

ASSESSMENT OF INFECTION CONTROL PRACTICE IN WOLISO St.LUKAS HOSPITAL,SOUTH WEST SHOA ,
ETHIOPIA.

BY:- YOHANNES ERENA (DENTAL INTERN)

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JIMMA, ETHIOPIA

JIMMA UNIVERSITY COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCES,DEPARTMENT OF DENTISTRY

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BY: YOHANNES ERENA (DENTAL INTERN)

ADVISOR; DR.DEREJE WORKU(DMD)

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ABSTRACT

Background:- Hospital acquired infections often have serious consequences for the individual or the hospital community and community at large. Although most infection control and safety principles were formulated in the 1960,. This aria has gained importance in the past three decades due to the AIDS. Pandemic in the United States and Europe. Control of communicable diseases have been achieved in the developed countries through education regulations, and public health measurements such as health care infection control and safety).

Objective:- to assesses infection control practice in Woliso St. Lukas Hospital and dental clinic

Methods:- Across sectional study was conducted to achieve the goal of the study self administer questioners was distributed for all health care workers (nurses, Doctors, hygienists, cleaners & midwifery) about general practice of infection control in Woliso St.lukus hospital.

Results: A cross-sectional study was done on 88 health care workers in Woliso St. Lukas hospital to assess their infection control practice in the hospital. All of the study subjects were able to fill the questionnaire completely. Of 88 total respondents ,45(51.6%)and43(48.57%) were males and females respectively.33(37.5%) of total respondents were nurses which 13(39.4%)males and 20(61.57%) females respectively and the rest were medicaldoctors15(17.1%),dental doctor1(1.1%),midwifery7(7.7%),lab.techn 7(7.4%) and cleaners 13(11.7%). The age of most respondents ranges from 20-29 years which is 40(45.5%),most of monthly income of respondents were between 1000-200 birr per month. All 88(100%)respondents believed that health care works were at risk of occupational exposure to transmittable diseases. Only about 14(15.9%) of total respondents were immunized against hepatitis B virus(HBV).

Conclusion& recommendation:- As study showed all health care works in Woliso st. Lukas hospital were believe that risk of occupational exposure to transmittable diseases. On the study showed poor in some infection control and good on other mechanism according to sterilization

I

isolation precaution. On this study most of health care workers had good information for transmission diseases via saliva, air and blood born in the hospital as well as all most all health care workers in the hospital used sterilized instruments and wear gloves before procedures.

I would like to recommend the hospital administrators to give an educational program and special training on infection control& precaution taken in Woliso St.lukas for health care workers, especially those who are more risk for occupational transmittable diseases(nurses, midwifery, cleaners.....)

I also like to recommend Woliso st.lukas Hospital administrators and hospital staff to give progressive seminars on both theoretically and practically on infection control practice for all health care workers in the Hospital

II

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III

Table of content

Content

Abstract.....I

Acknowledgement.....II

Table of contents.....III

List of tables.....V

Abbreviations.....VI

CHAPTER ONE

1. Introduction1

 1.1 Background.....1

 1.2 Statement of problem.....

 1.3 Significances of the study.....10

CHAPTER TWO

2. Literature review11

CHAPTER THREE

3. Objectives20

 3.1. General objective.....20

 3.2 specific objective.....

CHAPTER FOUR

4. Mythology.....

4.1 Study area& period21

 4.1.1 Study area.....21

 4.1.2 Study period.....21

4.2 Study design21

4.3.Study population.....21

IV

4.3.1 Source population.....21

4.3.2. Study population.....21

4.4. Sample size and sampling technique.....	21
5 Variables	21
5.1 Independent variables.....	21
5.1 Dependent variables.....	21
4.6 Data collection technique	22
4.7. Data quality control.....	22
4.8 Data analysis and interpretation.....	22
4.9 Ethical consideration.....	
4.10 data collection materials and instruments.....	
4.10. Dissemination of Result	23
4.11 Operational definition.....	
CHAPTER FIVE	
Results.....	23
CHAPTER SIX	
Discussions.....	23
CHAPTER SEVEN	
Conclusion and recommendation	25
Annex:	
I. References.....	30
II. Questionnaires.....	33

LIST OF TABLES

Table 1: Socio-demographic characteristics of respondents with their sex in Woliso, April, 2013 G.C

Table 2: Socio-demographic characteristics of respondents with their age, monthly income and years of services in Woliso, April, 2013 G.C

Table 3: Basic infection control methods used in the hospital by health care workers in Woliso, April, 2013 G.C

Table 4: Precautions taken during patient management by respondents in relation to their profession in Woliso, April, 2013 G.C

Table 5: Methods of sterilizations from respondents with respect to their profession in Woliso, April, 2013 G.C

Table 6: Precautions taken before sterilization by respondents in the hospital in Woliso, April, 2013 G.C

ABBREVIATION

CDCP- Center for disease control and prevention

HBV- Hepatitis B virus

HIV- Human immunodeficiency syndrome virus

ICP- Infection control program

ICU- Intensive care unit

JUSHDC-- Jimma University special-zed Hospital of dental clinic

MTB-mycobacterium tuberculosis

RGM-rapily growingmyobacterium

SRP-student research program

SSI_surgical site infection

UK-united kingdom

USA-united state america

WSLH-woliso st. Lukas hospital

VII

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CHAPTER ONE

INTRODUCTION

1.1 Back ground

Infection is the spread of pathogenic organisms in tissue and their growth resulting in host reaction and abnormal physiologic condition. Health care associated infections (HAIs) cause substantial morbidity and mortality every year on all over the world's health care setting. Health care associated infection reduction is a key goal of the world commission on safety and quality in health care (1). Unless the infections organisms are controlled either by prevention of spread of microorganisms or killing and removing of micro organisms all people receiving health and medical care, whether in a hospital or any other clinic are at risk of becoming infected Nosocomial(Hospital-acquired infections) are the significant problem throughout the world. For example, nosocomial infection rates range from as low as 1% in few countries in Europe and the Americas to more than 40% in developing countries(2).

In fact infection is occurred by almost any microorganisms, there are a few species that cause the vast majority of the infection, Plus the hospital environment enable the survival of resistant strains and therefore infection are often caused by organisms with limited antibiotics susceptibility. For example according to the research conducted in Australia they have recently seen an increase in surgical site infection caused by antimicrobial methicillin resistant pathogens such as staphylococcus (3)

In view of the serious consequences of infection control and prevention of infection should have a high priority and depend up on the education of staff in proper procedure as well as the provision of a clean environment and sterile equipment (4).

The modern Infection control and prevention programs all around the world appear to be loosely based on seminal work undertaken in the US in the late 1970s. Modern drivers impacting infection control programs are similar globally and largely include government lead initiatives and recommendation from formal professional bodies or self appointed groups of experts. The role and function of the infection control professional require refinement yet in the interim this role appears to make a reasonable contribution to infection reduction activity and outcome (5).

Infection control in health care continues to be the subject of intensive research & debate. For example, the Australian Commission on Safety and Quality in Health Care (the Commission) recognizes the importance of reducing HCAI, as one of its priority programs. Major Commission initiatives to date relating to this priority include specific recommendations regarding HAI surveillance and the development and implementation of a national hand hygiene initiative. Implementing safe and realistic infection control practices requires the full compliance of the whole health personnel. These procedures should be regularly monitored during clinical sessions and discussed at practice meetings. Furthermore, national surveys and workshops of infection control programs, undertaken by the Commission, have shown that there is disparity in skills and resources between experienced and beginning infection control practices, and between larger metropolitan hospitals and rural centers. Little information is available regarding the skills and resources of infection control practitioners, in the private sector, in aged care and in residential health care settings (6,7).

