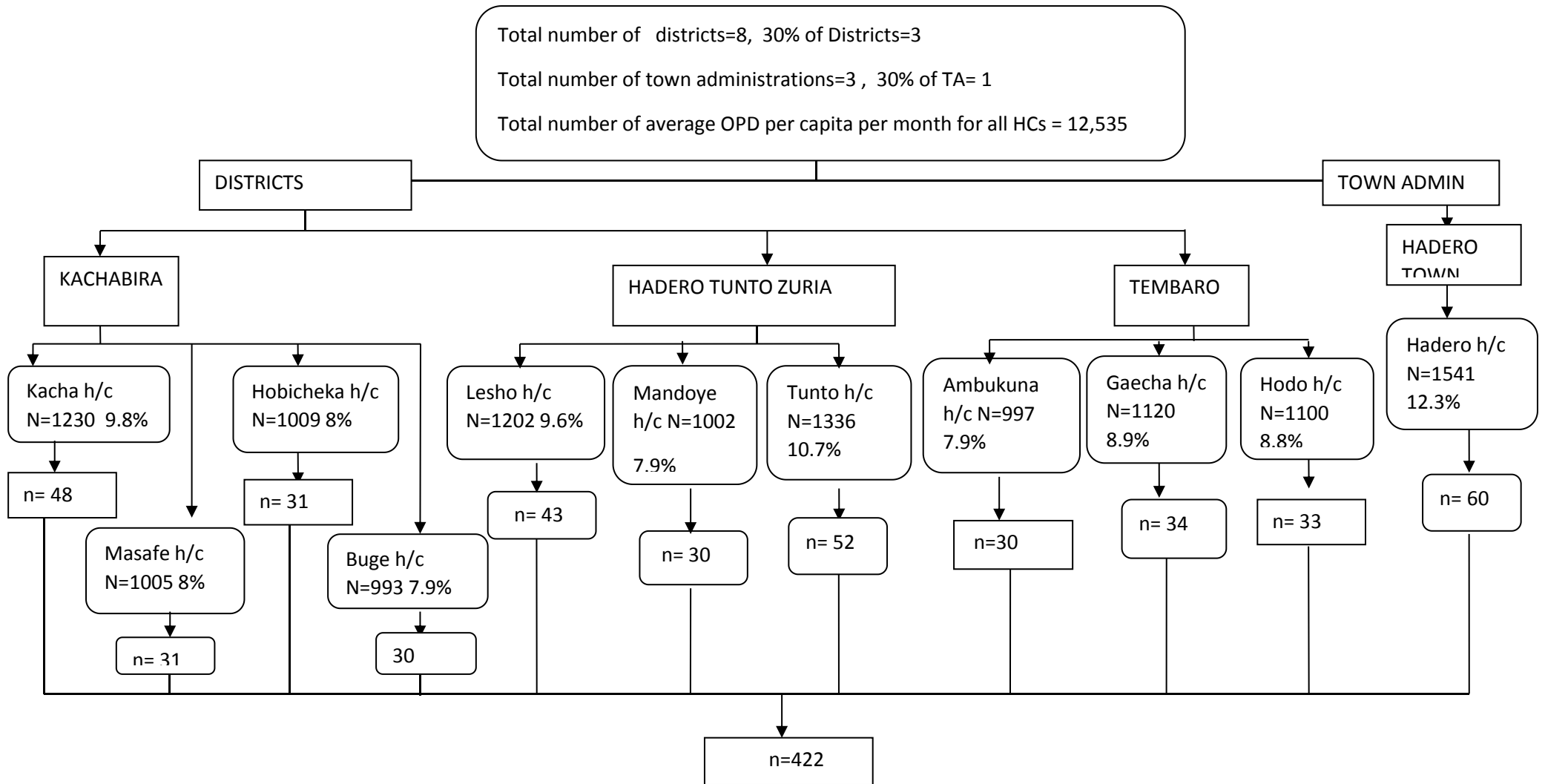
using average outpatient department (OPD) per capita per month of first quarter of this year for each health center.

For observation part, the researcher was considered different days like Holy day, weekends to observe the procedures during one-month data collection time. Four professionals from each unit (delivery, outpatient, laboratory, and emergency and injection rooms) was randomly selected by using lottery method and observed in each health center. In which those selected participants were not included in structured interview. Four sessions were observed for each participant to minimize hawthorn effect.

For the qualitative aspect, one IDI per health center was conducted and professionals were selected purposively from respective health centers. One in-depth interview (IDI) was conducted per health center for an average of 30-40 minutes.



**Figure 2 Diagrammatic presentation of Number of health professionals found in selected governmental health centers in Kembata Tembaro zone, April 2020**



**Figure 3 Diagrammatic presentation of sampling procedures and proportional allocation of the number of client required for selected governmental health centers in Kembata Tembaro zone, April 2020**



## **4.5. Data collection tools and procedures**

### **4.5.1. Data collection instruments**

The data collection procedure was employed using quantitative and qualitative methods. In the quantitative method, interviewer-administered questionnaires which was adapted from a study done in Bahir Dar City Administration in 2014 on related topic and another literature was used to collect data from the health professionals of the facilities (42).

The questionnaire was divided into four parts. Part I asks about socio-demographic of the respondents, Part II guideline, and norms, Part III knowledge of the respondent and Part IV practices to infection prevention of health professionals in the study health facilities. In addition, observation was done by using checklist to assess activities of the health centers on infection prevention and procedures during data collection.

Before undertaking the data collection, instrument was pre-tested at Durame health center (other than the sampled) on 5% of the sample size was checked for clarity, understandability, and to track sensitive issues and necessary modification was carried out accordingly.. Validity and reliability of the questionnaire was checked and Cronbach's Alpha. The Cronbach's Alpha was greater than 0.7, which was 0.71.

There was also separate structured interviewer administered questioner for interviewing clients to reflect their witness on infection prevention practice of professionals in respective health center that contains two parts. The first part is socio-demographic status of clients and the second part is about clients' witness questions about infection prevention practice of professionals in the respective health center.

The qualitative method involves IDI to explore infection prevention practice in selected areas. The purpose of employing IDI was to get detail information, which might not be found during quantitative data collection. Participants were health center directors and cleaning office heads who were directly or indirectly involved in the service provision process that were willing to share their ideas and knowledge and the heads of cleaning and laundry unit. IDI guide was used to explore the reason behind infection prevention practice during data collection. The response of IDI participants was recorded by smart phone and notes were taken during interview. Both interviewer administered structured questioner and observation checklist were adapted from the study conducted at Amhara regional state (42).

### **4.5.2. Personnel**

Five Health officers and three BSc Nurses collected the data from health centers and three supervisors, a master's in public health holders, were selected. All the data collectors and

supervisors were selected from neighboring districts. Before proceeding into data collection, data collectors attended 2-day training about the general aim of the study, and their role.

#### **4.5.3. Data collection methods**

For quantitative data, an Interviewer administered structured questionnaire was used. It takes about 30-50 minutes to complete a single questionnaire and the data collectors were allowed to consider free time to interview respondents by communicating with department coordinators. For client respondents, interviewer administered structured questionnaire was also used. For observation, checklists were used in which selected procedures and the facilities were observed. The facility observation checklist was used for direct observation of facility related factors regarding infection prevention practice. Lastly, For the qualitative aspect (IDI), Interview guide was used which would help to recall and guide major areas of infection prevention activities and procedures. The interview guide mainly focused on factors or reasons behind poor infection prevention practice of the given facility. It takes 30-40 minutes to interview an interviewee. The principal investigator assured the necessary resources for data collection.

### **4.6. Variables**

#### **4.6.1 Dependent variables**

- Infection prevention practice

#### **4.6.2 Independent variables**

- Socio-demographic variables (Sex, Age, Educational level, Marital status, )
- Profession
- Work experience
- IP training
- Working with IP committee
- Knowledge
- Health care waste management
- Supportive Supervision and follow up
- Perceived understaffing

### **4.7 operational definitions**

**Hand hygiene:** - a general term refers to any action of hand cleaning. Hand hygiene relates to the removal of visible soil and removal or killing of transient microorganisms from the hands. Hand hygiene may be accomplished using an alcohol-based hand rub or soap and running water(43). Hand hygiene in this study includes, hand washing with both plain or antiseptic-containing soap and water when hands are visibly soiled or contaminated, if not visibly soiled or contaminated, hand rubbing with aqueous alcohol is comparable. Overall practice includes

five moments; before starting procedures, after procedures and contact with bodily fluids, after touching a patient, immediately after removing gloves and after-touch patient's surroundings should be practiced. In this study, six items in which responses should be answered in two options will measure the health care professionals' hand washing procedure. Those who follow all needed procedure were taken as safe hand hygiene. In addition, those failed to follow the procedure were taken as unsafe hand hygiene practice and at least three procedures were observed for all six necessary moments of safe hand hygiene.

**Practice**-Practice refers to the extent that health professionals implement recommended strategies of standard precautions. In this study, ten items in which responses should be answered in two options will measure the healthcare professionals' infection prevention practice. To analyze the practice, similar procedures was followed a score of 1 was assigned for each acceptable or correct practice (for always option) and 0 for unacceptable (for sometimes and never option), hence the total score of infection prevention practice ranged from 0 to 10. Accordingly, healthcare workers infection prevention practice was classified into two categories: Good (if above the mean score) and poor (equal to or below the mean score)(32).

**Knowledge** -Understanding and skills that one gains through education or experience. It also defines knowledge as the state of knowing about a particular fact or situation(44). In this study, health professional's knowledge regarding infection prevention was measured by 10 'Yes or No' questions. A scoring system was used in which the respondents correct and incorrect answer asked for the questions was allocated "1" or "0" points respectively. Knowledge score was sum up to give a total knowledge score for each health care professionals. The total knowledge score will range from 0 to 10 was classified in to two categories of response. Knowledgeable if above the mean and not knowledgeable equal to or below the mean(31).

**Safe injection**-One that doesn't cause harm to the recipient, does not expose the provider to any avoidable risk and does not result in waste that is dangerous to other people. In this study, health professionals' injection practice was measured by 10 'Yes or No' questions. A scoring system was used in which the respondents correct and incorrect answer asked for the questions was allocated "1" or "0" points respectively. Injection score was sum up to give a total injection score for each health care professionals. The total injection score will range from 0 to 10 was classified in to two categories of response. Safe injection if above the mean and unsafe injection if equal to or below the mean

**Personal Protective Equipment**-Refers to a variety of barriers used alone or in combination to protect mucous membrane airways, skin, and clothing from contact with infectious agents. In this, study PPE utilization according to the level of anticipated contamination when handling patient care that is visibly soiled or may have been in contact with blood or body fluids (glove, gown, mask and eye protection and covered shoe).

**Health professionals**-In this study it includes health professionals who have direct contact with infection prevention services (Doctors, public health officers, nurses, midwives, laboratory technicians/technologists).

#### **4.8. Data quality management**

The questionnaire for professionals and for client perceptions was developed in English and translated into the local language of Amharic then back to English to look for clarity and consistency of the questions. Data collectors and supervisors were recruited and training was given for two consecutive days before data collection. Before actual data collection pre-test was done on 5% of the respondents that was 17 for professionals and 21 for clients. During the actual data collection, the trained supervisor examined the collected data on daily basis. At the end of each data collection day, the principal investigator checked for the completeness of filled questionnaires and whether recorded information makes sense or not.

The collected data was reviewed, checked, coded, cleaned for completeness, and entered by the supervisor and principal investigator each day before analysis. The distribution and internal consistencies of the responses was checked. Incomplete responses were discarded.

For qualitative data, the key informant interview study guide was developed in consultation with advisors. To increase the validity of the data; member check, Peer- debriefing and investigator triangulation was held.

#### **4.9 Data processing and analysis plan**

All filled questionnaires were checked for completeness and consistency, and data entry was made using the Epidata 3.1 software. Then the data was exported to SPSS statistical package version 23 for further analysis. Frequencies, proportions, and summary statistics was used to describe the study population with relevant variables and presented in tables.

The bivariate analysis was carried out to identify variables that are significantly associated with infection prevention practice. Those variables in bivariate analysis whose p-value is less than or equals to 0.25 were included in multivariable logistic regressions. Then multivariable logistic regression analysis was performed for those candidate variables in bivariate analysis and investigates independent predictors by controlling for possible confounders. Finally,

variables whose p-value less than or equals to 0.05 ( $p \leq 0.05$ ) in logistic regression was considered as a statistically significant association and the strength of association was expressed by interpreting the odds ratio. The observations were analyzed based on number of sessions observed and the result was presented descriptively and compared with the result of client witness questioners.

For the qualitative aspect, data was analyzed using thematic analysis techniques. Initially, the record (both written and smart phone) of the data was internalized by repeat reading and listening of the record then transcribed, translated, coded, index themes were identified, and thematized manually. The qualitative study was held to support the quantitative study.

#### **4.10 Ethical consideration**

Ethical clearance was obtained from Jimma University Institute of Health Institutional Review Board. An official letter of cooperation was written to the Kembata Tembaro Zonal Health Department from the Department of Health Policy and Management. The Zonal Health Department wrote a support letter to the district health offices. The district health office and the eleven selected health centers were asked for an official letter to get permission. Data collectors were trained on how to handle confidentiality and privacy using the consent form attached to each questionnaire. Confidentiality was assured by excluding the study participant's name during the period of data collection. The study purpose, procedure, and duration, possible risks and benefits of the study was clearly explained for study participants. Data collectors informed participants to enroll in the study if they were willing. Verbal informed consent was obtained from each respondent before data collection and then data was gathered. Any study participant willing to engage in the study and those who want to stop the interview at any time was allowed to do so.

