



**ADDIS ABABA UNIVERSITY
MEDICAL FACULTY
DEPARTMENT OF COMMUNITY HEALTH**

**ASSESSMENT OF THE KNOWLEDGE, ATTITUDE AND
PRACTICE OF HEALTH CARE WORKERS ON UNIVERSAL
PRECAUTION IN NORTH WOLLO ZONE, AMHARA REGION,
NORTH EASTERN ETHIOPIA, 2006**

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Dedications

To health care workers and clients alike with work place risk of exposure and vulnerability to chronic and deadly infections.

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List of Acronyms

AAU	Addis Ababa University
AD	Auto disable (syringe)
AIDS	Acquired Immune Deficiency Syndrome
AOR	Adjusted Odds Ratio
CDC	Center for Disease Control and Prevention
CI	Confidence Interval
COR	Crude Odds Ratio
FGD	Focus Group Discussion
HAPCO	HIV/AIDS Prevention and Control Organization
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HLD	High Level Disinfection
HIV	Human Immunodeficiency Virus
IP	Infection Prevention
MOH	Ministry of Health
NaSH	National Surveillance System for Health Care Workers
NGOs	Non Governmental Organizations
OR	Odds Ratio
OPD	Out Patient Department
PEP	Post Exposure Prophylaxis
PPE	Personal Protective Equipment
SD	Standard Deviation
SIGN	Safe Injection Global Network
SNNPR	Southern Nation, Nationalities, and Peoples Region
SPSS	Statistical Package for Social Science Research
TST	Time, Steam and Temperature
UNAIDS	Joint United Nations Program on HIV/AIDS
UP	Universal Precautions
WHO	World Health Organization

Abstract

Background Employing universal precautions means taking precautions with everybody. If precautions are taken with everyone, health care workers do not have to make assumptions about people's lifestyles and risk of infection.

Objectives: The main objective of the study was to assess the knowledge, attitude and practices of health care workers on universal precautions and factors in health institutes.

Methods: This cross sectional health institution based survey was conducted in North Wollo Zone from January through September 2006. The study has used quantitative and qualitative methods. Statistical significance was determined by computing mean variations using T test and one-way ANOVA methods.

Results: - The response rate for quantitative method was 93.4%. The mean knowledge score of health care workers was $2.53 \pm (SD\ 1.17)$ and 156 (44.4%) of the respondents had greater or equal to the mean score. Seventy-nine (87.8%) of the observed injection practices was found to be unsafe to the health care workers and clients or community. The overall hand hygiene adherence rate was $28.34\% \pm (SD\ 27.58\%)$. Correct hand hygiene practice has statistically significant association with availability of water, alcohol, and participating on UP trainings (OR (95% CI) = 6.89(2.66, 17.87), (OR (95% CI) = 3.95(1.46, 10.68), and (OR (95% CI) = 5.84(2.32, 14.72). Also female health care workers better adhere to hand hygiene than male (OR (95% CI) = 0.15(0.06, 0.38). According to the FGD's result lack of supplies and facilities were the main factors for unsafe practices in health institutes.

Conclusion: Considerable proportion of health care workers in North Wollo had lacked proper knowledge, attitude and practice towards universal precautions. Equally health care facilities in North Wollo were not adequately prepared in supplying essential materials to safe practices. Providing training on universal precaution to all health care staff and enhancing sustainable supplies systems are recommended.

Key words: universal precaution, health care workers, universal precaution related practice and hand hygiene.

1. Introduction

Employing universal precautions means taking precautions with everybody. If precautions are taken with everyone, health care workers do not have to make assumptions about people's lifestyles and risk of infection. Health care workers should have the right to be able to protect themselves against infection, whether it is human immunodeficiency virus (HIV), Hepatitis or anything else ⁽¹⁾. And clients have also the right to get safe service.

The world health organization (WHO) estimated that at least 50% of the 12 billion injections administered each year in the developing world are unsafe- posing serious health risk to recipients, health workers and the public ^(2,3,4). Injuries from sharp devices have been associated with the transmission of more than 40 pathogens, including hepatitis B virus (HBV), hepatitis C virus (HCV), and HIV ^(3, 5, 6). Globally, WHO estimates that every year unsafe injections and needle stick injuries cause at least 8-16 million hepatitis B infections, 2.3-4.7 million hepatitis C infections and 160,000 HIV/AIDS (acquired immuno-deficiency syndrome) infection ^(4,6). These chronic infections lead to a high burden of morbidity and mortality ⁽⁶⁾. In many countries for many years health care workers have been infected with HIV as a result of their work. The main cause of infection in occupational settings is exposure to HIV-infected blood via a percutaneous injury.

Occupational exposure to blood borne pathogens from needle sticks and other sharps injuries is a serious problem, but it is often preventable.

The Centers for Disease Control and Prevention (CDC) in US estimated that each year 385,000 needle sticks and other sharps-related injuries are sustained by hospital-based health care personnel ⁽³⁾.

Data from National Surveillance System for Health Care Workers (NaSH) show that nurses sustain the highest number of percutaneous injuries. However, Health care workers, including support staff; house keeping, maintenance and laboratory personnel, who work in these settings also are at risk of exposure to serious, potentially life- threatening infections (7, 8, 9).

Another study done in the United States (US), showed that more than 800,000 needle stick injuries occur each year despite continuing education and vigorous efforts aimed at preventing such accidents ⁽⁸⁾. Studies have shown the risk of diseases after exposure to HBV from a single needle stick injury ranges from 27-37%, while the risk following a single needle stick exposure to HIV is much lower, 0.2-0.4%, and 3-10% for HCV ^(10, 11, 12).

A study done in Africa on safety of injection ⁽⁸⁾ showed that waste disposal was problematic in Chad, Cameroon, Cote-de-voire, Guinea Bissau and Uganda. In these countries there were no health centers that had a facility for safe disposal of used materials. But in Ethiopia, Rwanda, Kenya and Zambia, incineration of used syringes was reported to be the common practice.

A study done in Ethiopia at Southern Nation, Nationalities, and Peoples Region (SNNPR) showed that 32.4% of health care workers (HCW's)

reported as they had sustained at least one form of accidental injury by needle or other sharps. Among these injuries, both deep and penetration injuries constitute 63.8%. Nurses and health assistants sustained the highest proportion of accidental injuries by needles or sharps ($p < 0.05$). Male HCWs had less chance of sustaining injury either by needles or by sharps than the female ($p < 0.05$) ⁽¹³⁾.

The other important component of universal precaution is hand hygiene. Despite its rocky beginnings, hand washing has become a part of our culture. Hand washing and other hygienic practices have been taught at every level of school, advocated in the work place, and emphasized during medical training ^(14, 15). The New England Journal of Medicine report reminds us, one of the most effective, simple, and yet difficult to implement solutions would be for all hospital personnel to wash their hands between every patient! ⁽¹⁴⁾.

Failure to perform appropriate hand hygiene is considered to be the leading cause of nosocomial infections and the spread of multi resistant microorganisms, and has been recognized as significant contributor to outbreaks ⁽⁹⁾. While we are potentially at risk of contracting hand-transmitted illnesses, one-third of our population is especially vulnerable, including pregnant women, children, old people, and those with weakened immune systems ^(14, 15, 16).

A study done in University of Geneva Hospital in Switzerland revealed that the hand hygiene compliance rate ranges from 23% to 87%. Overall, doctors practiced proper hand hygiene only 57 percent of the

time when opportunities for hand washing arose ⁽¹⁶⁾. And a study done by Nigat project and Engenderhealth in Ethiopia showed that health care workers don't usually wash their hands on arrival to work place and before putting on glove; even though, it is well practiced between clients and before leaving work place ⁽¹⁷⁾.

In Ethiopia, where the health care services is largely covered by low and mid level health professionals, assessing the necessary knowledge, attitude and practice or the skill on universal precaution and factors in health care facilities as early as possible can give way to manage the limited resource available in the sector. It also improves the quality and safety of health service for the health providers and consumers. Thus, this survey will be conducted to assess the knowledge, attitude and practice (KAP) of health care workers on universal precaution and determinant factors for practice in health care facilities in North Wollo. So that, the health planners, health care providers, managers and evaluators can use the out come of this study.

2. Literature review

Employing universal precautions means taking precautions with everybody. If precautions are taken with everyone, health care workers do not have to make assumptions about people's lifestyles and risk of infection. Health care workers should have the right to be able to protect themselves against infection, whether it is HIV, Hepatitis or anything else ⁽¹⁾. Clients have also the right to get safe service.

The following universal infection control precautions are advised by the World Health Organization to help protect health care workers and clients from blood-borne infections including HIV:

- Washing hands with soap and water before and after procedures.
- Using protective barriers such as gloves, gowns, aprons, masks, goggles for direct contact with blood and other body fluids.
- Disinfecting instruments and other contaminated equipment.
- Handling properly soiled linen. Gloves and leak proof bags should be used if necessary. Cleaning should occur outside patient areas, using detergent and hot water.
- Using a new, auto disable syringe (AD) or single-use disposable injection equipment for all injections is highly recommended. Sterilizable injection should only be considered if single use equipment is not available and if the sterility can be documented with Time, Steam and Temperature (TST) indicators.
- Discarding contaminated sharps immediately and without recapping in puncture and liquid proof containers that are closed, sealed and destroyed before completely full. Document the quality of the sterilization for all medical equipment used for percutaneous procedures ^(1, 8, 18, 19).

Health care workers are increasingly at risk of becoming infected with serious blood borne viruses such as HBV, HCV, HIV and many other multiple drug resistance bacterial infections. The greatest risk is for staff that performs or assists with surgical procedures (physicians, nurses and midwives); process surgical instruments and equipment; and performs housekeeping and waste management tasks, including disposal of infectious waste items ^(20,21). Believing that safety injection and hand hygiene compliance can show the desired outcome of universal precaution in the study area this survey was addressed these two major components.

2.1. Safe injection

WHO define safe injection as one that does not 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 ⁽⁵⁾. In transitional and developing countries where unnecessary injections are common, the average number of health care injections per person was estimated to be 3.7 per year this includes all health care injections, including those given to diabetics for administering insulin. Many injections, as well as being unnecessary are also ineffective or inappropriate and unsafe ^(2, 6). The WHO estimate that at least 50% of the 12 billion injections administered in the developing world each year are unsafe- posing serious health risk to recipients, health workers and the public ^(2, 3).

Use of new, single use syringe and needle provides high level of safety to the recipient. However, unreliable and insufficient supplies might lead

to the equipment being reused. A steam sterilization procedure including decontamination and cleaning, is conducted according to the WHO recommendation, and is controlled using 'time, steam, and temperature (TST)' spot indicators ^(6, 18, 19).

Injuries from sharp devices have been associated with the transmission of more than 40 pathogens, including HBV, HCV, and HIV ⁽⁶⁾. Globally, WHO estimated that every year unsafe injections and needle stick injuries cause at least 8-16 million hepatitis B infections, 2.3-4.7 million hepatitis C infections and 160,000 HIV/AIDS infections ^(4, 6). These chronic infections lead to a high burden of morbidity and mortality ⁽⁶⁾. In many countries for many years health care workers have become infected with HIV as a result of their work. The main cause of infection in occupational settings is exposure to HIV-infected blood via a percutaneous injury ^(4, 6).

If percutaneous exposure occurs then the site of exposure should be washed liberally with soap and water but without scrubbing. Bleeding should be encouraged by pressing gently around the site of the injury, but taking care not to press immediately on the injury site. It is best to do this under a running water tap ⁽⁶⁾.

It is important to prepare injections in a cleanly designated area, where the risk of contamination by blood or body fluid is low. Hepatitis B persists up to seven days on surfaces ⁽²⁰⁾, which can lead to potentially environmental contamination. The preparation of injection in contaminated area also can lead to bacterial infection ⁽²¹⁾.

2.2. Personal Protective Equipment

Protective barriers, now commonly referred to as personal protective equipment (PPE), have been used for many years to protect patients from microorganisms present on staff working in the health care setting (8, 18, 19, 22). More recently, with the emergence of HIV/AIDS and HCV and the resurgence of tuberculosis in many countries, use of PPE now has become important for protecting staff as well (8, 18, 19, 22).

The type of protective clothing used will depend on the extent of the risk associated with the health-care waste, so that the following should be made available to all personnel who collect or handle health-care waste: head cover or caps, face masks, eye protectors, leg protectors or boots and disposable gloves or heavy-duty gloves (8, 18, 19, 22).

2.3. Safe Sharp Waste Management

It is important to collect and properly contain syringes and needles at the point of use in sharps container that is puncture and leak proof and that is sealed before it is completely full. Unsafe sharp waste collection causes between 5% and 28 % of needle stick injuries (18, 23, 24). Interventions like risk communication, managing sharps waste in efficient, safe and friendly way can reduce rate of needle stick injury (11, 19, 21, 23, 25) to health care workers, clients and the community at large. After closing and sealing, sharps containers must not be opened, emptied, reused, or sold (25). Four commonly used methods to destroy filled safety boxes or to keep them away from people are: incineration (usually this is the best option), burning in a metal drum (next best

option), open burning (if incineration or burning in a drum or hearth is not possible), and burying without burning (least safe option unless the burial pit is extremely secure) (19, 25).

A study done in Africa on safety of injection showed that waste disposal was problematic in Chad, Cameroon, Cote-de-voire, Guinea Bissau and Uganda. In these countries there were no health centers that had a facility for safe disposal of used materials. But in Ethiopia, Rwanda, Kenya and Zambia, incineration of used syringes was reported to be the common practice (7).

Though there were few studies were done in Ethiopia; one of the study done in SNNPR by W/ Gebreal, Y. revealed that the prevalence of unsafe injection were 74%. Thirty two point four percent of health care workers sustain sharp or needle stick injuries in one year and 64% of these injuries were deep or penetrating injuries (14). Another study done in Addis Ababa showed that 84% of health care workers dispose used needles in open plastic bucket and 54% of HCW's were observed while they were recap needles and also found that chlorine solutions were prepared and used in a very weak strength (17).

A study done in Amhara and Oromiya region by Melkamu, Y. and Kumbi, S. revealed that decontamination solutions were not prepared properly or not changed daily and health care providers did not consistently use PPE (26). As of the reports of injection safety survey in Ethiopia lack of supply of syringes, needles and equipment was considered as a reason for few of the unsafe practices (27).

2.4. Hand Hygiene

During the 19th century, women in childbirth were dying at alarming rates in Europe and the United States. Up to 25% of women who delivered their babies in hospitals died as a result of childbirth fever (puerperal sepsis), which later was found to be caused by *Streptococcus pyogenes* bacteria ⁽¹⁴⁾. As early as 1843, Dr. Oliver Wendell Holmes advocated hand washing to prevent childbirth fever (puerperal sepsis). Holmes believed that an infectious disease could to be passed to pregnant women by the hands of doctors ⁽¹⁴⁾. He recommended that a physician finding two cases of the disease in his practice within a short time should remove himself from obstetrical duty for a month. Holmes's ideas were greeted with disdain by many physicians of his time ⁽¹⁴⁾.

In the late 1840's Dr. Ignaz Semmelweis, who was an assistant in the maternity wards of a Vienna hospital, observed that the mortality rate in a delivery room staffed by medical students was up to three times higher than in a second delivery room staffed by midwives. In fact, women were terrified of the room staffed by the medical students. Semmelweis observed that the students were coming straight from their lessons in the autopsy room to the delivery room. He postulated that the students might be carrying the infection from their dissections to birthing mothers. He ordered doctors and medical students to wash their hands with a chlorinated solution before examining women in labor. The mortality rate in his maternity wards eventually dropped to less than one percent ⁽¹⁴⁾.

Perhaps hand washing seemed odd at the time. The lack of indoor plumbing made it difficult to get water. In order to make the water comfortably warm, it would have been heated over a fire. Besides, contact with water was associated with diseases such as malaria and typhoid fever ⁽¹⁴⁾. In the 1870's in France, one hospital was called the House of Crime because of the alarming number of new mothers dying of childbirth fever within its confines. In 1879, a noted speaker at a seminar in Academy of Medicine in Paris, stood at the podium and cast doubt on the spread of disease through the hands. When an outraged member of the audience felt compelled to protest, he shouted at the speaker that: "The thing that kills women with [childbirth fever]...is you doctors that carry deadly microbes from sick women to healthy ones." That man was Louis Pasteur. Who was a tireless advocate of hygiene, that his efforts were initially met with skepticism. Skepticism, however, was not the only problem facing advocates of hygiene. ⁽¹⁴⁾.

Despite its rocky beginnings, hand washing has been a part of our culture. Hand washing and other hygienic practices have been taught at every level of school, advocated in the work place, and emphasized during medical training ^(14, 28). According to the United States Centers of Disease Control and Prevention (CDC), "Hand washing is the single most important means of preventing the spread of infection." ^(14, 19)

The CDC guidelines specify that hand hygiene should occur with any patient contact and HCW's hand should be washed with a non-antimicrobial soap and water or, an antimicrobial soap and water when

hands are visibly soiled, or contaminated. If hands are not visibly soiled, HCW's can use an alcohol-based hand rub for routinely decontaminating hand in clinical situations as described in literature:

- Before having direct contact with patients;
- Before donning sterile gloves when inserting a central intravascular catheter;
- Before inserting indwelling urinary catheters, peripheral venous catheters, or other invasive devices that do not require a surgical procedure;
- Before starting work, going for a break and leaving for home;
- Before entering and leaving isolation area;
- After contact with a patient (such as in taking pulse or blood pressure, or lifting a patient);
- After contact with body fluids or excretions, mucous membranes, non intact skin, or wound dressing;
- If moving from a contaminated body site to clean-body site during patient care;
- After contact with inanimate objects;
- After using toilet;
- After nose blow and
- After removing glove (28, 29).

Yet, recent studies and reports indicate that lack of or improper hand washing still contributes significantly to disease transmission. While we are all potentially at risk of contracting hand-transmitted illnesses, one-third of our population is especially vulnerable, including pregnant women, children, old people, and those with weakened immune systems (14, 16).

It seems reasonable to assume that hospitals have come closest to responding to this problem. Modern surgery, after all, has long since solved many of the early problems of infection. However, fundamental problems of hygiene still exist. In 1992, The New England Journal of Medicine reported on a hand washing study in an intensive-care unit. Despite special education and monitored observation, hand washing rates were as low as 30% and never went above 48% ⁽¹⁴⁾.

A study done in University of Geneva Hospital in Switzerland revealed Anesthesiologists were the least compliant, washing up only 23 percent of the times than they were expected. Surgeons, ranking second from the bottom, had only a 36 percent compliance record of practicing proper hand hygiene. Doctors in emergency medicine complied only 50 percent of the time. Doctors in internal medicine, by contrast, had an 87 percent compliance rate which was the best of all of the medical specialties in this particular case. Overall, doctors practiced proper hand hygiene only 57 percent of the time when opportunities for hand washing arose ⁽¹⁶⁾.

A study done by Nigat project and Engender health in Ethiopia showed that health care workers didn't usually wash their hands on arrival to work place and before putting on glove; even though, it is well practiced between clients before leaving work place ⁽¹⁷⁾. It is difficult, perhaps, in our current day to imagine health care workers being so resistant to what we now consider common practice. But the resistance continued ⁽¹⁴⁾.

Nosocomial infections are infections acquired by patients while they are in the hospital, unrelated to the condition for which the patients were hospitalized. CDC estimates that from 5% to 15% of all hospital patients acquire some type of nosocomial infection. Hospital personnel can also become infected. ⁽¹⁴⁾.

The rate of nosocomial infections can be reduced by full-scale infection control programs whose expense would be recovered by the reduction of the cost involved in treating the nosocomial infections. But, as The New England Journal of Medicine report reminds us, one of the most effective, simple, and yet difficult to implement solutions would be for all hospital personnel to wash their hands between every patient ⁽¹⁴⁾.