Generally, most of the infections can be prevented with readily available, relatively inexpensive strategies by: adhering to recommended infection prevention practices, especially hand hygiene and wearing gloves, paying attention to well-established processes for documentation and cleaning solid instruments and other items, followed by either sterilization or high-level disinfection and improving safety in operating rooms and other high-risk areas where the most serious and frequent injuries and exposures to agents occur.

1.2 Statement of the problem

At the global level, rapid changes in the pattern of oral disease and/or general infectious disease have been observed during past decades. A dramatic reduction in the level of infectious diseases with inpatient (Nosocomial infection) has been observed in most industrialized countries. There is general agreement that the various use of infection control and prevention methods have been the main reason for the decline of Nosocomial infections. Changes with appropriate management of inpatients and outpatients in different hospitals are other possible contributing factors for the decline of cross-infection prevalence in those countries. In contrast to what is observed in many western countries, data from developing countries indicate that the cross-contamination among patients, and patients and health workers is rising. The reasons for this increasing are complex, but may be ascribed, negligence of health

workers during patient's management due to limited numbers of health professionals who trained on Infection control program (ICP), and in addition that community based infection prevention and health care associated infection control propmotion have not been implemented (8). Very few published studies measure the quality, cost or effectiveness of Infection control and surviellance programs. In a recent, novel, Retrospective study of Infection control interventions over a seven year period Grant and Kim reviewed the nature of all Infection control consultations lasting longer than five minutes. They conducted that they were able to search and apply research to provide appropriate and customized responses. Further they assert that these responses potentially reduce HAI transmission especially if the Infection control program is permitted reasonable authority resources, support and autonomy (9).

The methods like decontamination, disinfection and sterilization are the basic components of any infection control program in hospital and other health sector services. These methods are effective in prevention & control of cross- infection among health workers and patients. Patients also expect that any reusable instruments or devices used for diagnosis of their illness or for treatment has under gone process to eliminate any risks for cross infection. However, many failures of adequate reprocessing have been reported in many studies (10).

The Infection control and surveillance program is non- homogenized within Australia and on a larger global scale. As seen in the US and the UK high level political and organizational drivers inevitably influence program stricture and goals. As well they often initiate administrative of financial support.

Since Bio safety is concern in all health sector services any health professional has to give attentions during management of their patients. confronted with a high biological risk both for patients and professionals in health and dental care and due to the constant development of new technologies, information, equipment, material and behavioral attitudes in this area, health organizations such as the center for Disease control (CDC), the American dental Association (ADA), the National sanitary department (ANVISA),

And the ministry of health (MOH) among other has developed guidelines to prevent, minimize or eliminate any threat to life or heath during treatment. These guide lines, given the peculiarities of health care activities, should be followed by the professional and his team before, during and after care for all patients and for all types of treatments. This includes all instruments and equipment used, regardless of the confirmed or presumed diagnosis, being infectious or not (10)

Specifically, the environment in dentistry practices and clinic is far from ideal like that of surgical department. However, the adoption of infection control measures is an effective way to reduce occupational risk and the transmission of pathogens, mainly through saliva, blood, air or water. These measures essentially include (I) cleaning, disinfection and sterilization, (II) the use of personal equipment protection, (III) immunization; (IV) prevention and correct handling in occupational accidents which involve exposure to blood born and bodily fluids diseases and other infections caused by various microorganisms such as Mycobacterium tuberculosis ,Hepatitis B and Hepatitis C viruses staph loccci,

streptococci, Herpes simplex virus. Human immune deficiency virus (HIV), mumps, influenza and Rubella and (V) antisepsis (10, 11).

Still written reports have showed that the most common biosafety problem is not related to available technology to eliminate or minimize risks but rather the behavior of professionals. The individual practitioner must ensure that all members of the health workers team should understand and practice these infection control procedures routinely. In addition, every practice must have a written infection control policy, which is tailored to the routines of the individual practice and regularly updated. The policy should be kept readily available so that staff can refer to it when necessary. (12)

Actually, about 10% of hospital inpatients have a nosocomial infection at any time. These infections estimated to cause approximately 500 deaths a year in UK (more than from road accidents or suicides) As well contribute to a further 15,000 such infection cost and estimated extra 300 to 3,500 pounds per case, mainly through delayed recovery and between 22,000 and 400,000 pounds for control of an outbreak 1995, prices, up to a third of hospital acquired infections are thought to be prevalence. The prevalence of infection acquired in family practitioners or other health unit is unknown. There are many examples of disasters associated with failure of manufactures of health care providers to insure or with failure of disinfections of patients or of sterilization procedure (34).

Based on studies conducted in USA there 27 million surgical procedures are performed in each year. Surgical site infection.(SSI) are the tired most common Nosocomial infections which is 14-16% among hospitalized patients. Among surgical patients SSIs are the most common microorganisms isolated from SSIO were S-aureus, coagulate negative staphylococci enteriococcus and Escherichia coli common the source of pathogens due to poor infection control inadequate sterilization of equipment (13).

Furthermore, the blood born diseases such as hepatitis "B" and "C" with HIV and other pathogenic microorganism like cytomegalovirus, herpes simples viruses (HSV) mycobacterium tuberculosis, staphylococcus, streptococcus and other viruses and bacteria colonize and infect the oral cavity and respiratory tract. These micro organisms are mainly affect health care workers due to poor infection control mechanisms. For example in the middle east and Africa the percentage of HIV carries ranged from 20%30% and it is believed that in the UK general health practitioner treat as many as 250 carriers each day, and in many cases these carrier not identified (14).

The study conducted in Ethiopia Addis Ababa from 1006 patients admitted in Tikuer Anbesa Hospital between April 1982 and January 1985 tells us, nosocomial infection were detected in 165 (16.4%) patients. Among these with infection was (16.4% patients among these without infection was (59%) Approximately 90% of the nosocomial pathogens isolates were gram negative bacteria of which 84% were caused by enterobacterias and they were mostly resistant to commonly used antibiotics. In another study conducted in the some other Hospital from 700 patients students for the incidence of nosocomial infection the overall hospital infection rate was 17% with wound infection off 47% Over 80% of the bacterial isolates were gram negative bactericidal and the majority of which were multiple resistant to the commonly used antimicrobial drugs (15-16).

Significance of the study

- Hospital and other health care facilities acquired infections remains an important problem to day

Dealing effectively with Nosocomial infections in health care institutions requires the identification of cases their etiology and development with implementation of control measures.

Many studies have been done in developed countries on infection control practice but only a few have done. in Ethiopia particularly in recent time 2010 GC. In Jimma university specialized Hospital dental clinic (JUSHDC) it is the first research to be done. This is because it is known than improperly processed

visible surgical as well as dental instruments are one of the major categories that results for the transmission of wide range of infectious diseases

So, the study will give important information for dental care workers as well as for the health care workers at all, Hospital and clinic supervisor's, managers and administrators about the basic principles of infection control mechanisms.

CHAPTER TWO

2.1 Literature review

Infection control and prevention of nosocomial Infection in the hospitals are the duties every health professionals have to follow. To full fill this availability of clean and where necessary sterile equipments, instruments and dressing isolation facilities and safe disposal of infected material are must. To do this sterilization, disinfections and decontamination are the main components of infection control practices. These the above components are very important to prevent cross contamination and occupational exposures to blood borne diseases like hepatitis Banc and HIV infection particularly dental health care workers, are at risk of such diseases and other transmittable disease. Many studies provided their evidences and guide lines to show the influence of infection control problems with important solutions, some developed countries with a few in under developed. (16).

