

ASSESSMENT OF INFECTION CONTROL PRACTICE IN JIMMA UNIVERSITY SPECIALIZED HOSPITAL.

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COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCES DEPARTMENT OF DENTISTRY

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## ABSTRACT

Background:- Hospital acquired infections often have serious consequences for the individual or the hospital community at large. However nosocomial infection can be prevented and controlled among staff and patient through careful and systematic attention to infection control guidelines and procedures. Control of communicable disease has been achieved in the developed countries through

education, regulations, and public health measures such as health care infection control and safety (IC&S).

Objective:- to assesses basic infection control practice in Jimma University specialized Hospital .

Methods:- Across sectional study with convenient sampling technique was conducted to achieve the goal of the study. self administer questioners was distributed for health care workers (Nurses, Doctors, health officers , anesthesia & midwifery) about general practice of infection control in Jimma University Specialized hospital.

Results and discussion:- the data was cleaned and analyzed manually and using on line contingency table, the association was determined, result was displayed using tables. From the table most of the respondents were good on some infection control mechanism , while, poor on some other infection control mechanism.

Conclusion& recommendation:- the study shows that although most of the health care workers under studied recognized the importance of cross infection control theoretically, they have not changed it into practice accordingly, for such problem ,it is better for Jimma university specialized Hospital administrators to give progressive seminars both theoretically and practically on infection control practice for all health care workers in the Hospital and supervising them accordingly

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## ABBREVIATION

CDC:-center for diseases control and prevention

HBV:-hepatitis b virus

HCAI: - health care associated infection

HIV: - Human immune deficiency syndrome virus

HO:-health-officers

ICP: - Infection control program

ICSP: - infection control and surveillance program

ICU: - intensive care unit

IFIC: - International federation for infection control



JUSH-- Jimma University specialized Hospital

M.LAB:-Medical laboratory

MOH: - ministry of health

OPIM:-other potentially infectious materials

OSHA: - occupational safety and health administration

PPE: - Personal protective equipment

SENIC: - Study on the efficacy of nosocomial infection control

SPR – student research program

UK- united Kingdom

USA- United state of America

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Back ground

Infection control is the discipline which concerned with preventing nosocomial or health care associated infection, a practical (rather than academic) sub-discipline of epidemiology. 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 microorganisms, all people receiving health and medical care, whether in a hospital or any other clinic are at risk of becoming infected. Infection control measures are most effective when standard precaution (healthcare) are applied, because, undiagnosed infection is common.

Nosocomial (Hospital-acquired infections) are the significant problem through out the world and are increasing too. 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 view of the serious consequences, 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 (3).

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 (4).

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 setting( 5, 6).

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 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 managements of inpatients and out patients in different hospitals are other possible contributing factors for the decline of cross- infection prevalence in those countries. In contrary 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 raising. The reasons for this increasing are complex, but may be ascribed, negligence of health workers during patients 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 promotion have not been implemented(7)

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 (8).

In 1968, Spaulding, proposed three categories of potential Infection risk to serve as the basis for selecting the prevention practice or processes to use sterilization of medical instruments like gloves and other items, when caring for patients. This causation has used the test of time and still serves a good basis for setting priorities for any infection prevention program (9).

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 staphylococci, 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. (10).

Actually, about 10% of hospital inpatients has 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 early 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 (12).

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

Furthermore the blood borne diseases such as hepatitis "B" and "C" with HIV and other pathogenic microorganism like cytomegalovirus, herpes simples viruses (1&) micro bacterium tuberculosis, staphylococcus streptococcus and other viruses and bacteria's colonize and infect the oral cavity and respiratory tract. These microorganisms 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 carriers are not identified (14).

The study conducted in Ethiopia Addis Ababa from 1006 patients admitted in Tikuer Ambesa Hospital between April 1983 and January 1984 tells us, nosocomial infection were detect in 165 (16.4%) patients.

Among these with infection was (16.4% patients among these without infection was (59%) Approximately 90% of the nosocomial pathoge 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 of 47% Over 80% of the bacterial isolates were gram negative bacteria and the majority of which were multiple resistant to the commonly used anti-microbial drugs (9,15).

Significance of the study

- Hospital and other health care facilities acquired infection remains an important problem to date.

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 been done in developing countries like Ethiopia. Improperly processed surgical instruments are one of the major categories that results for the transmission of wide range of infectious diseases. As a result it is necessary to do research on this area.

This research will determine the infection control practice and also provide base line information for planning future research on this area.

The results will be of significant to health planners and local policy makers to consider implication of improper infection control practice on health workers and community at large.

## 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 fulfill this availability of clean ,necessary sterile equipment's,



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 B and C 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).

For the hospitals and health care services their must 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 (2).

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 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.

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 (17).

From the study population of 6586 hospitals, the samples for phase 2, the Hospital interview survey, and phase 3, the medical record survey were selected. These hospital were stratified according to number of beds and medical school offices 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 (5). 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 3 involved 169,518 patients in 1970 and 169,526 patients in 1975-1976. The CDC employed and managed medical record analysts who reviewed each record for specific demographic and clinical data relating to nosocomial urinary tract, surgical wounds, and pneumonia or bacteremia 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 (18).

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 (19)

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(20).