3. Rationale of the study

Hospital acquired infections in developing countries has always been there, it is becoming one of the areas which get attention of health providers, programmers and evaluators. HBV, HCV, HIV and many other infectious organisms have been there for many years and continue to be a common reason for poor and ill health of health care workers and patients or clients ⁽⁴⁾.

In countries with limited resource, it is important to develop the health care staff knowledge, attitude and practice on universal precautions. AS well as, use of the recommended infection prevention practices to minimize their risk of accidental exposure or injuries and provide safe service to clients should be a standard practice.

Globally, WHO estimated that every year unsafe injections and needle stick injuries cause at least 8-16 million hepatitis B infections, 2.3-4.7 million hepatitis C infections and 160,000 HIV/AIDS infections ⁽³⁾. Health care workers, planners, managers and evaluators should not ignore this high morbidity and life threatening infection situation. On top of these, unless appropriate universal precaution is in practice health care facilities can be the source of infection and epidemic disease for the community at large.

Yet, very few studies were conducted in Ethiopia to assess the status of universal precaution related knowledge, attitude, and practice of health care workers and factors in health facility. Therefore, this study was designed to investigate the level of universal precaution and identify the

behavioral determinants for safe or unsafe practice. The proposed study would have a significant input in identifying and improving the pattern of universal precaution at the health facility level in the study area and beyond.

4. Objective of the study

4.1. General objective

To assess the knowledge, attitude and practices of health care workers on universal precautions and, health institute factors of practice in North Wollo Zone, Amhara Region.

4.2. Specific objectives

1. To investigate the knowledge, attitude and practices of health care workers on universal precaution.
2. To describe determinants factors for the practice of universal precaution in the health units.

5. Methodology

5.1 Study area

The study was carried out in nine Woredas of North Wollo Administrative Zone, Amhara Regional State, located in the north eastern part of Ethiopia.

There is one zonal hospital, one district hospital and eight health centers. In addition, there are 230 health posts/stations in the zone. These make the potential health service coverage to be 78% ⁽³⁰⁾. There are 540 health care workers who are actively working in the hospitals and health centers of the study area.

The health care workers are composed of nurses, laboratory technicians, pharmacy technicians, sanitarians, health officers, physicians, housekeeping personnel, maintenance personnel, and laundry personnel ⁽³⁰⁾. The study period was from January through September 2006.

5.2 Study design

The study was institution based cross sectional survey design with both quantitative and qualitative components.

5.3 Source and Study population

The source population was all health care workers who were actively working in health care facilities in North Wollo Zone during data collection time. Health care workers identified with simple random sampling method were included in the study.

- ❑ Technical staff (nurses, laboratory technicians, sanitarians, health officers, and general practitioners/physicians).
- ❑ Supportive staff (maintenance personnel, housekeeping personnel, and laundry personnel).

5.3.1. Inclusion criteria:

1: **Quantitative study:** All health care workers on active duty in the selected health institution in North Wollo Zone.

2: **Qualitative Study:** health care workers who are working in Woldiya hospital, Lalibela hospital, Lalibela health center and Woldiya health center.

5.3.2. Exclusion criteria of the study subjects:

Health care workers who were not in the study area during data collection and who were not willing to participate in the survey were excluded.

5.4 Sampling

The sample size for quantitative study was calculated using a single population proportion (p). The formula:

$$n_i = \frac{Z^2_{\alpha/2} p(1-p)}{d^2} \quad \text{was employed}^{(31)}$$

The assumption where; n_i is sample size, $z (\alpha/2)$ the reliability coefficient 95% i.e. 1.96, since there was no study done on hand hygiene adherence rate in Ethiopia, p was taken by one of the index variable, namely injection needle disposal practice two hand recapping rate 54%⁽¹⁸⁾, and taking 3% ($d= 0.03$) for the precision, this resulted n_i equals to 1059. Considering the finite population correction, where $N = 540$,

using the formula $n_o = [n_i / (1 + n_i) / N]$ and 5% for non-response rate the final sample size was 376. The number of health care workers for each health institutes was allocated using proportional allocation to size method. To identify the study subject simple random sampling technique was used based on the developed sampling frame. Assuming the geographic characteristics of North Wollo Zone and the service delivered in the health care facilities this study was conducted only in all hospitals and health centers (See figure 2 for schematic presentation of sampling procedure).

5.5 Data Collection

Both quantitative and qualitative methods of data collection were employed. The quantitative method involves assessment of the knowledge, attitude, and practices of three hundred seventy six health care workers on universal precaution. Health care workers selected by simple random sampling were interviewed face to face.

The qualitative method involves the assessment of practices, safety and standard of the health institute environment using FGD, observation, checklist and audit. The observation session lasted 20 minutes before the structured interview has resumed on the day of data collection. Such session arrangement was decided based on previous study ⁽³⁰⁾.

The focus group discussions were held with eight groups of health care workers. It includes team of managers, team of health care waste handlers, team of instrument processors and team of health worker who

provide direct care to the patient. The teams were formed based on their job functions and responsibilities they have in the institution.

5.6 Data quality

The data collection instrument format was developed in English and translated to Amharic and later back translated to English by different individuals for its accuracy and desired results. The data collectors used structured questionnaire for interviewing health care workers, handling focus group discussion and observation check lists or audit. A three day training was given for trained nurses, who were graduates of the year 2006.

To evaluate the understandability and the applicability of the instruments pre-test data were collected from 32 HCWs for observation and structured interview and two FGDs held with 14 HCWs. The pre-test were done in two comparable health centers and one hospital found in Dessie town woreda, South Wollo Zone. Based on the finding there were some amendments and arrangements made on the respective instruments.

A team of data collector gets into the bay where they can observe the procedure, facilities to wash hand and dispose medical waste in the room. A team of two data collectors had observed ten health care workers per day. The data collection took place over five working days and six duty nights. The observation includes the adherence of hand washing before and after touching the patient and nearest environment and injection practice. The groups were expected to look for cleanliness

of the environment, health care waste disposal system and procedures in instrument processing, injection, dressing, delivery and patient care in an inpatient area. Tools developed by Safe Injection Global Network (SIGN) and Debug infection prevention program ⁽³⁰⁾ were used with some modification.

Data collectors were organized in teams of two nurses. Measurements and responses were crosschecked for missed, irregularities, inconsistencies, and unlikely response based on which corrective measures were taken as required. To maintain the quality of the data and avoid any problem or suspicious data, the researcher and the supervisors crosschecked by recollection data from 5% of the study population. The discussions were about the status and way of improving the level of universal precaution in health institutions for the health care workers, the clients and to the community. The focus group discussion teams were guided using a modified assessment tool A of SIGN where the principal investigator and two experienced B.Sc. nurses had conducted the sessions. The FGDs were conducted after quantitative data collection process was completed. The principal investigator and the two supervisors who have B.Sc. as well as experiences of research activities with qualitative component were facilitating the focus group discussion and taking hand written note.

5.7. Measures and Study variables:

5.7.1. Dependent/ Outcome Variables

☞ Hand hygiene adherence

- ☞ Injection safety and needle stick injuries

5.7.2. Independent / Exposure/ variables

1. The socio demographic characteristics:

- ☞ Age, year of service, educational status, profession, department, level of health institutions.
2. Knowledge, attitudes, and practices or behaviors related to universal precaution
- ☞ Supply related issues: personal protective devices, water supply, availability of antiseptics and syringes with needles.
 - ☞ Perceived risk of acquiring HIV infection for self and clients
 - ☞ Issue related to communicating biohazards, training, waste handling, waste disposal and instrument processing
 - ☞ Perceived benefits and concerns on hand hygiene and the knowledge of blood borne pathogens/infection.

5.8. Data management, analysis and interpretation

Each questionnaire was checked for completeness, missed values and unlikely responses and then manually cleaned up on such indications. The coded data was entered on to computer using EPI 6.04d Dos Operating System (DOS) version soft ware for its customizing and skip benefit, then after data cleaning, it was exported to SPSS version 11. Using double entry, the data were crosschecked for consistency and accuracy. Responses and observations were given points and recorded to obtain means. Mean variations between health care workers who participated on an in service training and who had not participated

groups were obtained by independent sample T test. To see the mean difference within and between groups' one-way ANOVA methods was employed to calculate p value. Frequencies of variables were determined using cross-tabbing, chi square test, odds ratio (OR) the presence of the association revealed and p value for statistical significance. To control the effect of confounding factors multiple logistic regression analysis was done. Recoding, transforming, and re-categorizing of variables were done to compute some of the analysis. The qualitative data obtained from observation on hand hygiene, injection provision, medical waste management, instrument processing and wearing of PPE were used to determine proportion. And the FGD results were transcribed in Amharic and later translated to English. Then result synthesis, analysis and discussions were performed.

5.9. Ethical considerations

The ethical approval and clearance was obtained from the Department of Community Health, Faculty of Medicine (Addis Ababa University) Research and Publication Committee. Permissions were obtained from the concerned bodies of North Wollo Health Desk, Woreda Health Offices and selected Health institutions. Written consent was taken from each selected participant and head of the health facility to confirm willingness and those not willing were given the rights to do so. To ensure confidentiality interview was held in private. Confidentiality was ensured through out the process. Before starting the interview data

collectors had informed the study subjects about the purpose and significances of the survey to get the consent of the respondents. In the data collection processes the data collectors were entertaining informal education at the end of interview on universal precaution for the unfavorable knowledge and/or unsafe practices. Health care workers who had needle stick injury or splash of blood/body fluid on their mucus membrane identified by data collectors and the necessary advice and referral to counselors was made. In addition, during the encounter of below the standard practices (UP/IP), to save clients, data collectors were systematically interfere the procedure.

5.10. Communication of the result

The finding of this study will be disseminated to DCH, MF, AAU, EPHA (Ethiopian public Health Association) and MOH (Ministry of Health) of Ethiopia. Amhara Regional State Health Bureau, North Wollo Zone Health Desk and NGO's working on infection prevention in the study area will be supplied with a copy of the research. Further more, the finding will be presented on appropriate seminars, conferences and workshops. And publishing with scientific journal will be considered.

5.11. Operational Definitions

Antimicrobial soap - Soap (detergent) containing an antiseptic agent.

Antiseptic agent - Antiseptics are antimicrobial substances that are applied to the skin to reduce the number of microbial flora.

Antiseptic hand rub - Applying an antiseptic hand rub product to all surfaces of the hands to reduce the number of microorganisms present.

Colonization – pathogenic (illness or disease causing) organism are present in person but are not causing symptom or clinical finding.

Hand hygiene care - A general term that applies to hand washing, antiseptic hand wash, antiseptic hand rub, or surgical hand antisepsis

Health care workers - those health workers, who do have contact with syringes, needles, other sharp materials, blood and body fluids by the virtue of their duties.

Visibly soiled hands - Hands showing visible dirt or visibly contaminated with proteinaceous body substances (e.g., blood, fecal material, urine)

Multi-drug resistant pathogens - Bacteria that cause serious infections that are very difficult to treat due to the pathogens' resistance to many commonly- prescribed antibiotics.

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.

6. Results

6.1. Results of Quantitative Data

A total of 351 (65%) health care workers with a response rate of 93.4% were found valid and included in the analysis for quantitative and 53(14%) health care workers of the four health facilities were included in qualitative data compilation. Among the respondents 207 (59%) were males and 144 (41%) were females. One hundred eighty eight (53.6%), 122 (34.8), and 41(11.7%) participants were from Woldiya hospital, eight health centers and Lalibela hospital, respectively. Concerning the professional categories of the respondents, 139 (39.6%) were health assistants or junior nurses, 104 (29.6%) were senior nurses or midwives, 53 (15.1%) were cleaners or laundry personnel, 19 (5.4%) were laboratory technicians, 15(4.3%) were pharmacy technicians, 11 (3.1%) were medical doctors (GPs) or health officers, 5 (1.4%) were sanitarians, and 5(1.4%) were maintenance personnel.

The age of the respondents ranges from 18 to 55 years with a mean age ($\pm$ SD) of 32.91 ± 8.2 and the median age was 32 years. The majority, 195 (55.6%) of the respondents were in active professional service tenured for less than 10 years, with a mean service tenured year 10.28 ± 7.94 of work experience in their current profession or job title. Socio demographic characteristics of the health care workers are described in table 1.

Table 1: Socio-demographic characteristics of the respondent health care workers, North Wollo Zone, Amhara Region, June 2006.

Characteristics	Frequency (N=351)	Percent (%)
Place of work of respondents:		
Zonal Hospital	188	53.6
District Hospital	41	11.7
Health centers	122	34.8
Age in Group (years):		
≤ 24	57	16.2
25 – 34	143	40.7
35 – 44	116	33.0
45 – 54	33	9.4
55 +	2	0.6
(Median =32, mean 32.91± SD=8.15)		
Sex of respondents:		
Male	207	59.0
Female	144	41.0
Profession of respondents:		
Physician or Health Officer	11	3.1
Nurse/midwife	104	29.6
Health assistant/junior nurse	139	39.6
Lab technician	19	5.4
Pharmacy technician	15	4.3
Sanitarian	5	1.4
Cleaner/laundry personnel	53	15.1
Maintenance personnel	5	1.4
Educational status of the respondents:		
Grade ≤ 8	18	5.1
Grade 9 – 12	44	12.5
Certificate	137	39.0
Diploma	141	40.2
BSc. and above	11	3.1
Service year tenured by the respondents:		
≤ 5	139	39.6
6-10	56	16.0
11-15	69	19.7
16-20	42	12.0
≥21	45	12.8
(Median =9, mean 10.28 ± SD=7.9)		

6.1.1. Safety of injections

Among the respondents 131(44.7%) Of health professionals and 30(51.7%) support staff, a total of 161(45.9%) ever had participated in any training program dedicated to infection prevention after their respective pre-service courses. All respondents know that dirty needles and sharp materials could transmit disease-causing agents. Some of the common diseases known by the respondents were 349 (99.4%) HIV, 206 (58.7%) tetanus, 192 (54.7%) hepatitis B viruses, 79 (22.5%) hepatitis C viruses, 53 (15.1%) malaria, and 10 (2.8%) tuberculosis (table 2). Of those, 27 (7.5%) had the highest score by answering five out of six questions, followed by 47(13.4%) four and the mean score was $2.53 \pm$ (SD=1.177) and 156 (44.5%) of respondent had greater or equal to the mean score. The knowledge of health care workers was statistically significant among professions F-test 10.91, $P < 0.001$. Among all respondents 138(39.3%) know that HBV can persist on the external environment for up to seven days. One hundred six (30.2%) of the respondents know the presence of anti HIV prophylaxis after sustaining needle stick or sharp injuries.

Among respondents, 278(79.2%) gave multiple response on the reason for prescribing injectable medication; out of which 201 (72.3%) respondent believe that there are no alternative drugs, 143 (51.4%) said injectables were fast acting drugs, 60 (20%) demanded by the clients and 26 (9.3%) prescribed without knowing the problem of injectable drugs (table 2).

Table 2: Knowledge and attitude of health care workers on selected variables, North wollo, Amhara Region, June 2006.

Characteristics	Health professionals		Supportive Staff		Total	
	Yes	%	Yes	%	Yes	%
Knowledge variables						
Ever attained training on IP/UP	131	44.7	30	51.7	161	45.8
Dirty needles transmit disease causing agents	293	100	58	100	351	100.0
Prophylaxis for HIV after exposure	99	33.8	7	12.1	106	30.2
Which of the following disease causing agent transmit with dirt needles						
HBV	188	64.2	4	6.9	192	54.7
HCV	77	26.3	2	3.4	79	22.5
HIV	291	99.3	58	100	349	99.7
Tetanus (<i>Clostridium tetani</i>)	183	62.5	23	39.7	206	58.7
Malaria (<i>Plasmodium</i> species)	52	17.7	1	1.7	53	15.1
Tuberculosis (<i>M. tuberculosis</i>)	10	3.4	0	0	10	2.8
Attitude variables						
Risk perception oneself	244	83.3	51	87.9	295	84.0
Risk for health professionals	245	83.6	15	25.9	260	74.1
Risk for support staff	199	67.9	48	82.7	247	70.4
Risk for client/patient	133	45.4	12	20.7	145	41.3
Risk of children	116	39.6	10	17.2	126	36.0
Risk for the community	112	38.2	10	17.2	122	35.1
Why do you prescribe injection (n= 278) **						
Client demand	60	21.6	-	-	60	21.6
Injectables are fast acting	143	51.4	-	-	143	51.4
No choice/ alternative drugs	201	72.3	-	-	201	72.3
Not knowing the problem of injection	26	9.3	-	-	26	9.3

Note ** multiple response

The respondents who had perceived risk of acquiring HIV infection from their health facility waste were 295 (84.0%) for oneself, 260(74.1%) for health professionals, 247 (70.4%) for supportive health care workers, 145 (41.3%) for their client or patients, 126 (36.0%) to children, and 122 (35.1%) to the community (table2). From socio demographic characteristic age group 25-34 with OR (95% C.I.)= 2.97 (1.05, 8.42), and among the professional category nurse/midwives [OR (95% C.I.)= 6.62(1.21, 36.24), health assistants/junior nurses [OR (95% C.I.)= 8.23(1.38, 48.97), and cleaners/ laundry workers [OR (95% C.I.)= 7.85 (1.35, 45.64) had higher self risk perception of acquiring HIV due to their professional duties (table 6).The one self risk of perception of acquiring occupational HIV were statistically significant with wearing one of the personal protective devices, namely gloves [OR (95% C.I.)= 10.41 (5.78, 18.74).

A total of 90 injection practices were observed in all health care facilities. Forty-one (45.5%) of the injections were given after the procedure is explained to the client or the patient or their attendants. Fifty-five (61.1%) of the injection were completed by recapping needles; of these, 17 (30.9%) of them use single hand scoop techniques and the other 38 (69.1%) use two hand techniques (table 3). Trained health care workers on infection prevention were more likely to avoid two hand recapping [OR (95% C.I.)= 11.45 (2.74, 47.89). Twenty (22.7%) of the observed injections were started by swab cleaning on the top of multi-dose vials. With respect to the source of the cotton swab, 13 (65%) used

stored swab in antiseptics solution, 7 (35%) used cotton swab prepared for the purpose. Sixteen (17.7%) of the observed injections were found with a needle on the septum.

Table 3: Injection related practice of health care workers, North Wollo, Amhara Region, June 2006.

Characteristics	Health professionals		Supportive Staff		All HCWs (Total)	
	Yes	%	Yes	%	Yes	%
Injection practices (n=90)						
Explain procedure before injection	41	45.5	-	-	41	45.5
Clean top of vial with antiseptics	20	22.2	-	-	20	22.2
Fresh cotton swab for the purpose	7	35.0	-	-	7	35.0
Leave needle on the stopper	16	17.7	-	-	16	17.7
Observed recapping	55	61.1	-	-	55	61.1
Single hand scoop technique	17	30.9	-	-	17	30.9
Two hand recapping technique	38	69.1	-	-	38	69.1
Exposure to blood or body fluid (n=351)						
Ever injured with sharp/needle	165	56.3	21	36.1	186	53.0
Sharp/needle injury in last year	44	14.6	12	20.6	56	16.0
Ever blood or body fluid splashed	142	48.4	19	32.7	161	45.8
Blood/body fluid splash in last year	59	20.1	12	20.1	71	20.2

One hundred eighty six (53.0%) of health care workers reported that they ever had needle stick or sharp injuries. And 56 (16.0%) of health care workers had sharp or needle stick injury in the last one-year. The reasons of injury stated by health care workers were 87 (46.8%), 51 (27.4%), 43(23.1%), 5(1.5%) during sudden movement of patients, disposing sharp materials, recapping and during surgical procedure

respectively. Not having sign on biohazards in the working rooms had a higher risk of needle stick injury [OR (95% C.I.)= 7.99 (1.73, 36.96). Ever had needle stick injury was statistically significant with a perception of acquiring HIV due to their profession [OR (95%C.I.)= 3.36 (1.72, 6.50) and p value <0.05. One hundred sixty one (45.9%) of the respondents reported that they ever had splash of blood or body fluid on their mucus membrane (i.e. eye, nose or mouth). Of these 71 (20.2%) had splash of blood or body fluid on their mucus membrane in the last one- year.