The study shown in Caracas , Venezuela following the outbreak of acquired Surgical site infection caused by RGM, two of the affected facilities modified their reprocessing procedure for surgical instruments (Including suction candle) used in cosmetic surgical procedures by replacing quaternary ammonium compounds used for low level disinfection which high level disinfection using 2% glutar- aldehyde or ethylene –oxide gas sterilization but no further cases of RGM infection complication cosmetic surgical procedures in Caracas have been reported (17).

For the hospitals and health care services their most be guide lines and policy to minimize or control the cross contamination from patients to health personnel or vice versa. Many studies provided their evidences and criterion for ICSPs (18).

For example in 1974, the center for disease control and prevention (CDC) initiated the ten year study of the efficacy of Nosocomial infection control. (The SENIC project in USA). The SENIC study had three objectives: 1. Determine the extent of nosocomial infection in U.S.A hospitals; 2. report on the implementation of the new ICSPs in U.S.A. hospitals; and 3. establish whether the above programs were effective in reducing the risks of hospitalized patients acquiring nosocomial infections. The SENIC study hypothesized that nosocomial infection rates could only be reduced if an ICSP had four components which were: 1. surveillance; 2. control including policy development, education and review of clinical practice; 3. an infection control nurse (ICN) to collect and analyze surveillance data in addition to having overall responsibility for co-coordinating the control program; and 4. active involvement of a physician or microbiologist in the program. The SENIC definition of surveillance activity included measurement of

the infection rate, consideration of risk factors and provision of feed back to clinical staff. In contrast, control activities were those functions that were known to reduce the risk of infection including aseptic technique, appropriate cleaning, sterilization and disinfection of used equipment and instrument. The SENIC study was conducted in three stages. Phase 1; the preliminary screening questionnaire involved mailing a survey to 6586 U.S.A. hospitals to establish to what extent they had adopted the above four components of an ICSP. The response rate to phase1 was 86% Results from this phase indicated that most (87%) of respondents had a systematic approach to collecting and analyzing surveillance data. Most hospitals reported surveillance findings and 62% used their results to provide feedback and education to nursing staff(19)

Results relating to control suggested that most hospitals had written policies for implementing specific patients –care practices although the proportion of hospitals monitoring compliance with recommended practices ranged from 56% to 80%. Less than half (42%) of the responding hospitals had an ICN that spent more than 20 hours per week exclusively on infection surveillance or control activities. Most (64%) responding hospitals had a physician or microbiologist who had an interest in IC and served as head of the ICSP. Few (16%) heads of ICSP were trained in either infectious diseases or microbiology. The time they allocated to IC was minimal (20)

From the study population of 4678 hospitals, the samples for phase 2, the Hospital interview survey, and phase 3, the medical record survey were selected. These hospitals were stratified according to number of beds and medical school affiliation, as investigators believed these two variables were the best predictors of nosocomial infection rates. Phase 2 involved dispatching a group of 58 trained interviewers to a sample of 433 hospitals. The inter viewers who were also CDC staff members, undertook standardized interviews, usually in pairs, during October 1976 and July 1977 to obtain specific infection about the hospital's ICSP. Data was obtained by interviewing twelve of the staff members in each hospital who were considered to have duties that would impact upon infection surveillance. Areas examined were: isolation practices monitoring of the environment, nurses reports of patient care and etc (21). Phase 3, the medical records survey involved 338 sample hospitals. In each hospital a randomly selected sample of medical records of approximately 500 patients admitted as adult general medical and surgical patients during 1970 and 500 of the same type of patients admitted during the period April 1975 to march 1976 was reviewed. Phase 4 involved 169,518 patients in 1970 and 169,526 patients in 1975-1976. The CDC employed and managed medical record analysts who reviewed each recorded for specific demographic and clinical data relating to nosocomial urinary tract, surgical wounds, and pneumonia or bactericidal infections. The phase 3, determined that the overall USA nosocomial infection rate was 5, 7 infections per 100 admissions to acute care facilities. The number of nosocomial infections in U.S.A was calculated to be 2.1 million annually (6). In addition phase 3 estimated the actual number of infections that were being prevented in each hospital by the ICSP and theorized the number that could be prevented if all hospitals had implemented those activities which had previously been demonstrated to be effective. The results of the third phase of the SENIC study confirmed the original

hypothesis that ICSP could reduce infection rates. Investigators reported that an effective ICSP could reduce Infections by 32%. In addition to the above findings, SENIC investigators found that most hospitals lacked an effective ICSP and therefore in 1975 only 6% of U.S.A nosocomial infections were actually being prevented (22).

It could be argued that infection prevention and controls greatest study has more recently been a critical factor in retarding the growth and restructure of certain ICSPs. This is especially so in relation to ICP staffing ratios were the SENIC recommended ratio of one ICP per 250 beds is always the critical reference point. That is any modern study reporting a lower ratio reports ICP staffing as inadequate (23).

The only major Australian study of activities required for an ICSP was reported in 1999 and included details provided by 644 then members of the Australian infection control association. The authors of this found that the typical Australian ICP worked in an acute, public funded organization with less than 251 beds. These Australian ICPs had backgrounds in nursing and spent most of their time under taking HCAIs surveillance. This seminal Australian work also reported the lack of uniformity in ICSP structure and function regardless of the type or location of setting in which an ICP was employed (24).

In 2000, a study of 115 ICPs from just Queensland published a year later reported that ICPs were desirous of moving away surveillance based activity and adopting more strategic management approaches to their work including clinical monitoring and risk management. No Australian and few international studies have examined possible differences in the organization, roles and/or needs of rural and non rural ICPs (25)

Stevenson and colleagues reported a review of ICPS from small, rural hospitals in the west of the United States (US) finding that despite their ineligibility to participate in the CDC's NNIS system; almost every hospital ICSP had adopted NNIS HAI surveillance methodologies. The proportions of time allocated to various traditional ICSP activities reported by the study group were similar to those reported by Murphy's Australian study surveillance was again the activity for which ICPs allocated most of their time(26).

Developing valid and "ideal" ICSP, models that can be applied by ICP, has been undertaken in several countries and regions. Forexample, in 2004 the Canadian health department developed such a model making recommendations for hypothetical organizations in both the acute and long term care sectors. Canada health sectors proposed staffing ratios of 3 full time equivalents (FTE) ICPs per 500 acute care beds and 1FTE ICP per 150-250 long –term care beds recommended activities for both sectors included surveillance education outbreak management, policy development and occupational health (11). In addition most published studies clearly demonstrate the lack of homogeneity in ICSPs Within and

between Countries. For instance, three related studies of Thai ICSPs in provincial regional and army hospitals demonstrate the substantial variations. ICPs in these settings typically performed surveillance, consultation, education, administration and quality assurance roles but less frequently met obligations for outbreak management and research activities which were part of the criteria set by the Thai government and against which their ICSP was assessed for hospital accreditation purposes. Very few published studies measure the quality cost or effectiveness of ICSP. In a recent, novel retrospective study of IC interventions over a seven year period Grant and Kim reviewed the nature of all IC consultations lasting longer than five minutes. They conclude that they were able to search and apply research to provide appropriate and customized responses. Further they assert that responses potentially reduce HAI transmission (28-29). The effective prevention monitoring and control of infection are important ways controlling the transmission of infectious diseases. For example in 2002, the Victorian government published a comprehensive guideline defining the expected infrastructure and activities for effective prevention, monitoring and control of infection. The guideline recommended that an ICC be in place with multidisciplinary input and that the infection control service have sufficient resources and clear lines of responsibility including links with an infectious disease service. The ICT model is outlined including one ICP per 250 acute care beds, (6).