#### **DISSEMINATION PLAN**

The finding of this research will be first need to be defended publicly. Then after it is approved by the department of Health Policy and Management and submitted to Jimma University, Research and publication office, Library catalog and disseminated to various relevant stakeholders. In addition, effort will be made to publish the results in relevant peer-reviewed journals.

## 5. RESULTS

### 5.1 Socio-demographic Characteristics

#### 5.1.1 Socio demographic characteristics of professionals

Three hundred thirty five health care providers were sampled for this study. From total sample size 329 (98.2%) responded to the study. One hundred fifty nine (48%) were females. The mean age in years of respondents was (33 ± 6.6). Concerning the professional categories of the study respondents, 143(43.5%) were nurses followed by 75 (22.8%) health officers. Among study participants 226(68.7%) were Diploma, and 97(29.5%) were Bsc. Regarding experience of the study the majority of participants 204 (62%) had below five years [Table 1].

**Table 1 Socio-demographic characteristics of the health professional respondents of the health centers in Kembata Tembaro zone, April 2020**

Variables		Frequency	Percentage
Age	21 – 25	31	9.4%
	26 – 30	101	30.7%
	>30	197	59.9%
Sex	Male	170	52%
	Female	159	48%
Profession	Doctor	6	1.8%
	Nurse	143	43.5%
	Laboratory	59	17.9%
	Midwife	46	14%
	HO/BSc Nurse	75	22.8%
Level of qualification	Diploma	226	68.7%
	BSc	97	29.5%
	Doctor	6	1.8%
Marital status	Single	135	41%
	Married	168	51.1%

	Divorced	10	3%
	Widowed	16	4.9%
Service year	<5 years	204	62%
	5 – 10 years	103	31.3%
	>10 years	22	6.7%
Working hours	40 hours/week	112	34%
	>40 hours/week	217	66%

### 5.1.2 Socio demographic characteristics of clients interviewed

Out of 422 sampled respondents, 416 of them were participated in this study, in which the response rate was 98.5%. Out of them 162(38.9%) were males and 254(61.1) were females. The majority of respondents 199(47.8%) were married [table 2].

**Table 2 Socio-demographic characteristics of client respondents who visit health centers in Kembata Tembaro zone, SNNPR, Ethiopia, April 2020**

Variables		Frequency	Percentage
Sex	Male	162	38.9%
	Female	254	61.1%
Educational status	Unable to read and write	173	41.6%
	Primary school	77	18.5%
	Secondary school	96	23.1%
	University/ collage	70	16.8
Marital status	Single	137	32.9%
	Married	199	47.8%
	Divorced	52	12.5%
	Widowed	28	6.7%
Occupational status	Farmer	156	37.5%

	Gov't Employee	62	14.9%
	Student	135	32.5%
	Merchant	59	14.2%
	Other	4	1.0%

## 5.2 Institution based variables

Among the professional participants only 67 (23.5%) had taken training on infection prevention and 218(76.5) had not taken training on infection prevention [Table 3]

**Table 3 Distribution of Factors of Healthcare Providers about guideline and norms in Selected Health Facilities of Kembata Tembaro zone, SNNP Region, South Ethiopia, April 2020**

Variable (n = 285)	Response	Frequency	Percentage
Vaccinated for hepatitis B virus	Yes	263	92.3%
	No	22	7.7%
Reason of the respondents for being not vaccinated	Not available in the facility	22	100%
Does the facility have guideline for infection prevention	Yes	144	50.5%
	No	141	49.5%
familiar with the guide line covering infection prevention(n=144)	Yes	91	63.5%
	No	53	36.5%
participated in any training program about infection prevention	Yes	67	23.5%
	No	218	76.5%
Infection prevention committee	Yes	272	95.4%
	No	13	4.6%



### 5.3 Knowledge of health care providers on infection prevention

Among the professional respondents one hundred forty nine (52.3%) heard about infection prevention. Two hundred thirty eight (83.5%) were believed that gloves cannot provide complete protection against acquiring infection. One hundred eight nine (66.3%) of study participant responded that washing hands with soap or an alcohol based antiseptic decreases the risk of transmission of health facility acquired pathogens. Concerning level of safety boxes filling and sealing respondents 140(49.4%), were three fourth, 48(16.6%) respondents were one half and 97(34.0%) respondents were full before sealing and closing. Concerning the preparation formula for preparing 0.5% chlorine solution 266(93.3%) respondents had knew preparation formula [Table 4].

**Table 4 the Distribution of knowledge of Health Care Providers on Infection Prevention in Selected Health Facilities of Kembata Tembaro Zone, SNNPR Region, South Ethiopia July, 2020**

Variable (n = 285)	Response	Frequency	Percentage
Heard about infection prevention	Yes	149	52.3%
	No	136	47.7%
Gloves cannot provide complete protection against transmission of infections	Yes	238	83.5%
	No	46	16.1%
Tuberculosis (TB) is carried in airborne particles that are generated from patients with active pulmonary tuberculosis	Yes	189	66.3%
	No	96	33.7%
know how to prepare 0.5% chlorine solution	Yes	266	93.3%
	No	19	6.7%
Clean hand at work	Yes	279	97.9%
	No	6	2.1%
Method respondents use to clean their hands at work	Soap and water	119	41.8%
	Alcohol based hand rub	95	33.3%

	Both soap with water and alcohol based hand rub	71	24.9%
When respondents use alcohol based hand rub to clean their hands	Not visibly contaminated	120	42.1%
	Visibly contaminated	165	57.9%
Washing hands with soap or an alcohol based antiseptic decreases the risk of transmission of hospital acquired pathogens	Yes	189	66.3%
	No	96	33.7%
level of safety boxes filling and sealing	three fourth	140	49.4%
	One half	48	16.6%
	Full before sealing	97	34.0%

## 5.4 Major Infection Prevention and Control Practices

### 5.4.1. Hand Hygiene Practices

Among 285 health professionals, the majority 260(91.2%) reported washing their hand after completing the procedure and contact with bodily fluids and, 254 (89.1%) reported that they are practicing hand hygiene practices before starting the procedure [Table 5].

**Table 5 Hand hygiene practices of health professionals in public health centers, Kembata Tembaro zone, SNNPR, Ethiopia, April 2020.**

Hand hygiene practicing time	Response	Frequency	percent
Before starting the procedure	Yes	254	89.1%
	No	31	10.9%
After completing the procedure and contact with body fluids	Yes	260	91.2%
	No	25	8.8%
After touching the patient	Yes	235	82.5%

	No	50	17.5%
Immediately after removing gloves	Yes	253	88.8%
	No	32	11.2%
After touching a patients surrounding	Yes	234	82.1%
	No	51	17.9%

Among 285 respondents 191(67.0) reported that they clean their hands during direct patient contact always, 94(33.0%) didn't do that, the major reasons reported for poor hand hygiene practice was, water and soap or alcohol based hand rub is not available 75(26.3%), it is waste of time and it increase patient waiting time 4(0.7%) [Table 6].

**Table 6 Major reasons for poor hand hygiene of health professionals in public health centers, Kembata Tembaro zone, SNNPR, Ethiopia, April 2020**

Reasons for not cleaning hands always	Frequency	percent
water and soap or alcohol based hand rub is not available	75	26.3%
it is waste of time and it increase patient waiting time	2	0.7%
All contacts with patients may not need to clean hands	4	1.4%
It is costly	1	0.4%

During IDI, all participants agreed on positive aspect of hand hygiene and they claim that there is inconsistency of adherence to hand hygiene among health professionals and they mentioned water shortage, alcohol based hand rub unavailability when needed, failure of follow up from institutions, time shortage, and professional personal behavior as reasons. Some of the participants raised positive factors to hand hygiene like commitment from government by preparing trainings , preparing hand washing facility using different local materials like pail and support from NGOs specifically on hand hygiene Majority of health professionals more concerned about availability of water and soap or alcohol hand rub, 31 years old cleaning and laundry office coordinator said that “*hand hygiene is critical for health professionals as well as for clients but there is deep-rooted water problem in our health center I am here for the last 5 years but I didn't notice time when running water is available we try to solve the problem by collecting water by pail but that is not per standard*”.

#### 5.4.2. Personal Protective Equipment use

Majority of study participants, 261(91.6%) and 224(78.6%) responded that they utilize gown and gloves while they had given care for patients respectively. One hundred forty eight (51.9%) of health professionals responded that they used mask/eye protections for procedures likely to generate droplets/splash (table 7).

**Table 7 Personal protective equipment utilization of health professionals in public health centers of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2020**

Personal protective equipment (multiple response)	Response	Frequency	percent
Glove use for all patients	Yes	224	78.6%
	No	61	21.4%
Gown/plastic apron wore in working place	Yes	261	91.6%
	No	24	8.4%
Mask/eye protection use for procedures likely to generate droplets/splash	Yes	148	51.9%
	No	137	48.1%
Wear boots/covered shoe in working environment	Yes	90	31.6%
	No	195	68.4%

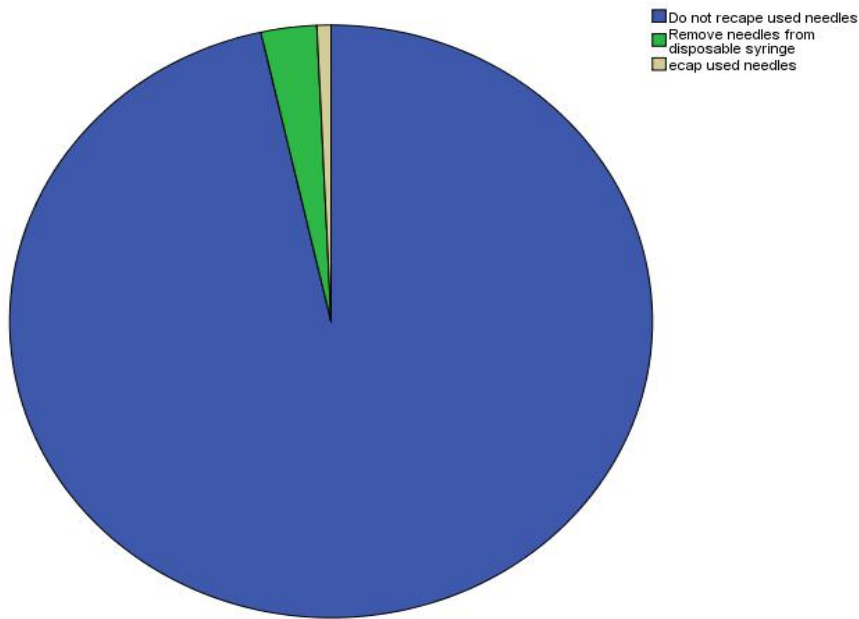
During IDI Participants overwhelmingly reported that personal protective equipment was not readily available for use due to inadequate supply. They claim that on the general wards, gowns, gloves, and masks were stored outside of the rooms and masks, and shoe covers, were available only within delivery rooms. Professionals often put on a mask before entering the TB room. Beside their availability, participants reported that both healthcare professionals and visitors struggled with mask compliance for patients under droplet or airborne precautions, in large part because of issues surrounding comfort.

Participants made spotlight on shortage of supply for utilization of personal protective equipments but there is disagreements for these reason from some of the participants they claim that beside the shortage there is widespread negligence from professionals in the usage of personal protective equipment.

One environmental technician who coordinates CASH activities in the health center stated, “*In our setup availing all useful personal protective equipments was difficult but there is a problem even on practical and handy ones like gown and gloves.*” He continuous his idea like “*even though there is problem of supply and regulation there is well-known negligence from professionals in utilization of personal protective equipments*”

#### **5.4.3. Safe Injection Practice**

Out of 285 respondents, 275(96.5%) reported that they do not recap used needles and eight (2.8%) were stated that they removed needles from disposable syringe. Those respondents who practice safe injection practice were 185(64.9%) (Figure 4).



**Figure 4 Safe injection practice of health professionals in public hospitals of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2019**

### 5.4.3.1 Injuries related to sharp materials and their reasons

Seventy eight (27.4%) of health professionals faced to needle stick/sharp injury in the last one year. The report showed that Sudden movement of patient 59 (75.6%) and recapping of used needle 2(2.6%) are major causes for accidents followed by sharp collection at the site of work 17(21.8%) [Table 8].

**Table 8 Major causes for sharp injuries among health professionals in public health centers of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2020**

Major causes for accidents/injury	Frequency	percent
Encountered sharp injury (n=285)	78	27.4%
Sudden movement of patient	59	75.6%
Recapping of used needle	2	2.6%
Sharp collection at the site of work	17	21.8%

### 5.4.4 Sharp waste segregation practice

Regarding sharp waste segregation practices, majority of respondents 156 (54.7%) used a puncture proof container/safety box followed by those who use open pail 97(34%), 18(6.3%) use a dustbin having plastic cover, and 14(4.9%) mix with other wastes (Fig. 5).