The measures HCW's had taken after needle stick or sharp injury includes 171 (91.9%) washing with water and soap, 145 (78.0%) washing with alcohol or chlorine solution, 39 (21.0%) pressing immediately the injured site to stop bleeding, 117(62.9%) squeezing to make it bleed more and evacuate, 34 (18.3%) covering the injured site with water proof dressing, 35 (18.8%) taking TAT prophylaxis, 37 (19.9%) counseling and testing for HIV 6(3.2%) taking post exposure prophylaxis and 34(18.3%) reporting to their supervisors. Practice of health care workers after needle sticks or sharp injury with the highest score correctly answering 8 (0.5%) was one participant and score five and above were by 35 (18.9%) of questions out of nine. The mean practice score of participant after sustained injury was $3.34 \pm$ (SD 1.38). No statistically significant difference on the mean practice scores was noted between trained and non-trained health care worker. The mean score difference was 0.12 (95% CI -0.28, 0.52), F test 2.29, P > 0.05.

Three hundred sixteen (90.0%) of health care workers reported that safety box was the material used to collect needles and other sharp materials in their health facility. And 278 (79.2%) of them also feel needles, and sharps being disposed safely in their respected institution. In all the 229(100%) observed rooms had some kind of materials to collect sharps or dirty needles. These materials include 169 (73.8%) safety boxes, 54 (23.6%) plastic pail without lid and 6 (2.6%) plastic pail with lids. During the observation sharp containers found in health facilities were 65 (28.3%) over filled, 97 (42.4%) were empty or with few needles, 4(1.79%) were torn and needles seen through the hole, and 63 (27.5%) were found sharp items mixed with other waste (table 4).

Table 4: Sharp/needle and syringe collection method in health care settings, North Wollo, Amhara Region, June 2006.

Characteristics	Yes	Percent (%)
Type of waste collection materials		
Dust bin in the room	201	87.8
Sharp or needle collection material	229	100
Type of sharp or needle collection material (n=229)		
Safety box	169	73.8
Plastic pail without lid	54	23.6
Plastic pail with lid	6	2.6
Condition of sharp/ needle collection item		
Overfilled	65	28.3
Torn and needles seen with the hole	4	1.79
Empty or with few sharps/ needles	97	42.4
Sharps mixed with other sharps	63	27.5

The observed mean waste disposal practice score were $9 \pm \text{SD } 1.48$. The maximum score was 10 out of 11 by 187 (53.3%) of respondent correctly perform the disposal practices. The mean difference score has statistically significant association between professions (pharmacy technician, laundry personnel, housekeeping personnel and maintenance personnel with the rest of the profession) F test 19.42, $P < 0.05$.

With criteria of safe injection, one that doesn't cause harm to the recipient, does not expose the worker to any avoidable risk, and does not result in waste that is dangerous to other people, the variable used to classify as safe and unsafe injection in this study were: explaining injection procedure, using single use disposable injection materials, recapping technique, leaving needle on the stopper of the vial, and safe disposal of needles. The overall classification based on the above stated criteria 79(87.8%) of the injection given in the zone were unsafe.

According to the respondents reports, the antiseptics used to decontaminate medical instruments were 337(98.3%) chlorine solution, 128(37.3%) alcohol, 124(36.2%) savalone, 84(24.5) iodine and 17(5.0%) formalin. Concerning the practice of preparing decontamination solution, the chlorine-water ratio prepared were 12 (3.5%) used only chlorine solution, 14 (4.1%) used equal amount of water and chlorine, 54(15.7%) used one to three, 63 (18.3%) used one to six and 202 (58.7%) use one to nine. Based on the data collectors observation made in the survey area, 6 (33.3%) correctly prepare 0.5% chlorine solution in

a plastic pail with lid for 24 hours. And the rest 12 (66.6%) used much diluted chlorine solution and in open bowl with out labeling the date on it.

The instrument processing procedure accepted and practiced by health care workers were, 297 (89.2%) decontamination, 290 (87.1%) wash with brush and soap, 78 (23.4%) high level disinfections, 268 (80.5%) sterilization using autoclave or oven, 268 (80.5%) stored in the board and 157 (47.1%) use immediately. Out of the 18 observed sterilization areas 3 were used TST test to control the efficiency of the autoclave. Of these 2 turned from Yellow to blue and 1 turned its color to brown.

Almost all 349 (99.4%) of the respondent had ever wore at least one type of personal protective device. Among respondents who ever worn personal protective devices, 216 (61.9%) used apron, 101 (28.9%) worn utility glove, 166(47.6%) head cover, 107 (30.7%) boots or shoes which cover toes, 59 (16.9%) eye protectors, 244(69.9%) mask, 278 (79.7%) examination glove and 345 (98.9) gown. Some of the reasons for not wearing any of the stated personal protective devices were 261 (77%) stock out of the desired PPE, 208 (61.2%) believed PPE were not always necessary, 75 (22.1%) replied that the PPE were not convenient and 38 (11.2%) answered the difficulty to work with the PPE. Two hundred forty two (68.9%) health care workers washed their gown once per week, 49 (14%) two times per week, 43(12.3%) once per two weeks and 17(4.8%) three times per week.

Table 5: Needle stick injury sustained by health care workers in North Wollo, Amhara Region, July 2006.

Characteristic	Injured	Not injured	COR (95% C.I.)	AOR (95% C.I.)
Socio-demographic factors:				
Sex: Male	106	101	1	1
Female	80	64	1.14 (0.74, 1.74)	1.28 (0.82, 2.00)
Age group in years:				
≤24	23	34	1	1
25-34	74	69	1.58 (0.85, 2.95)	1.61 (0.86, 3.00)
35-44	69	47	2.71 (1.14, 4.14)	2.31 (1.19, 4.47)*
≥45	20	15	1.97 (0.84, 4.63)	2.12(0.89, 5.04)
Availability of written material on bio hazards:				
Yes	2	11	1	
No	129	87	7.99 (1.73, 39.96) *	

- **Note:** * Significant association

Table 6: HIV risk perceived by health care workers in North Wollo, Amhara Region, July 2006.

Characteristics	Yes	No	COR (95%C.I.)	AOR (95%C.I.)
Health care providers perceived risk of acquiring HIV through their professional duties:				
Age group:				
Ω24	41	16	1	1
25-34	124	19	2.55 (1.20, 5.41) *	2.97 (1.05, 8.42) *
35-44	100	16	2.44 (1.12, 5.33) *	1.54 (0.42, 5.57)
≥45	30	5	2.34 (0.77, 7.09)	1.11 (0.19, 6.28)
Needle stick or sharp injury:				
No	124	41	1	1
Yes	171	15	3.76 (1.99, 7.11)	3.08 (1.50, 6.35)*
Service year:				
<5	110	29	1	1
6- 10	48	8	1.58 (0.67, 3.71)	0.49 (0.16, 1.55)
11-15	63	6	2.77(1.09, 7.00)	0.64 (0.16, 2.57)
16-20	35	7	1.32(0.53, 3.20)	0.47(0.11, 2.06)
≥ 21	39	6	1.71(0.66, 4.44)	0.99 (0.19, 5.10)
Professional category:				
Physicians or Health officer	8	3	1	1
Nurses/midwives	91	13	2.83 (0.62, 11.17)	6.62 (1.21, 36.24)*
Health assistance/junior nurse	125	14	3.34(0.79, 14.09)	8.23 (1.38, 48.94)*
Lab technicians	15	4	1.40(0.25, 7.89)	3.51 (0.51, 24.64)
Pharmacy technicians/ Sanitarians	5	13	0.12 (0.02, 0.66) *	0.30 (0.05, 1.85)
Cleaners/Laundry/ Maintenance personnel	51	5	2.73(0.58, 12.79)	7.85(1.35, 45.64)*

Note: * Significant association

6.1.2. Hand hygiene adherence

A total of 1,021 hand washing opportunities were observed. Of these 296 (28.9% $\pm$ SD 27.31%) opportunities were observed while completed by properly washing their hands with alcohol hand rub, medicated soap or bar soap and water. The highest hand washing adherence in the study areas was 41.68% for physicians, followed by 36.67% health officers, 33.4% cleaners, 31% nurse or midwives, 29.1% laboratory technicians, 28.13% laundry personnel's, 27.6% health assistants or junior nurses, 20.8% front line health workers, 8.25% maintenance personnel's and the least 2.5% for pharmacy technicians. Respondents who were working in operation room had a better hand hygiene adherence with mean 62.5%. The second adherence was found in obstetric and gynecology department mean 37.5% and health care workers who were in out patient department (OPD) and laboratory unit had the least hand hygiene compliance rate 22.6% and 27.58%, respectively.

Although health care workers estimated their own hand hygiene adherence before commencing and after completing work were high i.e. 260(74.1%) and 308 (88.3%), respectively, from the actual observation of two hundred ninety two (292) respondents only 47 (13.4%) washed their hand before commencing work, 124 (35.3%) had not washed their hands. The rest 180 (51.3%) were not observed whether or not washed their hands. On the other hand, only 158 (45.0%) washed their hand after completing a procedure or touching the environment in vicinity of

patient. From Socio demographic characteristics, female had better hand hygiene adherence than male OR (95%C.I.)= 0.15 (0.06, 0.38). Availability of running water in the working room, improved hand hygiene adherence rate before commencing a procedure [OR (95%C.I.)= 6.89 (2.66, 17.85). Availability of alcohol swab in the room and a better knowledge score of disease transmitted by blood and body fluid also had statistically significant association with better hand hygiene adherence rate [OR (95%C.I.)= 3.95 (1.46, 10.68) and F test 5.21, (p <0.05), respectively (table 8).

Table 7: Factors and attitudes of health care workers on hand Hygiene in North Wollo, Amhara Region, July 2006.

Characteristics	Yes	%
1. Hand hygiene Adherence		
Wash hand before commencing work (n=171)	47	27.5
Wash after completing work /procedure (n=292)	158	69.0
Running water in the room (n=229)	151	65.9
Alcohol swab in the room (n=229)	110	48.0
2. Why you wash your hands: (n=325)		
Necessary between patient	285	87.7
Determine patient cure rate	164	50.5
Necessary even wearing glove	197	60.6
Washing utensil conveniently placed	93	28.6
Takes few time	151	43.0
3. Why you do not wash your hands: (n=26)		
Not necessary	14	53.8
Not determine patient cure rate	16	61.5
Not necessary when glove worn	17	65.3
Washing utensil not conveniently placed	19	73.0
Takes too much time	16	61.5

The reason suggested by the respondents for washing hands before and after touching the patient or the nearest vicinity include 285 (87.7%) respond as it was necessary to wash hands between patients, 164(56.5%) determine patient cure rate, 197(60.6%) necessary before wearing glove, 93 (28.6%) washing utensil conveniently placed and 101 (31.1%) takes few time. On the other hand those who had not washed their hands believed that washing hand 14 (53.8%) is not necessary between patients, 16 (61.5%) was not determinant of patient cure rate, 17 (65.4%) was not necessary before wearing glove and 16 (61.5%) took too much time (table 7). The over all attitude mean score was 2.53 ± 1.16 out of five questions. The highest attitude score to wards hand hygiene adherence 3.50 ± 1.30 was by physician and the least was by laundry personnel 1.88 ± 1.05 . The difference was statistically significant by the professional category of the respondent F test 2.59, $P < 0.005$.

The hand hygiene materials ever used by the respondents include 325 (99.4%) plain soap, 208 (63.8%) alcohol to rub hand, and 28 (8.6%) medicated soap. But during observation of the 296 adhered hand hygiene practices, 246 (83%) used plain soap, 47 (16%) used alcohol hand rub and 3(1%) used medicated soap. The hand hygiene adherence rate estimated out of ten possible opportunities by the respondent themselves were 106 (32.6%) two to three, 106 (32.6%) five, 92 (28.3%) seven to eight, 16(4.9%) nine, and 5 (1.5%) ten.

Table 8: Factors associated with hand hygiene adherence by health care workers in North Wollo, Amhara Region, July 2006.

Characteristics	Hand washed	Not washed	COR (95% C.I.)	AOR (95% C.I.)
Hand washing before touching the patient or nearest environment				
Socio-demographic factors:				
Sex: Male	16	83	0.26 (0.13, 0.52)*	0.15 (0.06, 0.38)*
Female	31	41	1	1
Ever trained on infection prevention:				
Yes	37	52	5.12 (2.34, 11.23)*	5.84 (2.32, 14.72)*
No	10	72	1	1
Availability of water in the room:				
Yes	30	38	3.99 (1.97, 8.09)*	6.89 (2.66, 17.85)*
No	17	86	1	1
Availability of alcohol swab in the room:				
Yes	25	38	3.02 (1.47, 6.49)*	3.95 (1.46, 10.68)*
No	14	66	1	1
Hand washing after touching the patient or nearest environment				
Ever trained on infection prevention:				
Yes	69	47	0.69 (0.43, 1.12)	1.29 (0.76, 2.23)
No	89	87	1	1
Availability of alcohol swab in the room:				
Yes	64	35	1.97 (1.15, 3.36)*	1.90 (1.10, 3.30)*
No	64	69	1	1

Note: * Significant association

6.3. Results of Qualitative data

6.3.1. Summary result of focus group discussions

The focus group discussions were compiled based on the theme of knowledge of risk groups, factors for hand hygiene adherence, safe practice in health institutions, factors to wear personal protective devices and suggestion to improve the level of universal precaution in the health institutions. Almost all the groups agreed on the importance of the established infection prevention system in the health care facilities. They define infection prevention or universal precaution in relation to all risk groups; the HCWs, clients and the community.

6.3.2. Who has access to medical waste?

All discussants agreed on that dirty linens or cloths, patient environment and medical wastes were easily accessible to health professionals, support staff, attendants of the patient and visitors. One of the discussant share his opinion by saying *“If there were few patient attendants which makes easy to teach or inform them about the basic rules and regulations on waste disposal and medical hazard. And it makes easy the task of infection prevention. Unfortunately, now a day thanks to civil service reform which only promotes a free visiting hours for the public and allow unlimited patient attendants and visitors complicate the task of infection prevention. And it manifests with a lot of risk of acquiring HIV, HBV and other deadly diseases”*. One of the direct patient care providers also explained the risk by informing the group *“People come to the hospital with their children to visit patients and they let*

children to play, run here and there without any protection which may contribute for a higher risk of injury or infection particularly to this group of population". All the discussants agreed on patient attendants' unsafe practice in the hospital. A 27 years old cleaner from Lalibela hospital said *"patient attendants perform cleaning activity of the bed side tables, lockers and floor by collecting mopping materials from utility room, but without good information, skill and personal protective devices"*. And they were believed that the improper placement of waste collection materials, soiled linens, dirty needles and sharps exposed every one who worked or got service from the health institutions. Some of the participants' emphasized that visitors from the rural area only impressed with the quality of the building and consider it clean when they saw with their naked eyes. As a result the visitors might be exposed to blood, body fluids and other invisible dirties.

6.3.3. Ways of needle stick injury

The majority of discussants from all groups agreed on the poor practice of wearing personal protective devices. One of the discussants who was a 19 years old cleaner states that *"Without wearing adequate protective device we carried dirty clothes and medical wastes, which could predispose us for a number of needle stick or sharp injuries"*. The other issue agreed on by the discussants was that improper waste collection took the major share of sharp or needle stick injuries. Since dirty needles or sharp containers were overfilled, or some were torn, others

found mixed sharp with dust, paper and plastic waste, these made them exposed to sharp injuries.

According to the agreed opinion from all groups, they were only concerned about their daily task, rather than their future health. On top of this there was shortage of safety boxes or proper waste bin. So they used overfilled the safety boxes to save these materials. Finally, they also reported that they were made at risk of injury during changing new safety boxes and disposing full once. A member of team of managers said, *“The process of waste disposal needs teamwork, which is not very strong in our set up”*.

The most accepted reasoning, by all discussants, was that their working area were either too small or single working rooms though they were required to give a lot of tasks i.e. dressing, injection, instrument processing etc. which could predispose health care workers, clients and the community at a higher risk of needle stick or sharp injury. A 25 years old instrument processor qualify this idea by saying that: *“A single room was serving for many services like instrument processing, injection, dressing etc., which contribute for improper waste disposal”*.

6.3.4. Reasons for not wearing personal protective devices

All discussants agreed on encountering shortage and ill fitted size personal protective devices were common in the hospital. So, health care workers were not got different sizes and sufficient protective devises. They also believed that this type of protective devices were not distributed based on the demand of employees, rather managers would

better consider the document which describe the annual based right of civil servant. On top of these the instruction were developed with out considering the principles of universal precautions.

A 21 years old cleaner said, *“Since the utility glove we collect form the hospital was not convenient to work with, we remove the glove to pick up dirty materials including sharps. We work with clothes prepared and provided by the hospital, after we participated at infection prevention training, although we request to have eye protectors and other materials we couldn’t get it”*. A 28 years old cleaners from Woldiya health center said, *“Health professional put unhealthy pressure up on us to wash their gown without wearing utility glove.”*

The other ideas agreed upon by the discussants were shortage of man power especially during duty hours, when many mothers might visit to get delivery services, at that time health workers get fatigue by providing essential routine and emergency services, as a result they become busy and couldn’t get time to wear personal protective equipment. The majority also reported as if they were working by the accepted tradition and that even they didn’t know what and when to wear. And there were no clear rules and regulation, which govern the staff, patients, and environment.

6.3.5. Reasons for improper instrument processing

The majority of the discussants have agreed on the idea that few training were prepared and delivered by less experienced instructors focusing only on theoretical aspect of instrument processing. *Since*

these types of tasks were considered as a work of staff with lower status, the trainings were inadequate or with little preparations. In the recent few years there was some training effort with a very short duration. The other point agreed up on by all discussants were that trained health care staff might be considered to have the resources and the necessary knowledge to protect them, actually there was no means to exercise their potentials and culture of protecting each other. Almost all discussants agreed that there were no means to check whether instrument processing equipments were functioning properly or not. A 23 years old instrument processing team discussant said, “When I got assigned in this task, it was without any formal training. Although, I got some orientation from former staff that used to work here, I didn’t know whether the idea was correct or not”.

6.3.6. What are the reasons for not washing hands?

A group of medical waste handlers agreed that they were working in a very dirty environment. On top of these; they thought that it was sufficient as long as they washed their hands at home. The main reasons forwarded by the majority of the groups were that there was no sufficient water, soap and essential materials in the health institutions. The other reason stated by many of the discussants was poor culture of washing hands in health institutions. The majority of direct patient care providers agreed that it is difficult to adhere with hand washing during duty hours.

When one of the direct patient care provider team members described his experience that *“when we wear a glove we think that the patient is protected, and it also protects us from dirty matters so we did not wash our hands before wearing or after removing glove. Furthermore, usually we wash our hand only when we saw visible dirty matter to protect ourselves from disease”*. Almost all participants had stated that the problem was related to carelessness observed by health care workers.

6.3.7. Suggested interventions for safe services:

It was pointed that health professional should be taught to accord respect, dignity and sprit of teamwork toward the supportive staff starting from their pre-service training time. Majority of group’s discussants demanded on better accessibility and availability of the necessary personal protective devices, chlorine, TST indicator kits and waste collection facilities at all departments. Also, it was stated that government representatives and the community should be informed to reduce free visiting system and number of patient attendants there by to limit the dangers of health institution acquired infection.

Discussant also suggested that it was important to establish an infection prevention committee, of which some of the activities should include providing training and Hepatitis B vaccine, preparing reading materials, mentoring, monitoring and evaluation of infection prevention practices. Patient and their attendants should participate in infection prevention practices while they are in health care facilities. Health care workers should also inform their role.

7. Discussion

In Ethiopia, there are few studies on universal precaution or related topics. This study contributes to determine the knowledge, attitude, and practices of health care workers toward universal precaution and other related factors in North Wollo Zone, Amhara Region, Northeastern Ethiopia.