The long overlooked issue of clinical governance in relation to infection prevention was highlighted in the British governments landmark publication "Winning Ways" in 2003. "Winning Ways" recognized for the first time that support of senior administration and appropriate local infrastructure and systems were critical in improving the behaviors of clinical staff (30).

The guidelines for Infection control practices was in 2004 a major Australian initiative of the national infection control Guidelines for the prevention of Transmission of Infectious Diseases in the Health care setting. This document cited findings from the SENIC study that up to one third of HCAI could potentially be eliminated if an effective ICSP was in place. In a generic prescription targeting infection prevention programs for countries with immature systems of infection control and prevention, the International federation for Infection control (IFIC) recommended the following program elements; a yearly work plan, an ICC an ICT, an IC officer, an ICN an IC link nurse system and an IC manual. The IFIC model includes and builds upon all of the previously Cited ICSP recommendations by also recommending antibiotics stewardship participation in development of tender documents supporting and participating in research and reviewing and assessing infection risks associated with new equipment and devices (6,7).

Additional and more recent directives from the United Kingdom (UK government stipulate specific roles for Directors of infection prevention and control which include increased participation in governance including production of an annual report on the state of HCAs (31).

Because the purpose of the study is to assess the various methods of cross infection control in the health care sectors as well as in hospital, many studies have been showing this for example, the study was done in Benin city, Nigeria in 2000. On this study a total of 180 randomly selected medical and dental practitioners in both Non-government and government public hospitals and clinic in Benin City, Nigeria.

According to the study of 180 practitioners surveyed, 98.1% of them sterilized their equipments. The others practitioners were used autoclave about 46%, a combination of autoclave and cold stylization 25.7% and other methods used by 25% practitioners. The practitioners who wash their hands before and after examine patients, according to the study constituted 72.6% and 94.7% respectively. Those who screened blood before transfusing were 79.5% while 4.5% and 19.5% reused needles and syringes respectively. Although 77.9% of were immunized against hepatitis B virus. Respondents who did not regularly wear face masks and eye goggles during operative procedure constituted 77.90% and 64.6% respectively. Similarly 40.7% of practitioners did not wear gloves when examining patients according to the study (32).

Many information obtained through different study could be used to plan and implement policies in improving health care infection control and occupations safety in different countries. For example, a study has conducted in 1993 among eight countries to assess the dentist and as a whole the health workers knowledge, attitudes and practices about dental and health care infection control and safety. These countries were India, Pakistan, Thailand, Philippines, and Taiwan. China, South Korea and the United States of America (USA). According to the result of the study knowledge and practice of infection control among the Asian health workers lagged behind the levels of US health workers. The availability and affordability of equipments and materials were some of the reasons for the practices of infection control and safety attitude towards universal/standard precautions in controlling blood borne pathogens was comparable between groups surveyed. Tested knowledge and practice of infection control was acceptable, but the attitude and understanding of universal/standard precautions was ambiguous among both Asian and USA health /dental professional's practitioners (33).

The three most common infection control mechanisms in the hospitals are decontamination disinfection and sterilization. In addition to this many studies has done to ensure the effectiveness of sterilization technique against bacteria (34). For instance, study in Jimma University specialized Hospital, about

sterilization techniques, shows its experimental evidence. According to this study, among 75 sampled equipments taken from 2 autoclaves, 3 days heat oven and 2 chemical solution basin (40% formalin solution and 1% sodium hypochlorite), 7(9.25%) of them were found to show bacterial growth. That were found from one dry heat oven (in which 3 (30%) put of 10 samples) and from 1% sodium hypochlorite (in which 4 (40%) out of 10 samples) were positive for bacterial growth. This study concluded and recommeabded autoclaving is the method of choice for sterilization of surgical equipments. Dry heat oven is effective, but it should be closely monitored and maintained. The effectiveness of chemical sterilization is significantly influenced by the chemical dilution storage and the amount of degree of clearing of the sterilize instruments (35).

A classification device is needed to better define appropriate method for disinfection and sterilization hospital instruments and equipments. This classification should balance the potential risk for transition of infection and the resources available to achieve the necessary or desired level of antimicrobial killing (10,36)

The most commonly used classification device was proposal by Earle H. Spaulding in 1968. He proposed three categories, critical, semicircle and non-critical. This classification has been used by center of disease control (CDC) in guide lines for hand washing and hospital environment control and by FAD for approval of strident and high level of disinfectants, and used by most infection control professional worldwide (2).

CHAPTER THREE

3. OBJECTIVES

3.1 General objectives

- The goal of this study is to evaluate infection control measures / practices actually implemented by all health care workers during patient managements as well as on their all procedures in Woliso St. lukus Hospital in general and dental clinic in specific (WSHADC).

3.2 specific objectives

- To assess basic infection control methods used by health workers in the hospital
 - To assess sterilization methods used in the hospitals by health workers
 - To assess disinfection methods frequently used by health workers
 - To assess the level of personal hygiene among health workers in the hospitals
- To recommend the health care workers to apply standard and transmission based precautions of the infection control methods.

CHAPTER FOUR

4. Methodology

4.1 Study area and period

4.1.1 Study area

The study was conducted at Woliso st.Lukus Hospital which is found in the Woliso town. Which is 116 Km from Addis Ababa in South West direction from Addis, South West Shoa zone, Oromia region, Ethiopia.

4.1.2 Study period

The study was conducted from April, 20-May 2, 2013

4.2 study design

Cross-sectional study design was conducted to achieve the objective of this study

4.3 Study population

4.3.1. Source population

All workers in Woliso ST.lukus Hospital.

4.3.2. Study population

All health care workers in Woliso St.lukus Hospital with total number of 115

4.4 Sample size and sampling technique

The sample size is calculated using formula

$$n = \frac{z^2 (p q) N}{d^2}$$

$$d^2 (N-1) + z^2 pq$$

Where $z = 95\%$ confidence interval = 1.96

$P =$ prevalence of ECC in 50% = 0.5

$$q=1-P$$

$$d= \text{margins of error } 5\% = 0.05$$

N= total population

$$nf = n$$

$$1+n$$

$$N$$

$$nf= 384$$

$$1+115/384 =88$$

n= original sample size

N= total population

nf = final sample size

4.5 Variables: -

4.5.1 Independent variables?

.Sex

.Age

. educational level of professions

.type of occupation

4.5.2 Dependent variables

- Sterilization methods

- Disinfection methods

- Personal hygiene

- Precautions taken during patient examination and treatment.
- Time at which instrument sterilize

4.6 Data collection technique

After preparing structured format of questionnaire, it was distributed to all health workers by data collectors

4.7 Data quality control

- The principal investigator would supervised each day during data collection, to ensure the quality of the data by checking filled format for completeness and consistency

4.8 Data analysis and interpretation

The collected data was sorted ,processed and analyzed. The data was presented by tables and figures

Chi-square test will be performed and P-value > 0.05 will be considered insignificant to consider association P-Value <0.05 will be considered as showing significant association. Spearman's coefficient of correlation also will be used to assess the relations of some data

4.9 Data collection materials and instruments:

Pen, pencil, paper, erasers, questionnaire and rulers

4.10 Ethical consideration

A formal letter of permission was written by Jimma university, department of dentistry to WSLH to get permission and support during data collection.the objectives of the study explained to medical director of the hospital

4.11 Dissemination of result

The result of the study will be disseminated to health bureau by principal investigator students research program office and department of dentistry

4.12 Operational definition

Antiseptic- All chemical that is applied to skin or mucus membrane and used to prevent infection by inhibiting growth of microorganism

Asepsis-free from infection.