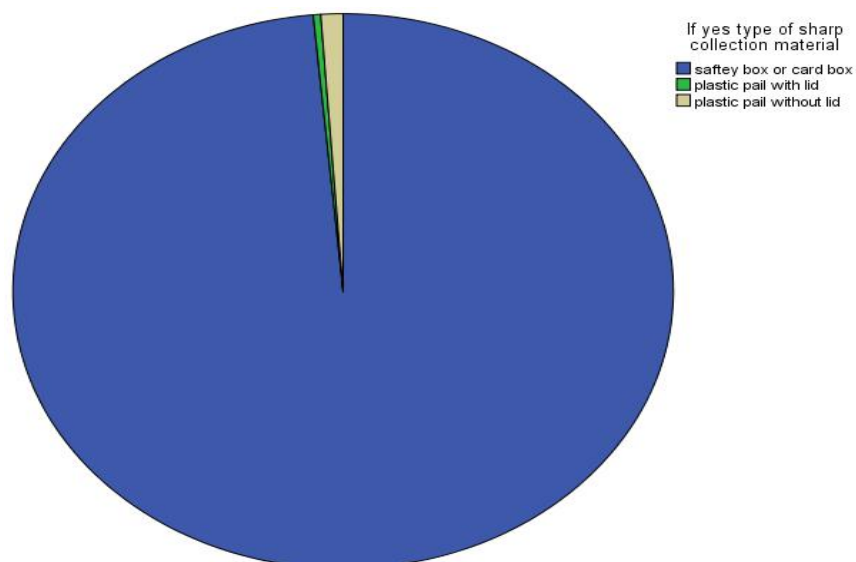


Figure The Type of Sharp Collection Material Respondents Used

**Figure 5 Sharps collection and disposal materials used among health professionals in public health centers of Kembata Tembaro Zone SNNP Regional State, South Ethiopia, April 2020 (n=285)**

During IDI at one of the health center 38 years Environmental technologist stated that” *used syringes, needles, blades are all put in a local bin, and it is placed in the bedside of patients in delivery rooms that is also unsafe for the patients. After all this syringes, needles and blades are all mixed with other infectious and noninfectious wastes at single bin this indicates that there is no waste segregation at the site of its production.*” She extend her idea as “*Concerning incident reporting, there is no registrations at all departments and there is no formally established system for reporting incidents such as needle stick injury, cuts and splash of potentially infectious body fluids. Generally, there is problems in waste segregation, handling, transport& disposal majority of problems are pointed towards supply shortage especially safety box as you seen currently we are using a dust bin to collect sharps*”.

## 5.5 Observation assessment result

### 5.5.1 Observation done by researchers

Out of 44 professionals observed the majority fifteen (34.1%) were Nurses, eleven (25%) were laboratory professionals, 10(22.7%) were midwives, and eight (18.2%) were Health officers or BSc nurses. All observed health facilities (11) have responsible focal person for Infection prevention and control and infection prevention committee, which was multidisciplinary. In majority of health centers 9 (81.8%) infection prevention guideline was placed at health center director office. In addition, the majority of specific departments 36 (81.8%) have no infection prevention guideline [Table 9].

**Table 9 Shows observed result of facility related variables of health centers in Kembata Tembaro zone , SNNPR, April 2020**

Variables	Response	Frequency	percent
professional status of respondents	Nurse	15	34.1%
	Laboratory	11	25%
	Midwife	10	22.7%
	HO or BSc Nurse	8	18.2%
Sex	Male	29	65.9%
	Female	15	34.1%

Number of IP committee meetings in the last 12 months (out of 11 health centers)	Twelve	2	18.2%
	Six	7	63.6%
	Four	2	18.2%
Committee discussed about infection rates (out of 11 health centers)	Yes	9	81.1%
	No	2	18.9%
Committee discussed about sterilization or disinfection process (out of 11 health centers)	Yes	4	36.4%
	No	7	63.6%
Departments who have IP guide line (totally 44 Dep'ts observed)	Yes	8	18.2%
	NO	36	81.8%
Allocation of budget for IP activities	Yes	4	36.4%
	No	7	63.6%
facility water supply	Yes	11	100%
source of water	Tap water	8	72.7%
	Protected well water	3	27.3%

Assessment of same functional departments of the health center based on the given performance checklist for selected service area indicated that infection prevention was consistently and thoroughly practiced in MCH rooms, whereas, for the rest of client service areas training and follow up needed on recommended infection prevention practices. In addition to this, the studied health facilities related to infection prevention practices were observed. The result showed that all health facilities had IPC focal person and IP committee having members included from each department according to national standard. Even though all observed health facilities had infection prevention and control guideline, it was placed in a health center director office for the majority of health centers. No documented feedback of IPC practice was seen in each department. The studied facilities also have incinerator but 2 of 11 observed health centers had no ash pit around the incinerator. There was no log sheet/book to record events of needle



sticks/ sharps injuries, and other employee exposures in those studied health facilities except laboratory rooms of only two health centers. Health professionals were using water, soap and alcohol based hand rub for their hand hygiene practices. There is no running water in each department of health centers, but it is manually prepared. Of 132 observed procedures and hand hygiene practices, the highest rate 103 (78.3%) were observed after completing their procedures and after glove removal on the other hand, least practices were observed before starting the procedures 29(21.7%).

During observation of the PPE utilization during procedures all (n=132) in majority of sessions observed professionals 120(90.9%) wore gown in their working place and in 96(72.7%)sessions observed health professionals used glove in their work[table 10], furthermore, from observed sessions health professionals utilization of mask was 66(50%). In the majority of observed sessions, 103 (78.3%) professionals wash hands after completing the procedure and 120 (90.9%) wore gown [table 10].

**Table 10 Hand hygiene and Personal protective equipment utilization of health professionals in public health centers of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2020**

Component of IP	Activities observed	Frequency	percent
Hand hygiene (n=132)	After completing procedure	103	78.3%
	Before starting procedure	29	21.7%
Personal protective equipments	Wore gown	120	90.9%
	Wore gloves	96	72.7%
	Covered shoes	42	31.8%
	Mask	66	50%

The result of our observation also showed that all injection provided (n=33) were used new needle and syringes from pack. 7(20%) participants were practicing recapping of needles after injection and none of them try to bend the need after injection. Result from our observation also showed that only 27(81.8%) used needles and syringes were collected in to safety box [Table 11].

**Table 11 Safe injection practice of health professionals in governmental health centers of Kembata Tembaro zone SNNP, regional state, Ethiopia, April 2020**

Safe injection practices(n=11)	Frequency	percent
Uses new needle and from pack	33	100%
Recapping of needles after injection	7	20%
Needles collected in to safety box	27	81.8%
Needles collected in to local bin	3	9.1%
Needles left on injection preparation tables	3	9.1%

### 5.5.2 Client interview result

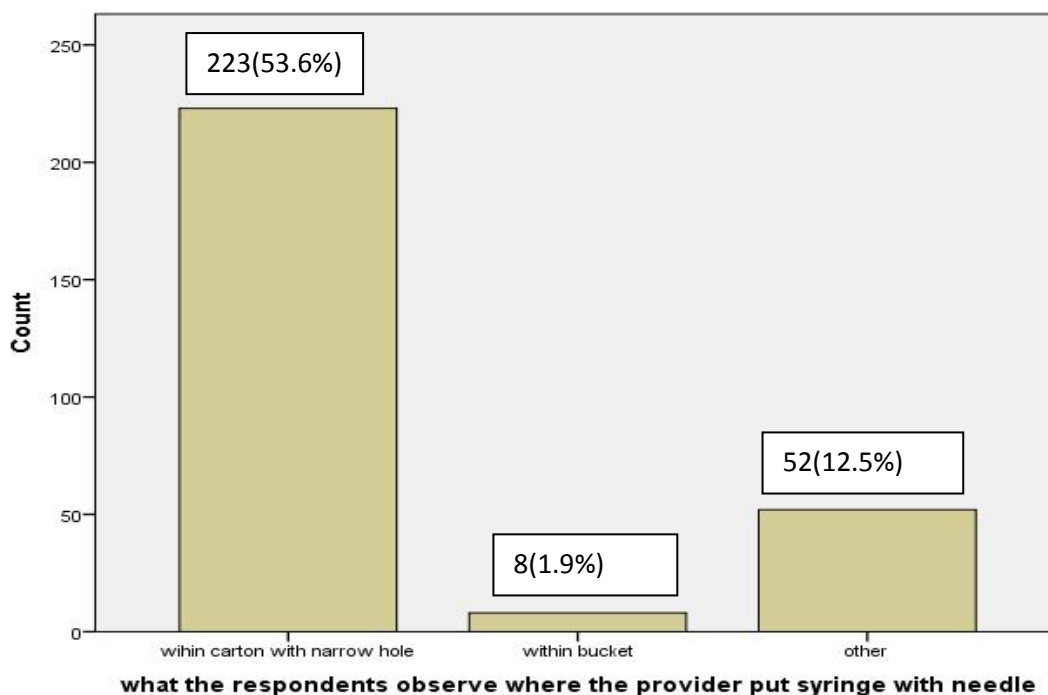
The majority of clients visited health center for outpatient services 293 (70.4 %) and 406 (97.6%) of clients witnessed that the health care providers wore gown [Table 12].

**Table 12 shows result of client respondents' response from health centers of Kembata Tembaro zone, SNNPR, Ethiopia, April 2020**

Variables		Frequency	percentage
Type of service they received	Out patient	293	70.4%
	ANC	36	8.7%
	Emergency	53	12.7%
	HCT	23	5.5%
	Follow up	11	2.6%
Providers wear Gown	Yes	406	97.6%
	No	8	1.9%
	Don't Know	2	0.5%
Providers wear Glove	Yes	376	90.4%

	Don't Know	1	0.2%
Providers use privacy screen	Yes	221	53.1%
	No	160	38.5%
	Don't Know	35	8.4%
Providers wash hands	Yes	278	66.8%
	No	103	24.8%
	Don't Know	35	8.4%
Time or condition that the provider wash hands	Before touching my body	16	3.8%
	After touching my body	216	51.9%
	Before inserting glove	29	7.0%
	After removing glove	13	3.1%
	Other	3	0.7

Four hundred four (97.1%) respondents witnessed that water and soap was not placed at appropriate place in the facility. Eighty-five (20.4%) of respondents answered the compound of the health facility was not clean. Out of this the majority 60(70.6%) of respondents said that the toilet and around service rooms were not clean. Two hundred twenty three (53.6%) of respondents observe that the health care providers put syringe with needle within carton with narrow hole (figure 6).



**Figure 6 Clients response about where providers put syringe with needle in health centers of Kembata Tembaro zone, SNNPR, Ethiopia, April 2020**

### 5.5.3 Major Themes emerged in qualitative in-depth interview

**Table 13 the major themes and sub themes emerged from in-depth interview responses of participants in health centers of Kembata Tembaro zone, April 2020**

S.No	Major themes with sub-themes	Data Based Descriptions (KII)	Supportive quotations
1	Shortage of materials and equipments supply	Shortage of materials and equipments supply for infection prevention activities	
1.1	Shortage of materials for infection prevention activities	There was a problem with sustainability of material supplies for infection prevention activities. For example, shortage of detergents, soap, berekina, mops , sweepers etc	<i>“What problems here in our facility is that there is poor commitment from administrative bodies. This can bring about break in sustainability of infection prevention material supply, even though there may be shortage of budget.”. ...IDI</i>

			<i>participants</i>
1.2	Shortage and lack of maintenance of infection prevention equipments	There was also a problem with consistent supply of equipments like gloves, masks, eye goggle etc. In addition, medical equipments like autoclave need to be maintained	One IDI participant said... <i>there a problem with supply of gloves in types for example in our facility there is no utility glove and equipments like autoclave should not be maintained as early as possible.</i>
2	Lack of facilities in specific departments	Most of departments lack facilities like running water, alcohol based hand rub , towels for drying hands, screen	IDI participant said ... <i>hand washing is basic element of universal precaution, but in our facility even no locally prepared hand washing facility in specific departments”</i>
3	Lack of guidelines in specific departments	Even though guidelines were put centrally at health center level, specific departments lack guidelines for infection prevention measures . There was also no policies and procedures (standard operating procedures) at specific departments.	<b>The head of the health center said...</b> <i>our professionals have no culture of studying and referring guidelines available it may be due to poor commitment and lack of guidelines in specific departments.”</i> <b>The head of cleaning office environmental technician said...</b> <i>standard operating procedures should be placed at each department at easily accessible place, which helps for guiding health workers.”</i>

4	Problems related with infrastructures	Some facilities lack infrastructures like water supply, electricity(alternative source )	<p><i>“Water and power source is very crucial at health facility but in our health center there is no tap water at the same time there is no electricity or alternative source. This makes for us difficult to use autoclave and other machineries”</i> <b>head of health center said</b></p> <p><b>The cleaning &amp; laundry head said</b></p> <p><i>“...Even though there is no running water in the rooms, professionals should wash their hands before and after touching patients body, but most of the professionals wash their hands after touching patients body only due to their negligence”</i></p>
5	Behavior of health care workers	Some health professionals were not ready to learn, had poor commitment and negligence towards infection prevention practices	<p><b>Health center director said</b>“ <i>Even though basic trainings were not given for most of professional, they were not ready to on job or in service trainings and some of health professionals were negligent to use of personal protective equipment, instrument processing and hand hygiene this leads to poor commitment towards infection prevention practices”</i></p>
6	Low awareness of patients and visitors	Most of patients and visitors were not aware of ways of prevention of infection during their health care visit. For example how to handle cough etiquette , hand washing etc	<p>Cleaning office head environmental technologist said “ <i>Most of patients and visitors were not aware of what to do in the health facilities when they visit the health facility regarding infection prevention for instance they do not dispose sputum appropriately, wash hands, how to use different waste</i></p>

			<i>receivers ”</i>
7	Inappropriate waste segregation and disposal	In some of health centers the way of waste segregation and disposal was not per standard. They mix wastes with each other, dispose wastes in open field	<b>38 years old environmental technologist said”</b> <i>used syringes, needles, blades are all put in a local bin, and it is placed in the bedside of patients in delivery rooms that is also unsafe for the patients. After all this syringes, needles and blades are all mixed with other infectious and noninfectious wastes at single bin this indicates that there is no waste segregation at the site of its production.”</i>

### 5.7 Infection prevention practice of health professionals

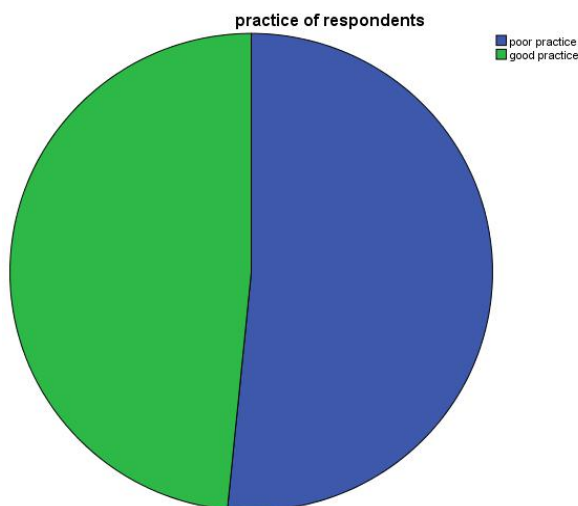
From 285 study subjects, 130(45.5%) were comply to antiseptic hand rub to clean their hands, 65(22%) use personal protective equipments and, 259(90.9%) disinfection of reusable medical instruments in chlorine solution for 10 minutes (table 11).