Among the Participants of this study 53.3% of all the respondents were from Woldiya hospital shares and the rest were from eight health centers and one district hospital. Although it seems exaggerated the respondents of Woldiya hospital were all health care workers who were actively working in the hospital, which includes all in-service upgrade clinical nurse trainees who were recruited from the zone. The male to female ratio was 1.5:1 and the mean age of participants was $32 \pm$ (SD 8) years with median 32 years showed that the participants were fairly distributed from young to late adulthood. And the respondent's average service tenured by their current professions in health care facilities is 10 years.

Only 45.8% of the respondents said that they ever had participated in any training dedicated to infection prevention after their respective pre-service courses. Though there is a national guideline on infection prevention, almost all participants agreed on the lack of teaching and learning materials in local language for health care workers, clients and communities on infection prevention. On top of these there was no

continuous support and supervision to improve the universal precaution. The in-service training given for health care workers also had complaints of short in duration ending with poor skill. The short duration might compromise the qualities and contents of the training. Also, only provision of a lot of information at a time may not convince staff about the duty of care to client/patient, environment and safe practice of health care workers. And this could be the reason for poor team spirit reported by FGD discussant resulting in unsafe practices in waste management.

Among all respondents 138(39.3%) know that HBV can persist on the external environment for up to seven days. As to the knowledge of respondents about diseases transmitted via blood or body fluid, 349 (99.4%) HIV, 206 (58.7%) tetanus, 192 (54.7%) hepatitis B viruses, 79 (22.5%) hepatitis C viruses, 53 (15.1%) malaria, and 10 (2.8%) tuberculosis. The mean knowledge score achieved were 2.53 out of 5 achieved by 44.5% of the respondents. These indicate that HCW's had a better knowledge on HIV/AIDS than other blood borne diseases. This study has revealed that health care workers have comparatively a better knowledge than the previous study done by W/Gebreal, Y. in SNNPR where that 197 (92.9%) HIV, 65 (30.7%) HBV, 55(25.9) tetanus, and 19 (9.0%) HCV ⁽¹³⁾. In Pakistan , non of the 18 practitioners know that hepatitis C can be transmitted by injection, only two mentioned HBV, over half mentioned Tuberculosis ⁽³²⁾.

One hundred ten (31.3%) of the respondents know the presence of anti HIV prophylaxis after sustaining needle stick or sharp injuries. Again, this finding is much better than the result of W/Gebeal. Y, which were 181(85%) of the participant not knowledgeable on the presence of PEP after sustaining sharp/needle stick injury ⁽¹³⁾. This difference could be explained by the effort done in the past 2-3 years by the Government organizations and NGO's in the study area.

Among respondents 278 gave multiple response on the reason for prescribing injectable medication; from them 201 (72.3%) respondent believed that there are no alternative drugs, 143 (51.4%) says injectables are fast acting drugs, 60 (20%) demanded by the clients and 26 (9.3%) prescribe not knowing the problem of injectable drugs. The stated attitude of health care workers still indicates reducing prescribing injectable drugs ⁽³³⁾ as one of the measure to avoid unsafe injection is not effective in the study area. It is in line with the perception of HCW's in SNNPR client prefer injection ⁽¹³⁾.

Swabbing vial tops with antiseptics or disinfectants is unnecessary. Cotton ball stored wet in antiseptics might become contaminated and have contributed to infection among patients ⁽⁶⁾. The use of the syringe to repeatedly draw medications, which is unsafe practice that lead to vial contamination and infection among subsequent patients ⁽⁶⁾. Other studies done in Ethiopia where two or three multi-dose vials were found with needles on their septum ^(13, 17), but in North Wollo 16 (17.7%) injection areas were found with needles on the septum. This unsafe

practice supported by FGD discussant that health care workers use syringe by changing needles for at least once for the second time.

While 186 (53%) of health care workers ever had sharp or needle stick injuries, the one-year needle stick or sharp injury prevalence was 59 (16.8%), splash of blood or body fluid on the mucus membrane in the last one-year was 71 (20.22%). This prevalence rate is relatively lower than previous studies done in SNNPR 32.4% ⁽¹³⁾ which had needle stick or sharp injuries with two third of health care workers had reported needle stick injuries ⁽²⁷⁾ and 46.2% had needle stick or splashed blood in one year in Addis Ababa ⁽²⁶⁾. Though, this difference could be achieved by the effort made on infection prevention. It, at the same time, also reminds health care workers, managers and planners that there is a serious risk of exposure of blood or body fluid to the eye, mouth or nose and sharp injuries. The stated prevalence of needle stick injury or splash of blood or body fluid might happen because of shortage of PPE supplies. One of the discussants of cleaners' team said that *"I had exposed to blood splash on my eyes because I felt tired and I had no protective device to wear."* And another discussant also strengthens the issue by saying *"I had similar exposure to blood during disposing placenta in to a pit, without wearing eye protector."*

Recapping and disposing also used needles were not uncommon in the survey area. Out of the 90 observed injections, 55 (61.1%) were disposed off after recapping of needles. Of these, 38 (69%) used two hands recapping method. Despite providing universal precaution related

training for 45.8% of health care workers in North Wollo, still two hand recapping technique continued. As observed, the reason for these dangerous practices could be that the safety boxes were hung on the door of every patient's room, searching for convenient placement. So that health care workers might not get safety box at hands reach. In Addis Ababa, one hand recapping of 39.7% and two hands recapping of 53.8% was found ⁽¹⁷⁾. As one FGD discussant confirmed in the study area syringes and needles were re used once again for the second time to save supplies and minimize cost for the patient.

In many countries the practice of reusing injection equipment in the absence of sterilization is common and such practices have been associated with injection ⁽⁶⁾. Based on the report of injection safety survey in Ethiopia, lack of supply and equipment were considered as reasons for few of the unsafe practices ⁽²⁷⁾.

Unsafe sharp collection may cause 5 to 28% of the needle stick injuries. Unsafe sharps waste management exposes the community to needle stick injuries ⁽⁶⁾. When we study safety of injection we need to consider the risk to the health care workers, client/patient and community and that the burden of disease associated with unsafe injection, is of a different magnitude among these three groups ^(3, 6).

In North Wollo Zone, all the 229 observed working rooms have some kind of prepared material to collect needles and sharps. The materials include: 169 (73.8%) had safety boxes, 54 (23.6%) use open pail without lid and the rest 8 (2.6%) were of plastic pail with lid. This was much

better than the previous study done in Addis Ababa in which 84.1% were used open plastic bucket to collect needle/sharp ⁽²⁶⁾. The mean observed practice score was 9 with standard deviation 1.48 out of eleven. This is an indicative of improvements on supply of safety box, to collect sharp materials in some health care facilities. Although facilities got the appropriate supplies, in 25% of the cases the safety boxes were overfilled and that there were also sharps mixed with other waste. As one of the FGD participant said: *“There is no responsible body to change timely safety boxes when 3/4th of it filled with sharps.”* And the other also said that *“infection prevention needs a strong teamwork, which was considered to be poor in the study area. On top of these there were no clear rule and regulations, in order to reward better performance, take administrative sanction for non-compliers.”*

With a criteria, the variables used to classify as safe and unsafe were: explaining injection procedure, using single use disposable injection materials, recapping technique, leave needle on the stopper of the vial, and safe disposal of needles. Seventy nine (87.8%) of the injection given in the zone were unsafe. The result shows that out of ten injections nine were not safe. This might be the reason for the reported prevalence on needle stick injury in the last one year. The finding is in line with other studies done in SNNPR 74% ⁽¹³⁾ and consistent with studies done by World Health Organization in sub-Saharan countries which indicate 30 to 90% injection, varying from place to place, was unsafe ⁽²⁾.

The practice of health care workers after sustaining needle stick injuries or blood or body fluid splash was not statistically significant with the current knowledge score and whether attended UP related training or not. For instances, health care workers who were counseled and tested for HIV after being exposing to sharp/needle were 37 (19.9%) and only 6(3.2%) took post exposure prophylaxis. All participants achieved below mean score, this could have happened for the reason that health care workers might given answer of their practices even though such accident happed before they got the necessary knowledge, attitude and skill.

Decontamination is the very important part of instrument processing which make contaminated instrument safe for handling and further processing (8, 18, 19). In the study area, only 6(33%) of the observed decontamination solutions were correctly prepared with appropriate materials and label of date on it. According to the FGD, the reason for such form of unsafe practice included shortage of supply and other essential materials, the training given on instrument processing were designed only with theoretical aspect of it, and short in duration or had simply relied on sharing traditional experience form previously assigned staff. The observation also revealed that health care workers use savalon, alcohol, and iodine solution, as decontamination solutions. These all shows that health care workers did not have the necessary knowledge of instrument processing as of the principles of universal precaution. Similar finding were documented that decontamination

solutions were not properly prepared and not changed on a daily basis⁽²⁷⁾ and that chlorine solution were prepared and used in a very weak strength⁽¹⁷⁾.

Out of 18 observed sterilization areas only 3 were used TST test to check the efficiency of the autoclave. Two turned from Yellow to blue and one turned its color to brown. This finding is much lower than⁽¹⁴⁾ 15(40 %) of health institution use TST and 5(31.6%) were turned blue. This could be due to lack of TST kit supply and the quality of the training given on instrument processing had compliant of short duration, which might not ensured the desired skill. This finding is similar with a survey conducted under the auspices of WHO⁽²⁷⁾ in which 2 of the 56 observed facilities used TST indicator to monitor their autoclave.

Considering that hand washing is the single most important means of preventing the spread of infection^(14, 19) a total of 1021 opportunities were observed in this study. Of these, 296 (28.9%) would adhere by washing hands with alcohol hand rub, medicated soap or bar soap and water. Only 13.4% washed before commencing work and 45% after completing a procedure. Knowledge score of disease transmitted by blood and body fluid also had statistically significant association with better hand hygiene adherence $p < 0.05$.

The hand hygiene adherence rate had a wide range (28.9 ± 27.3), which could be explained by shortage of manpower and supplies. Either HCW's wrongly believed as they had a better adherence or they don't

know the opportunities to wash hands. According to the opinion of FGD participants in the study area, some of the agents like alcohol were reserved for nurses and physicians. One of the health care providers' team members indicates that *"shortage of supply as a factor for non-adherence"* and *"it is difficult to adhere with hand washing during duty hours"*. Similar findings ⁽³³⁾ of poor adherence on busy days were seen and it is also in line with the finding of Engender health and Nigat project in Addis Ababa as health care workers do not usually wash hands on arrival to workplace and before putting on glove ⁽¹⁸⁾. Males were four times less likely to adhere to hand hygiene than female. This finding is in line with report of MMWR ⁽³³⁾, with the reported adherence rate of 5-81%, report of nurses digest showing only 41% of hospital staff follow the guideline for good hand hygiene ⁽³⁵⁾ and less adhere with the hand hygiene with being a male. According to the Access Excellence Collection publications, hand-washing rates were as low as 30% and never exceed above 48% ⁽¹⁴⁾. A study done in university of Geneva hospital on practice of the hand washing rate range 23 to 87% and the overall doctor's compliance rate were 57% ⁽¹⁶⁾. Hand hygiene adherence in this study was found to be positively associated with better professional status such as physicians, health officers and nurses. This finding is not in line with the report of MMWR ⁽³³⁾ where a better status negatively associated with hand washing.

The reason suggested by the respondents for washing hands before and after touching the patient or the nearest vicinity include 285 (87.7%)

necessary to wash hands between patients, 164(56.5%) determine patient cure rate, 197(60.6%) necessary before wearing glove, 93 (28.6%) washing utensil conveniently placed and 101 (31.1%) takes few time. But on the other hand, those who had not washed their hands believed that washing hand 14 (53.8%) was not necessary between patients, 16 (61.5%) was not determinant of patient cure rate and 17 (65.4%) was not necessary before wearing glove and 16 (61.5%) took too much time. The over all attitude mean score was 2.53 with standard deviation 1.16 out of five questions. The difference was statistically significant with the profession of the respondent F test 2.59, $P < 0.005$. It is in line with positive and negative attitudes discussed in infection prevention guideline for health care facilities in limited resource ⁽⁸⁾.

The use of personal protective device in provision of cares ever worn were 98.9% only for gown and also low as 59 (16.9%) goggle and shoe/boot 107 (30.7%) could be related to shortage of supply. It is also supported by the FGD no goggle was supplied despite frequent requests and it was proved with inventory no goggles and boots were found in all health care facilities.

Health care workers washed their gown 242(68.9%) once per week, 49 (14%) two times per week, 43(12.3%) once per two weeks and 17(4.8%) three times per week. This finding revealed that infection prevention knowledge and attitude of health care workers were not sufficient to standard level of UP.

Failure to remove glove after caring for a patient, especially, after provision of injection were observed. It could be due to lack of protocol, rule or regulation. In the FGD the discussant indicated that it is difficult to comply with wearing personal protective devices during duty hours due to being busy and that they couldn't get time to wear personal protective equipment. The majority also reported as if they were working by the accepted tradition and that even they didn't know what and when to wear.

The unsafe practices in North Wollo Zone made health care workers and clients alike at a higher risk of infections. As the FGD discussant agreed on the current civil service reform implemented with out considering the risk of infection for the health care workers, clients and the community. *“Now a day thanks to civil service reform which only promotes a free visiting hours for the public and allow unlimited patient attendants and visitors complicate the task of infection prevention”.*

8. Strength and Limitation of the study

8.1. Strength of the study

The strength of this study includes:

- ◆ Direct operational and public health importance
- ◆ It includes large proportion of HCWs 351 (65%) for quantitative and 53 (14%) for qualitative study
- ◆ Use both qualitative and quantitative methods
- ◆ The data collectors were sixteen graduate nurses

8.2. Limitation of the study

The limitation of this study includes:

- ◆ Social desirability bias
- ◆ Lack of similar studies in our country to made comparative discussion
- ◆ The FGD held only in Woldiya and Lalibela might not explain the situation found in all health centers

9. Conclusions

1. Trained health care workers' had a better Knowledge, attitude and practice score towards universal precaution. Overall, however, the majority of health care workers' knowledge, attitude and practices toward universal precaution in North Wollo Zone were not sufficient, favorable and safe enough to the expected standard.
2. Health care workers were not properly handling, and disposing used needle/sharp materials in the study area.
3. Two third of the instrument processing procedures observed were inappropriate and not safe enough to prevent infection to health care workers and clients in the study area.
4. Health care workers didn't consistently use personal protective devices.
5. There are no teaching and learning materials, on UP and IP with local language for health workers in the study area.
6. Health care workers who work in a room favored with water supply and alcohol had a better hand hygiene adherence than which lacked these supplies.
7. Although there is a better supply of syringe and needles, safety boxes, and chlorine solution, health facilities do not enjoy fair distribution of the stated materials. In all health care facilities personal protective devices such as goggles, face shields, boots etc. were not available during the survey.

8. There were no continuous supportive supervision, monitoring and mentoring in relation to universal precaution in the study facilities.
9. The risk of health institution acquired infection to health care workers, clients, patients, children and the communities were very high.

10. Recommendations

1. Strengthen and integrate universal precaution with the routine services through providing training for all health care workers of hospitals and health centers both technical and supportive staff can improve the status in health care settings.
2. Prepare and introduce health care workers infection prevention standard of practice protocol, rules, regulation and opportunities to promote the desired team spirit at all health facility level is recommended.
3. In-service training on universal precaution should be given by skilled professionals, with adequate duration and with optimal preparation to improve the safety of procedures in the study area.
4. Put in system that encourages health care workers to wear personal protective devices through accessing and supplying standard materials to the services delivered in the health care facility.
5. Introduce and provide appropriate teaching and learning materials on UP with local language and dissemination of information on risk of health institutions acquired infection to all health care workers is essential.
6. Improve sustainable supplies, which include all types of personal protective devices, TST kits, water supply, washing utensils, and other related materials are mandatory to correct the unsafe practice in the study area.

7. Introduce close supportive supervision, monitoring and evaluation of universal precaution as one of the health services activities.
8. Fair distribution of safety boxes, syringe and needles, at all departments and health facilities is essential.
9. Periodic as well as expanded assessment of health care workers KAP on universal precaution and infection prevention is recommended.

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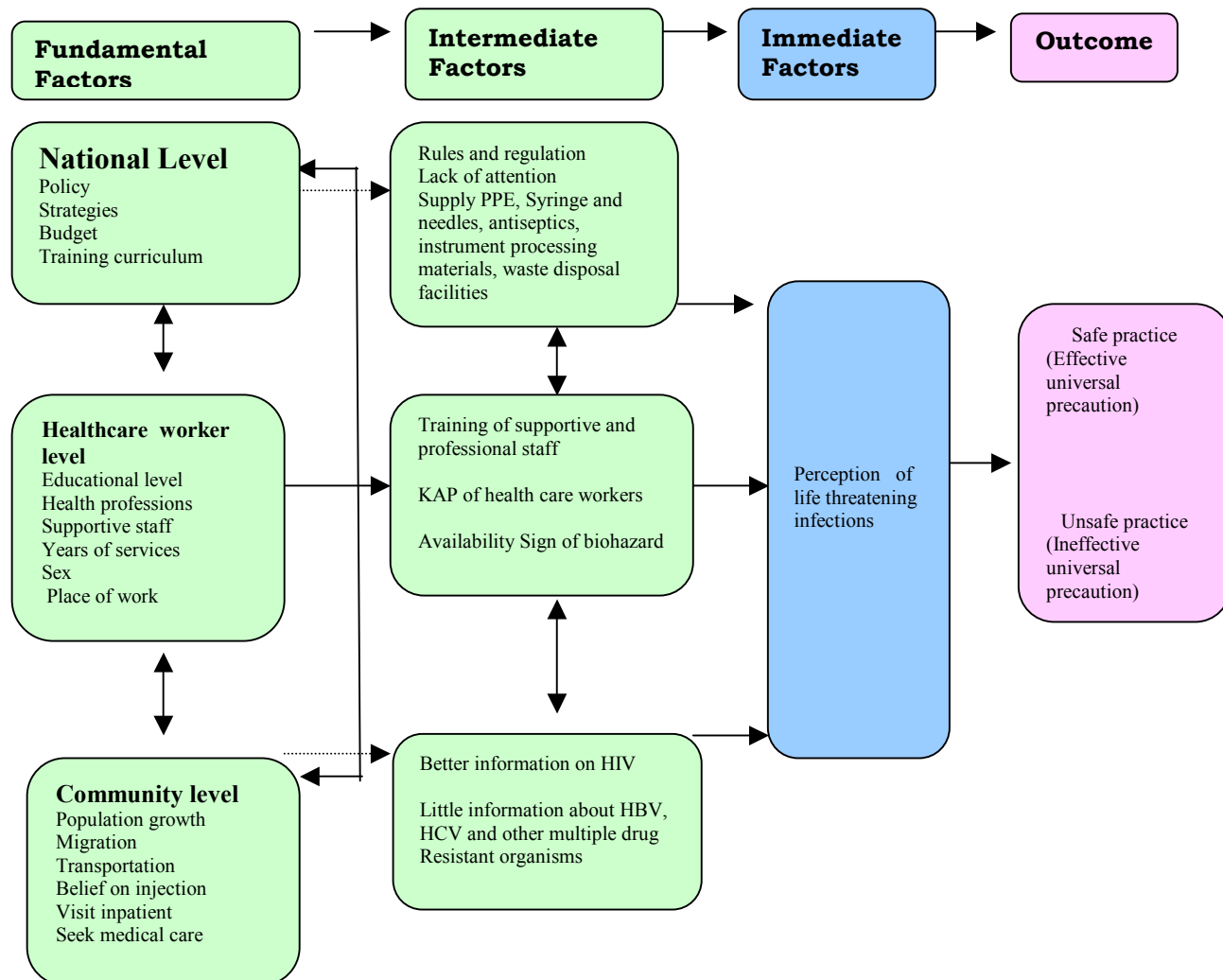
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35. Nursing Digest. Health care associated infections. September 2005;2(9):1-5.