Average practice-the respondent answer 50%of practice

Blood born diseases- Diseases that can be transmitted through blood contamination from individuals to individual

Cleaning- processes that physically removes all visible dust ,soil blood or other body fluids from inanimate objects as well as removing sufficient number of microorganisms.

Cross-infection- the transmission of pathogenic microorganisms from patient to another.

Decontamination- use of physical or chemical means to remove, inactivates, or destroys pathogens one surface

Disinfectant- chemical used on non vital objects kill surface vegetable organism but not necessary their spores.

Disinfection-the destruction of pathogenic agents by directly applied chemical or physical means.

Good practice-the respondents answer each practice questions greater than 60%

Germicide- An agent that destroys microorganism's especially pathogenic microorganisms.

Hand hygiene – General term that applies to hand washing, antiseptic hand wash, antiseptic hand rub.

Nosocomial infection-infection that acquired in the hospital

Poor practice-the respondents answer each practice question less than 60%.

Sepsis-the presence of pathogens in blood or other tissues

Sterilization- complete destruction of all microorganisms including their spores that is capable of causing infection

Chapter Five

Results

A cross-sectional study was done on 88 health care workers in Woliso St. Lukas hospital to assess their infection control practice in the hospital. All of the study subjects were able to fill the questionnaire completely.

5.1. Socio- demographic results

Table 1. Number of the respondents with their sex and professions

profession of respondents	Number of respondents with their Sex							
	Male		Fem-ale		Total No			
	No	%	No	%	No	%		
Medical Doctors			12	80	3	20	15	17.1
Health Officers	8	66.6	4	33.3	12	13.6		
Nurses	13	39.4	20	60.6	33	37.5		
Midwifery	2	28.6	5	71.4	7	7.9		
Laboratory technician	4	57.1	3	42.8	7	7.4		
Dental doctors	1	(100%)	0	0	1	1.1		
Cleaners	2	15.4	11	84.6	13	17.0		
Total	45	51.1	43	48.9	88	100		

Table 1. shows, 33(37.5 %) of the total respondents were nurses of which 13(39.4) were males and 20(60.6%)were females ,15(17.1%) of the total respondents were medical doctors with 12(80%) and 3(20%) of them were males and females respectively. Health officers accounts12(13.6)% of the total respondents, and 66.6% and 33.3% of them were males and females respectively. Similarly, 7(7.9%) 10(7.4%) and of the total respondents were midwifery and laboratory technician respectively. 28.6% of the midwifery were males and 71.4% of them were females. 57.1% and 42.8% of the laboratory technician were males and females respectively. At the same time about 1(1.1%) of the total respondents were dental doctor and only one male respondent, and 13|(17%) of the total respondents were cleaners. 2(15.4%) of cleaners were males while most of them 11(84.6%) were females. Totally, 45(51.1%) of the total respondents were males and others 43 (48.9%) were females. Most of the male were nurses 17(56.7%) and cleaners 11(84.6%) of the total number of the respondents in the hospital.

Table 2. Number of Health workers by their age group, monthly income and year of their service in Woliso st. Lukas Hospital, Woliso April,2013

S.No

Age, income and years of services

		Number of respondents with their age, monthly income and years of services							
		Male		Female		Total			
		No	%	No	%	No	%		
1	Age	<20	-	-	3(all)	100	3	3.4	
		20-29	18	45	22	55	40	45.45	
		30-39	11	52.4	10	47.6	21	23.7	
		40-49	12	70.58	5	29.4	17	19.3	
		>50	4	57.1	3	42.8	7	7.9	
		Total	45	51.1	43	48.9	88	100	
2	Monthly income	<1000		2	13.3	13	87.7	15	17
		1000-2000		13	39.4	20	60.6	33	37.5
		2001-3000		16	69.6	7	30.4	23	26.1
		>3001		14	82.35	3/	17.6	17	19.3
		Total	45	51.1	43	48.9	88	100	
3	Years of services	0-2		9	47.36	10	52.6	19	21.6
		2-5	10	40	15	60	25	28.4	
		5-10	17	56.7	13	43.3	30	34	
		>10	9	56.2	7	43.7	16	18.2	

Total 45 51.1 43 48.9 88 100

Table 2. Shows socio- demographic characteristics of the respondents such as age group , monthly income and year of service.

The age of most respondents range from 20-29 years which were 40(45.45%) of the total respondents. 22(23.7%) of the total respondents were in the age group of 30-39 years, 18 (45%) and 22(55%) of age group between 20-29 year were males and females respectively. Out of the age group between 30- 39 years respondents, 11(52.4%) were males and 10(47.6%) were females, 12(70.56%) males and 5(29.4%) females were in age group between 40-49 years. A few of the respondents were in the age group of > 50 years. This accounts 7.9% of the total respondents. And 4(57.1%) males and 3(42.8%) were female. Only 3(3.4%) of the total respondents were in the age group less than 20 years. All of them 3(100%) were females. The mean age of Woliso st.Lukas Hospital health care workers were 28 and 35 years mostly.

Income classification of the respondents were that most of them had income between 1000- 2000 birr and 2001- 3000 birr per month. This accounts about 33(37.5%) health workers which have had income between 1000- 2000 birr per month and 23(26.1% had income in between 2001- 3001 birr per month. The others respondents, 15(17.8%) and 17(19.3%) have had income < 1000 birr per month and > 3000 1 birr per month respectively.

Concerning respondents year of service most of the total respondents 30(34%) had between 6-10 years of service, 17(56.7%) of them were males and 13(43.3%) of them were females, 25(28.4%) of the total respondents have had between 2-5 years of services 10(40%) of them were males and 15(60%) were females.

The others responders 19(21%) ,9(43.3%)were males and 10(52.6%) were females and 16(18.2%) ,9(56.2%) were males and 7(43.7%) were females, have been working between 0-2 years and greater than or equal to10 yrs respectively.

Table 3. Responses of health care workers on transmission of some diseases, route of transmission and methods of controlling these transmission in Woliso st. Lukas Hospital , April, 2013 G.C.

S.No	Questions for infection control methods	Number of respondents with their profession and sex											
		Cleaners		Medical doctors		Health officers		Nurses midwifery		Lab.tech		Dental	
doctr		Total	Sex	Total	Sex	Total	Sex	Total	Sex	Total	Sex	Total	Sex
		No	%	No	%	No	%	No	%	No	%	No	%
		No	%	No	%	No	%	No	%	No	%	M	F
1	Do you believe that all health care workers are at risk of occupational exposure to transmittable diseases												
	Yes	15	100	12	100	30	100	7	100	7	100		
	1	100	13	100	88	100	55	40.7	80	59.3			
	No	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0		
2	If/ yes, to which of the following they are at risk? (more than one answer is possible)												
	1	6.6	2	16.7	5	15.1	2	28.6	1	14.3	0	0	
	2	18.4	16	11.1	5	9.1	10	12.5					
	HBV	2	13.3	2	16.7	7	21.7	2	28.6	1	14.3		
	0	0	2	18.4	18	13.3	6	10.9	12	15			

		Chemical v	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	4	4.2	2	3.6	2	2.5			
		Combination of any	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	14	14.7	5	9.1	9	11.3		
19	Do you clean instruments before sterilization						Yes	15	100	12	100	33	
	100	7	100	7	100	1	100	13	100	92	96.8	50	
	90.9	42	52.5										
		No	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	3	3.2	0	0	3	3.8				
20	Do you disinfect instruments before sterilization						Yes	4	626.7	0	0	0	
	30	90.9	0	0	0	0	1	100	0	0	87	91.6	
	48	87.3	39	48.8									
		No	11	73.3	12	100	3	9.1	7	100	7	10	
0	0	13	100	8	8.4	2	3.6	6	7.5				
21	Do warp or pack instruments before autoclave						Yes	9	60	7	58.3	33	
	100	3	57.1	7	100	1	100	13	100	87	91.6	45	
	81.9	42	52.5										
		No	6	40	5	41.6	0	0	4	42.85	0	0	
0	0	0	0	8	8.4	5	9.1	3	3.8				
22	Do disinfect instruments that cannot be sterilized						Yes	15	100	12	100	100	
	33	100	7	100	7	100	1	100	13	100	87	91.6	
	50	90.9	37	46.3									
		No	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	8	8.4	0	0	8	10				
23	Did you take any training about disinfection, sterilization						Yes	8	53.6	2	2	2	
	16.6	4	12.1	0	0	0	0	0	0	0	0	66	
	69.5	36	65.5	30	37.5								
		No	7	46.6	10	83.3	29	87.8	7	100	7	100	
1	100	13	100	29	30.5	14	25.4	15	18.8				

Table 3. Shows respondents on transmission of some diseases, route of transmission and methods of controlling these transmission.