**Table 14 Infection prevention practice of health professionals in public health centers of Kembata Tembaro Zone, South Ethiopia, April 2020 (n = 285)**

Practice item (n=44)	Correct response	Number	Percent
Do you apply antiseptic hand rub to clean hands	Yes	130	45.5%
Did you practice high-level disinfection where sterilization is not applicable?	Yes	162	56.8%
Do you use all Personal Protective Equipment’s (PPE) to prevent the risk of acquiring and/or transmitting infection?	Yes	65	22.7%
Did you segregate liquid and solid healthcare wastes?	Yes	207	72.7%
Do you incinerate or bury used sharp materials?	Yes	285	100%

When do you change disinfectant chlorine solutions?	Every 24 hours or below	26	9.1%
For how long do you soak reusable medical instruments in chlorine solution?	With in 10 minute	259	90.9%
How often do you use glove (both hands)?	Always	201	70.5%
Do you wear the necessary personal protective equipment (PPE) such as gloves, apron, goggles and mask, if splashes and spills of any body fluids are likely?	Yes	130	45.5%
Where do you usually put sharp disposal boxes?	Hand reach area	201	70.5%

From total enrolled 285 respondents, 138(48.4%) had good practice and the rest 147(51.6%) had poor infection prevention practices (fig 7).



**Figure 7 Health professionals infection prevention practice in public health centers of Kembata Tembaro Zone, southern Ethiopia, April 2020.**



### 5.6. Predicators on the infection prevention practice.

To identify candidates' factors for multivariable logistic regression of health professionals towards infection prevention practice among respondents, binary logistic regression was computed. Among factors Sex, Age, Marital status, profession, Work experience by years, Availability of guideline in the working department, Educational level, Attending training programs on IP and Knowledge on IP were candidates ( $p \leq 0.25$ ) with health professionals IPP in the bivariate logistic regression analysis (table 11).

**Table 15 Final predictors of infection prevention practice among health professionals in public health centers of Kembata Tembaro, SNNPR, South Ethiopia, April 2020**

Variables (n=285)	Categories	Infection prevention practice		COR 95% CI	AOR 95% CI	P-value
		Good	poor			
Age	≤30	54	60	1	1	
	>30	84	87	0.932(0.580-1.498)	0.662(0.347-1.263)	0.211
sex	Male	60	81	0.627(0.393-1.001)	0.861(0.484-1.532)	0.610
	Female	78	66			
Marital status	Single	52	65		1	
	Ever married	86	82	1.311(0.816-2.106)	3.384(1.615-7.088)	0.001
Professional category	HO/BSc nurse	26	41	1.222(0.907-0.647)	1.773(0.375-1.593)	0.222
	Nurse	87	77	0.561(0.314-1.002)	0.748(0.369-1.514)	0.419
	Others	25	29		1	0.648
Service years	≤ 5years	94	83	1	1	

	>5 years	44	64	0.607(0.374-0.985)	2.179(1.142-4.158)	0.018
Educational level	Degree	44	45	1.061(0.643-1.751)	1.063(0.563-2.007)	0.850
	Dipiloma	94	102	1	1	
Availability of guideline in specific departments	No	66	75			
	Yes	72	72	1.129(0.705-1.808)	0.835(0.483-1.446)	0.520
Attending training programs	No	103	115	1	1	
	Yes	35	32	1.22(0.406-1.056)	2.160(1.180-3.954)	0.013
Knowledge on IP	Knowledgeabl e	49	109	0.187(0.112-0.311)	1.955(1.063-3.593)	0.031
	Not Knowledgeabl e	89	37	1	1	
Familiarity with IP guideline	Yes	87	94	0.541(0.338-0.867)	1.033(0.585-1.823)	0.912
	No	51	53	1		
Working Hours	40 hours	36	61	2.010(1.216-3.320)	2.227(1.195-4.150)	0.012
	>40 hours	102	86	1	1	

Significant at P-value $\leq$  0.05, COR: Crude odds ratio, AOR: Adjusted odds ratio

Variables which were significant in the bivariate logistic regression analysis(Sex, Age, Marital status, profession, Work experience by years, Availability of guide line in the working department, being familiar with IP guideline, working hours, Educational level, Attending training programs on IP and Knowledge on infection prevention) whose p < 0.25 were entered

and analyzed together by multivariable logistic regression. After controlling for the effects of potentially confounding variables using multivariable logistic regression, Marital status, working hours, service years, Knowledge on IP and Attending training programs on IP were found to be significantly associated with IP practice of health professionals at P-value <0.05. Professionals ever married were 3.4 times more likely compliant with infection prevention practices than not married (AOR=3.384, 95% CI [ 1.615-7.088]). Health professionals who were not attended training on infection prevention were 2.16 times more likely Compliant with infection prevention practice than health professionals who were attended the infection prevention training (AOR=2.160 95% CI [1.180-3.954]). Knowledgeable health professionals were 1.955 times more likely Comply with infection prevention practice than health professionals who were not knowledgeable. (AOR= 1.955, 95% CI [1.063-3.593]). Another variable significantly associated was Service years the odds of practice in professionals with more than five years experience was 2.179 times higher than those who had ≤5 years experience [AOR=2.179, 95%CI(1.142-4.158)]. The last significant variable was working hours per week professionals who work 40 hours per week were 2.227 times more likely to practice infection prevention measures than who work more than 40 hours per week [AOR=2.227, 95% CI(1.195-4.150)]

During IDI the investigator tried to address possible barriers in each respective health centers during interview. Majority of IDI participants claim that there is no single responsible body for low performance of professionals towards IPP. Every stakeholder has significant and irreplaceable role on every day activities of health center. Major stakeholders raised by discussants are Government, personal professionals "behavior, local authorities, health center management body's, including the whole community. Without coordinating effort from all these stakeholders it is still difficult to perform in expected way. They also raised issues related with ability of health center department heads in planning regarding IPP, feedback problems, and problem identification gaps in facility level.

Another idea proclaimed with almost half of participants is that focus from Government as well as health centers is not given for retention of professionals especially for those who took training. Giving routine training for professionals regarding IPP is good but there must be way to monitor their daily activity and skill sharing should be there because another alarming problem according to interviewee is professional turnover they repeatedly stated there is no mechanism to uphold skilled professionals.

## **Chapter Six: - Discussion**

Infection prevention practice is fundamental to quality of care and essential to protect HCWs, patients and communities from tremendous risks. This study attempted to assess infection prevention practice of HCWs in health centers of Kembata Tembaro Zone.

In this study general knowledge of health professionals towards infection prevention was assessed and from total enrolled health professionals 55.6% were knowledgeable and this finding is lower than related studies in Ethiopia 87.7%, 84.2% studies done at Debra Markos and Bahir Dar respectively [4, 32] but comparable to other studies done at different parts of Ethiopia 53.7%, and 55.4% [33, 35]. This difference might be due to time and implementation of Ethiopian health center reform. In this study, 89.1% of health professionals were practicing hand hygiene before starting the procedure and contact with bodily fluids, and 91.2% were washing their hand after completing the procedure. But our observational outcome shows that 77.5% of participant were hand hygiene practice after completing the procedure and only about 18.7% of HPs were practiced hand hygiene before starting any procedure and 51.9% of client respondents witnessed that the providers wash their hands after touching their body. The possible justification could be health professionals have knowledge on hand hygiene but there is limitation on behavioral change that is already mentioned as shortcoming of health professionals during procedures by IDI participants. This finding is comparable to the study done in Bahirdar city administration health institutions which shows 82.5% HPs were hand hygiene practice after completing the procedure and 52.8% participants were hand hygiene practices before starting any procedure(32). This might be due to unavailability of water sources in study health centers as seen in our observation finding only 22% of working rooms have water source and negligence from professionals. The overall hand hygiene practice in this study were 61.4%. This is lower than hand hygiene practice of study done in Bahirdar city administration(69.0%)(32), but it is higher than study conducted at Amhara region which shows over all hand hygiene practice was 31.6%(45). This might be due to better opportunity to training than the previous time and starting of health center reform programs, which includes infection prevention activities as one of the components with clearly stated standard indicators in our studied facilities.

In this study, the majority of respondents 78.6% and 91.6% was utilized glove and gown for any patients in working place respectively, this also confirmed by observational findings were 40(90.9%) observed participant's worn gown and 72.7%% used glove.

In addition, 51.9%% of participants were reported utilizing mask and eye protection for procedure likely to generate droplets/splash and only 31.6% worn covered shoe in working place. Utilization of gown and glove is similar with our observation finding, but during observation, none of health professionals utilizing mask and eye protection for procedure likely to generate droplets/splash. Concerning sharp collection and segregation practices, this study found out 54.7% respondents used safety box/puncture proof container for needle/ sharp collection, 34% use open pail and 6.3% use dust bin covered by plastic but during observation this findings are not in place. Findings from observation showed that only 55% of used needle were collected in to safety box and around 35% collected in to local bin and the rest 15% left on injection preparation table this findings are discouraging according to FMoH Ethiopia which stated that all used needles should be collected in safety box(46) and much lower than findings from studies conducted at Addis Ababa, and Bahirdar showed that 94%, and 54% of health professionals discard used needles and sharps in to safety box/puncture proof container[47,32]. The possible justification might be due to shortage of safety box supply and negligence of health professionals as mentioned on qualitative (IDI participants). This study found out 92.3% HPs were vaccinated for hepatitis B virus this is encouraging and the possible justification could be due to enhanced emphasis is given for IPC and better supply of IPC material from time to time. In this study, the proportion of healthcare professionals who appear to be comply with infection prevention practice was 48.4% which was much similar to studies done in Addis Ababa which is 48.6% (28), but higher than study done in Arsi, and Gondar which shows 36.3%, and 12% respectively [41,42]. This may be explained by the fact that the vast majority healthcare professionals in the study health centers (76.5%) were not attended training on infection prevention practices and 44.2% health professionals were not knowledgeable on infection prevention practices but its lower than study conducted at Addis Ababa which shows 66.1% of health professionals practice safely [33].The difference is might be due to methodological difference and facilities where studies are conducted since Addis Ababa is capital of the country Health professionals in the capital cities had better work experience and get the opportunities for various infection prevention trainings. The likelihood of having better prevention practice will be higher than Health professionals residing in the countryside.

This study also found out significant differences in the compliance towards infection prevention among health professionals who attended training on infection prevention than health professionals who are not attended the infection prevention training. The odds of compliance were likely to be three times higher in healthcare professionals who attended training on infection prevention practice. This was similar to study conducted in Hadiya zone in which health care workers who had training on IP guidelines were 2.3 times more likely to comply with IP guidelines as compared to those who had no training (AOR: 2.262, 95%CI: (1.008,5.078)(48). This could be because updating the knowledge of the health professionals about infection prevention practices could have changed the way they act. Another factor that was significantly associated with complies with infection prevention practice of health professionals is knowledge. This study found out differences in the reported comply with infection prevention practice among different healthcare professionals in different knowledge categories such as the odds of comply with infection prevention practice among knowledgeable likely to be 1.2 times higher than health professionals who were not knowledgeable categories. This is in line with finding from study conducted in Bale zone at south East Ethiopia in which the odds of infection prevention practice of knowledgeable respondents was 1.84 (1.02, 3.31) times higher than not knowledgeable(49). As a result with improved knowledge, compliance can be also improved. The experience of professionals also become significant in this study. Health professionals who >5 years experience were 2.17 times more likely Compliant with infection prevention practice than health professionals who had  $\leq$ 5 years experience. This was higher than the study done in Dawuro zone south Ethiopia in which those who had > 5 years experience were 1.85 (0.74–4.63) times likely to comply with infection prevention measures than those with  $\leq$ 5 years experience(50). The possible justification may be time and geographic difference. Professionals ever married were 3.4 times more likely compliant with infection prevention practices than not married (AOR=3.384, 95% CI [ 1.615-7.088]). Health professionals who attended training on IP were 2.16 times more likely Compliant with infection prevention practice than health professionals who were not attended the infection prevention training. Health professionals who work for 40 hrs/week were 2.16 times more likely Compliant with infection prevention practice than health professionals who work for >40 hrs/week attended. This was higher than the study done in public hospitals in Amahara region in which those who work for 40 hours per week were 0.873(0.447,1.703) times more likely to practice than those who work >40 hours(42)(42). The possible reason for this difference was facility and time difference.