Developing valid and "ideal" ICSP, models that can be applied by ICP, has been undertaken in several countries and regions. For example 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 equivalent (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 (21).

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 beds, (5).

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" recognize for the first time that support of senior administration and appropriate local infrastructure and systems were critical in improving the behaviors of clinical staff (22).

The guide lines 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 steward ship participation in development of tender documents supporting and participating in research and reviewing and assessing infection risks associated with new equipment and devices (5,6,23).

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 needle 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 (24).

The 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, Taiwan. China, south Korea and the united states of American (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 professionals practitioners (14).

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 (7). 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 recommended 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 (15).

## CHAPTER THREE

### 3. OBJECTIVES

#### 3.1 General objectives

- ② To determine infection control practice by health workers in Jimma University specialized hospital.

#### 3.2 specific objectives

- ② To determine infection control practice performed by health workers

- ☐ To determine proper use of PPE by health workers
- ☐ To determine decontamination methods used by health workers
- ☐ To determine whether any standard infection control is available or not.
- ☐ To determine level of personal hygiene among health workers
- ☐ To determine whether staff training on infection control is given or not.
- ☐ To determine sterilization methods used by health workers
- ☐ To determine precaution taken before, during and after patient examination and sterilization.

## CHAPTER FOUR

### 4. Methodology

#### 4.1 Study area and period

##### 4.1.1 Study area

The study was conducted at Jimma University specialized Hospital which is located in the Jimma town 352 km southwest of Addis Ababa. It was established in 1930 EC by Italian invaders for the service of

their soldier. Currently it became the only teaching referral hospital in south western part of the country. It provides services for approximately 9000 inpatient and 80,000 outpatient attendances a year coming to hospital from the catchment population of about 15000 million people.

#### 4.1.2 Study period

The study was conducted from April 7 to April 21 2013 G.C

#### 4.2 study design

Cross-sectional study design was implemented by using self-reported questionnaires.

#### 4.3 population

##### 4.3.1. Source population

- All health workers in JUSH.

##### 4.3.2. Study population

All health care workers in JUSH who were presented during data collection period.

#### 4.4 Sample size and sampling technique

Convenience sampling method was used. All health care workers who were found at the time of data collection were used as a sample size.

#### 4.5 Variables

##### 4.5.1 Independent variables

☐ Sex

☐ Age

☐ Profession

☐ Monthly income

☐ Year of service

#### 4.5.2 Dependent variables

☐ Sterilization methods

☐ Disinfection methods

☐ Personal hygiene

☐ Precautions taken during patient examination.

☐ Time at which instrument sterilize

#### 4.6 Data collection technique

Self-reported questions consisting of sterilization methods, personal hygiene, disinfection methods and personal demography like sex, age, profession and year of experience was included and distributed for respondents.

#### 4.7 Ethical consideration

An official letter was written from Jimma University SRP which describes the objectives of study to JUSH for permission and support during data collection. The significance of the study was clearly informed to respondents and the sample was collected from those who were voluntary. The information obtained from them was kept confidential.

#### 4.8 Data quality control

To ensure the validity and completeness of the data, the structured questionnaire was tested by advisors before data collection. The principal investigator was responsible for supervision during each day data collection to insure the quality of the data by checking filled questionnaire for their completeness and consistency and the obtained data was kept for analysis.

#### 4.9 Data analysis and interpretation



Before analyzing the collected data, responses were arranged according to their contents and purposes of the study. Respondents were grouped according to their sex, age, profession and year of experiences. Finally, the data was analyzed descriptively depending on the quality and quantity of data.

Chi-square test was performed and P-value was considered insignificant to consider association. P-Value <0.05 was considered as showing significant association using online contingency table by internet.

#### 4.10 Dissemination of result

The result of the study was disseminated to department of dentistry and CBE through hard copies.

#### 4.11 Limitation of the study

- some respondents don't give direct answer to the question.
- inadequate references regarding infection control practice.
- inadequate computer availability.

#### 4.11 OPERATIONAL DEFINITION

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

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

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

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

Germicide- An agent that destroys microorganism especially pathogenic microorganisms.

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

HO-health officer

M.lab-medical laboratory.

Nonsocial infection- Hospital acquired infections

Standard infection control – is a means to reduce the risk of transmission of blood born and other pathogens from both recognized and unrecognized source.

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

Surveillance:- act of infection investigation using CDC definition

## Chapter 5

### RESULTS

#### 5.1. Socio-demographic results

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

Professions of the

Profession	Number of respondents in each profession					
	male		Female		Total number	
	NO	%	NO	%	NO	%
Doctors	25	83.3	5	16.7	30	25
Health officers	12	70.6	5	29.4	17	14.2
Nurses	15	35.7	27	64.2	42	35
Midwifery	3	42.8	4	57.1	7	5.8
Medical laboratory	15	88.2	2	11.8	17	14.2
Anesthesia	5	71.4	2	28.6	7	5.8
Total	75	62.5	45	37.5	120	100

Table 1. Shows 42 (35%) of the total respondents were nurses, of which 15 (35.7%) were males and 27 (64.2%) were females, 30 (25%) of the total respondents were doctors with 25 (83.3%) and 5 (16.7%) of them were males and females respectively. Health officer and Medical laboratory each of them accounts 17 (14.2%) of the total respondents; of which 12 (70.6%) males and 5 (29.4%) females of HO and 15 (88.2%) males and 2 (11.2%) females of medical laboratory. Similarly, 7 (5.8%) of total respondents were anesthesia and midwifery respectively. 5 (71.4%) of the anesthesia were males and 2 (28.6%) of them were females. 3 (42.8%) and 4 (57.1%) of the midwifery were males and females respectively. Totally, 75 (62.5%) of the total respondents were males and 45 (37.5%) were females. Most of the females were nurses 27 (22.5%), doctors and health officers 5 (4.2%) respectively of the total number of the respondents in the hospital.