According to the table, all of 88 (100%) respondents believed that health care workers were at risk of occupational exposure to transmittable diseases. Among the accepted respondents all medical doctors 15(100%) , health officers 12(100%) nurses 33(100%) midwifery 7(100%) , Laboratory technician 7(100%), dental doctor 1(100%) and cleaners 13(100%) were included. Most of the respondents 45(51.5%) of the total respondents believed that they are at risk to infectious diseases like HIV, HBV, TB and HSV in general. These included 10(66.4%) medical doctors, 6(50%) Health officers, 18(54.4%) Nurses, 2(28.6%) midwifery, 3(42.3%) lab technician, dental doctor and 5(38.1%) cleaners of themselves. 16(18.1%) , 18(20.3%) ,11(12.5%) and4(4.5%) of the total respondents thought that they were at risk to HIV, HBV , TB and HSV respectively.

57(64.7.%) of the total respondents were know that saliva, blood and air were as major routes of infection transmission of which were 14(93.7%) medical doctors, 9(75%)Health officers, 20(60.6%) nurses, 5(71.4%) midwifery, 3(42.1%) lab technician, dental doctor and 5(38.4%) were cleaners. The others 16(18.9%) , 9(10.7%) and 6(6.8%) of the respondents were know that major route of infection transmission was blood , air and saliva respectively.

All respondents wear a proper gown during their procedure. all of the health care workers wear a proper site gown during their procedure. Totally 45(94.5%) males and 43(78.7%) females wear a proper site gown during their procedure.

Their were 13(80%) medical doctors , 5(41%) health officers, 10(30%) nurses, 5(71.4%) midwifery, 7(100%) lab, 2(100%) of themselves washed their hands before patient's examination while 2(4.51%) medical doctors,7 (59%) health officers, 20(70%) nurses & 2(28.6%) midwifery of themselves were not.

Totally 42(42.2%) of the total respondents washed their hands before patients examination while 46(52.2%) of the respondents had not. The rest 13(14.7%) of the total respondents those the question didn't relate with their duties were cleaners. Generally, 18(42.2%) males and 24(56.99%) females of themselves had washed their hands before patients examination while 20(44.2%) males and 25(55.5%) females had not. On the other hands, 84(95.3%) of the total respondents had washed their hands after patient's examination of which of them were 15(100%) medical doctors, 33(100%) nurses , 9(all) health officers, 7(all) midwifery, 10(all) lab technician, and 2(all) dental technician. While 5(3.7%) of the total respondents had not washed their hands after patient's examination. These included 1(2.5%)

medical doctors and 2(3.2%) nurses of themselves. Their were 41(46.6%) males and 44(50%) females of themselves had washed their hands after patient's examination. In contrast 4(4.19) males and 1(1.67%) had not washed their hands after patient's examination. The rest 13 |(17%) of the total respondents those the question didn't relate with their duties were cleaners of which 2(1.5%) males and 11(15.5%) females. Respondents who had wear face mask during their procedure were 89(65.9%) of which 35(63.6%) and 54(67.5%) were males and females respectively. These constituted 15(78.9%) medical doctors, 5(55.6%) health officers, 48(73.8%) nurses, 5(71.4%) midwifery, 2(20%) lab technician, 2(100%) dental technician and 12(52.2%) cleaners of themselves. The others 36(40.1%) of the total respondents had not wear face mask during their procedure. These included 9(40.1%) medical doctors, 5(41.4%) Ho14(42.2%) nurses, 5(71%) midwifery, 2(20%) lab technician and 11(47.8%) cleaners of themselves totally 17(36.4%) males and 19(32.5%) females had not wear face mask during their procedures.

Similarly, 15(99.9%) of medical doctors, 12(100%) of health officers, 32(96.9%) of nurses, 7(100%) of midwifery, 7(100%) of lab technician and 1(100%) of dental technician, totally 75 (85.5%) of the total respondents had wear glove during patients examination. These were 13(14.1%) of not wear gloves not related with their duties .About 21(23.6%) of the total respondents of which 18(85.7%) of males and 3(15.4%) of females had wore goggles during patients examination. specifically, these included 10(66.6%) of medical doctors & 11(33.9%) of nurses of themselves. The others all health care workers who were taken as sample size such as health officers, midwifery & lab technician, dental technician did not wear goggles during patient's examinations. These accounted totally 54 (62.65%) of the total respondents while 25(47%) males and 29(53%) females of themselves. All cleaners 13(14%) of the total respondents did not give any response on wearing goggles during patient's examination to say it does not their duty. On others hand ,all respondents had changed gloves b/n patients of . All cleaners 13(14%) of total respondents did not participate on question to say that it does not their duty.53(61.9%) of the total respondents had washed their hands before gloving of which 23(43.4%) males and 30(56.8%) females of themselves. But about35 (39.1%) of the total respondents did not wash their hands before gloving . From this 13(23.6%) males and 22(31.2%) females of themselves respectively. On the other hand 15(100%) of medical doctors, 3(25.3%) of health officers, 24(74.6%) of nurses, 6(89.7%) of midwifery, 6(60%) of lab technician, 1(100%) of dental technician and 13(100%) of cleaners had washed their hands before gloving.

69(78.4%) of the total respondents had scrubbed their hands with soap before gloving of which 49(71%) males and 20(29%) females of themselves respectively. But 19(22.6%) of the total respondents did not scrub hands with soap before gloving from this 11(57.6%) of males and 13(43.2%) of females were included. Separately, 14(90.2%) of medical doctors, 10(83.3%) of health officers, 31(53.8%) of nurses, 7(100%) of midwifery, 6(90%) of lab-technician ,1(100%) of dental technician and 13(99.9%) of cleaners had scrubbed their hands with soap before gloving.