12. Annexes

12.1. Annex I: Conceptual framework

Figure 1: Conceptual framework to study the KAP of health care workers on universal precaution, July 2006



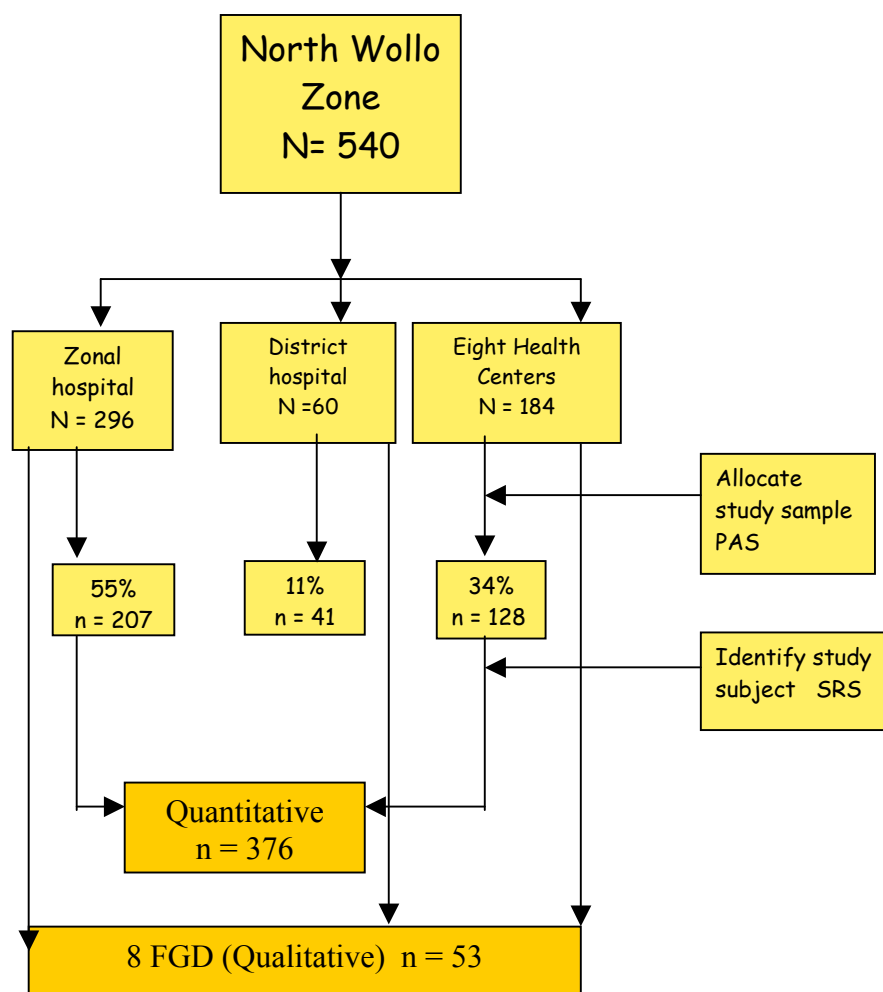
12.2. Annex II: Data collection methods

Table 9: Summary of study subjects and methods of data collection in North Wollo, Amhara Region, July 2006.

Study subjects	Method of data collection	Number of participants
Health care workers individually	Interviewee questionnaire	351
Healthcare workers and the environment	Observation	351
A team of managers	2 FGD	12
A team of direct patient care providers	2 FGD	13
A team of instrument processors	2 FGD	14
A team of cleaners/medical waste handlers	2 FGD	14

12.3. Annex III: Sampling procedure

Figure 2: Schematic presentation of Sampling Procedure June 2006.

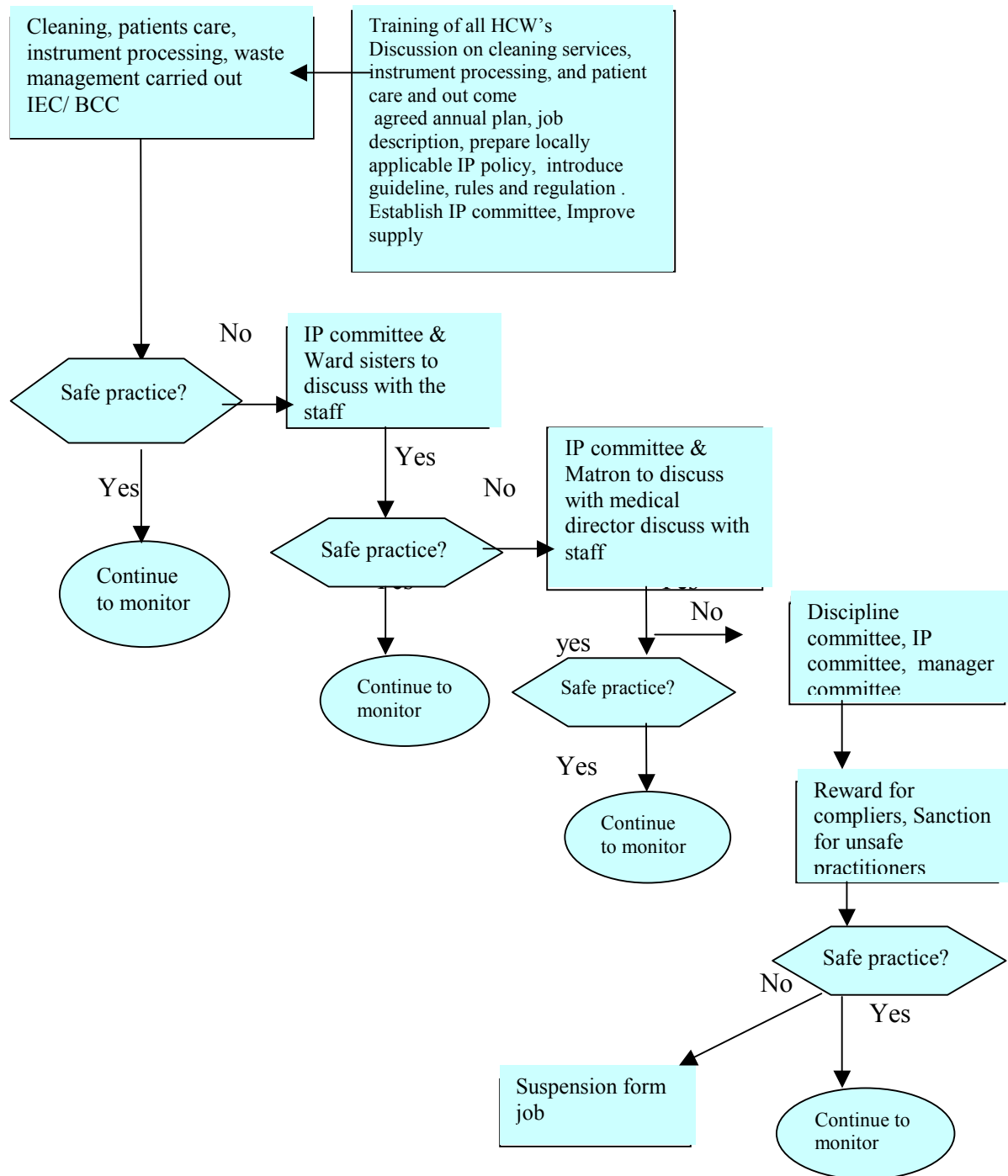


NB: a) PAS:- proportional allocate to size

b) SRS:- Simple Random Sampling

12.4. Annex IV: Schematic presentation of recommended activities to improve universal precaution

Schematic Representation: Summary of recommended monitoring events and measures to improve status of universal precaution



12.5. Annex V: Scoring: knowledge, attitude and practice

Ser. No.	Descriptions	Yes	No	Do not know
1	Diseases transmitted by dirty needles and sharps			
1.1	HBC	1	0	0
1.2	HCV	1	0	0
1.3	HIV	1	0	0
1.4	Tetanus	1	0	0
1.5	Malaria	1	0	0
1.6	Tuberculosis	1	0	0
2	Why do not wash your hands? Or why do you wash your hand?			
2.1	Unnecessary	0	1	0
2.2	Does not affect clinical outcome	0	1	0
2.3	Unnecessary when glove worn	0	1	0
2.4	Not convenient	0	1	0
2.5	Takes to much time	0	1	0
2.6	Necessary	1	0	0
2.7	It affects clinical outcome	1	0	0
2.8	It is necessary even when glove worn	1	0	0
2.9	Washing utensil conveniently placed	1	0	0
2.10	Takes a few time	1	0	0
3	What goes in to the safety box			
3.1	Syringe	1	0	0
3.2	Needle	1	0	0
3.3	Needle from IV bags	1	0	0
3.4	Lancets	1	0	0
3.5	Other contaminate sharps	1	0	0
3.6	Empty vials	0	1	0
3.7	Cotton pads	0	1	0
3.8	Dressing materials	0	1	0
3.9	Iv bag or extension tubes	0	1	0
3.10	Latex glove	0	1	0
3.11	Other plastic materials	0	1	0
4	After exposure to blood what measure did you take?			
4.1	Washing with soap and water	1	0	0
4.2	Wash with alcohol, iodine or chlorine.	0	1	0
4.3	Applying pressure to stop bleeding	0	1	0
4.4	Dress the wound	1	0	0
4.5	Squeezing to extract more blood	1	0	0
4.6	Take TAT	1	0	0
4.7	Visiting VCT	1	0	0
4.8	Seek PEP	1	0	0
4.9	Report to head person	1	0	0

12.6. Annex VI: - Quantitative Research Tools

Instruction:

The observation and audit check list has five pages and it contains 50 questions and the quantitative questionnaire has 5 pages containing 52 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 20 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 Form for Quantitative survey questionnaires:

100A. Name of health institution _____

100B. Date _____ 100C. Time started _____

100D. Department _____ 100E. Code number of the checklist _____

Hallo! Good morning?

My name is Sr./ Ato ----- and my friend is Sr./ Ato-----. We are a research team member of AAU, Department of Community Health. Today we are here to collect data on the assessment of universal precaution.

The objective of this questionnaire is to assess the knowledge, attitude and practice of healthcare workers on universal precaution in North Wollo zone.

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 too 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 30 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-----

100F.Result of the interview: 1. Completed 2. Partially completed

3. The interviewee refused 4. Others-----

Data collector's Name: 1. ----- Signature -----

2. ----- Signature -----

Supervisor's name----- Signature -----

Quantitative Survey Questionnaire:

Section 1: Observation and audit checklist

Ser/ No	Question	Response	Code	Skip to
101	Level of Health Institution	Zonal hospital District Hospital Health center	1 2 3	
102	Age of the observed HCW	() Years		
103	Sex	Male Female	1 2	
104	Profession	Physician/GP Health Officer Nurse/ Midwife Health assistant/Junior nurse Lab technicians Pharmacy technician Sanitarian Cleaner? House keeping personnel Laundry personnel Other specify ()	1 2 3 4 5 6 7 8 9 10	
105	Education Status	Illiterate Read and write Grade 4-6 Grade 7-8 Grade 9-12 12+1 + 12+2 12+4 12+6	1 2 3 4 5 6 7 8	
106	Have you ever participated in any training programme about infection prevention or universal precaution?	Yes No	1 2	
107	Have you participated in any training programme about infection prevention or universal precaution in the last one year?	Yes No	1 2	
108	Years of service after the last graduation	() Years		

Ser/ No	Question	Response	Code	Skip to
109	Amount of chlorine available in the store or department	() in liter		
110	Amount of utility glove available in the store or department	() in number		
111	Amount of examination glove available in the store or department	() PK of 100		
112	Amount of mask available in the store or department	() in number		
113	Amount of apron available in the store or department	() in number		
114	Amount of boots available in the store or department	() in number		
115	Amount of safety box available in the store or department	() Pk of 25		
116	Amount of Syringe and needle available in the store or department	() Pk of 100 () Pks of 100 () Pks of 100 () Pks of 100 () Pks of 100		
	116.1 10 ml			
	116.2 5 ml			
	116.3 2 ml			
	116.4 0.5 ml			
	116.5 Other			
117	Is there water source in the health facility?	Yes No	1 2	119
118	What is the source of the water?	Tap water Protected spring water Protected well water Stream Other specify ()	1 2 3 4 5	
119	During your observation is there running water in there room?	Yes No NA	1 2 88	
120	Does the health care provider wash his or her hand	Yes No		
	120.1 Before commencing the procedure	Not available ()		
	120.2 After completing the procedure	1 2 88 ()		
121	Is there alcohol swab in the room?	Yes No Not available	1 2 88	
122	Where is the soiled linen stored?	On the ground In the drum Hamper bag Not available	1 2 3 88	
123	Does HCW use utility glove or double glove to collect soiled linen?	Yes No Not available	1 2 88	
124	Does the health care worker explain the procedure to the patient or care taker?	Yes No Not available	1 2 88	
125	Have you observed when recapping of the needle occurring?	Yes No Not available	1 2 88	127
126	How was the technique of recapping	Single hand scoop technique Two hand technique	1 2	

Ser/ No	Question	Response	Code	Skip to
127	Does the health care provider swab the vial tops?	Yes No Not available	1 2 88	129 129
128	What was the source of the cotton swabs?	Cotton ball stored wet in antiseptics Cotton ball prepared for the purpose Not available	1 2 88	
129	Does the health care provider leave needle on the septum/ stopper of multidose vial?	Yes No Not available	1 2 88	
130	How much prepared delivery /dressing set observed?	()		
131	How are delivery/ dressing sets stored?	Socked in chlorine solution Socked in savalon solution In the boiler with water Boiled/autoclaved and packed with clothes Other specify ()	1 2 3 4 5	
132	Does the health care provider decontaminate medical instrument / equipment?	Yes No Not available	1 2 88	136 136
133	Observed sterilization 133.1 Boiling 133.2 Autoclave 133.3 oven 133..4 Chemical disinfection (HLD)	Time 133.11 other 133.12 Time 133.21 Temperature 133.22 Pressure 133. 23 Time 133.31 Temperature 133.32 Other 133.33 Concentration 133.41 Other 133.42	() () () () () () () () () ()	
134	Do they use TST control spot indicator to check autoclave / steam sterilization performance?	Yes No Not available	1 2 88	136 136
135	TST control spot indicator change from yellow to	Blue Brown Molted yellow Other ()	1 2 3 4	
136	Is there labeling of the date of sterilization or decontamination stock solution preparation?	Yes No Not available	1 2 88	
137	At the time of observation was the examination / delivery coach decontaminated after delivery?	Yes No Not available	1 2 88	
138	At the time of observation does the health care provider wear personal protective equipment/PPE?	Yes No Not available	1 2 88	140 140

Ser/ No	Question	Response	Code	Skip to
139	Which one of the PPE was witnessed? 139.1 Apron 139.2 Utility glove (double glove) 139.3 Head cover 139.4 Boots/shoe 139.5 Eye protectors/ Goggle 139.6 Mask 139.7 Gown	Yes No not available 1 2 88 1 2 88 1 2 88 1 2 88 1 2 88 1 2 88 1 2 88	() () () () () () ()	
140	At the time of observation is there any rubbish container in the room?	Yes No Not available	1 2 88	
141	Are there any sharp /needle collection box?	Yes No Not available	1 2 88	144 144
142	Type of sharp collection material	Safety box/ card box/ Plastic pail with lid Plastic pail with out lid Other specify ()	1 2 3 4	
143	How was the condition of the safety box or sharp container in the health facility?	Over filled Torn and needles seen through the hole Empty or few dirty syringed and needles Sharps mixed with other waste	1 2 3 4	
144	Is here a written material or picture for risk communication in the department/ working room?	Yes No	1 2	
145	How are syringes and needles and sharps disposed in the health facility?	open incineration Protected incineration Open dumping Burial in the pit Dumping Other specify()	1 2 3 4 5 6	
146	Are there contaminated needles, syringe or other sharps in the surrounding of the health institution?	Yes No Not available	1 2 88	
147	How are tissues (placenta, removed body parts) disposed in the health facility?	Open dumping Burial in the pit Dumping Other specify ()	1 2 3 4	
148	Are there tissues (placenta, removed body parts) disposed in the immediate surrounding of the health facility?	Yes No	1 2	
149	Procedure observed	()		

150 Hand hygiene observation Key

Routine ward (Medical, Surgical, Oby ...)

- | | | |
|---|------|------------------------------------|
| 1. unsure of hand hygiene | ? | EX 1 |
| 2. Touch the patient skin | PT | Hw |
| 3. Fail to perform hand hygiene | X | ? |
| 4. Contact with intravenous circuit | VA | |
| 5. Needles, injection, phlebotomy | NE | |
| 6. Contact with patient's non intact skin | WC | PT |
| 7. Assisting with toilet | TC | |
| 8. Respiratory care | RC | |
| 9. Touch inanimate object, linen, chart. | IA | X |
| ICU (intensive care unit) | | |
| 1. Medication preparation | MP | same Hw move to 2 nd pt |
| 2. Respiratory care | RC | |
| 3. Nasogastric care | NG | |
| 4. Patient cart including table chart | CH | |
| 5. Endotracheal suction / trachostomy | SC | |
| Hand hygiene product | | |
| 1. Water only | W | |
| 2. Non medicated soap | S | S |
| 3. Medicated soap | C | |
| 4. Alcohol product | D | |
| Glove use | | |
| 1. Glove on | Go | PT |
| 2. Glove off | Gf | |
| 3. Sterile glove on | S Go | D |
| 4. Sterile glove off | S Gf | |

HW left bay

Section 2: Interview checklist

Ser. No	Question	Response	Code	Skip to
201	Level of health institution	Zonal hospital District Hospital Health center	1 2 3	
202	Age of the observed HCW	() Years		
203	Sex	Male Female	1 2	
204	Profession	Physician/GP Health Officer Nurse/ Midwife Health assistant/Junior nurse Lab technicians Pharmacy technician Sanitarian Cleaner? House keeping personnel Laundry personnel Other specify ()	1 2 3 4 5 6 7 8 9 10	

Ser. no	Question	Response	Code	Skip tc
205	Education Status	Illiterate Read and write Grade 4-6 Grade 7-8 Grade 9-12 12+1 + 12+2 12+4 12+6	1 2 3 4 5 6 7 8	
206	Years of service after the last graduation	() Years		
207	Have you ever participated in any training programme about infection prevention or universal precaution?	Yes No	1 2	
208	Have you participated in any training programme about infection prevention or universal precaution in the last one year?	Yes No	1 2	
209	When a health care worker touches a patient who is colonized, but not infected with resistant organisms (e.g. MRSA, VRE) the health care worker's hand are the source for spreading resistant organisms to other patient (health professionals)	Strongly agree Agree Don't know Disagree Strongly disagree	1 2 3 4 5	
210	Do you clean your hand before touching patient or his/ her surroundings?	Yes No	1 2	217
211	Do you clean your hand after touching patient or his/ her surrounding?	Yes No	1 2	217
212	Which method do you use to clean your hands at work? 212.1 Plain soap and water 212.2 Anit microbial 212.3 Alcohol based hand rub 212.4 Other specify	Yes No 1 2 1 2 1 2 ()	[] [] []	
213	How often do you clean your hand after touching a patient's intact skin (for example, when measuring a pulse, or blood pressure? (Tech. staff))	Always Often Sometime Never	1 2 3 4	
214	How often do you clean your hands after touching an environment surface near to the patient (for example, table wall or bed rail?)	Always Often Sometime Never	1 2 3 4	
215	Estimate how often you clean your hands before/after touching a patient or contaminated surface in the health facility?	25% 50% 75% 90% 100%	1 2 3 4 5	
216	Why do you wash your hands? 216.1 Hand washing between every patient encounter is necessary 216.2 Hand washing does affect clinical out come 216.3 Hand washing is necessary even when gloves are worn 216.4 Hand washing facilities are conveniently placed or well designed 216.5 Hand washing do not take too much time 216.6 Other specify	Yes No 1 2 1 2 1 2 1 2 1 2 ()	() () () () ()	218