Table 2 Number of health workers by their age, Monthly income and year of their service in Jimma university specialized hospital, May, 15 to 25, 2013

S.No. Characteristics

		Of respondents						
(variables)		Number of respondents with their sex						
		Male		Female		Total		
		No	%	No	%	No	%	
1	Age(in year)	<20	0	0	0	0	0	
		20-29	33	52.4	30	47.6	63	
		30-39	25	71.4	10	28.6	35	
		40-49	10	71.4	4	28.6	14	
		>50	7	87.5	1	12.5	8	
		Total	75	62.5	45	37.5	120	
2	Monthly income(birr)	<1000	0	0	0	0	0	
		1000-2000	20	41.6	28	58.3	48	
		2001-3001	30	75	10	25	40	
		>3001	25	78.1	7	21.8	32	
		Total	75	62.5	45	37.5	120	
3	Year of service	0-2	16	53.3	14	46.6	30	
		2-5	35	77.8	10	22.2	45	
		5-10	20	52.6	18	47.4	38	
		>10	4	57.1	3	42.8	7	
		Total	75	62.5	45	37.5	120	

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

The age of most respondents range from 20-29 years which were 63(52.5%) of the total respondents,Of which 33(52.4%) and 30(47.6%) were males and females respectively.35(29.2%) of the total respondents were in the age group of 30-39 years with 25(71.4%) males and 10(28.6%) were females. Out of the age

group between 40-49 which were 14(11.6%) Of the total respondents 10(71.4%) males and 4(28.6%) were females. A few of the respondents were in the age group of >50 years with 8(6.6%) of the total respondents of them 7(87.5%) and 1(12.5%) were males and females respectively. There were no respondents <20 years of age.

Concerning income classification of respondents most of them had income between 1000-2000 and 2001-3000 birr per month ,which accounts about 48(40%) and 40(33.3%) respectively. The other respondents 32(26.6%) have had income>3001 birr per month. There were no respondents who were earn income <1000 birr per month.

Concerning year of service, most of the total respondents 45(37.5%) had between 2-5 years of service,35(77.8)and10(22.2%) were males and females respectively.38(31.6%) of the total respondents have had between 5-10 years of survices,20(52.6%)and18( 47.4%)were males and females respectively. The others respondents 30(25%) and 7(5.8%) have been working between 0-2 and >10 years respectively.

Table3.Responses of health care workers on basic infection control methods, jimma university specialized hospital,2013.

S.

No.	Questions on infection control method		Respos		Total	Sex
	Es	Number of respondents with their profession and sex	Doctors	Health		
	Officer	Nurses	Midwifery	Medical lab	Anesthesia	
						M F

	No	%	No	%	No	%	No	%	No	%	No	%
1	23.8	5	71.4	7	41.2	4	57.1	43	35.8	20	26.6	23
	51.1											
	No	20	66.6	10	58.8	32	76.2	2	28.6	10	58.8	
		3	42.8	77	64.2	55	73.3	22	48.8			
2	0	0	0	0	3	43	13	11	10	13.3	3	7
Chart	0	0	3	18	0	0	0	0	5	29.4	0	0
			8	7	6	8	2	4.4				
	Written	0	0	4	24	10	24	5	71	2	12	
		1	14.2	22	18.3	4	5.3	18	40			
	Verbal	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0			
3	Staff training programm on infection control procedure Yes											
	0	0	0	0	22	52.4	5	71.4	10	59	0	0
			37	30.8	20	27	17	38				
	No	30	100	17	100	20	48	2	29	7	41	
		7	100	83	69.2	55	73	28	62			
4	32	76.2	7	100	15	88.2	7	100	20	67	10	59
					40	89			91	76	51	68
	No	10	33.3	7	41.2	10	24	0	0	2	12	
		0	0	29	24	24	32	5	11			
5	100	42	100	7	100	17	100	7	100	30	100	17
					100	45	100		120	100	100	75
	No	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0			