## **Strength & Limitation of the study**

### **Strength**

- Clients were asked for their perception towards IPP of HCPs

### **Limitations**

- Social desirability and Hawthorn effects (special and stressful attention of respondents to the observation and the questionnaire of the knowledge and practice) health professionals, this may affect the findings from the study. The data collectors tried to minimize this effect by communicating the goal of the study with respondents.

## **CHAPTER SEVEN:-CONCLUSIONS AND RECOMMENDATIONS**

### **7.1. CONCLUSION**

Findings from this study shows that level of IPP vary across different components of infection prevention. There is encouraging performance of health professionals and health centers in some of activities like majority of health professionals were vaccinated against hepatitis B virus, but greater part of health professionals not attended training on infection prevention practices consequently they are not knowledgeable where as there is poor practice on sharp waste management, that result about one fourth professionals experienced needle stick injury in the last one year. In addition to these the study demonstrated that infection prevention practice of health professionals could be influenced by some factors like training or orientation on infection prevention practice, working hours per week, negligence of professionals, IP supplies, heavy patient load, service years and health centers follow up.

### **7.2 RECOMMENDATION**

Based on the findings of the study the following recommendations were made.

#### **For FMoH.**

- There should be adequate and sustainable supply chain.

#### **For regional health bureau**

- There should be intensive trainings on behavioral change of health professionals towards infection prevention practice.
- Adequate distribution of supply must be ensured.

### **For Health centers and health professionals**

- Infection prevention guideline should be available in each department of the health center
- Infection prevention should be one of priority area for core management of the health centers this in turn facilitates planning and budgeting.
- Laundry machine should be availed almost all observed health centers have no laundry machine
- The identified hazardous activities in health centers create high chance of acquiring infections for Health professionals. The first task would be to change the mind set of Health professionals from service provision at the risk of their own lives to improved self-defense during normal routines activities. Awareness raising, information flow from the Health professionals need to be improved. On job as well as off job trainings should be facilitated.
- This study highlights the need to do everything possible to look for alternatives and available resource to tackle this expanded problem of safety box shortage. After having training at health center, it is necessary to equip them adequate materials.
- Sharp Waste should be segregated and disposed per standard.
- There should be organized incidents registrations and reporting system at all departments of the health center. Every health professionals should know what to do, how to do and when to do during infections or exposure to potential source are happened



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## Annexes

### Annex I: English version information sheet

Questionnaire Identification Number -----

My name is \_\_\_\_\_. I am working as data collector in the research Conducted by Biruk Tesfahun, who is conducting this research for the partial fulfillment of his Masters Degree in Health Service Management at Jimma University. We are trying to assess infection prevention practice among health professionals. We would like your honest opinion pertaining to the questions especially what you had experienced in the health institutions.

**Name of advisors:** Dr. Negalign Berhanu (PhD), Mr. Besha'a Gelana (MPH)

**Name of the organization:** Jimma University Faculty of Public Health and Department of Health Economics, Management and Policy

**Name of the Sponsor:** Hadero Town Administration.

**Introduction:** Information sheet and consent form is prepared for health professionals who are in health center and volunteer to participate in research project; quantitative cross-sectional study was used to assess status of infection prevention practice.

**Purpose:** I am hopeful that this research was benefit all health professionals including health service managers and quality of care. I will provide research results to concerned body for intervention.

**Procedure:** To assess status of infection prevention practice in the health institutions you are invited to take part in this project. If you are willing to participate in this project, you need to understand and say, "Yes" on the agreement form. Then after, the data collector will interview you. All your responses and the results obtained was kept confidential by using coding system whereby no one will have access to your response.

**Risk/ Discomfort:** By participating in this research project, you may feel that it has some discomfort especially on spending time about 30 minutes. We hope you will participate in the study for the sake of the Benefit of the research result. I am sure there is no risk in participating in this research project. You will not be provided any incentive or payment to take part in this project.

**Confidentiality:** The information collect from this research project was kept confidential and information about you that was collected by this study was stored in a file, without your name, but a code number assigned to it. In addition, it will not be revealed to anyone except the principal investigator and was kept locked with key. Right to refuse or withdraw: You have full right to refuse from participating in this research. You can choose not to respond to some or all questions if you do not want to give your response. You have also the full right to withdraw from this study at any time you wish, without losing any of your right. If you have any question, you can ask at any time.

If you have, additional questions about the study please contact

Principal investigator - Biruk Tesfahun Tel: +251916717141 Email:-biruktesfahun@gmail.com

**Annex II: English Version Consent Form**

I understand all conditions stated above. I have understood that Participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. Therefore, I am Ready and willing to participate in this study. If, respondent does not agree to be interviewed thanks her and go to the next respondent. If, respondent say “Yes” continue.

Checked by:

Supervisor: Name \_\_\_\_\_ signature \_\_\_\_\_ Date \_\_\_ / \_\_\_ / \_\_\_ E.C.

Time Interview Started: Hour: \_\_\_\_\_ Minute: \_\_\_\_\_ Questionnaire No \_\_\_\_\_

Time Interview Ended: Hour: \_\_\_\_\_ Minute: \_\_\_\_\_

Name of interviewer \_\_\_\_\_ Date \_\_\_ / \_\_\_ / \_\_\_ E.C. signature \_\_\_\_\_

**Annex III Questionnaire**

Q/No	ITEM/QUESTION	RESPONSE OPTION	CODE	Remark
	<b>Part one:- General Information</b>			
101	Sex	Male Female	1 2	
102	Age	(.....)years		
103	Marital status	Single Married Divorced Widowed	1 2 3 4	
104	Profession	Doctor Nurse Laboratory Midwife HO/ BSc Nurse	1 2 3 4 5	
105	Year of service	(.....) years		
106	Hours worked per week	40 hours Above 40 hours Other specify...	1 2 99	
107	Educational level	12+1 12+2 12+4	1 2 3	

		12+6 Other specify...	4 99	
<b>Part two:-Guideline, norms and practices</b>				
201	Are you Vaccinated for hepatitis B virus	Yes No	1 2	If yes go to 203
202	Give reason if your response to Q 201 is no	Not aware Not available in the facility High cost Other specify.....	1 2 3 99	
203	Does the facility have guideline for infection prevention	Yes No Don't know	1 2 99	
204	Are you familiar with the guide line covering infection prevention	Yes No	1 2	
205	Have you ever participated in any training program about infection prevention	Yes No	1 2	
<b>Part-3 General Knowledge on infection prevention</b>				
301	Have you heard about infection prevention principles	Yes No	1 2	If No skip to 303
302	If Yes For Q No 301 above about which one do you heard about?	-----		
303	Gloves cannot provide complete protection against transmission of infections	Yes No	1 2	
304	Tuberculosis (TB) is carried in airborne particles that are generated from patients with active pulmonary tuberculosis	Yes No	1 2	
305	Do you know how to prepare 0.5% chlorine solution?	Yes No	1 2	

306	If yes for Q No 310, would you tell the procedures to do so?	-----		
<b>hand hygiene</b>				
307	According to standards precautions , hand washing is performed	-Before any direct contact with patients - Between patients' contact -Immediately after removing gloves -After touching body fluids -Before and after procedures - Other specify.....	1 2 3 4 5 99	
308	Do you clean your hand at work	Yes No	1 2	
309	Which method do you use to clean your hands at work	Soap and water Alcohol based hand rub Other specify_____	1 2 99	
310	When do you use alcohol based hand rub to clean your hand?	Not visibly contaminated Visibly contaminated Other specify-----	1 2 99	
	When do you clean your hands?			Answer 311 - 315
311	Before starting the procedure	Yes No	1 2	
312	After completing the procedure and contact with body fluids	Yes No	1 2	
313	After touching the patient	Yes No	1 2	
314	Immediately after removing gloves	Yes No	1 2	
315	After touching a patient's surrounding	Yes No	1 2	



316	I clean my hands with soap and water/ alcohol based hand rub after any direct contact with patients.	Always sometimes Never	1 2 3	
317	Give reasons if your response to Q 411 is 2 or 3	-Water and soap/alcohol based hand rub not available  -It is a waste of time and it increases patient waiting time  - Not all patient contact is infectious  -It is costly  -other specify.....	1  2  3  4  99	
<b>personal protective equipments</b>				
319	Do you use personal protective equipment	Yes No	1 2	If no go to 321
320	If Yes to Q501, which one?	Apron Utility glove/ double glove Head cover Boots/ covered shoe Eye protectors / goggle Mask Examination glove Gown Other specify_____	1 2 3 4 5 6 7 8 99	
321	If your answer is No to Q 320, Why?	Difficult to work with Not always necessary Uncomfortable Out of stock/not available Other specify_____	1 2 3 4 99	
322	Glove use for all patient care contacts is a useful strategy for reducing risk of transmission of organism.	Strongly agree Agree Don't know Disagree Strongly disagree	1 2 3 4 5	

323	When do you use gloves?	For all people when needed For only HIV Suspected cases For only HIV Positive cases For procedures which need gloves Other specify_____	1 2 3 4 99	
324	I wear gloves for contact with body fluids, non-intact skin and mucous membrane	Always Sometimes Never	1 2 3	
325	Give reasons if your response to Q 506, is 2 or 3	Lack of supplies Discomfort with use of gloves Might cause fear in patients Other ( specify)_____	1 2 3 99	
326	I wear gown/plastic apron during procedures likely to generate splashes of blood or body fluid	Always Sometimes Never	1 2 3	
327	Give reasons if your response to 508, is 2 or 3	Lack of supplies Discomfort with use of it Might cause fear in patients Other ( specify)_____	1 2 3 99	
328	I wear a mask and eye protection for procedure likely to generate droplets/splash of blood or body fluid	Always Sometimes Never	1 2 3	
329	Give reasons if your response to 328 is 2 or 3	Lack of supplies Discomfort with use it Might cause fear in patients Other ( specify)_____	1 2 3 99	
330	I cover all cuts and abrasions with a water proof dressing	Always Sometimes Never	1 2 3	
331	Give reasons if your response to 330, is 2 or 3	Lack of supplies Discomfort with use it Might cause fear in patients	1 2 3	

		Other ( specify)_____	99	
332	I wear Boots/ covered shoe in my working environment	Always Sometimes Never	1 2 3	
333	Give reasons if your response to 332, is 2 or 3	Lack of supplies Discomfort with use it Might cause fear in patients Other ( specify)_____	1 2 3 99	
334	In your health facility soiled linen is washed by	Using laundry machine Using hand Other specify.....	1 2 99	
335	Give reasons if your response to 334, is 2 or 99	No laundry machine Non functional of it	1 2	
<b>Safe waste management</b>				
336	Where do you dispose sharp materials or used needles?	-open pail -in sharp and liquid proof container without disassembling -in sharp and liquid proof container after disassembling -Mixed with other wastes/rubbish - Other specify...	1 2 3 4 99	
337	Are there any sharp/needle collection box?	Yes No	1 2	
338	If yes type of sharp collection material	Safety box/card box Plastic pail with lid Plastic pail without lid Other specify...	1 2 3 99	

339	What goes in to safety box?	-Disposable syringe with needles -lancets -Other contaminated sharps -empty vial -cotton pads -dressing materials -bags or extension tubes -latex gloves -other .....	1 2 3 4 5 6 7 8 99	
<b>Part seven safe injection</b>				
340	What do you think the main reasons for reuse of syringe and needles?	no reuse of syringe & needle Shortage of supply Lack of knowledge Carelessness To reduce the cost of treatment Other specify _____	1 2 3 4 5 99	
341	After giving injection or drawing blood from the patient	I do not recap used needles I remove needles from the disposal syringe I bend needles by hand to prevent injury to other health worker I recap used needles Other specify.....	1 2 3 4 99	
342	When I discard used needles and sharps, I use	any available container a dust bin covered with plastic a closed dust bin a puncture proof container/safety box	1 2 3 4	

343	Have you had needle stick or sharp injury in the last one year?	Yes No Don't Know	1 2 3	
344	If yes how did you sustain the injury?	-During recapping -By sudden movement of the patient -During sharp collection -Other specify _____	1 2 3 99	
345	Is there any prophylaxis to HIV after exposed to injury by needle/ sharp?	Yes No Don't Know	1 2 3	
346	Do you take post exposure prophylaxis (PEP) after injury?	Yes No	1 2	
347	Is there responsible person for conducting incidence activities in your facility?	Yes No don't know	1 2 3	
<b>Code</b>	<b>Practice item</b>	<b>Always</b>	<b>sometimes</b>	<b>Never</b>
401	Do you apply antiseptic hand rub to clean hands?			
402	Did you practice high-level disinfection where sterilization is not applicable?			
403	How often do you segregate hazardous, non-hazardous, and sharp materials in their respective bins at necessarily service points?			
404	Did you mix dry and liquid healthcare wastes?			
405	Do you incinerate or bury used sharp materials			
406	Do you incinerate or bury used sharp Materials	Every 24 hours		
		Every 2 days		
		Immediately when it is soiled		
407	For how long do you soak reusable	10 Min		

	medical instruments in chlorine solution?	1 hour			
		12 hours			
		24 hour			
		5 min			
408	How often do you use glove (both hands)?				
409	Do you wear the necessary PPE , if splashes and spills of any body fluids are likely? Which one.	Gloves			
		Apron			
		Goggles			
		Mask			
		Boots			
		Head cover			
410	Where do you usually put sharp disposal boxes?	In high traffic area			
		At corridor			
		Any where			
		Hand reach area			

## **Annex VII guide for in-depth interview**

### **In-depth interview**

Dear respondent

My name is \_\_\_\_\_ I am working for research undertaking by Jimma University on infection prevention practice among health workers in governmental health centers of Kembata Tembaro Zone. Today, I would like to ask you few questions about infection prevention practice and associated factors. Like health care waste management, health care professionals' hand decontamination practice and personal protective equipment utilization status. I would like to tape record our discussion with you this will ensure that we correctly represent your views.