Ser. no	Question	Response	Code	Skip to
217	Why do not you wash your hands? 217.1 Hand washing between every patient encounter is unnecessary 217.2 Hand washing does not affect clinical out come 217.3 Hand washing is unnecessary when gloves are worn 217.4 Hand washing facilities are not conveniently placed or well designed 217.5 Hand washing takes too much time 217.6 Other specify	Yes No 1 2 1 2 1 2 1 2 1 2 ()	[] [] [] [] [] []	
218	Do you wear personal protective equipment	Yes No 1 2	1 2	221
219	Which once? 219.1 Apron 219.2 Utility glove/ double glove 219.3 Head cover 219.4 Boots/ shoe 219.5 Eye protectors / goggle 219.6 Mask 219.7 Examination glove 219.8 Gown 219.9 Other specify	Yes No DNK 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 ()	[] [] [] [] [] [] [] [] ()	
220	If you answer is No for 219, Why? 220.1 Difficult to work with 220.2 Nor always necessary 220.3 Uncomfortable 220.4 Out of stock 220.5 Other specify	Yes No DNK 1 2 99 1 2 99 1 2 99 1 2 99 ()	[] [] [] [] ()	
221	Glove use for all patient care contacts is a useful strategy for reducing risk of transmission of organism (Only for health professionals)	Strongly agree Agree Don't know Disagree Strongly disagree	1 2 3 4 5	
222	When did you use glove? 222.1 For all people when needed 222.2 For only HIV Suspected cases 222.3 For only HIV Positive cases 222.4 For procedures which needs glove 222.5 Other specify	Yes No NA 1 2 88 1 2 88 1 2 88 1 2 88 ()	[] [] [] [] ()	
223	Hepatitis B virus can persist for up to seven days on surface (Only for health professionals)	Strongly agree Agree No opinion Disagree Strongly disagree	1 2 3 4 5	
224	How do you wash soiled linen in your health facility? 224.1 Using laundry machine 224.2 Hand washing	Yes No DNK 1 2 99 1 2 99	[] []	
225	How frequent you wash your gown 225.1 Three times per week 225.2 Two-times per week 225.3 Once per week 225.4 Once per two 225.5 Other specify	Yes NO DNK 1 2 99 1 2 99 1 2 99 1 2 99 ()	[] [] [] [] ()	
226	Can disease be transmitted through dirty needles and sharps	Yes No Don't know	1 2 3	228 228

Ser. no	Question	Response	Code	Skip tc
227	Which of the following disease can be transmitted through dirty needles and sharps? 227.1 Hepatitis (HBV) 227.2 Hepatitis (HCV) 227.3 HIV (AIDS) 227.4 Tetanus (Clostridium tetani) 227.5 Malaria (Plasmodium Spp 227.6 Tuberculosis(Mycobacterium tuberculosis) 227.7 Other specify	Yes No DNK 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 ()	[] [] [] [] [] []	
228	Do you think you have acquired HIV through your profession?	Yes No	1 2	
229	Do you think your client have acquired HIV through the service they get in your health care facility?	Yes No	1 2	
230	In the absence of universal precaution health care facilities can be the source of infection and epidemic diseases?	Strongly agree Agree Don't know Disagree Strongly disagree	1 2 3 4 5	
231	Do you feel that you over prescribe injection in your health care institution (Technical staff)	Yes No DNK	1 2 99	
232	What do you think are the main reason for reuse of syringe and needles? 232.1 no reuse of syringe needle 232.2 Shortage of supply 232.3 Knowledge deficit 232.4 Carelessness 232.5 to reduce the cost of treatment 232.6 Other specify	Yes No DNK 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 ()	[] [] [] [] [] []	
233	What are the reasons for over prescription of injections? 233.1 Clients demand 233.2 Injectables are more effective than other drugs 233.3 Unavailability of other drugs 233.4 Knowledge deficit on risk of injection 233.5 Other specify	Yes No DNK 1 2 99 1 2 99 1 2 99 1 2 99 ()	[] [] [] []	
234	Is it safe to use syringe between patients if the needle is changed?	Yes No Don't Know	1 2 99	
235	Have you ever had needle stick /sharp injury?	Yes No Don't Know	1 2 99	238 238
236	Have you had with needle sick or sharp injury in the last one year?	Yes No Don't Know	1 2 99	
237	How did you sustain the injury	During recapping By sudden movement of the patient During sharp collection Other specify()	1 2 3 4	
238	Is there any prophylaxis to HIV after exposed to injury by needle/ sharp?	Yes No Don't Know	1 2 99	
239	Have you ever had blood or body fluid splash to your eye, mouth and/or nose?	Yes No Don't Know	1 2 99	242 242

Ser. no	Question	Response	Code	Skip tc
240	Have you had blood or body fluid splash to your eye, mouth or nose in the last one year?	Yes No Don't Know	1 2 99	
241	After exposed to blood or body fluid what measure did you take? 241.1 Washing with soap and water 241.2 Wash with alcohol, iodine, chlorine 241.3 Applying pressure to stop bleeding 241.4 Dress the wound 241.5 Squeezing to extract more blood 241.6 Take TAT 241.7 Visiting VCT 241.8 Seek PEP 241.9 Report to the head person 241.10 other specify	Yes No DNK 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 ()	[] [] [] [] [] [] [] [] [] []	
242	What type of medical instrument do you sterilize in your health care facility (Technical personnel)	Dressing set Syringe and needle Delivery set MVA set E and C set DNK	1 2 3 4 5 99	247
243	What is the chemical you use to decontaminate or HLD? 243.1 Chlorine 243.2 Savalon 243.3 Formaldehyde 243.4 Iodine 243.5 Alcohol 243.6 Other specify	Yes No DNK NA 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 ()	[] [] [] [] [] ()	
244	The ratio of chlorine and water you use to prepare HLD or decontamination solution is? 244.1 1:0 244.2 1:1 244.3 1:3 244.4 1:6 244.5 1:9 244.6 Other specify	Yes No DNK NA 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 ()	[] [] [] [] [] ()	
245	Health care associate organisms are commonly resistant to alcohol	Strongly agree Agree Don't know Disagree Strongly disagree	1 2 3 4 5	
246	In your health facility the instrument processing procedure you follow include: 246.1 Decontamination with chlorine(0.5%) 246.2 Cleaning with brush and detergents 246.3 High level disinfection (HLD) 246.4 Sterilization 246.5 Storing in appropriate place 246.6 Use immediately 246.7 Other specify	Yes No DNK NA 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 ()	[] [] [] [] [] [] []	
247	Are needles, syringes and other sharps immediately discarded after use in sharp container in your health institution?	Yes No Don't Know	1 2 99	
248	Is other medical wastes appropriately disposed of in your health institution?	Yes No Don't Know	1 2 99	

Ser. no	Question	Response				Code	Skip tc
249	What goes in to the safety box? 249.1 Disposable syringe 249.2 Needles 249.3 Needles for IV set/ bags 249.4 Lancets 249.5 Other contaminated sharps 249.6 Empty vials 249.7 Cotton pads 249.8 Dressing materials 249.9 IV bags or extension tubes 249.10 Latex glove 249.11 Other plastic materials or waste products	Yes	No	DNK	NA	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
		1	2	99	88	[]	
250	Where do you dispose sharp materials or used needles? 250.1 Open pail 250.2 In sharp and liquid proof container with out disassembling 250.3 In sharp and liquid proof container after disassembling 250.4 Mixed with other wastes/ rubbish 250.5 Other specify ()	Yes	No	NA		[]	
		1	2	88		[]	
		1	2	88		[]	
		1	2	88		[]	
		1	2	88		[]	
251	Who could be at risk of infection form your health facility waste? 251.1 Health Professionals/ workers 251.2 Supportive staff 251.3 The client / patient 251.4 The community 251.5 Children 251.6 Other specify ()	Yes	No	DNK		[]	
		1	2	99		[]	
		1	2	99		[]	
		1	2	99		[]	
		1	2	99		[]	
		1	2	99		[]	
		()					
252	Time the observation and interview completed						

Thank you!

Interviewer's name: 1. ----- Signature -----
2. ----- Signature -----

Supervisor's name----- Date -----
Signature -----
Date -----

12.7. Appendix VII: Qualitative Research Tools

Informed Consent Form for Focus Group Discussions:

Consent form for FGD

100A. Name of health institution _____

100B. Date _____ 100C. Time _____

100D. Department _____ 100E. Code number of the checklist ____

Hallo! Good morning?

My name is Sr./ Ato -----and my friend is Sr./ Ato-----
-----We are a research team member of Addis Ababa University. Today we are here to discuss with you on universal precaution. Other similar discussion will be held in north Wollo zone.

The objective of the focus group discussion is to describe factors or determinants for unsafe practices in healthcare facility. Your immediate boss selects you because you are the most resourceful staff in your department. The discussion is held among staff members from similar work area or responsibility. Each group consists of 6 to 8 people.

We would like to assure you that the study is confidential. We will not keep a record of your name and address. But we will take note of our discussion, which is accessed by only the principal investigator and locked in AAU, FM, DCH, until the study is completed. Finally it will be destroyed. You have a right to leave the discussion 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 discussion will take about 45 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-----

100F. Result of the interview: 1. Completed, 2. partially completed,
3. the interviewee refused, 4. Others-----

Data collector's Name: 1. ----- Signature -----

2. ----- Signature -----

Supervisor's name----- Signature -----

12.8. Annex VIII: - Guidelines for Focus Group Discussions

GENERAL INFORMATION

Date:

Name of note-taker:

Name of moderator:

Location:

Type and number of respondents: 1. Team of manager 2. Team of direct patient care takers 3. Team of healthcare waste handler 4. Team of instrument processor no []

SUBJECTS TO EXPLORE IN THE DISCUSSION

The below listed subjects and questions may be explored in any order. If the participants have already covered a subject then there is no need to ask the specific question relating to that subject.

1. What is infection prevention or universal precaution?

2. Who are the members of infection prevention committee in your institutes?

3. Do you have infection prevention guideline in your healthcare facility?

4. How does health care workers protect them and their clients?

Probe for:

1. Do soiling of hands and clothes occur when people are handling soiled linens?
2. Why does soiling or contamination occur?
3. Do soiling of hands or clothes causes illnesses?
4. Where is the storage located?
5. Who has access to the storage area?
6. Why health care workers do not wear personal protective equipment (apron, Mask, head cover, utility glove, boots) at work place?
7. Why health care workers do not wash their hand at arrival of work place and before putting on glove?
8. Do contaminated instrument causes disease?
9. Who are instrument processors in your health facility?
10. Why health care providers do not follow appropriate instrument processing steps?(Decontamination, Cleaning, HLD / Sterilization and storing or use)

5. How are syringes and needles collected from the healthcare facility and what happens with them afterwards?

1. Do needle stick injuries occur when people are handling waste?
2. Why do needle stick injuries occur?
3. Do needle stick injuries cause illnesses?
4. Where is the storage located?
5. Who has access to the storage area?
6. Why health care workers do not wear personal protective equipment (apron, Mask, head cover, utility glove, boots) at work place?
- 6. How are tissues / placentas, body part and dead fetus collected from the healthcare facility and what happens with them afterwards?**
 1. Have you ever been exposed to blood or body fluid while disposal tissue?
 2. What do you do when tissue or placenta is not properly disposed?
 3. Do you think the community is at risk of infection because of the waste?
 4. Why health care workers do not wear personal protective equipment (apron, Mask, head cover, utility glove, boots) at work place?
- 7. How does the waste get disposed of?**
 1. Have you ever been injured while operating the waste disposal facility?
 2. What do you do when the disposal facility does not function, or when the waste is not collected?
 3. Is the waste treated in an adequate way? If not, why?
 4. Do you think the community is at risk from needle stick or sharp injuries because of the waste?
 5. Do health care workers collect empty material / bags, vials, tin etc/ to their home?
- 8. Do you have any suggestions for improving universal precaution in this area?**

12.9. Annex IX: - Amharic Versions of the Questionnaires

ሀ) መጠይቆች እና የማወያያ ነጥቦች በአማርኛ

ትዕዛዝ:

ይህ መጠይቅ ሁለት ክፍሎች አሉት። የመጀመሪያው ክፍል የጉብኝት እና የንብረት ቆጠራ ቅጽ 5 ገጾችና 50 ጥያቄዎች አሉት። ሁለተኛው ክፍል የቃለ መጠይቅ ቅጽ 5 ገጾችና 52 ጥያቄዎች አሉት። ጥያቄዎች ከመጀመሪያው በፊት የስምምነት መግለጫ ይገኛል።ይህን መጠይቅ ለመረጃ መስብሰቢያነት ከመጠቀም በፊት ሁሉም ገጾችና ጥያቄዎች መኖራቸውን ጋዋን መልበስዎን ያረጋግጡ። መረጃ ለመስብሰብ በቅድሚያ የስምምነት መግለጫውን ለመረጃ ሰጪ በጥሞና አንብበው መስማማታቸውን በፊርማዎ ያረጋግጡ። የጉብኝት ቅጹን ለመሙላት በአማካኝ 20 ደቂቃዎች መመልከት ያስፈልግዎታል። ለእያንዳንዱ ጥያቄ መረጃ ሰጪው የሚሰጡትን መልስ በመልስ ረድፍ እና በጥቂው አኳያ የሚገኘውን ቁጥር ያክብቡ ወይም ይጻፉ። በእያንዳንዱ ክ/ጊዜ መጠይቅ ሲጀምሩ እና ሲያጠናቅቁ ሰዓቱን ይጻፉ ። ሲጨርሱ አሟልተው መመዝገብዎን በማረጋገጥ ይፈርሙ።

ክፍል ፩) -የስምምነት መግለጫ:

100: A የጤና ድርጅቱ ስም _____

100B: ቀን _____ 100D: ሰዓት _____

100:C የሥራ ክፍል _____ 100E: የመጠይቅ መለያ ቁጥር _____

እንደምን አደሩ / ዋሉ /?

ስሜ አቶ/ሴ/ር _____ ይባላል።የሥራ ባልደረባዩ ደግሞ

አቶ/ሴ/ር _____ ይባላሉ።በአ/አ ዩኒቨርሲቲ የህብረተሰብ ጤና ት/ርት ክፍል የጥናትና የምርምር ቡድን አባላቶች ነን። ዛሬ በጤና ድርጅትዎ ውስጥ በአጠቃላይ የጥንቃቄ መርሆዎች

(UP) ላይ መረጃ እናስባስባለን።

የመረጃ ስብሰባው ዋና ዓላማ በሰ/ወሎ ዞን ያሉ ጤና ሠራተኞችን እውቀት፣ ዝንባሌ እና ተግባር ለመገምገም የሚያስችል በአጠቃላይ የጥንቃቄ መርሆዎች (UP) ላይ መረጃ መሰብሰብ ነው።

የሚሰበሰበው መረጃ ሙሉ በሙሉ በሚስጥር የሚያዝ መሆኑን እናረጋግጥለዎታለን። የእርስዎንም ስምና መለያ አድራሻ አይመዘገብም። መረጃ መስጠት ካልፈለጉ መብትዎ ነው። መመለስ ያልፈለጉትንም ጥያቄ መዝለል/ማለፍ/ ይችላሉ።ይሁን እንጂ የእርስዎ ትብብር ትክክለኛ ምላሽ ጥናቱና ምርምሩ እንዲሳካ ያደርገዋል። ስለዚህ ለሚቀርብልዎት ጥያቄ ትክክለኛ እና ፈቃደኛ ሆነው በትዕግስት እንዲመልሱልን እንጠይቀዎታለን።

የቃለ መጠይቁ በግምት 30 ደቂቃ ይፈጃል።

ጥያቄ አለዎት?

በጥናቱ ውስጥ ለመሳተፍ ፈቃደኛ ነዎት?

አዎ , ወደሚቀጥለው ገጽ ይሰፉ አይደለሁም, አመስግነው

መጠይቁን ያቋርጡ።

የስምምነት ፈቃዱን የወሰደው /የተቀበለው/ ጠያቂ

ስምና ፊርማ _____

100F የቃለ ምልልሱ ውጤት /የውይይቱ ውጤት

1. የተሟላ
2. በከፊል የተሟላ
3. ፈቃደኛ ያልሆነ
4. ሌላ _____

የመረጃ ሰብሳቢዎች ስም 1. _____ ፊርማ _____

2. _____ ፊርማ _____

የተቆጣጣሪ ስም 1. _____ ፊርማ _____

ንዑስ ክፍል ፩) የጉብኝት እና የንብረት ቆጠራ ቅጽ

ተ/ቁ ጥር	ጥያቄ	መልስ	ኮድ	ወደ ጥ.ቁ.
101	የጤና ድርጅቱ ደረጃ	የዞናል ሆስፒታል የገጠር ሆስፒታል የጤና ጣቢያ	1 2 3	
102	የሚመለከቱት ጤና ባለሙያ እዕሜ	() ዓመት		
103	ጾታ	ወንድ ሴት	1 2	
104	ሙያ	ሃኪም ጤና መኮንን ነርስ/አዋላጅ ነርስ ጤና ረዳት /ጂ-ነርስ ላብ ቴክኒሻን ፋር. " ጤና ተቆጣጣሪ ጽዳት ሰራተኛ ላውንደሪ " ሌላ ()	1 2 3 4 5 6 7 8 9 10	
105	የት/ርት ደረጃ	ማንበብና መጻፍ የማይችሉ ማንበብና መጻፍ 4-6 ክፍል 7-8 ክፍል 9-12 ክፍል 12+1 + 12+2 12+4 12+6	1 2 3 4 5 6 7 8	
106	ስለ ብክለት መከላከል (አጠቃላይ ጥንቃቄን) ሥልጠና ተካፈለው ያውቃሉን?	አዎ አላውቅም	1 2	
107	ስለ ብክለት መከላከል (አጠቃላይጥንቃቄ) ባለፈው አንድ ዓመት ስልጠና ተካፈለው ያውቃሉ?	አዎ አላውቅም	1 2	
108	በየቤት ሙያ ከተመረቁ ጀምሮ ያለዎት ያገልግሉት ዘመን	() ዓመት		
109	በክፍሉ/በስቶር/ ውስጥ ያለ የበረከት መጠን	() ሊትር		

ተ/ቁ ጥር	ጥያቄ	መልስ	ኮድ	ወደ ጥ.ቁ.
110	“ ” ውስጥ ያለ የጸዳት የእጅ ጓንት ብዛት	() በቁጥር		
111	“ ” የምርመራ የእጅ ጓንት ብዛት	() 100 ፓክ		
112	“ ” የማሰክ ብዛት	() ቁጥር		
113	“ ” የአፕሮን ”	() ቁጥር		
114	“ ” የቦቲ/ ሽፍን ጫማ ጥንድ	() ቁጥር		
115	“ ” የሴፍቲ ቦክስ ”	() 25 ፓክ		
116	“ ” የሲሪንጅ መርፌ ”			
	116.1 10 ኤም ኤል	() 100 ፓክ		
	116.2 5 ኤም ኤል	() 100 ፓክ		
	116.3 2 ኤም ኤል	() 100 ፓክ		
	116.4 0.5 ኤም ኤል	() 100 ፓክ		
	116.5 ሌላ	() 100 ፓክ		
117	በጤና ድርጅቱ ውስጥ የውሃ አቅርቦት አለን?	አዎ የለም	1 2	119
118	የውሃው አቅርቦት	የቧንቧ ውሃ የተጠበቀ ምንጭ የተጠበቀ የጉድጓድ ውሃ ወራጅ ውሃ (ወንዝ) ሌላ ()	1 2 3 4 5	
119	በጉብኝቱ ወቅት በሥራ ክፍሉ ውሃ አለን?	አዎ የለም መረጃ የለም	1 2 88	
120	የጤና ባለሙያው/ድጋፍ ሰጭ ሠራተኛው እጃቸውን ታጥበዋል 117 ስራ ከመጀመራቸው በፊት 118 ስራ ካጠናቀቁ በኋላ	አዎ አልታጠቡም መረጃ የለም 1 2 88 1 2 88	() ()	
121	በክፍሉ ውስጥ የተዘጋጀ በአልኮል የራስ ጥጥ አለን?	አዎ የለም መረጃ የለም	1 2 88	
122	የቆሽሹ አንሶላዎች፣ ጨርቆች የት ተቀምጠዋል?	መሬት ላይ በበርሜል ከረጢት መረጃ የለም	1 2 3 88	
123	የቆሽሹ አንሶላ ለማንሳት የጤና ባለሙያው/ዋ/ የድጋፍ ሰጭ ሠራተኛው/ዋ/ ለጽዳት ስራ የሚያገለግል ጓንትን ወይም ደርበው የምርመራ ጓትን ለብሰዋል?	አዎ አለበትም መረጃ የለም	1 2 88	
124	የጤና ባለሙያውንና መርፌ ከመውጋታቸው በፊት የሚሰሩት ስራ ለህመማችን ወይም ለተንከባካቢ ገልጸዋል?	አዎ አልገለጹም መረጃ የለም	1 2 88	
125	የጤና አገልግሎት ሰጭው መርፌውን ክዳን ሲያለብስ አይተዋል?	አዎ አላየሁም መረጃ የለም	1 2 88	127
126	የመርፌውን ክዳን በምን ሁኔታ ነበር ያለበት?	በአንድ እጅ በሁለት እጅ	1 2	