The others were 14(84.2%) of medical doctors, 7(77.8%) of health officers, 46|(70.8%) of nurses, 6(85.9%) of midwifery, 2(20%) of lab technician and 1(50%) of dental technician who had washed their hands using alcohol before and after patient examination. Totally 78(57.8%) of the total respondents of

which 33(60%) of the total males and 45(56.3%) of the total females had washed their hands using alcohol before and after patient examination. 34(25.2%) of the total respondents of which 20(36.4%) males and 14(17.5%) females of themselves did not wash their hands using alcohol before and after patient examinations.39(44%) of the total respondents had scrubbed hands with disinfectants before gloving . Out of this 17(43.8%) males and 12(56.5%) females of themselves were included. In contrast 49(46%) of the total respondents did not scrub hands with disinfectants before gloving. From this 2(37%) and 26(53%) were males and females respectively. Individually 8 (53.7%) of medical doctors, 3(25%) of health officers, 13(38.5%) of nurses, 5(72.8%) of midwifery, 2(28.6%) of lab technician and 5(28%) of cleaners had scrubbed their hands with disinfectants before gloving. Most of respondents about 71(80.1%) of the total respondents were disinfect the surface in the operating b/n patients. From this 49(70.1%) males and 22(30.5%) females of themselves were included. Only 17(19.9%) of the total respondents did not disinfect the surface in the operating b/n patients. These included 2(22.2%) of health officers, 2(3.1%) of nurses, 5(50%) of lab technician and 3(13.1%) of cleaners. There were 6 males and 6 females of the total respondents. Similarly, 9(43.7%) of medical doctors, 7(58.9%) of health officers, 15(45.3%) of nurses, 7(all(100%) of midwifery, 6(90%) of lab technician 1(100%) of dental doctor and 4(30.5%) of the cleaners totally 54(61.1%) of the total respondents were immunized against hepatitis B virus. 34(62.7%) of males and 20(37.70%) of females were immunized. On opposite side 5(26.3%) of medical doctors, 1(11.1%) of health officers, 18(27.7%) of nurses, 1(10%) of lab technician, and 6(7.5%) of cleaners totally 34(38.9%) of the total respondents were not immunized against hepatitis B virus. 15(44.3%) of males and 19(30%) females were not immunized respectably.

Only 18(20.45%) of the total respondents had reused gloves that are washed. These constituted 8(9.0%) of nurses and 12(13.36%) of cleaners. There were 2(23%) of males and 14(77%) of females had reused gloves that are washed. The rest 70(79.7%) of the total respondents of which 44(62.8%) of males and 36(37.2%) of females were not reused gloved that are washed. All of the respondents 88(100%) of which 45(51.1%) males and 43 (49.8%) females of the total respondents were not reused gloves that are unwashed.

Respondents who had suffered needle stick injury were 23(26.7%) of the total. From males 7(30.5%) and from females 16(69.4%) suffered needle stick injury. constituted. Medical doctors 7(58.2%) health officers 4(39.6%), nurses 5(30.3%) , midwifery 3(42.8%), and cleaners 4(17.4%) out of themselves. In contract to this, respondents who had not suffered needle stick injury were 65(53.3%) of the total which was greater than that of suffered needle stick injury. 35(54.5%) of males and 30(46.5%) of females had not suffered needle stick injury.

About 88(100%) of the total respondents had sterilized instruments before, Totally 45(51.9%) of males and 43(48.3%) of females had sterilized instruments.

Regarding methods of sterilization all of the respondents used autoclave method except 13 (14.6%) cleaners of nOt related to their duetis.nobody used other sterilization method in the hospital. All respondents had sterilized instruments before sterilization . Similarly 64(72.6%) of respondents who

had sterilized instruments were disinfect and wrap/pack instruments before sterilization and autoclave respectively. At the same time 24(28.6%) of respondents who had sterilized instruments had disinfected instruments that can't be sterilized. Out of 88 respondents 14(28.6) who had taken training about sterilization techniques. While 74(84.5%) of them had not. 9(64.5%) of males and 5(35.5%) of females had taken training about sterilization techniques. there were no a manual written on the wall of the Hospital about decontamination, disinfection and sterilization.

9(100%) of health officers, 5(41%) of HO, 10(41.1%) of nurses, 7(100%) of midwifery, 6(90%) of lab technicians and 1(100%) of dental doctor washed hands before and after patients examination respectively.

Those who had wear gloves during patients examination were all respondent except cleaners which did not relate with their duties. The respondents who had wear face mask and goggles during their procedures 10(60%) of medical doctors and 11(33.3%) and the rest are not use face mask.. Relative to their sex 12(57%) of males, and 9(43.5%) of females had wear face mask.

Out of the total health care workers 77(87.4%) and 48(54.8%) scrubbed and washed hands using alcohol respectively of which males were high relative to females. Those who had scrubbed their hands using disinfectant were 53(59.9%) of the total respondents. About 71(80.1%) of the total respondents had disinfect the surface in the operating area between patients. All respondents were sterilized instruments. The result shows there is strong association between precaution taken for infection control and professions of health care workers in the hospital. It is statistically significant $P=0.00$ which is $P<0.05$.

Table 5. Methods of sterilizations respondents as in the Woliso st. lukas Hospital,Woliso April, 2013 G.C.

Method of sterilization Positive response of respondents with their profession

Method of sterilization	Medical doctor		Health Officer		Nurses		Mid wifery		Lab. technical		Dental doctors	
	No	%	No	%	No	%	No	%	No	%	No	%
Autoclave/moist heat	15	100	13	100	12	100	33	100	7	100	7	100
Dry heat	0	0	0	0	0	0	0	0	0	0	0	0
Chemical vapour	0	0	0	0	0	0	0	0	0	0	0	0
Irradiation	0	0	0	0	0	0	0	0	0	0	0	0
Combination of any	0	0	0	0	0	0	0	0	0	0	0	0
Total	15	100	12	100	33	100	7	100	7	100	7	100

Table 5. Shows sterilisation methods of respondents . According to the table,88(100%) of all respondents 45(51.4%) and 43(48.98%) of males and females respondents are used only autoclave method of sterilization respectively. but, the others methods of sterilization like dry heat ,irradiation chemical vapours are not available at Woliso St. Lukas. The result shows no significant association among methods of sterilization and profession of respondents(P-value=0.734).

Table-6. Precautions that should be taken before sterilization by respondents Woliso St. lukas Hospital, 2013 G.C.

Precautions be taken before sterilization	Positive responses of respondents with their profession											
	Medical Doctors		Health officers		Nurses		Midwifery		Lab technician		Dental doctor	
	No	%	No	%	No	%	No	%	No	%	No	%
Cleaners	No	%	No	%	No	%	No	%	No	%	No	%
Clean instruments before sterilization	7	100	1	100	15	100	12	100	33	100	7	100

Disinfect instruments before sterilization	4	62.6	0	0	30	90.9	0
	0	0	0	1	100	0	0
Warp or pack instruments before autoclave	9	60	7	58.3	33	100	3
	57	7	100	1	100	13	100
Disinfect instruments before autoclave	10	83.3	7	58.3	30	90.0	7
	7	100	1	100	10	76.9	100
Written manual about sterilization methods on walls of clinic							0
	0	0	0	0	0	0	0
	0						0
Took training about sterilization technique before		8	53.6	2	16.6	4	12.1
	0	0	0	0	0	0	0

X²5.45

Df =24

P-value

Table-6. shows precautions taken by respondents before sterilization of instruments. According to the table , All Of the respondents who had sterilized instruments clean instruments before sterilizing , while 35(39.7%) of the respondents disinfect instruments before sterilization. similarly 66(75%) of the respondents who had sterilized instruments warp or packed instruments before autoclave. Those who took any training about sterilization technique were 14(15.5%) of the respondents in relation to sex 9(64.6%) and 5(35.4%) males and females .there was no manual written on the wall of the hospital. The result is statistically not significant($P > 0.05$) which is p-value=1

CHAPTER- SIX

6.0. Discussion

A study showed that all 88(100%) of health care workers in Woliso St lukas Hospital believed that all health care workers were at risk of occupational exposure to transmittable diseases. This study result shows higher than study done in Tabriz Health care workers (4) where only 32% of 150 health care practitioners considered all health care workers are at risk of occupational exposure to transmittable disease. But this study is comparable with Turkish health care workers which was 95.6% according study by Dr.Emiryu zbatish in 2009 (2).