6	Washing hands before patients examination						Yes	12	40	8	47.1	12				
	28.6	7	100	0	0	4	57.1	43	35.8	16	21.3	27				
60																
	No						18	60	9	53	30	71.4	0	0	17	100
			3	43	77	64.2	59	78.6	18	40						
7	Washing hands after patient examination						Yes	30	100	17	100	42				
	100	7	100	17	100	7	100	120	100	75	100	45				
100																
	No						0	0	0	0	0	0	0			
			0	0	0	0	0	0	0	0	0	0				
8	Wearing face mask during procedure						Yes	15	50	12	70.6	12	28.6			
	7	100	0	0	0	0	46	38.3	30	40	16	35.6				
	No						15	50	5	29.4	30	71.4	0	0	17	100
			7	100	74	61.6	45	60	29	64.4						
9	Wearing glove during patient examination						Yes	20	66.6	5	29.4	42				
	100	7	100	17	100	7	100	98	81.6	56	74.6	42				
93.3																
	No						10	33.3	12	70.6	0	0	0			
			0	0	22	18.3	19	25.3	3	6.7						
10	Wearing goggles during patient examination/procedure						Yes	12	40	0	0	0				
	0	0	0	0	0	0	0	0	12	10	9	12				
3 6.7																
	No						18	60	17	100	42	100	7	100	17	100
			7	100	108	90	66	88	42	93.3						
11	Changing gloves between patients						Yes	30	100	17	100	42	100			
	7	100	0	0	7	100	103	85.8	60	80	43	95.6				
	No						0	0	0	0	0	0	17	100		
			0	0	17	14.2	15	20	2	4.4						
12	Scrubbing hands with soap before gloving						Yes	25	83.3	4	23.5	32				
	76.2	7	100	0	0	4	57.1	72	60	45	60	27				
60																
	No						5	16.6	13	76.4	10	23.8	0	0	17	100
			3	42.8	48	40	30	40	18	40						

13	Washing hands using alcohol before and after patient examination								Yes	20	66.6							
	7	41.2	22	52.4	7	100	5	29.4	7	100	68	56.6						
					39	52	29	64.4										
	No								10	33.3	10	58.8	20	47.6	0	0	12	70.6
					0	0	52	43.3	36	48	16	35.6						
14	Disinfecting the surface in the operating room between patients								Yes	25	83.3	2						
	11.8	32	76.2	7	100	0	0	7	100	73	60.8	41						
					54.6	32	71.1											
	No								5	16.6	15	88.2	10	23.8	0	0	17	100
					0	0	47	39.2	34	45.3	13	28.8						
15	Using antiseptic for skin preparation				Yes	30	100	15	88.2	42	100							
	4	57.1	0	0	7	100	98	81,6	60	80	38	84.4						
	No								0	0	2	11.8	0	0	3	42.8	17	100
					0	0	22	18.3	15	20	7	15.6						
16	Reusing gloves that are washed				Yes	0	0	0	0	0	0	0						
	0	0	0	0	0	0	0	0	0	0	0	0						
	No								30	100	17	100	42	100	7	100	17	100
					7	100	120	100	75	62.5	45	37.5						
17	Facing injury from surgical instruments				Yes	10	33.3	2	11.8	15	35.7							
	1	14.2	2	11.8	0	0	30	25	24	32	6	13.3						
	No								20	66.6	15	88.2	27	64.2	6	85.7	15	88.2
					7	100	90	75	51	68	39	86.6						
18	Wearing gown appropriately during patient examination								Yes	30	100	17						
	100	42	100	7	100	17	100	7	100	120	100	75						
					62.5	45	37.5											
	No								0	0	0	0	0	0	0	0	0	0
					0	0	0	0	0	0	0	0						
19	Reuse gloves that are unwashed				Yes	0	0	0	0	0	0							
	0	0	0	0	0	0	0	0	0	0	0	0						
	No								30	100	17	100	42	100	7	100	17	100
					7	100	120	100	75	62.5	45	37.5						



Table 3. shows basic infection control method performed by respondents. According to the table, 77 (64.2%) of total respondents said that there was no any standard infection control guidelines with 55 (73.3%) and 22 (48.8%) were males and females respectively, which included doctors 20 (66.6%), HO 10 (58.8%), Nurse 32 (76.2%), mw 2 (28.6%), M. lab 10 (58.8%) and Anesthesia 3 (42.8%) while, 43 (35.8%) of the total respondents said that there is infection control guideline with 20 (26.6%) were males and 23 (51.1%) were females, which, included Doctors 10 (33.3%), HO 7 (41.2%), Nurses 10 (23.8%), M. wifery 5 (71.4%) and Anesthesia 4 (57.1%), written form 22 (18%) is the most common followed by manual 13 (11%) and chart 8 (7%) respectively.

83 (69.2%) of the total respondents were said that there was no staff training program on infection control procedure of which were Doctors 30 (100%), HO 17 (100%), Nurses 20 (48%), Midwifery 2 (29%) M. laboratory 7 (41%) and Anesthesia 7 (100%) while, 37 (30.8%) of total respondents were said that there was training program.

About 91 (76%) of the total respondents were rub their hands vigorously with antiseptic before aseptic procedure with 51 (68%) and 40 (89%) Males and Females respectively, which included Doctors 20 (27%), HO 10 (59%), Nurses 32 (76.2%) Midwifery 7 (100%), M. laboratory 15 (88.2%) and Anesthesia 7 (100%) while, 29 (24%) of total respondents were not, with 24 (32%) and 5 (11%) were males and females respectively.