I have your permission to do this. What you say here today is confidential and was used only for research purpose and help us to incorporate with our findings.

1. Do you think your health center' infection prevention practice safe?
2. How do you see the safety of your health centers' patient from health care associated infection?
3. What problems do staffs and patients face related to infection prevention practice?
4. Do you think health care associated infection is top problem or top priority in this health center
5. Why do you think the reason behind health care associated infections in your health centers?
6. What are the predisposing factors for the health care associated infections in your health centers
7. Is there health care associated infection in your health center/s?
8. How do you see infection prevention equipment and infection prevention practice specifically for health centers?
9. Is there adequate personal protective equipment in your health center/s?
10. Is there patient safety practice including infection prevention practice related services in the health center/s?
11. IS there patient safety/infection prevention committee in your health center/s?

## Annex V Observation checklist

Instruction: The observation checklist has 8 pages and it contains 40 questions. At the first page of the module will find the form for informed consent. You are expected to check that all the pages & questions are present, and wear your gown or uniform. Take the informed consent form each interviewee before you precede the observation and the interview. The observation checklist should be filled before commencing interview it may take in average 40 minutes. You are expected to circle the answers against the code numbers or write on the space provided. At the end check and/or crosscheck for completeness, consistency, and reliable responses.

Complete the time and approve with your usual signature.

### INFORMED CONSENT

1. Name of Health center \_\_\_\_\_ department -----

Date \_\_\_\_\_ Time started \_\_\_\_\_

Hallo! Good morning?

My name is Sr./Ato ----- and my friend is Sr./ Ato-----.

We are a research team member of Jimma University, Department of Health Policy and Management, Faculty of Public Health. Today we are here to collect data on the assessment of infection prevention practice and determinant factors. The objective of this questionnaire is to assess Infection prevention practices and determinant factors among health professionals in Governmental health centers, KT Zone, SNNP regional State. We would like to assure you that the study is confidential. We will not keep a record of your name and address. You have a right to stop the interview at any time, or to skip any question that you do not want to answer. Your correct answer to the questions can make the study achieve the goals. Therefore, you are kindly requested to respond genuinely and voluntary with patience. The interview may take about 40 minutes. Do you have any question? Are you willing to participate in the interview?

Yes, Go to the next page

No, Thank them and interrupt the interview

Signature of the consenting interviewer-----

Data collector's Name: ----- Signature -----

Supervisor's Name----- Signature -----



Facility Observation Checklist :-Circle your chose from Q501-Q508 and enter your chose code number in each department from Q801-end

Code	Items	OPTION		skip TO	Emergency	Out patient	Laboratory	Inpatient	Delivery	MCH (FP,ANC, etc)	Others
501	Is there a responsible person for conducting infection control activities in your facility?	Yes	1								
		No	2								
502	Is there a formal Infection Control Committee in the facility?	Yes	1								
		No	2								
503	Does the committee include at least one physician, one nurse, and one other person with training in infection control?	Yes	1								
		No	2								
504	How many times did the committee meet during the past 12 months? (Mark one answer)	Twelve	1								
		Six	2								
		Four	3								
		Three	4								
		Two	5								
		Other ____	99								
505	Which of these general topics are discussed at these meetings? (Mark all that apply)	- Infection rates	1								
			2								
		Surveillance results	1								
			2								
		Health center infection cases	1								
			2								
			99								
		-Outbreaks of Health center infections	1								
			2								
			99								

		Sterilization/ disinfection procedures	1																	
			2																	
			99																	
		Education and training programs in infection control	1																	
			2																	
			99																	
		other ____																		
506	Is there an orientation program with information on infection control for health professionals facility?	Yes	1																	
		No	2																	
507	Does the facility have a guideline for infection prevention and control?	Yes	1																	
		No	2																	
508	Does the facility allocate budget for infection prevention activities?	Yes	1																	
		No	2																	
509	Is there water source in the health facility?	Yes	1																	
		No	2																	
		Tap water	1																	
		Protected spring water	2																	
		Protected well water	3																	
		Stream	4																	
510	What is the source of the water?	Other specify	99																	
		Yes	1																	
511	During your observation is there running water in there room?	No	2																	
		Yes	1																	
512	Is there soap available at the station?	No	2																	
		Yes	1																	
513	Are paper towels available to dry hands?	Yes	1																	
		No	2																	
514	Is there alcohol swab in the room?	Yes	1																	
		No	2																	
515	Is there alcohol- based hand rub in the room?	Yes	1																	

		No	2																	
516	At the time of observation does the health care provider wear PPE	Yes	1																	
		No	2																	
		Not available	99																	
517	If yes, which one of the PPE was witnessed?	- Apron	1																	
		- Utility glove (double glove)	2																	
		- Head cover	3																	
		-Boots/shoe	4																	
		- Eye protectors/ Goggle	5																	
		- Mask	6																	
		Gown	7																	
		Other specify	99																	
518	How was the condition of the safety box or sharp container in the health facility?	-Over filled	1																	
		-Torn and needles seen through the Hole	2																	
		-Empty or few Dirty	3																	
		-syringed and Needles	4																	
		- Sharps mixed with other waste	5																	
		Other	99																	
519	Is here a written material or picture for risk communication in the department/ working room?	Yes	1																	
		No	2																	
520	How are syringes, needles, and sharps disposed in the health facility?	- open incineration	1																	
		-Protected incineration	2																	
		- Open Dumping	3																	
		- Burial in the Pit	4																	
		Dumping	5																	
		Other	99																	
521	Are there contaminated needles, syringe or other sharps in the	Yes	1																	

	surrounding of the health institution?	No	2																	
522	What goes in to the safety box?	-Disposable syringe with Needles	1																	
		lancet	2																	
		Contaminated sharps	3																	
		-Empty vials	4																	
		-Cotton pad	5																	
		-Dressing Material	6																	
		- Latex glove	7																	
		-Other materials of waste products	99																	
523	Where do you dispose sharp materials or used needles?	-Open pail	1																	
		-In sharp and liquid proof container Without disassembling	2																	
		In sharp and liquid proof container after disassembling	3																	
		-Mixed with other wastes/ Rubbish	4																	
		-Other specify	99																	
524	The facility maintains a log of needle sticks, sharps injuries, and other employee exposure events	Yes	1																	
		No	2																	

Part Two:- observation of Hand hygiene practices in \_\_\_\_\_ unit. Facility code:  
 \_\_\_\_\_ category of health worker observed \_\_\_\_\_ day \_\_\_\_\_ month \_\_\_\_\_ year  
 \_\_\_\_\_

Code	Hand hygiene practice observed	Please answer “Yes,” “No,” or “NA” (Not applicable / not observed) in the designated column. The goal is to observe four hand cleaning in each service unit that is included in the study. All observed in the same unit may be the same participant in different moment.			
		Participant 1	Participant 2	Participant 3	Participant 4
	Observe HH in these moments				
	Did the provider clean his/her hands with soap and water or an alcohol-based hand sanitizer?				
525	Before any direct contact with patients				
526	Before starting the procedure				
527	After completing the procedure and contact with bodily fluids				
528	After touching a patient				
529	Immediately after removing gloves				
530	After touching a patient’s surroundings				

Part Three:- observation of injection administration in \_\_\_\_\_ unit facility code: \_\_\_\_\_  
 \_\_\_\_\_ category of health worker observed \_\_\_\_\_ day \_\_\_\_\_ month \_\_\_\_\_ year \_\_\_\_\_

Code	Injection practice observed	Please answer “Yes,” “No,” or “NA” (Not applicable / not observed) in the designated column. The goal is to observe four injections in each service unit that is included in the survey. All four injections may be of the same type.			
		Injection 1	Injection 2	Injection 3	Injection 4
531	Instructions: Please label each injection observed as “V” (vaccination), “C” (curative), “D” (diagnostic) or “FP” (family planning / contraceptive).	Type:	Type:	Type:	Type:
532	Was the injection preparation done on a clean, dedicated working table or tray where the contamination of the equipment with blood, dirty swabs or other biological waste is unlikely?				
533	Did the injection provider wash his/her hands with soap and water before beginning the injection or where there was a risk of contact with soil, blood, or body fluids?				
534	Did the injection provider clean his/her hands with an alcohol-based hand sanitizer before beginning the injection or where there was a risk of contact with soil, blood, or body fluids?				
535	Did the injection provider wear appropriate PPE?				
536	For each injection given, was the needle and syringe taken from a sterile pack?				
537	For cases where the needle and syringe				

	we're NOT taken from a sterile pack: Was there evidence that a used needle and/or syringe was being reused on this patient?				
538	Was the needle removed from the rubber cap of each multi-dose vial after withdrawing each dose for administration?				
539	If a glass ampoule was used, did the provider use a clean barrier (e.g., sponge, cotton, gauze, or file) to protect his/her fingers when breaking the ampoule?				
540	For each reconstitution, was a sterile syringe and needle taken from a sealed pack?				
541	Was the patient's skin cleaned with a clean swab or disinfectant before the injection was given?				
542	After the completion of the injection, was the used syringe recapped?				
543	After each injection observed, did the provider immediately dispose of the used needles and syringes in an				
544	appropriate sharps container or use a needle remover?				

## Annex VI: English Version Consent Form and Questionnaire for Clients

I understand all conditions stated above. I have understood that Participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. Therefore, I am Ready and willing to participate in this study. If, respondent does not agree to be interviewed thanks her and go to the next respondent. If, respondent say “Yes” continue.

Checked by: Supervisor: Name \_\_\_\_\_ signature \_\_\_\_\_ Date \_\_\_ / \_\_\_ / \_\_\_ E.C.

Time Interview Started: \_\_\_\_\_ Ended: \_\_\_\_\_ Questionnaire No \_\_\_\_\_

Name of interviewer \_\_\_\_\_ Date \_\_\_ / \_\_\_ / \_\_\_ E.C. signature \_\_\_\_\_

Q/No	ITEM/QUESTION	RESPONSE OPTION	CODE	Remark
	<b>Part – 1 General Information</b>			
101	Sex	Male Female	1 2	
102	Age	(.....)years		
103	Marital status	Single Married Divorced Widowed	1 2 3 4	
104	Educational status	Unable to read and write Primary school Secondary school University/collage	1 2 3 4	
105	Occupational status	Farmer Government employee Student Merchant Other specify	1 2 3 4 99	
	<b>Part-2 Questions for witness of IP practice</b>			
201	For what service do you come here	Out patient Antinatal care visit Emergency HCT Followup	1 2 3 4 5	



		Other specify	99	
202	Do the health care providers wear Gown?	Yes No Don't know	1 2 99	
203	Do health care providers wear glove?	Yes No Don't know	1 2 99	
204	Do healthcare providers wash their hands with soap and water or Rub with alcohol for hand rub?	Yes No Don't know	1 2 99	
205	If "yes" to Q.No 204, When did they wash/use alcohol hand rub to thier hands?	Before touching my body After touching my body Before inserting glove After removing Glove Other specify	1 2 3 4 99	
206	Have you ever take injection in this facility?	Yes No	1 2	
207	If "Yes" to Q-206, where did the provider place syringe with needle after injection?	In the carton with narrow hole In the bucket Don't know	1 2 99	
208	Which of the following did the provider wear while giving service for you?	Mask Eye protector Boots Gown Plastic dressing Other specify	1 2 3 4 5 99	
209	Is the water available for hand washing at different places in the compound	Yes No	1 2	
210	How was the cleanness of the facility	Clean Not clean	1 2	
211	What is your opinion about the cleanness of the facility	-----		



## የአማርኛ ስራት የስምምነት ቅጽ

እኔ ከላይ እንደተገለጸው ሁሉንም ሁኔታዎች በመረዳት በዚህ ጥናት ውስጥ ተሳትፎ ለመስጠት በሙሉ በሙሉ በፈቃደኝነት መሆኑን ተረድቻለሁ። የእኔን መልስ ለሌላ ሰው እንደማይሰጥ እና በዚህ ጥናት ውስጥ ምንም ርገር ቶች በመቼውም ሊዘገቡ ለማንኛውም ሁኔታ ለሌላ አካል እንደማይሰጥ ተነግሮኛል። ስለዚህ እኔ በዚህ ጥናት ለመሳተፍ ዝግጁ እና ፈቃደኝ ነኝ። መልስ ሰጪው ቃለ-መጠይቅ ለመጠየቅ ካልተስማማ እሱን/እርሷን አመስግን እና ደቀጣዩ ይህ ነው። ፈቃደኛ ከሆነ መልስ ሰጪው “አዎ” ይበሉ።

ያረጋገጠዉ ተቆጣጣሪ-ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_ ቀን \_\_\_\_ / \_\_\_\_ / \_\_\_\_ E.C.