On the other hand this study showed poor on some infection control mechanisms and good on other mechanisms(according to standard isolation precautions), while the level of knowledge and attitude was acceptable, the compliance poor. These results were also found in (Shiraz Dentistry school , Iran) with the increasing spread of HIV and hepatitis B&C among health care workers (6). On this study most of the health care workers have good information for saliva, air and blood born diseases as the same study shows that was done in Turkish, on health professionals(5).

The result also shows almost all 14(15.7%) of respondents were vaccinated against HBV. The same study in Benin city, Nigeria in 2000 shows 77.9% of health care workers were vaccinated against HBV (18). This showing lesser percent of respondents in the present study which also not match with, occupational safety health administration (OSHA) stating all of health professionals should vaccinated against HBV with in ten days of being employed (24).

Hand washing, wearing gown, face mask wearing , gloving and goggling are some essential parts of infection control in health care practice. Thus even before the advent of AIDS, health care workers worldwide have a culture of washing their hands before and after examining patients. A close study of compliance with this aspect of infection control was under taken by B.D.O saheeb in Benin city, Nigeria (18) found that 72.6% and 94.7% of health care workers wash their hands before and after patients examination respectively. While in this study 35.2% and 83.3% of respondents had washed their hands before and after patients examination respectively, which is less relative to the literature. This was because of separate places of examination rooms and water pipe and as well most of health care workers not concerned to wash their hands specially before examination.

Previously the wearing of gowns and gloves before examining patients was practiced regularly as an essential part of cross infection control. Interestingly however, 83.3% of respondents in this study wear gowns before examine patients. Similarly 86.5% of the respondents in this study wear gloves before examination. The study done in Benin city Nigeria shows also 59.3% of health care workers wear gloves before examination patients. Which was less than the present study. The result also shows,15.6%, 59.3% and 23.8% of respondents had wear goggles, scrubbed hands with soap and disinfectants and wear face mask respectively. The same study in Benin city Nigeria in 2000(18) shows 22.1% and 35.4% of respondents had wear face mask and goggles respectively. Relatively less number of respondents wear eye goggles in this study.

Only about 3.7% of the group under study know saliva is one route of infection transmission in health care service areas, which is very less than to result in Tabriz which is 51% (04).

According to this study autoclave is the mostly used sterilization technique followed by dry heat oven technique, as the evidence a similar study has done in Jimma Unveristy specialized Hospital and in municipality of sao paulo, Brazil, concluded that autoclave is the method of choice for sterilization of surgical instruments. Similarly, most of the health care workers in this study used autoclave. Next to the autoclave, dry heat oven and combination of autoclave and cold sterilization were used. no number of respondents under study used chemical vapour method of sterilization as well as irradiation method i (21,26).

Generally, 100% of respondents had sterilized instruments before use which is the same as the study done in Benin city Nigeria in 2000 on 180 respondents surveyed, 98.1% of them sterilized their equipments(18). Most of the health care workers who sterilized instruments in this study have done precautions before sterilization which was also similar with literature.

Totally low adherence of respondents to ward practice of some infection control mechanisms may be due to less availability and affordability of equipments or may be attributed by too carelessness of the respondents under study.

CHAPTER SEVEN

7. Conclusion and Recommendation

7.1. Conclusion- the study shows that although most of the health care workers studied, and recognized the importance of cross infection control theoretically, they have not changed it into practice totally, so still almost more than half of the health care workers in Woliso st.lukas Hospital are at high risk of infection exposure, particularly nurses, cleaners & midwifery's are exposed for different infection. This may be due to carelessness and low awareness.

1 All most all of health care workers taken as sample size in the hospital were accept infection control practice theoretically but they didn't change it into practice totally.

2 Most of the health care workers in the Hospital believed that they were at risk to HIV, HBV, TB and HSV in general which were account about 51.5% of the total respondents.

3 Blood was the most common route of infection transmission especially for blood born diseases

4 The sterilization methods used in the hospital is only autoclave .

5 Sterilization was the most effective methods to control infection transmission in relation to others methods like, cleaning, decontamination and disinfection.

7.2. Recommendation:-

1 I would like to recommend the hospital administrators and hospital staff to give an educational program on infection control and precautions taken for all health care workers in Woliso st. Lukas Hospital especially for nurses, cleaners and midwifery

2 Supplying the facilities to allow compliance with infection control policies are necessary to reduce infection transmission ways.

3 I also like to recommend Woliso st.lukas Hospital administrators to give progressive seminars both theoretically and practically on infection control practice for all health care workers in the Hospital.

4 Health care workers at Woliso st. Lukas hospital should change their practice toward infection control.

5 .I would like to recommend the woliso st.lukas to have special training on decontamination, diinfection and sterilisation

6 Lastly, few studies done on this topic and I invite researchers to do further study on it.

ANNEX I

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Annex II:- questionnaires

Jimma University College of public health and medical sciences, department of dentistry, questionnaires prepared for health care workers for data collation on assessment of infection control in Woliso St. Lukas Hospital.

N.B, the aim this questionnaires is to asses infection control practice of respondents in the hospital, so it need your volunterness.the questionnaire doesn't include your name, so be confident to answer questions.

You can discontinue if you are volunteer

Thank you!

Part 1 Demographic

1. Age 1 _____ 2. Sex: Male Female
2. Profession: Medical doctor Health officer Midwifery Nurses Lab technician
Dental technician Cleaners Dental doctor
3. Monthly income:
< 1000 , 1000-2000 2001-3000 >3001
4. Year of service:
0-2 2-5 6-10 > 11

Part II Questions for basic infection control methodes

Note:- If the question is not related with your duties please jump it . But if concerns you put "<" or "X" mark of each) in the box in front of your answer

1. Do you believe that health care workers are risk of occupational exposure to transmittable diseases? Yes No

(Including you)

2. If yes to which of the following you are at risk? (more than one answer is possible)

HIV HIV TB HSV All

3. Which of the following route of infection transmission

You know? (More than one answers possible)

Saliva Blood Air . All

4. Do you wear a proper site gown during your procedure?

Yes No

5. Do you wash hands before patient's examination? Yes No

6. Do you wash hands after patients' examination? Yes No

7. Do you wore face mask during your procedure? Yes No

8. Do you wore glove during patients examination? Yes No

9. Do you wore goggles during patients examination? Yes No

10. Do you change gloves between patients? Yes No

11. Do you wash hands before gloving? Yes No

12. Do you scrub hands with soap before gloving? Yes No

13. Do you wash your hands using alcohol before and after patient examination? Yes No

14. Do you scrub hands with disinfectants before gloving?

Yes No

15. Do you disinfect the surface in the operating b/n patients?

Yes No

16. Do you immunized against hepatitis B virus? Yes No

- 17. Do you reuse gloves that are washed? Yes No
- 18. Do you reuse gloves that are un washed? Yes No
- 19. Do you suffer needle injura? Yes No

Part III. Questionnaires for methods of sterilizations and precautions taken before sterilization.

- 1. Do you sterilize instruments before? Yes no...
- 2. If your answer for answer for questions No 1is yes which type of sterilization methods you use?

Autoclave (moist,) dry heat , Irradiation.....,cold sterilization chemical vapor
 combination of any

- 3. Do you clean instruments before sterilization? Yes No
- 4. Do you Disinfect equipments before sterilization? Yes No

5. Do you warped pack instruments before autoclave?

Yes No

6. Do you disinfect instrument that can +be sterilized? Yes No

7. Did you take any training about sterilization techniques? yes

No

8. Is there any written manual on the wall of the Hospital about decontamination,

Disinfection and sterilization? Yes No

THANK YOU!