All of 120 (100%) of respondents prepare surgical site from centre outward with antiseptic which were included Doctors 30 (100%), HO 17 (100%), Nurses 42 (100%), Midwifery 7 (100%), M. laboratory 17 (100%) and Anesthesia 7 (100%). About 77 (64.2%) of total respondents were not wash their hands before patient examination with 59 (78.6%) and 18 (40%) were males and females respectively, which included Doctors 18 (60%), HO 9 (53%), Nurses 30 (71.4%), Midwifery 0 (0%), M. laboratory 17 (100%) and Anesthesia 3 (43%) while, 43 (35.8%) of the total respondents were did with 16 (21.3%) and 27 (60%) were males and females respectively. All of 120 (100%) the respondents were wash their hands after patients examination which included Doctors 30 (100%), HO 17 (100%), Nurses 42 (100%), Midwifery 7 (100%), M. laboratory 17 (100%) and Anesthesia 7 (100%).

About 74 (61.6%) of the total respondents were not wear facemask during the procedure with 45 (60%) and 29 (64.4%) were males and females respectively, which included Doctors 15 (50%), HO 5 (29.4%), Nurses 30 (71.4%), M. laboratory 17 (100%) and Anesthesia 7 (100%) while, 46 (38.3%) of

the total respondents were did with 30(40%) and 16(35.6%) were males and females respectively, which included Doctors15(50%), Ho12(70.6%) Nurses12(28.6%) and Midwifery7(100%).

About 98(81.6%) Of the total respondents wear gloves during patient examination with 56(74.6%) and 42(93.3%) were males and females respectively, which included Doctors20(66.6%), Ho5(29.4%), Nurses42(100%), Midwifery7(100%), M.laboratory17(100%) and Anesthesia7(100%) while 22(18.3%) of the total respondents were not, with 19(25.3%) and 3(6.7%) were males and females respectively, which included Doctors10(33.3%) and Ho12(70.6%).

On the other hand about 108(90%) of the total respondents were not wear goggles during patient examination with 66(88%) and 42(93.3%) were males and females respectively,only,12(10%) of the total respondents were did, with 9(12%) and3(6.7%) were males and females respectively which included Doctors12(40%) only. Totally 103(85.5%) Of the total respondents were changed gloves between patients while17(14.2%) of the respondents had not.Generally,60(80%) males and 43(95.6%) females were changed their gloves between patients while15(20%) and 2(4.4%) males and females respectively had not. About 72(60%) of the total respondents were washed their hands before gloving with 45(60%) and 27(60%) males and females respectively, which included Doctor 25(83.3%), Ho4(23.5%), Nurse32(76.2%) Midwifery7(100%) and Anesthesia 4(57.1%),while,48(40%) Of the total respondents were not washed their hands before gloving with 30(40%) and 18(40%) were males and females respectively,which,included Doctors5(16.6%), Ho13(76.4%), Nurses10(23.8%), M.lab17(100%)and Anesthesia3(42.8%).

About 68(56.6%) of the total respondents were scrubbed their hands with soap before gloving of which 39(52%) and 29(64.4%) were males and females respectively, which, included Doctor20(66.6%), Ho7(41.2%), Nurses22(52.4%), Midwifery7(100%), M.laboratory5(29.4%) and Anesthesia7(100%), while,52(43.3%) Of the total respondents with 36948%) and 16(35.6%) males and females respectively were not,which,included Doctors10(33.3%),Ho10(58.8%), Nurse20(47.6%) and M.laboratory12(70.6%) .

Similarly, about 73(60.8%) of the total respondents were washed their hands using alcohol before and after patient examination of them 41(54.6%) males and 32(71.1%) were females which included Doctors25(83.3%), Ho2(11.8%), Nurses32(76.2%), Midwifery7(100%) and Anesthesia7(100%),while,47(39.2%) of the total respondents were not, with 34(45.3%) and 13(28,8%) were males and females respectively, which included Doctors5(16.6%), Ho15(88.2%), Nurses10(23.8%)and M.laboratory17(100%).About 98(81.6%) of the total respondents were scrubbed their hands with disinfectants before gloving ,of them60(80%) and 38(84.4%) were males and females respectively which included Doctors30(100%), Ho15(88.2%), Nurses42(100%) M idwifery4(57.1%)and Anesthesia7(100%) while ,only,22(18.3%) of the total respondents had not with 15(20%) and 7(15.6%) were males and females respectively.

All of the respondents 120(100%) were disinfected the surface in the operating room between patients which included Doctors, Ho, Nurses, Midwifery, M.laboratory and Anesthesia each of them were 100%. All of the respondents 120(100%) Of them were not reused the washed and unwashed gloves, which included Doctors, Ho, Nurses, Midwifery, M.lab and Anesthesia with each of them 100%.

About 90(75%) of the total respondents were not faced injury from surgical instruments which of them were 51(68%) and 39(86.6%) males and females respectively, which, included Doctors 20(66.6), Ho 15(88.2), nurse 27(64.2%), Midwifery 6(85.7%), M.laboratory 15(88.2%) and Anesthesia 7(100%), while, 30(25%) Of the total respondents were faced injury from surgical instruments with 24(32%) and 6(13.3%) were males and females respectively, which included Doctors 10(33.3%), Ho 2(11.8%), Nurses 15(35.7%), Midwifery 1(14.2%) and M.laboratory 2(11.8%).