ቃለ መጠይቅ የተጀመረው-ሰዓት \_\_\_\_\_ ደቂቃ \_\_\_\_\_ መጠይቅ ቁጥር \_\_\_\_\_

ቃለ መጠይቅ የበቀው-ሰዓት \_\_\_\_\_ ደቂቃ \_\_\_\_\_

የጠያቂ ስም \_\_\_\_\_ ቀን \_\_\_\_ / \_\_\_\_ / \_\_\_\_ ፊርማ \_\_\_\_\_

## መጠይቅ

ተራ ቁጥር	ጥያቄ	የመፍትሔ አማራጭ	CODE	እንደ ገና ምልክት ያድርጉ
	<b>ክፍል አንድ-አጠቃላይ መረጃ</b>			
101	ፆታ	ወንድ ሴት	1 2	
102	ዕድሜ	(.....) ዓመታት		
103	የጋብቻ ሁኔታ	ነጠላ ያገባ የተፋታ ባሏ የሞተ ባት	1 2 3 4	
104	ሙያ	ዶክተር ነርስ ላቦራቶሪ አዋላጅ HO / BSc ነርስ	1 2 3 4 5	

105	የአገልግሎት ዓመት	(.....) ዓመታት		
106	ሰዓታት በሰዓት ይሰሩ ነበር	40 ሰዓታት ከ 40 ሰዓታት በላይ ሌላይ ግለጹ...	1 2 99	
107	የትምህርት ደረጃ	12 + 1 12 + 2 12 + 4 12 + 6 ሌላይ ግለጹ...	1 2 3 4 99	
<b>ክፍል ሁለት -- ገደብ ደንብ ለደንበኞች እና ለምዶች</b>				
201	ለሄፕታይት ስብሰባ ለሚሰጡት ባለሙያዎች	አዎ የለም	1 2	አዎ ከሆነ ወደ 203 ይሄዱ
202	ለ 207 መልስ የሰጡት ስም ለምድር ነገር ግለጹ	ባለሙያዎች በተቋሙ ውስጥ አይገኝም ከፍተኛ ወጪ ሌላይ ግለጹ .....	1 2 3 99	
203	ተቋሙ ለበሽታ መከላከል መመሪያ አለው?	አዎ የለም አላውቅም	1 2 99	
204	የኢንፎርሽን መከላከልን መመሪያ አንብበው በደንብ ተረድተዋል?	አዎ የለም	1 2	
205	ስለ ኢንፎርሽን መከላከል በሚገኘው ስም የሰጡ ጠናፕሮግራም ውስጥ ተሳትፈዋል?	አዎ የለም	1 2	
<b>ስለ ኢንፎርሽን መከላከል አጠቃላይ ሁኔታ አውቀው ክፍል 3</b>				
301	ስለ ኢንፎርሽን መከላከል መርሆዎች ስምተዋል?	አዎ የለም	1 2	ካልሆነ ወደ መዘለል 303
302	አዎ ከሆነ አዎ ከሆነ ቁጥር 301 ስለ የትኛው ነው የሰማችሁት?	-----		
303	ጓጉት ከተላላፊ በሽታዎች ስር ጭት ሙሉ በሙሉ መከላከል አይችሉም	አዎ የለም	1 2	
304	የሳንባክቀርሳ (ቲቢ) በአሁን ሰዓት የሳንባክቀርሳ በሽታ ካለባቸው ህመም ተኞች የሚመነጭ በአየር ወለድ ቅንጣቶች ውስጥ ነው	አዎ የለም	1 2	

305	የ 0.5% ክሎሪን ፈሳሽ መድሃኒት እንዴት እንደሚዘጋጅ ይታያል?	አዎ የለም	1 2	
306	ለቁጥር 310 መልስዎ አዎ ከሆነ፣ እንዲህ ለማድረግ የሚከናወኑትን ሂደቶች ይግለጹ?	-----		
<b>የእጅንፅህና</b>				
307	በመሰረታዊ የጥንቃቄ እርምጃዎች መሠረት እጅን መታጠብ የሚከናወነው?	- ከህመምተኞች ጋር ቀጥተኛ ግንኙነት ከመደረጉ በፊት - በታካሚዎች ግንኙነት መካከል - ጓንቶችን ካስወገዱ በኋላ ወዲያውኑ - የሰውነት ፈሳሽ ከተነካ በኋላ - ከሂደቶች በፊት እና በኋላ - ሌላ ይግለጹ .....	1 2 3 4 5 99	
308	በስራ ወቅት እጅዎን ይታጠባሉ?	አዎ የለም	1 2	
309	እጅዎን በሥራ ላይ ለማፀዳት የትኛውን ዘዴ ይጠቀማሉ?	ሳሙና እና ውሃ በአልኮል ላይ የተመሠረተ የእጅ ብሩሽ ሌላ ይግለጹ _____	1 2 99	
310	እጅዎን ለማፀዳት መቼ ነው በአልኮል ላይ የተመሠረተ የእጅ ፈሳሽ የምጠቀሙት?	በማይታይ መልኩ የተበከለ በሚታይ መልኩ የተበከለ ሌላ ይግለጹ -----	1 2 99	
	እጅዎን ለማፀዳት ይጠቀማሉ?			መልስ 311-316
311	የአሰራር ሂደቱን ከመጀመር ያለፈው?	አዎ የለም	1 2	
312	የአሰራር ሂደቱን ከጨረሱ እና ከሰውነት ፈሳሽ ጋር ነክኪ	አዎ የለም	1 2	
313	የአሰራር ሂደቱን ከጨረሱ እና ከሰውነት ፈሳሽ ጋር ነክኪ	አዎ የለም	1 2	
314	በሽተኛው ከነካ በኋላ	አዎ የለም	1 2	
315	ጓንቶችን ካስወገዱ በኋላ ወዲያውኑ	አዎ የለም	1 2	
316	የታካሚውን አካባቢ ከነካ በኋላ	አዎ የለም	1 2	

317	እኔ ሕመምተኞች ጋር ምንም ቀጥተኛ ንክኪ ስኖር በሰላምና እናውጥ / አልኮል የእጅ መጠራረጊያ ጋር እጆቼን ማጽዳት	ሁሌም ብዙ ጊዜ አልፎ አልፎ በጭራሽ	1 2 3 4	
318	ለ Q 317 የሰጡት ምላሽ 2 ፣ 3 ወይም 4 ከሆነ ምክንያቶቹ ይሰጡ	- Water እና ሳሙና አልኮሎል የተመሠረተ የእጅ መታጠቂያ / አይገኝም  - ይህ ጊዜ ማባከን ነው እና ምንም ታካሚውን የመጠበቅ ጊዜ ይጨምራል  - ሁሉም የታካሚው ግንኙነት ተላላፊ አይደለም  - በጣም ውድነው ሌላ ይግለጹ .....	1 2 3 4 99	
<b>የግል መከላከያ መሣሪያዎች</b>				
319	የግል መከላከያ መሣሪያዎችን ይጠቀማሉ	አዎ የለም	1 2	አዎ ካልሆነ ወደ 321 ይሂዱ
320	መልስዎ እዎ ከሆነ ለ Q501 ፣ የትኛው ነው?	አፕሮን የፍጆታ ጓጓዣ / እጥፍ ጓጓዣ የጭንቅላት ሽፋን በትጫማዎች / የተሸፈኑ ጫማዎች የዓይን መከላከያዎች / ጎግ / ጭንብል የመመርመሪያ ጓጓዣ ከተማ ሌላ ይጥቀሱ _____	1 2 3 4 5 6 7 8 99	
321	መልስዎ ለ ቁጥር 319 የለም ከሆነ ፣ ለምን?	ለ መስራት አስቸጋሪ ነው ሁል ጊዜ አስፈላጊ አይደለም የማይመች ስለሆነ ስለሌለ ሌላ ይጥቀሱ _____	1 2 3 4 99	
322	ለ ሁሉም የሕመምተኞች እንክብካቤ ጓጓዣ መጠቀም የአካል ተሳታፊ ሆኖ ለመተላለፍ አደጋን ለመቀነስ ጠቃሚ ስትራቴጂ ነው።	በጥብቅ እስማማለሁ እስማማለሁ ድምፀ ታቅቦ አልስማማም በጥብቅ አልስማማም	1 2 3 4 5	

323	ጓንቶችመቼይጠቀማሉ?	አስፈላጊሆኖሲገኝለሁሉምሰዎች በኤችአይቪየተያዙደንበኞችብቻ ለኤች.አይ.ቪፖዜትቭ ደንበኞችብቻ ጓንትለሚፈልጉሂደቶች በሙሉ ሌላካለ ይጠቀስ_____	1 2 3 4 99	
324	ከሰውነትፈሳሾችጋር፣ክፍት ከሆነቆዳእናበ mucous ሽፋንጋርግንኙነትለማድረግጓንትአለብሳለ ሁ	ሁሌም ብዙጊዜ አልፎ አልፎ በጭራሽ	1 2 3 4	
325	ለ Q 324 የሰጡትምላሽ 2,3 ወይም 4 ከሆነምከንዶቶችይስጡ	አቅርቦቶችአጥረት ጓንቶችንመጠቀምአይመቻኝም በታካሚዎችውስጥፍርሃትሊፈጠርስለም ችል ሌላ (ይግለጹ) _____	1 2 3 99	
326	የደምወይምየሰውነትፈሳሽየመረጫት ሁኔታእንዲፈጠርበሚያደረጉሂደቶችወቅት gown/plastic apron አለብሳለሁ	ሁሌም ብዙጊዜ አልፎ አልፎ በጭራሽ	1 2 3 4	
327	ለቁጥር 326የሰጡትምላሽ 2 ፣ 3 ወይም 4 ከሆነምከንዶቶችይስጡ	አቅርቦቶችአጥረት መጠቀምአይመቻኝም በታካሚዎችውስጥፍርሃትሊፈጠርይችላ ል ሌላ (ይግለጹ) _____	1 2 3 99	
328	የደምመፍሰስወይምየሰውነትፈሳሽንከኪሊ ፈጠርብኝለሚችልአሰራር/ procedures mask and eye protection እጠቀማለሁ	ሁሌም ብዙጊዜ አልፎ አልፎ በጭራሽ	1 2 3 4	
329	ለ 328 የሰጡትምላሽ 2 ፣ 3 ወይም 4 ከሆነምከንዶቶችይስጡ	አቅርቦቶችአጥረት እሱንመጠቀም አይመቻኝም በታካሚዎችውስጥፍርሃትሊፈጠርይችላ ል ሌላ (ይግለጹ) _____	1 2 3 99	
330	የተቆረጠ ወይንም የቆሰለ የአካሌ ክፍል ስኖር በwater proof dressing እሸፍናለሁ	ሁሌም ብዙጊዜ አልፎ አልፎ በጭራሽ	1 2 3 4	

331	ለ 330 የሰጡትምላሽ 2 ፣ 3 ወይም 4 ከሆነምክንያቶቻቸውም	አቅርቦቶች አጥረት እሱን መጠቀም አይመቻቅም በታካሚዎቻቸው ስጥፍ ርኅትሊ ፈጠር ይቻላል ሌላ (ይግለጹ) _____	1 2 3 99	
332	በሥራ ቦታ የውስጥ ቡትስ / የተሸፈነ ጫማ አደርጋለሁ	ሁሌም ብዙ ጊዜ አልፎ አልፎ በጭራሽ	1 2 3 4	
333	ለ 332 የሰጡትምላሽ 2 ፣ 3 ወይም 4 ከሆነምክንያቶቻቸውም	አቅርቦቶች አጥረት እሱን መጠቀም አይመቻቅም በታካሚዎቻቸው ስጥፍ ርኅትሊ ፈጠር ይቻላል ሌላ (ይግለጹ) _____	1 2 3 99	
334	በጤና ተቋም ወይም ስጥፍ ርኅትሊ / soiled linen የምታጠባበቅ	የልብ ስማጠቢያ ማሸንጎ መጠቀም እጅን ለመጠቀም ሌላ ይግለጹ .....	1 2 99	
335	ለ 334 የሰጡትምላሽ 2 ፣ 99 ከሆነምክንያቶቻቸውም	የልብ ስማጠቢያ ማሸንጎ ለምን ማሸንጎ የሚሠራ አይደለም	1 2	
<b>ደህንነት የተጠበቀ ቆሻሻ አይደለም</b>				
336	ሹል የሆኑ ቁሳ ቁሶችን ወይም ያገለገሉ መርፌዎችን የትይዩ ጣላሎ?	- ክፍት ጋንብ / open pail - በሹል እና ፈሳሽ መያዣ ዕቃ ውስጥ ሳይለያዩ ተለያይተው በሹል እና ፈሳሽ መያዣ ዕቃ ውስጥ - ከሌሎች ቆሻሻዎች ጋር አንድ ልተቀላቅሎ ሌላ ይግለጹ .....	1 2 3 4 99	
337	የሸለ መሣሪያ / መርፌ ክምችት ሳጥን አለ?	አዎ የለም	1 2	
338	ለ 337 አዎ ከሆነ የሹል / መርፌ የሱብስብ ቁሳ ቁሶች አይነት	የደህንነት ሳጥን / Safety box የፕላስቲክ ጋይጥ መያዣ ጋር የፕላስቲክ ጋይጥ ለክዳን ሌላ ይግለጹ .....	1 2 3 99	