ተ/ቁ ጥር	ጥያቄ	መልስ	ኮድ	ወደ ጥ.ቁ.
127	የጤና አገልግሎት ሰጭው የመድሃኒት ብልቃጡን ራስ በጥጥ ሲጠርጉ አይተዋልን?	አዎ የለም መረጃ የለም	1 2 88	129 129
128	የተጠቀሙት ጥጥ ከየት ነበር?	በአንቲሴፕቲክ ተነክሮ የተቀመጠ ለአንድ ጊዜ ብቻ ለስራው የተዘጋጀ መረጃ የለም	1 2 88	
129	የጤና አገልግሎት ሰጭው መርፌውን በመድሃኒቱ ብልቃጥ ላይ ትተውታልን?	አዎ የለም መረጃ የለም	1 2 88	
130	ምን ያህል የማዋለጃ /የድሬሲንግ የተዘጋጀ ሴት አለ	()		
131	የማዋለጃ (የድሬሲንግ) ቁሳቁሶች በምን ሁኔታ ነበር የተቀመጡት?	በበረከት ውስጥ ተነክሮ በሻሻሌን ውስጥ በባይለር በውሃ ውስጥ በተዘጋጀ ቦታ በጨርቅ ተሸፍኖ ሌላ ()	1 2 3 4 5	
132	የጤና አገልግሎት ሰጭው/ዋ/ የህክምና ቁሳቁሶችን ከብክለ ያጸዳሉ /ዲኮንታሚኔሽ ያደርጋሉ/ ወይ?	ያጸዳሉ አያጸዱም መረጃ የለም	1 2 88	136 136
133	የተመለከቱት 133.1 ቦይሊንግ (Boiling) 133.2 አውቶ ክሌፍ (autocleave) 133.3 አቪን (oven) 133.4 ከሚካል በረከት (HLD)	ሰዓት 133.11 ሌላ 133.12 ሰዓት 133.21 መቀት-133.22 ግፊት-133. 23 ሰዓት 133.31 መቀት-133.32 ሌላ 133.33 ኮንስትሬሽን133.41 ሌላ 133.42	() () () () () () () () () ()	
134	ቲ ኤስ ቲ የመቆጣጠሪያ ማመልከቻ አውቶ ክሌፍ እንደሚሰራ ለማረጋገጥ ተጠቅመዋል?	አዎ አልተጠቀሱም መረጃ የለም	1 2 88	136 136
135	የ 'ቲኤስቲ' መቆጣጠሪያ ቀለም ከቢጫ ወደ ----- ተቀይሯል	ሰማያዊ ቡናማ የደበዘዘ ቢጫ ሌላ	1 2 3 4	
136	ከብክለት ለማጽጃ በተዘጋጀ ኬሚካል ወይም ስትራላይዝድ በሆኑ እቃዎች ላይ ያተዘጋጁበት ቀን ተጽፏል?	አዎ አልተጻፈም መረጃ የለም	1 2 88	
137	በጉብኝት ወቅት የማዋለጃ አልጋ እናቶች ከወለዱ በኋላ ከበሽታ አምጭ ተህዋስ ብክለት/ ዲኮንታሚኔት/ ነጻ ተደርጓል?	አዎ አልሆነም መረጃ የለም	1 2 88	

Assessment of the knowledge, attitude and practice of healthcare workers on univers of precaution in North Wollo zone, Amhara Region, North eastern Ethiopia (By Mesela Dantie)

ተ/ቁ ጥር	ጥያቄ	መልስ	ኮድ	ወደ ጥ.ቁ.
147	እንግዲህ ልጅ የተወገደ የሰው አካል ከጤና ድርጅቱ በምን መንገድ ነው የሚወገደው?	በግልጽነት ቦታ መጣል በጉድጓድ መቅበር ጉድጓድ በመጣል ሌላ	1 2 3 4	
148	የእንግዲህ ልጅ ወይም የተወገደ የሰው አካል በጤና ድርጅቱ ዙሪያ አለን?	አሰ የለም	1 2	
149	የተመለከቱት ስራ	()		

150 የእጅ ንጽህና መከታተያ መመሪያ?

ዋርድ (ሜዲካል ስርጅት አባል፣ ኦቢ፣ ፔዲ ...)

1. የቢሮ ንጽህና ስለመጠበቁ ያለማረጋገጥ ?

2. የህመማችን ቆዳ አካባቢ መንካት PT

3. እጅን ሳይታጠቡ መቅረት X

4. የገለብስ መስመር መንካት VA

5. መርፌ መውጋት፣ ደም መውሰድ NE

6. የህመማችንን የቁስል አካል WC

መንካት TC

7. ሲጸዳዱ መርዳት RC

8. የመተንፈሻ ስርዓት እንክብካቤ IA

9. ገሱን አካል መንካት ቻርት ከርድ

ICU የዕኑህሙማን መንከባከቢያ ክፍል

6. መድሃኒት ማዘጋጀት MP

7. የመተንፈሻ ስርዓት መከባከብ RC

8. የአፍንጫና የአፍ እንክብካቤ NG

9. የህመማችን ካርድ እና ጠፊጼዛ CH

10. ስክሽን / ትራኪክላቶሚ SC

የእጅ ማጽጃ ቁሳቁስ

5. ውሃ ብቻ W

6. የልብስ/የእጅ ሳሙና/ተራ/ S

7. በመድሃኒት የበለጸገ ሳሙና D

8. አልኮል C

D

የእጅ ጓንት መጠቀም

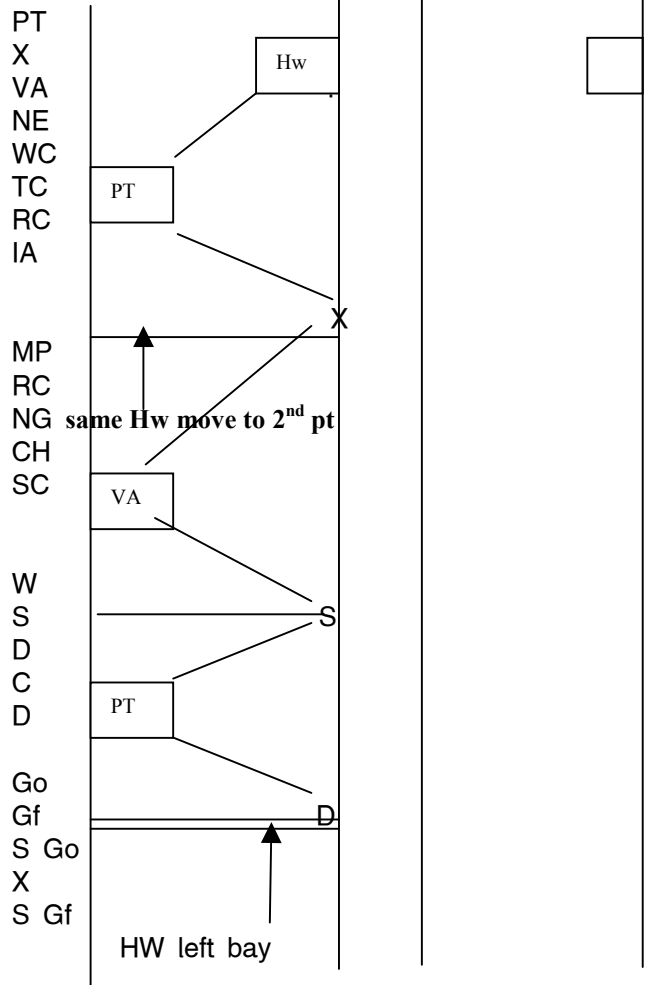
5. ጓንት ማጥለቅ Go

6. ጓንት ማውለቅ Gf

7. ከብክለት ነጻ የሆነ ጓንት ማድረግ S Go

8. " " " " ማውለቅ X

EX 1



ጉብኝቱን/መጠይቁን/ የሞላው/ ችው ስም፦

1. _____ ፊርማ

2. _____ ፊርማ

ቀን _____

የተቆጣጣሪው ስም፦ _____

ፊርማ

ቀን _____

ንዑስ ክፍል ፪) ቃለ መጠይቅ፡

ተ/ቁ ጥር	ጥያቄ	መልስ	ኮድ	ወደ
201	የጤና ድረጅቱ ደረጃ	የዞናል ሆስፒታል የገጠር ሆስፒታል ጤና ባለሙያ	1 2 3	
202	እድሜ	()		
203	ፆታ	ወንድ ሴት	1 2	
204	ሙያ	ሃኪም ጤና መኮንን ነርስ (አዋላጅ ነርስ) ጤና ረዳት (ጁ.ነርስ) ላብ ቴክኒሻን ፋር.ቴክኒሻን ጤና ተቆጣጣሪ ጽዳት ሰራተኛ ላወንደሪ ሌላ ()	1 2 3 4 5 6 7 8 9 10	
205	የት/ርት ደረጃ	ማንበብና መጻፍ የማይችል ማንበብና መጻፍ የሚችል 4-6 ክፍል 7-8 " 9-12 " 12+1/12+2 12+4 12+6	1 2 3 4 5 6 7 8	
206	በየዙት የሙያ ደረጃ ከተመረቁ ጀምሮ ያለዎት የአገልግሎት ዘመን ስንት ነው?	() አመት		
207	ስለ ብክለት መከላከል ወይም አጠቃላይ ጥንቃቄዎች ሥልጠና ተከፍለው ያውቃሉን?	አዎ አላውቅም	1 2	
208	ስለብክለት መከላከል ወይም አጠቃላይ ጥንቃቄ ባለፈው አንድ አመት ስልጠና ተከፍለው ያውቃሉን	አዎ አላውቅም	1 2	
209	የጤና ባለሙያዎች የህመም ምልክት የሌላቸው ነገር ግን ብዙ መድሃኒቶችን የተላመዱ ረቁቅ ጀርም ህሙማን አካላቸው ላይ አያሉ ቢነኩ ፣ እነዚህን ጀርሞች ወደ ሌሎች ህሙማኖች ሊያዘምቱ ይችላሉ። (ለጤና ባለሙያዎች)	በጣም እስማማለሁ እስማማለሁ አላውቅም አልስማማም በጣም አልስማማም	1 2 3 4 5	
210	የህሙማንዎን አካል ወይም አካባቢ ከመንካተዎ በፊት እጅዎን ይታጠባሉን?	አዎ አልታጠብም	1 2	217
211	የህሙማንዎን አካል ወይም አካባቢ ከነኩ በኋላ እጅዎን ይታጠባሉ ወይ?	አዎ አልታጠብም	1 2	217
212	እጅዎን ለመታጠብ/ወይም ለማጽዳት ከሚከተለው የትኛውን ዘዴ ይጠቀማሉ? 212.1 የእጅ/የልብስ ሳሙና ና ወ.ሃ 212.2 በመድሃኒት የበለጸገ ሳሙና ና ወ.ሃ 212.3 እጅዎን በአልኮል ማበስ 212.4 ሌላ	እጠቀማለሁ አልጠቀምም 1 2 [] 1 2 [] 1 2 [] ()		
213	ይህህሙማንዎን አካል (ቆዳ) ከነኩ በኋላ እጅዎን ምን ያህል ጊዜ ያጸዳሉ? (ምሳሌ የልብ ምት ከቆጠሩ ወይም የደምግፊት ከለኩ በኋላ) (ለጤና ባለሙያዎች ብቻ)	ሁልጊዜ ብዙ ጊዜ አልፎ አልፎ ታጥቤ አላውቅም	1 2 3 4	

ተ/ቁ ጥር	ጥያቄ	መልስ	ኮድ	ወደ ጥ.ቁ.
214	የህመማችንን አካባቢ ከነኩ በኋላ እጅዎን ምን ያህል ጊዜ ይታጠባሉ- /ያጸዳሉ-?/	ሁልጊዜ ብዙ ጊዜ አልፎ አልፎ ታጥቤ አላውቅም	1 2 3 4	
215	የህመማችንን አካል ወይም አካባቢ ከነኩ በኋላ ምን ያህል ጊዜ እጅዎን እንደሚታጠቡ በፐርሰንት/በመቶኛ ይገምቱ?	25% 50% 75% 90% 100%	1 2 3 4 5	
216	እጅዎን ለምን ይታጠባሉ 216.1 እጅን ማጽዳት ከአንድ ህመማችን ወደ ሌላ ህመማችን ከመሄዱ በፊት ማከናወን አስፈላጊ ስለሆነ 216.2 እጅን መታጠብ የህመማችንን ቶሎ መዳን አለመዳን ስለሚወስን 216.3 ንጉሱም ሲለበስ እጅን መታጠብ አስፈላጊ ስለሆነ 216.4 የእጅ መታጠቢያው ቁሳቁስ በሚያመች ሁኔታ የተቀመጠ ስለሆነ 216.5 እጅን መታጠብ የሚፈጀው ጊዜ አነስተኛ ስለሆነ 216.6 ሌላ	ትክክል ትክክል አይደለም 1 2 1 2 1 2 1 2 1 2 ()	() () () () () ()	218
217	እጅዎን ለምን አይታጠቡም 217.1 አንድ ህመማችን ነክቶ ሌላውን ከመንካት በፊት እጅን መታጠብ አስፈላጊ አይደለም 217.2 እጅን መታጠብ የህመማችንን ቶሎ መዳን አለመዳን ወሳኝ ነገር አይደለም 217.3 ንጉሱ ሲለበስ እጅን መታጠብ አስፈላጊ አይደለም 217.4 የእጅ መታጠቢያ ቁሳቁስ አመቺ በሆነ ቦታ እና መልኩ ያልተዘጋጀ ስለሆነ 217.5 እጅን መታጠብ በጣም ብዙ ጊዜ ይወስዳል 217.6 ሌላ	ትክክል ትክክል አይደለም 1 2 1 2 1 2 1 2 1 2 ()	[] [] [] [] [] ()	
218	በስራ ላይ እያሉ ከበሽታ አምጪ ተህዋስ ከብክለት ወይም ከአደጋ የሚከላከሉ ቁሳቁሶችን ይለብሳሉ	አዎ አልብስም	1 2	221
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220	ለተራ ቁጥር 220-ከተዘረዘሩት-መልስዎ አልለበስኩም ከሆነ ለምን? 220 ለብሶ መሰራት አስቸጋሪ ስለሆነ 221 ሁልጊዜ አስፈላጊ ሥላልሆነ 222 ስለማይመች 223 ከጤና ድርጅታችን ውስጥ ስላለቀ፣ 224 ሌላ ()	አዎ አይደለም አላውቅም 1 2 99 1 2 99 1 2 99 1 2 99	[] [] [] []	
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223	የ' HBV 'እስከ 7 ቀናት በተበከለ አካባቢ ላይ ሊኖር ይችላል	በጣም እስማማለሁ እስማማለሁ አላውቅም አልስማማም በጣም አልስማማም	1 2 3 4 5	
224	የቆሽሽ አንሳላዎችና ጨርቆች በጤና ድርጅትዎ በምን መንገድ ይጸዳሉ? 230 የልብስ ማጽጃ ማሽን በመጠቀም 231 በእጅ በማጠብብ	አዎ አይደለም አላውቅም 1 2 99 1 2 99	[] []	
225	ገዋንዎን (የስራ ልብስዎን) የሚያጥቡበት ጊዜ 225.1 በሳምንት 3 ጊዜ 225.2 በሳምንት 2 ጊዜ 225.3 በሳምንት 1 ጊዜ 225.4 በ2 ሳምንት 1 ጊዜ 225.5 ሌላ ይገለጽ ()	አጥባለሁ አሳጥብም አላታወስም 1 2 99 1 2 99 1 2 99 1 2 99	[] [] [] []	
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228	በሙያዎ (በስራዎ) ምክንያት ኤች አይ ቪ ይይዞኛል ብለው ያስባሉ	አዎ አላስብም	1 2	
229	በሚሰጡት የጤና አገልግሎት ተጠቃሚዎችዎ ኤች.አይ ቪ.ሊይዛቸው ይችላል ብለው ያስባሉ	አዎ አላስብም	1 2	

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230	የአጠቃላይ ጥንቃቄዎች (UP) በሌለበት የጤና ድርጅቶች የብክለት ወይም የወረርሽኝ የበሽታ ምንጭ ሊሆኑ ይችላሉ	በጣም እስማማለሁ እስማማለሁ አላውቅም አልስማማም በጣም አልስማማም	1 2 3 4 5	
231	ሚሰሩበት ጤና ድርጅት እርስዎ በጣም ብዙ በመርፌ የሚሰጥ መድሃኒት አዘግጥሎታቸው ያስባሉ፤ (ለጤና ባለሙያዎች ብቻ)	አዎ አላስብም አላውቅም	1 2 99	
232	በሚሰሩበት ጤና ድርጅት መርፌና ስሪንጅ በድጋሚ ለመጠቀም ምክንያት ናቸው የሚሏቸው ከተዘረዘሩት የትኞቹን ነው?	ትክክል ትክክል አይደለም አላውቅም 232.1 መርፌና ስሪንጅ በድጋሚ አንጠቀምም 1 2 99 232.2 የአቅርቦት እጥረት 1 2 99 232.3 የአውቀት ማነስ 1 2 99 232.4 እንዘላለፍነት 1 2 99 232.5 የህክምና ዋጋን ለመቀነስ () 232.6 ሌላ	[] [] [] [] []	
233	በጣም ብዙ በመርፌ የሚወሰዱ መድሃኒቶች የሚታዘዙበት ምክንያት ምንድን ነው?	ትክክል ትክክል አይደለም አላውቅም የተጠቃሚዎች ጥያቄ 1 2 99 233.1 በመርፌ የሚሰጡ መድሃኒቶች ፍቱን ሰለሆኑ 1 2 99 233.2 አማራጭ መድሃኒቶች ከሌላ 1 2 99 233.3 በመርፌ የሚሰጡ መድሃኒት ችግር 1 2 99 አለማወቅ () 233.4 ሌላ	[] [] [] []	
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241	በደም ከተረጨበዎ በኋላ ወይም በቆሻሻ ስለታማ ነገር ከተወጉ በኋላ ምን ዕርምጃ ወሰዱ፤ 241.1 በሳሙና በውሃ ማጠብ 241.2 በአልኮል፣ በአዮዲን ወይም በበረከት ማጠብ 241.3 የሚፈለገውን ደም በመጠን ለማቆም በመጫን መሞከር 241.4 ዲረሲንግ ለ ቁስሉን መሸፈን 241.5 ደም እንዲፈስ መጭመቅ 241.6 የመንጋጋ ቆልፍ መከላከያ መውሰድ 241.7 የምክርና HIV ምርመራ ማድረግ 241.8 ለአደጋ ከተጋለጡ በኋላ የሚወሰዱ የመከላከያ መድሃኒት መውሰድ 241.9 ለአለቃዎ ሪፖርት ማድረግ 241.10 ሌላ	አዎ አላታወስም	የለም			[] [] [] [] [] [] [] [] [] [] ()	
242	በሚሰሩበት የጤና ድርጅት የትኞቹን የህክምና መሣሪያዎች ከበሽታ አምጭ ተዋስኑ ነጻ ይደረጋሉ ከአንድ በላይ መልስ (ለጤና ባለሙያዎች ብቻ)		የዲሬሲንግ ሴት ስሪንጅና መርፌ የማዋለጃ ሴት የሜ.ቪ.ኤ.ሴት የ'ኢ' እና 'ሰ' ሴት አላውቅም	1 2 3 4 5 99			247
243	የህክምና መሣሪያዎችን ከብክለት ነጻ ለማድረግ የምትጠቀሙበት ኬሚካሎች ምን ምን ናቸው? 243.1 በረከት (ክሎሪን) 243.2 ሳሾሎን 243.3 ፎርማሊን 243.4 አይዎዲን 243.5 አልኮሎል 243.6 ሌላ	አዎ 1 1 1 1 1 (	አልጠቀምም 2 2 2 2 2	አላውቅም 99 99 99 99 99	መረጃየለም 88 88 88 88 88)	[] [] [] [] [] []	
244	የህክምና እቃን ከብክለት ነጻ ለማድረግ የሚዘጋጀው የበረከት እና የወሃ ጥምረት ምን ያህል ነው? 244.1 1:0 244.2 1:1 244.3 1:3 244.4 1:6 244.5 1:9 244.6 ሌላ	አዎ 1 1 1 1 1 (	አይደለም 2 2 2 2 2	አላውቅም 99 99 99 99 99	ረጃየለም 88 88 88 88 88)	[] [] [] [] [] []	
245	ከጤና እንክብካቤ ከመስጠት ጋር የተዛመዱ ረቂቅ የበታ አምጭህዋስ አልኮሎልን የተለመዱ ናቸው		በጣም እስማማለሁ እስማማለሁ አላውቅም አልስማማም በጣም አልስማማም	1 2 3 4 5			