Table 4. precaution taken before, during and after patient examination by healthcare worker in Jimma university specialized hospital, 2013

s.no.	Precaution taken by respondents	Positive responses of respondents with their profession and sex											
		Doctors HO		Nurse		Midwifery		Med lab		Anesthesia		Total	Sex
		NO	%	NO	%	NO	%	NO	%	NO	%	M	F
1	Wearing properly white gown	17	100	7	100	120	100	75	62.5	45	37.5	7	100
2	Washing gown timely	100	7	100	120	100	75	100	45	37.5	7	100	17
3	Wearing gloves during patient examination	7	100	17	100	7	100	98	81.6	56	74.6	42	100
4	Washing hands before and after gloving	25	83.3	12	71.4	87	72.5	57	76	30	71.4	6	67
5	Changing gloves between examination	100	0	0	7	100	103	85.8	60	80	43	100	7

6	Disinfecting the surfaces in the operator room between patients	25	83.3	2	11.8
		32	76.2	7	100
		0	0	0	7
		100	73	60.8	41
		32	71.1		54.6
7	Wearing a protective face shield during operation	15	50	12	70.6
		28.6	7	100	0
		0	0	0	0
		46	38.3	30	40
					16
					35.6
8	Sterilizing instruments before use	30	100	17	100
		100	17	100	7
		100	120	100	75
					62.5
					45
					37.5
9	Washing hands before patients examination	12	40	8	47.1
		7	100	0	0
		4	57.1	43	35.8
					16
					21.3
					27
					60
10	Washing hands using alcohol before and after patient examination	20	66.6	7	
		41.2	22	52.4	7
		100	5	29.4	7
		100	68	56.6	39
		52	29	64.4	

X<sup>2</sup>-83

df-35

p-value-0.000

Table 4. Shows precaution taken by respondents before, during and after patient examination and treatment. According to the table all of the respondents 120(100%) were worn their white gown properly, washed gown timely and sterilized instruments before they used which included Doctors ,Ho, Nurses, Midwifery, M.lab and Anesthesia. In a similar way all of the respondents except M.lab were changed their gloves between patient examination which included Doctors, Ho, Nurses, Midwifery, and Anesthesia.

About 98(81.6%) of the respondents were worn the gloves during patient examination of them 56(74.6%) were males and 42(93.3%) were females, which included Doctors 20(66.6%), Ho 5(29.4%), Nurses 42(100%), Midwifery 7(100%), M.lab 17(100%) and Anesthesia 7(100%). On the other hand 87(72.5%) of the total respondents were washed their hands before and after gloving, 57(76%) and 30(67%) of them were males and females respectively, which included Doctors 25(83.3%), Ho 12(71%), Nurses 30(71.4%), Midwifery 6(86%), M.lab 9(53%) and Anesthesia 5(71.4%). About 73(60.8%) of the total respondents were disinfected the surfaces in the operator room between patients with 41(54.6%) and 32(71.1%) of them were males and females respectively, which included Doctors 25(83.3%), Ho 2(11.8%), Nurses 32(76.2%), Midwifery 7(100%) and Anesthesia 7(100%). Only 46(38.3%) of the total respondents were worn a protective face shield during



Table 5. Shows method of sterilization performed by respondents. According to the table 107(89%) of the total respondents had sterilized instruments before, out of them 72(60%) used Autoclave as sterilizing technique with Doctors 18(60%),Ho 5(29.4%),Nurses 35(83.3%),Midwifery 3(43%),M.lab 8(47%) and Anesthesia 3(43%).Similarly,14(12%) of them used dry heat as sterilizing technique with Doctors 5(17%),Ho 3(17.6%),Nurses 2(4.8%),Midwifery 2(29%),M.lab2(11.8%) and Anesthesia 1(6%).Among respondents who had sterilized instruments before 12(10%) of them used chemical vapor as sterilized technique with Doctors 2(6.6%),Ho 2(11.8%),Nurses 3(7.1%), Midwifery 1(14.2%) ,M.lab 2(11.8%) and Anesthesia 2(29%),while, 9(7.5%) of them used combination of any and neither of them had used irradiation as sterilized technique before. It is not statistically significant since  $p=0.472$  which is  $p>0.05$ .

Table 6.precuation taken before and after sterilization by respondents in Jimma university specialized hospital,2013.G.C.

Precaution taken													
Before and after													
Sterilization		Positive responses of respondents with their profession											
Doctors		Ho		Nurses		Midwifery		M.lab		Anesthesia		Total	p-value
No	%	No	%	No	%	No	%	No	%	No	%	No	%

X<sup>2</sup>-6.68

df-35

p-value-1.000										
Washing instruments with scrub brush before sterilization	27	90	10	58.8	42					
	100	7	100	10	58.8	7	100	103	85.8	
Immersing instruments in antiseptic before sterilization	26	87	9	53	40	95.2				
	4	57	9	53	5	71.4	93	77.5		
Disinfecting equipment before sterilization	27	90	10	58.8	42	100	7			
	100	10	58.8	7	100	103	85.8			
Warping or packing instruments before autoclave	26	87	11	64.7	40	95.2				
	7	100	9	53	6	86	99	82.5		
Using sterilized										
Instruments within the session	27	90	11	64.7	35	83.3	5	71.4	11	
		65	5	71.4	94					
				78.3						
Changing water in filter after sterilization	20	67	9	53	40	95.2	4			
	57	10	58.8	4	57	87	72.5			
Disinfecting instruments that can't be sterilized	25	83.3	10	58.8	35	83.3	5			
	71.4	12	71	3	42.8	90	75			
Taking any training about sterilization technique	15	50	7	41.2	28	67	4			
	57	7	41.2	3	42.8	64	53.3			

Table 6. Shows precaution taken before and after sterilization by respondents. According to the table 103(85.8%) of the total respondents who had sterilized instruments, washed instruments with scrub brush before sterilization, while, 93(77.5%) of the respondents had immersed instruments in antiseptic before sterilization.