339	ወደደህንነት ሳጥን ውስጥ የሚገባው ምን ዓይነት ውሃ?	<ul style="list-style-type: none"> <li>- ስርንጅ ከነመርፊ</li> <li>- ላንሴት/ lancets</li> <li>- ሌሎች የተበከሉ ሹል መሣሪያዎች</li> <li>- ባዶ ብልቃጥ</li> <li>- ኮቲንጋዶች/ cotton pads</li> <li>- የቁስል መሸፈኛ ጨርቆች/dressing materials</li> <li>- የፈሉድ መያዣ ፕላስቲክ እና የኤክስቴንዥን ትዩቦች/ bags or extension tubes</li> <li>- ጓንት/ latex gloves</li> <li>ሌላ .....</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>3</li> <li>4</li> <li>5</li> <li>6</li> <li>7</li> <li>8</li> <li>99</li> </ul>	
<b>ክፍል ሰባት ደህንነት የተጠበቀ መርፊ</b>				
340	መርፊ እና መርፊዎችን እንደ ገና ለመጠቀም የሚረዱ ዋና ዋና ምክንያቶች ምን ዓይነት ልዎታል?	<ul style="list-style-type: none"> <li>መርፊ እና መርፊዎችን ማጠቀሚያ ለመጠቀም</li> <li>የአቅርቦት አጥረት</li> <li>የእውቀት አጥረት</li> <li>ግድ የለሽነት</li> <li>የሕክምና ወጪን ለመቀነስ</li> <li>ሌላ ይጠቀሱ _____</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>3</li> <li>4</li> <li>5</li> <li>99</li> </ul>	
341	ለታካሚው መድኃኒት በመርፊ ከሰጠሁ ወይም ደም በመርፊ ከቀደሁ በኋላ	<ul style="list-style-type: none"> <li>ስርንጅን ወደ ኃላ አልሰጠም/ I do not recap used needles</li> <li>መርፊውን ከስርንጅ አስወግጃለሁ</li> <li>በሌሎች የጤና ሠራተኛ ላይ ጉዳት እንዳይደርስ ለመከላከል መርፊውን በእጅ ጫፉን ቆልመም አድርጌለሁ</li> <li>የተጠቀሙ ባቸው መርፊዎችን ስርንጅን ወደ ኃላ እስባለሁ/ I recap used needles</li> <li>ሌላ ይግለጹ .....</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>3</li> <li>4</li> <li>99</li> </ul>	
342	ያገለገሉ መርፊዎችን እና ስለታም መሪያዎችን በሚያስወግድበት ጊዜ እኔ የምጠቀመው	<ul style="list-style-type: none"> <li>ማንኛውም የተገኘውን መያዣ</li> <li>በተሸፈነ የፕላስቲክ የቆሻሻ መጣያ</li> <li>የልተዘጋ የቆሻሻ ቅርጫት</li> <li>የጥንቃቄ ሳጥን/ safety box</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>3</li> <li>4</li> </ul>	
343	ባለፈው ዓመት ውስጥ በመርፊ ወይም ሹል በሆኑ መሣሪያዎች ጉዳት ደርሶብዎታል?	<ul style="list-style-type: none"> <li>አዎ</li> <li>የለም</li> <li>አላስታውስም</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>99</li> </ul>	መልሱ የለም ከሆነ ወደ 345 ይህዱ

344	ለ 343 መልስዎ አዎ ከሆነ ጉዳቱን እንዴት ልደርስ ስቻለ?	- ስርንጁን ወደ ኃላ ሰሰብ - በታካሚው ድንገተኛ እንቅስቃሴ ምክንያት - ስለታም መሣሪያዎችን ሰሰብሰብ - ሌላ ካለ ይጥቀሱ	1 2 3 99	
345	በመርፌ / ሹልለ ጉዳት ከተጋለጡ በኋላ የኤችአይቪ መከላከያ ክትባት አለ?	አዎ የለም አላውቅም	1 2 99	
346	ጉዳት ከደረሰ በኋላ የድህረ-ተህዋሲያን የኤችአይቪ መከላከያ ክትባት ወስደዉ ያዉቃሉ?	አዎ የለም	1 2	
347	በእርስዎ ተቋም ውስጥ የድንገተኛ ክስተት እንቅስቃሴዎችን የሚከታተል ኃላፊነት የሚሰማው ሰው አለ?	አዎ የለም አላውቅም	1 2 99	
ኮድ	<b>የተግባር ጥያቄዎች</b>	<b>ሁሌም</b>	<b>አንዳንድ ጊዜ</b>	<b>በጭራሽ</b>
401	ለንጹህ እጆች የፀረ-አንቲሴፕቲክ የእጅ መታጠብያ /antiseptic hand rub/ ይተገብራሉ?			
402	ስቴራላይዜሽን በማይኖርበት ወቅት የከፍተኛ ደረጃ ማከምን / high-level disinfection/ ይጠቀማሉ?			
403	በየራሳቸው የፍጆታ ቅርጫቶች በመሠረታዊ የአገልግሎት መስጫ ቦታዎች ላይ ምን ያህል ጊዜ አደገኛ ፣ አደገኛ ያልሆኑ እና ሹል የሆኑ ቁሳቁሶችን በትክክል ለይተዉ ይጥላሉ?			
404	ደረቅ እና ፈሳሽ የጤና አጠባበቅ ቁሳቁሶችን ቀላቅለው ነበር?			
405	ያገለገሉ ሹል ቁሳቁሶችን / sharp materials/ ኢንሰንሬት / incinerate/ ያረጋሉ ወይም ይቀብራሉ ወይ?			
406	ያገለገሉ ሹል ቁሳቁሶች ኢንሰንሬት /incinerate/ የሚያደርጉት ወይም የምቀብሩት	በየ 24 ሰዓቱ		
		በየ 2 ቀናት		
		ወዲያው ኑ ከተጠቀምኩ በኋላ		
407	በክሎሪን ፈሳሽ/ chlorine solution/ ውስጥ እንደገና ጥ	10		

	ቅምሳይ የሚውሉ የህክምና መሳሪያዎችን ለምን ያህል ጊዜ ያቆያሉ?	ደቂቃ			
		1 ሰዓት			
		24 ሰዓታት			
		24 ሰዓት			
		5 ደቂቃ			
408	ምን ያህል ጊዜ ዳንት (በሁለቱንም እጆች) ይጠቀማሉ?				
409	ከሰውነት ፈሳሾች ጋር የንክኪ አጋጣሚዎች በምኖሩበት ጊዜ የሰውነት መከላከያ መሳሪያዎችን ( PPE) ይለብሳሉ? የትኞቹን?	ዳንት			
		አፕሮን			
		መነጻር			
		ጭንብል			
		ቡትስ			
		የራስ ቁል መሸፈኛ			
410	ብዙውን ጊዜ የሹል ማከማቻ ሳጥኖችን/ sharp disposal boxes/የትያኖራሉ?	በከፍተኛ የትራፊክ አካባቢ ውስጥ			
		በአገናኝ መንገድ/ At corridor			
		የትያኖውም ቦታ			
		የእጅ መድረሻ ቦታ			

**የአማርኛ ስሪት የስም ምዝገባ ቅጽ ለደንበኞች መጠይቅ**

እኔ ከላይ እንደተገለጸው ሁሉንም ሁኔታዎች በመረዳት በዚህ ጥናት ውስጥ ተሳትፎ ለመስጠት በፈቃደኝነት መሆኑን ተረድቻለሁ። የእኔን መልስ ለሌላ ሰው እንደማይሰጥ እና በዚህ ጥናት ውስጥ ምንም ሥርዓት የሌለውን ምርመራ ለማድረግም ሁኔታ ለሌላ አካል እንደማይሰጥ ተነግሮኛል። ስለዚህ እኔ በዚህ ጥናት ለመሳተፍ ዝግጁ እና ፈቃደኛ ነኝ። መልስ ሰጪው ቃለ-መጠይቅ ለመጠየቅ ካልተስማማኝ ለሌላ ሰው ለማስተካከል ይቻላል። ፈቃደኛ ከሆነ መልስ ሰጪው “አዎ” ይበሉ።

ያረጋገጠው ተቆጣጣሪ-ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_ ቀን \_\_\_\_ / \_\_\_\_ / \_\_\_\_ E.C.  
 ቃለ-መጠይቅ የተጀመረው-ሰዓት \_\_\_\_\_ ደቂቃ \_\_\_\_\_ መጠይቅ ቁጥር \_\_\_\_\_ ቃለ-መጠይቅ የበቀው-ሰዓት \_\_\_\_\_ ደቂቃ \_\_\_\_\_  
 የጠያቂ ስም \_\_\_\_\_ ቀን \_\_\_\_ / \_\_\_\_ / \_\_\_\_ ፊርማ \_\_\_\_\_

**መጠይቅ ለደንበኞች**

ተ.ቁ	ጥያቄ	አማራጭ	CODE	ምርመራ
<b>ክፍል - 1 አጠቃላይ መረጃ</b>				
101	ፆታ	ወንድ ሴት	1 2	
102	ዕድሜ	(.....) ዓመታት		
103	የጋብቻ ሁኔታ	ነጠላ ያገቡ የተፋታ ባለሞተባት	1 2 3 4	
104	የትምህርት ሁኔታ	ማንበብ እና መጻፍ የማይችል የመጀመሪያ ደረጃ ትምህርት ቤት ሁለተኛ ደረጃ ትምህርት ቤት ዩኒቨርሲቲ / ኮሌጅ	1 2 3 4	
105	የሙያ ሁኔታ	አርሶ-አደር የመንግሥት ሠራተኛ ተማሪ ነጋዴ ሌላ የግለጹ	1 2 3 4 99	
<b>ክፍል - 2 የእንጫካ ምክላከል ተግባራትን በተመለከተ ጥያቄዎች</b>				
201	እዚህ ምን እንገልግሎት ልወስዱ ነዉ የመጡት?	ተመላላሽ ታካሚ ቅድመ ወሊድ እንክብካቤ ጉብኝት ድንገተኛ ሁኔታ ኤች.አይ.ቪ. ምርመራ እና ህክምና ክትትል ሌላ የግለጹ	1 2 3 4 5 99	
202.	የጤና አገልግሎት ሰጪዎች ገዋን ይለብሳሉ?	አዎ	1	

		የለም	2	
		አላውቅም	99	
203	የጤና አገልግሎት ምርመራ በሚያደርጉበት ወቅት መጋረጃ/screen ይጠቀማሉ?	አዎ	1	
		የለም	2	
		አላውቅም	99	
204.	የጤና አገልግሎት ሰጭዎች እጃቸውን ይታጠባሉ ወይንስ አልተጠቀሱም?	አዎ	1	
		አይ	2	
		አታውቅም	99	
205.	Q.No 204, "አዎ" ከሆነ እነርሱ መቼ ነው የተጠቀሙት?	ሰውነቴን ከመነካካት በፊት	1	
		ሰውነቴን ከነካካት በኋላ	2	
		ጓንት ከማስገባት ምንጭት	3	
		ጓንት ካስወገዱ በኋላ	4	
		ሌላ ይግለጹ	99	
206	በዚህ ተቋም ውስጥ መድኃኒት በመርፌ ወስደዋል ወይስ አይደሉም?	አዎ	1	
		የለም	2	
207.	ለ 206 መልሱ "አዎ" ከሆነ አቅራቢው መርፌውን የት አስቀመጠዉ?	ጠባብ ቀዳዳ ባለው ካርቶን ውስጥ	1	
		በባልዲ ውስጥ	2	
		አላውቅም	99	
208	አገልግሎት አቅራቢው ለእርስዎ አገልግሎት በሚሰጥበት ጊዜ ከሚከተሉት ውስጥ የትኛውን ለብሶ ነበር?	ማስክ/ Mask	1	
		የዳይን መከላከያ	2	
		ቡትስ ጫማ	3	
		ገዋን	4	
		የፕላስቲክ ልብ	5	
		ሌላ ይግለጹ	99	
209	በግቢው ውስጥ በተለያዩ ቦታዎች የእጅ መታጠብ ያውሃይ ገኛል?	አዎ	1	
		የለም	2	
210	የተቋሙን ፅህናት እንዴት ነበር?	ንፁህ ነዉ	1	
		ንፁህ አይደለም	2	
211	ለ 210 ንፁህ አይደለም ካሉ ከምክተሉት ንፁህ ያልሁኑት የትኞቹ ናቸው?	የግቢ ዉ ዉስጥ		
		የ እንግዳ ማረፊያ ቦታ	1	
		ሽንት ቤት	2	
		የመታከሚያ ክፍሎች	3	
		የመታከሚያ ክፍሎች አከባቢ	4	
		ሌላ ይግለጹ	99	
212	ለ 210 ንፁህ አይደለም ካሉ ምን ይጎድላል ብለዉ ያስባሉ?			