ተ/ቁ ጥር	ጥያቄ	መልስ	ኮድ	ወደ ጥ.ቁ.
246	በጤና ድርጅትዎ የህክምና ቁሳቁስን ከብክለት ነጻ ለማድረግ የምትከተሉት ሥርዓት የትኞቹን ያካትታል። 246.1 በበረከት (0.5%) መዘናዘድ 246.2 በበረከት በሰላም (አጭር) ማጠብ 246.3 በመቀባል፤(በድጋሚ) በበረከት ውስጥ በመዘናዘድ (HLD) 246.4 እስተራላይዜሽን (አውቶክሌቭ አቭን) 246.5 በተዘጋጀ ቦታ ማስቀመጥ (ቦርድ) 246.6 ወዲያው መጠቀም 246.7 ሌላ	እጠቀማለሁ አልጠቀምም አላውቅም መረጃ የለም 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 ()	[] [] [] [] [] []	
247	በጤና ድርጅትዎ ውስጥ ያገለገሉ መርፌና፤ ሲሪንጅ ወዲያው በሴፊቲ ቦክስ ውስጥ ይጣላሉ	አዎ አይደለም አላውቅም	1 2 99	
248	ለጤና ድርጅትዎ ሌሎች ስለታማ የሆኑ ከህክምና ጋር የተያያዙ ቆሻሻዎች በአግባቡ ይወገዳሉ ወይ?	አዎ አይደለም አላውቅም	1 2 99	
249	ሴፊቲ ቦክስ ውስጥ ምን ምን ቆሻሻ ይጣላል 249.1 ሲሪንጅ 249.2 መርፌ 249.3 የግልክስ መጫ መርፌ 249.4 ላንሴት 249.5 ሌሎች የተበከሉ ስለታማ ነገሮች 249.6 ባዶ የመድሃኒት ብልቃጦች 249.7 የጥጥ ታድ 249.8 የድሬሲንግ ቁሳቁስ 249.9 የግልክስ መስጫ ንግረትና ባግ 249.10 እጅ ንጎት 249.11 ሎች የላስቲክ ቁሳቁስና ቆሻሻዎች	ይጣላሉ አይጣሉም አላውቅም መረጃ የለም 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88 1 2 99 88	[] [] [] [] [] [] [] [] [] [] []	
250	ያገለገሉ ሥለታማ ነገሮችን በጤና ድርጅትዎ እንዴት ነው የሚጠራቀሙት(የሚጣሉት) 250.1 በክፍት ባልዳ 250.2 ስለታማና ፈሳሽ ነገሮችን የሚቋቋም እቃ ውስጥ መርፌና ሲሪንጅ ሳይለያዩ 250.3 ስለታማና ፈሳሽ ነገሮችን የሚቋቋም እቃ ውስጥ መርፌና ሲሪንጅን በመለያየት 250.4 ከሌሎች ቆሻሻዎች ጋር በመቀላቀል (ወረቀት፣ አባራ ላስቲክ የጥጥ ፓድ) 250.5 ሌላ ()	ይጣላሉ አይጣሉም መረጃ የለም 1 2 88 1 2 88 1 2 88 1 2 88	[] [] [] []	
251	በጤና ድርጅትዎ የህክምና እንክብካቤ ውጤት የሆኑ ቆሻሻዎች ለየትኞቹ የህብረተሰብ ክፍልን ለብክለት (በሽታ/ህመም) ሊጋለጡ ይችላሉ? 251.1 የጤና ባለሙያ 251.2 የድጋፍ ሰጪ ሰራተኞችን 251.3 ህመማን /የአገልግሎት ተጠቃሚዎች 251.4 ህብረተሰቡን 251.5 ህጻናት (ልጆች) 251.6 ሌላ	የተጋለጡ ያልተጋለጡ አላውቅም 1 2 99 1 2 99 1 2 99 1 2 99 1 2 99 ()	[] [] [] [] []	
252	መጠይቁ የተጠናቀቀበት ሰአት			

እናመሰግናለን።

የመረጃ ሰብሳቢዎች ስም _____

ፊርማ _____

ስም _____

ፊርማ _____

የተቆጣጣሪ ስም _____

ፊርማ _____

ለ) የቡድን ውይይት መመሪያ

አባሪ ሁለት ፡ የቡድን ማወያያ

የስምምነት መጠየቂያ ቅጽ

100A የጤና ድርጅቱ ስም _____

100B ቀን _____ 100C ሰዓት _____

100 D የስራ ቦታ _____ 100E መለያ ቁጥር _____

እንደምን አደራችሁ /ዋላችሁ?

ስሜ አቶ/ሲ/ር _____ ይባላል የሥራ ባልደረባዩ ደግሞ አቶ

/ሲ/ር _____ ይባላል። በአ/አ ዩኒቨርሲቲ የህብረተሰብ ጤና ት/ርት ክፍል የጥናትና ምርምር

ቡድን አባላቶች ነን ዛሬ በጤና ድርጅታችሁ ውስጥ ስለ አጠቃላይ የጥንቃቄ መርሆች (UP) ላይ ውይይት እናደርጋለን

:: ሌሎች ተመሳሳይ ውይይቶች በሰ/ወሎ ዞን ውስጥ ይካሄዳል። የውይይቱ አላማ በጤና ድርጅቶች ውስጥ በአደጋ

ለሚያጋልጡ ተግባራት ወሳኝና ዋና ዋና ምክንያቶች የምንላቸውን መለየትና መግለጽ ይሆናል እናንተ የተመረጣችሁት

በቅረብ አለቃዎቻችሁ ሲሆን መመዘኛውም በቂ መረጃ ልትሰጡ እንደምትችሉ ስለታመነበት ነው። ውይይቱ

የሚካሄደው በአንድ የሥራ ክፍል ወይም በተመሳሳይ የሥራ መደብ ላይ ባሉ የተለያዩ ቡድኖች የሚካሄድ ይሆናል።

እያንዳንዱ ቡድን 6 እስከ 8 ሰዎችን ያካትታል።

ውይይቱ ሙሉ በሙሉ በሚስጥር የሚያዝ መሆኑን እናረጋግጣችኋለን። የእናንተን ስምና መለያ አድራሻ

አንመዘግብም። ነገር ግን የውይይታችን ሃሳብ በጽሁፍ እንይዛለን። ይህም ዋና የጥናትና ምርምር አድራጊ ብቻ

የሚታይ ይሆናል። ጥናቱ እስከሚጠናቀቅ መረጃዎቹ አ/አ ዩኒቨርሲቲ ተቆልፎ ተቆፎ ከቆየ በኋላ ጥናቱ ሲጠናቀቅ

እንዲወገድ ይደረጋል።

ውይይቱን በማንኛውም ሰዓት ሊያቋርጡ ይችላሉ ወይም መመለስ ያልፈለጉትን ጥያቄ መጻፍ ይችላሉ።

የእናንተ ትብብር ትክክለኛ ምላሽ ጥናትና ምርምሩን እንዲሳካ ያደርገዋል።

ስለዚህ ለሚቀርቡላችሁ ጥያቄዎች ትክክለኛ እና ፈቃደኛ ሆናችሁ በትዕግስት እንድትመልሱ

እንጠይቃለን።

ውይይቱ በግምት 45 ደቂቃ ይወስዳል።

ጥያቄ አላችሁ?

በጥናቱ ውስጥ ለመሳተፍ ፈቃደኛ ናችሁ?

☐ አዎ ወደሚቀጥለው ገጽ ይለፉ

የስምምነት ፈቃዱን የወሰደው /የተቀበለው

ስም/ ፊርማ፡ _____

100F የቃለ ምልልሱ ውጤት /የውይይቱ ውጤት

1. የተሟላ 3. በከፊል የተሟላ

2. ተወያዮች ፈቃደኛ ያልሆኑ 4. ሌላ _____

የመረጃ ስብሰባዎች ስም 1. _____ ፊርማ _____

2. _____ ፊርማ _____

የተቆጣጣሪ ስም 1. _____ ፊርማ _____

አጠቃላይ መረጃዎች

ቀን _____

መረጃውን የሚይዘው ባለሙያ ሥም _____

ስብሰባውን የሚመራው ሥም _____

ቦታ _____

የተሰባሳቢዎች ሙያ እና ቁጥር _____

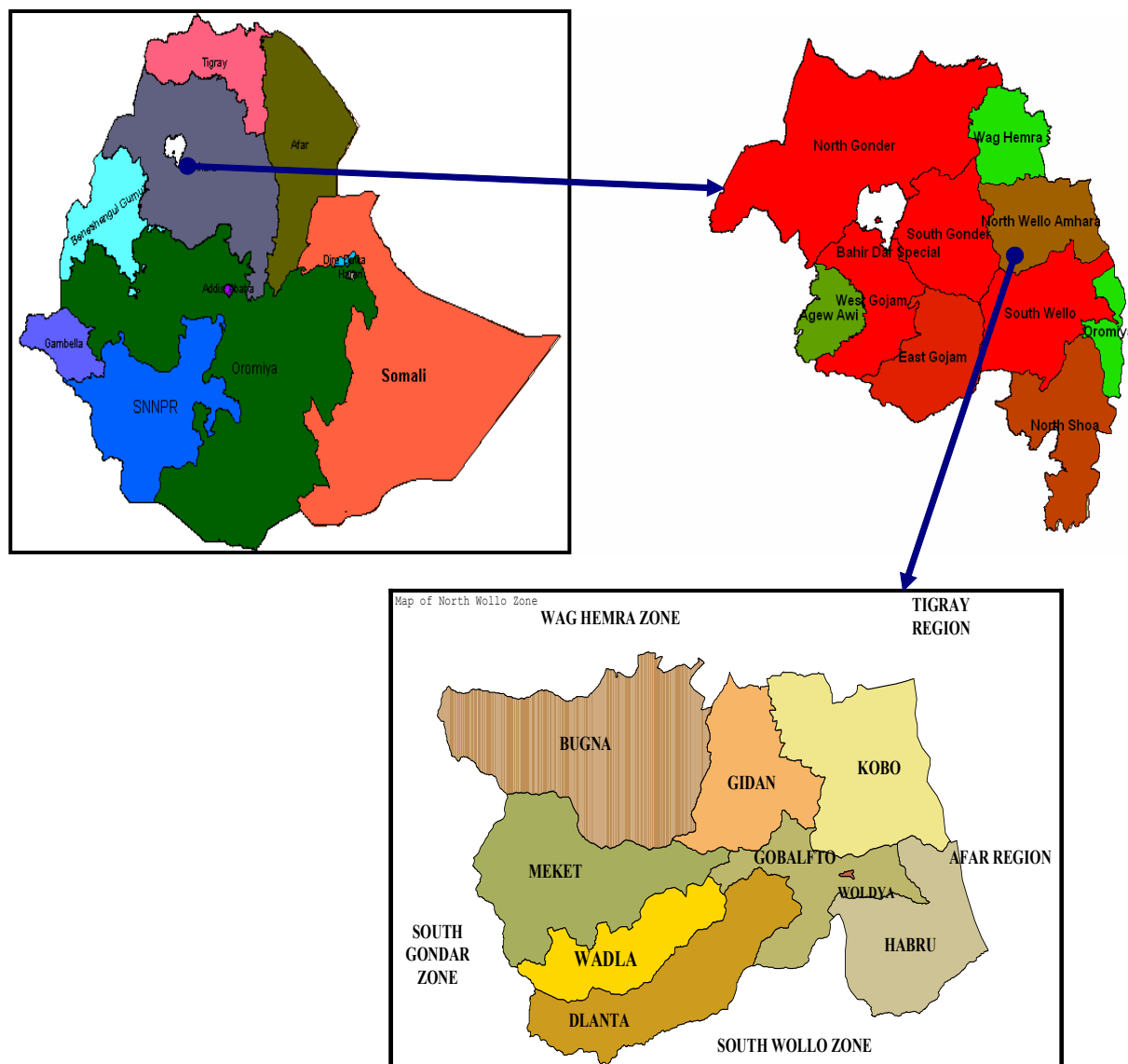
1. የሥራ አመራር ቡድን
2. የህመማት ተንከባካቢ ቡድን
3. የጤና ድርጅት ቆሻሻ አስወጋጅ ቡድን
4. የህክምና እቃ አደራጅ ቡድን
3. የተሳታፊዎች ቁጥር ()

በውይይቱ የሚሸፈኑ እርዕሶች

1. ከበሽታ አምጪ ተህዋስ ብክለት መከላከል ወይም አጠቃላይ ጥንቃቄ ማለት ምን ማለት ነው?
2. በምትሰሩበት ጤና ድርጅት ውስጥ ከበሽታ አምጪ ተህዋስ ብክለት ተከላካይ ኮሚቴ አባላት እነማን ናቸው?
3. በጤና ድርጅት ውስጥ ከከበሽታ አምጪ ተህዋስ ብክለት ለመከላከል የሚጠቅም መመሪያ /መጽሐፍ አለ ወይ?
4. የጤና አገልግሎት ሰጪዎች እራሳቸውን እና ህመማችንን በምን መንገድ ከበሽታ አምጪ ተህዋስ ብክለት ይከላከሉ?
- 4.1 የቆሻሻ አንሳሳዎችን በመሰብሰብ ወይም ወደ ማጠራቀሚያ በመውሰድ የጤና ባለሙያዎች እጅና ልብስ በበሽታ አምጪ ተህዋስ ሊበክሉ ይችላሉን?
- 4.2 ለምን በበሽታ አምጪ ተህዋስ ብክለት ወይም መቆሽሽ ይከሰታል?
- 4.3 የእጅ ወይም ልብስ መቆሽሽ ህመም ሊያስተላልፍ ይችላልን?
- 4.4 የቆሻሻ አሳሳዎች ብርድሶች የሚቀመጠው / ማጠራቀሚያው የት ነው?
- 4.5 ለማጠራቀሚያው ቦታ የመቅረብ አጋጣሚ ያላቸው እነማን ናቸው?
- 4.6 የጤና ባለሙያዎች ለምን ራሳቸውን ከአደጋ ወይም ከበሽታ አምጪ ተህዋስ ብክለት የሚከላከሉበት ቁሳቁስ አይሰጡም?
- 4.7 የጤና አገልግሎት ሰጪዎች ለምን እጃቸውን ሥራ ቦታ እንደደረሱ ወይም ሥራ ከመጀመራቸው በፊት ወይም ንጉሱ ከመልበሳቸው በፊት አይታጠቡም?
- 4.8 በበሽታ አምጭ ተህዋስ የተበከሉ ቁሳቁሶችን በሽታ ያስላፋሉን?
- 4.9 በጤና ድርጅታችሁ እነማን ናቸው የህክምና ቁሳቁሶችን የሚያጸዱና ከብክለት ነጻ የሚያደርጉ?
- 4.10 የጤና አደልግሎት ሠጭዎች ለምን ትክክለኛውን የህክምና እቃዎች የማጽጃ ሥርዓት አይከተሉም?
5. ያገለገሉ ስሪንጅና መርፌዎች ከጤና ድርጅታችሁ እንዴት ይሠበሰባሉ ብሎም አወጋገዳቸው እንዴት ነው?
- 5.1 ባገለገሉ በመርፌዎች የመወጋት አደጋ ቆሻሻ በማስወገድ ስርዓት ሊከሰት የችላልን ?
- 5.2 ለምን በመርፌ ወይም ስለታማ ነገሮች የመወጋት አደጋ ይከሰታል?
- 5.3 በመርፌ ወይም በስለታማ ነገሮች መወጋት በሽታ ሊስተላልፍ ይችላልን ?
6. ከጤና ድርጅትም የእንግዴ ልጅ የሞተ ህጻን የተወገደ የሰው አካል እንዴት ይሰበሰባሉ ብሎም አወጋገዳቸው እንዴት ነው?
- 6.1 ለደም / ለአካላዊ ፈሳሽ ተጋልጠው ያወቃሉን?
- 6.2 የእንግዴ ልጅ : የሞተ ህጻን: የተወገደ የሰው አካል በአግባቡ ካልተወዱ ምን ያደርጋሉ?
- 6.3 ህብረተሰቡ በጤና ድርጅቱ ቆሻሻ ለጤና ችግር ተጋልጧልን ?
- 6.4 የጤና አገልግሎት ሰጭዎች ባዶ ቁሳቁሶችን ወደ ቤታቸው ይወስዳሉን?
7. ቆሻሻዎች እንዴት ነው የሚወገዱት?
- 7.1 የቆሻሻ ማስወገጃ ቁሳቁሶችን በማንቀሳቀስ አደጋ ደርስዎብዎ ያወቃልን ?
- 7.2 ቆሻሻ ማስወገጃ ቁሳቁሶች ባይሰሩ ወይም ቆሻሻ በአግባቡ ካልተሰበሰበ ምን ያደርጋሉ?
- 7.3 የጤና ድርጅቱ ቆሻሻ በአግባቡ ተወግዷል ብለው ያምናሉ ካልተወገደ ለምን ?
8. በመጨረሻም የአጠቃላይ ጥንቃቄን ወይም ከበሽታ አምጪ ተህዋስ ብክለት የመከላከል ስራን ለማሻሻል ሚያስችል አስተያየት ካለዎት ቢገልፁልን ?

12.10. Annex X: - Map of the study area

Figure 2: Map of the study area



12.11. Annex XI: - Declaration

1. Declaration of the Principal Investigator

I, the undersigned, declared that this thesis is my original work in partial fulfillment of the requirements for the degree of master of public health. All the sources of the materials used for this thesis and all people and institutions who gave support for this work are fully acknowledged.

Name- **Mesele Damte**

Signature _____

Place of submission -Department Of Community Health, Medical Faculty

Addis Ababa University

Date of submission April 21, 2007

2. Approval of the Primary Advisor

This thesis work has been submitted for examination with my approval as university advisor.

Advisor's name – Dr. Mulugeta Betre

Signature _____