In similar way 103(85.8%) of the respondents had disinfected equipment before sterilization while,99(82.5%) of the respondents had warped or packed instruments before autoclave.

On the other hand 94(78.3%) of the respondents had used sterilized instruments within session,similarly,87(72.5%) of the respondents had changed water in filter after sterilization.

About 90(75%) of the respondents had disinfected instruments that can't be sterilized, while, 64(53.3%) of them had taken any training about sterilization technique. It is not statistically significant since  $p > 0.05$ .

## CHAPTER- SIX

### 6.0. Discussion

This study showed poor on some infection control mechanisms and good on other mechanisms (according to standard isolation precautions).

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 undertaken by B.D.O sahib 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 35.8% and 100% of respondents had washed their hands before and after patients examination respectively. Washing hands before examination is poor with relative to literature, this is because of 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, 100% of respondents in this study wear gowns before examine patients. Similarly 81.6% 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 of patients which was less than the present study. The result also shows, 10%, 60% and 38.8% 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.



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 University 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 chemical vapor were used. Small number of respondents under study used combination of any method of sterilization while no respondents used irradiation method (21,26). This may be due to irradiation method not available in the hospitals and chemical vapor sterilization not effective as others sterilization methods.

Generally, 89% of respondents had sterilized instruments before use which is less than 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 under studied recognized the importance of cross infection control theoretically, they have not changed it into practice accordingly. So still most of the health care workers in Jimma university specialized Hospital are at high risk of infection exposure, particularly nurses, m.lab & midwifery are exposed for different infection. This may be due to carelessness and low awareness. 100% of health care workers taken as sample size at

Jimma university specialized hospital were accepted infection control practice theoretically but they didn't change it in to practice accordingly. Most of the health care workers in Jimma University specialized Hospital used personal protective equipments very well. The most common sterilization methods in the hospital was autoclave. Sterilization was the most effective methods to control infection transmission in relation to others methods like decontamination and disinfection.

#### 7.2. Recommendation:-

- 1 Staff training program on infection control practice should be given regularly and supervising them accordingly.
- 2 Supplying the facilities that allow compliance with infection control practices.
- 3 I also like to recommend Jimma university specialized 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 in Jimma university specialized hospital should change their practice toward infection control.
- 5 Lastly, few studies done on this topic and I invite researchers to do further study on it.

#### ANNEX I

##### References

- 1 Center for Disease Control: Guidelines for prevention of transmission of HIV and HBV to health-care and public safety workers. MMWR, 1985;34:561
2. Guide lines for infection in dental health care setting 2003, by William Gkhear DDs and Dolores M.malvitat, Dr,ZP.H
- 3 OSHA. Final standard for occupational exposure to bloodborne pathogens: December 6, 1991. 29 CFR 1910;1030
- 4 Goudeau A. Epidemiology and eradication strategy for hepatitis B in Europe. Vaccine, 1990;8(Suppl):S113-S16;discussion, S134-S38.
- 5 Ate health quality and continuity branch department of human services 2000
- 6 National Health and Medical research council and Australian National council on AIDS.Infection control in the healthcare setting.1996

- 7 Alvarado oJ,The science of hand hygiene as elf study monograph, university of Wisconsin medical school and sic- health communication:, march;2000.
- 8 Centers for disease control (ACIP) protection against viral hepatitis mmwR. 39 (RR-2) : 1-26,1990
- 9 Godeboun, habte G.Kron vall Hospital acquired infection among obstetric and gynecology patients .  
Abstract No PM (0) 205130
- 10 Bra2 J infect Dis Vol:15 no.1 salvador Jan/Feb.2011.
- 11 Infection control practice among dental professional in shiraf.dentistry school, Iram, by Mehrdal Askarin MD, MPH ojar Assadian MD,)
- 12 G.L Ridgway and others impluication of European directive ormedical devices lancet, Vol 1351. No 9119 page 1831-1832
- 13 [www.Complab nymc, edc/curriculum/can prev, med/nosocomias infections htm](http://www.Complab nymc, edc/curriculum/can prev, med/nosocomias infections htm),
- 14 Gamers and the hospital advisory committee (HICPAC) 1996
- 15 Effectiveness of infection control techniques on surgical instrument on Jimma University specialized Hospital, in 2004 by Tesfaye Demle.
- 16 Sample infection control assessment survey data formeight counties reghunath put faith, Tay D.shuman
- 17 Garner GS, Guideline for isolation precuation in hospitals. the hospital infection control practice , advisor commite; 1996 :17;53-80
- 18 Garner GS ,Favero . infection control: CDC Guideline for hand weshing and hospital environmental control.MS 1986; 7:231-243.
- 19 Philpott,Howard GN, hospital infection control. policies and practical procedures. london,sauders : casewell MM ;199
- 20 Cross infection control methods adopted by medical and dental practitioners in Benin city Nigeria  
B.D.O sahib e offer of kooki
- 21 World Health organization.Practical Guidelines for infection control in Healthcare.No41.New Delhi:WPRO Regional publication;,2004.
- 22 Young JG ReichertM.Sterilization Technology f0r theHealthcare Facility.2ndedn.NewYork,USA:Aspenpublisher;1997.
- 23 Doctor HV D ahiruT.Utilization of non skilledattendents in northern Nigeria.Arough terrian to the health relatedMDGS.Afr JReprod Health 2010;14-21.

24 Jantarsi separating et al 2005 kananitay a senate teals 2005 Lela chittreecheur et al 2005

25 Pittet D, Allegranzi B, Storr J, et al. Infectious control  
as a major world health organization priority for developing countries. J Hosp Infect 2008;68:285-92.

26 Effectiveness of infection control techniques on surgical instrument on Jimma University specialized  
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27 Phipps W. 2002 . Risk of medical sharps injuries among Chinese nurses. AMJ. Infect control 30(5) :  
277-282.

28 Dare Fo, Bako AU, Ezechi oc. Puerperal sepsis: a preventable  
postpartum complication. Trop Doct 1998;28:92-5

29 OSHA. Final standard for occupational exposure to blood borne pathogens : December 6, 1991. 29  
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30 Center for disease control Guidelines for prevention of transmission of HIV and HBV to health  
care and public self by workers mmWR 1985-34: 561

## Questionnaire

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 JUSH.

### Part 1 Demography

1. Age \_\_\_\_\_ 2 .Sex: Male Female
3. Profession: Doctor Health officer Midwifery Nurses Lab technician  
Anesthetist Cleaners
4. Monthly income:<1000 , 1000-2000 2001-3000 >3001
5. Year of service:0.2 2-5 5-10 > 10

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

### Part II Questions for basic infection control methods

1. Is there any standard infection control guidelines ?Yes No
2. If yes ,to no. one, in what form it is available?  
Book/manual Chart Written Verbal
3. Is there staff training program on infection control procedure?  
Yes No
4. Do you vigorously rub your hands with antiseptic before aseptic procedure? Yes No
5. Do you prepare surgical sites from center outward with antiseptic? Yes No
6. Do you wash hands before patients' examination? Yes No
7. Do you wash hands after patients' examination? Yes No

8. Do you wear face mask during the procedure? Yes No
9. Do you wear glove during patients' examination? Yes No
10. Do you wear goggles during patients' examination? Yes No
11. Do you change gloves between patients? Yes No
12. Do you wash hands before gloving? Yes No
13. Do you scrub hands with soap before gloving? Yes No
14. Do you wash your hands using alcohol before and after patient examination? Yes No
15. Do you scrub hands with disinfectants before gloving? Yes No
16. Do you disinfect the surface in the operating b/n patient? Yes No
17. Do you use antiseptic for skin preparation? Yes No
18. Do you reuse gloves that are washed? Yes No
19. Do you reuse gloves that are unwashed? Yes No
20. Did you face injury from surgical instrument? Yes No
21. Do you wear your gown appropriately during patient examination? yes No
22. Do you routinely wash your hand before and after procedure? yes

no

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

1. Have you ever sterilized instruments before? Yes No
2. If yes, which type of sterilization methods do you use? Autoclave dry heat  
Irradiation chemical vapor
3. Do you wash instruments with scrub brush before sterilization? Yes No
4. Do you Disinfect equipment before sterilization? Yes No
5. Do you warp or pack instruments before autoclave? Yes No
6. Do you disinfect instrument that can't 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? Yes No

THANK YOU





## ANNEX I

### References

1 Center for Disease Control: Guidelines for prevention of transmission of HIV and HBV to health-care and public safety workers. MMWR, 1985;34:561

2. Guide lines for infection in dental health care setting 2003, by William Gkhear DDs and Dolores M.malvitat, Dr,ZP.H

3 OSHA. Final standard for occupational exposure to bloodborne pathogens: December 6, 1991. 29 CFR 1910;1030

4 Goudeau A. Epidemiology and eradication strategy for hepatitis B in Europe. Vaccine, 1990;8(Suppl):S113-S16;discussion, S134-S38.

5 Ate health quality and continuity branch department of human services 2000

6 National Health and Medical research council and Australian National council on AIDS.Infection control in the healthcare setting.1996

7 Alvarado oJ,The science of hand hygiene as elf study monograph, university of Wisconsin medical school and sic- health communication:, march;2000.

8 Centers for disease control (ACIP) protection against viral hepatitis mmwr. 39 (RR-2) : 1-26,1990

9 Godeboun, habte G.Kron vall Hospital acquired infection among obstetric and gynecology patients . Abstract No PM (0) 205130

- 10 Bra2 J infect Dis Vol:15 no.1 salvador Jan/Feb.2011.
- 11 Infection control practice among dental professional in shiraf.dentistry school, Iram, by Mehrdal Askarin MD, MPH ojar Assadian MD,)
- 12 G.L Ridgway and others impluication of European directive ormedical devices lancet, Vol 1351. No 9119 page 1831-1832
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