PREVENTIVE MEASURES AGAINST HOSPITAL - ACQUIRED INFECTIONS : AWARENESS AND COMPLIANCE BY HEALTH CARE DELIVERY STAFF WITH SPECIAL EMPHASIS ON AIDS

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Dissertation submitted in partial fulfilment of the requirements for the award of the degree of Master of Public Health

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Sree Chitra Tirunal Institute for Medical Sciences and Technology

Thiruvananthapuram, Kerala, India.

1999.

CERTIFICATE

This is to certify that the dissertation titled, **PREVENTIVE MEASURES AGAINST HOSPITAL - ACQUIRED INFECTIONS: AWARENESS AND COMPLIANCE BY HEALTH CARE DELIVERY STAFF WITH SPECIAL EMPHASIS ON AIDS,** is an authentic record of the work carried out by **Dr. R. Suresh** under our supervision and guidance for the fulfillment of the **Master of Public Health** Degree examination and that no part thereof has been presented for any other degree.

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ACKNOWLEDGMENTS

The present work has been an enormous undertaking, and I wish to express my gratitude to the innumerable people who have influenced it both directly and indirectly.

Dr.D. Varadarajan, a rare personality in this modern world of inhumanity, who guided this work, has contributed an abundance of perspective suggestions for the improvement with his experience in research work and his encyclopedic store of information. He has been helping me generously right from the time of selection of problem for research. Without his personal involvement and total dedication I would never have been able to fulfill this task. My thanks due to him are beyond words.

Dr. K.R. Thankappan who has helped me a lot and encouraged me as my co-guide in bringing this task to reality. I express my heart felt thanks to him.

Dr. Shankar Sharma who has helped me to apply the principles of statistics in my research. His advises were great helping in analyzing my work. I take this opportunity to express my gratitude to him.

Dr. Mala Ramanathan help in this venture is unforgettable, her sincere efforts helped me enormously in materializing this mission. She has provided encouragement when my energies have flagged.

Dr. Krishnaji, the former head of the department gave me useful advises in the early stage of the study. I express my gratitude to him.

Dr. Mohandas, the Director of the institute was a constant source of inspiration. I express my sincere thanks to him.

Mr. Sundar Jayasing, the Assistant registrar was so cordial to students and his sincere cooperation made our job easier. I express my sincere thanks to him.

Mrs. Jayaprabha, in charge of the documentation center was sincerely helping the students in providing accent to books and literatures. I take this opportunity to express my sincere thanks to her.

I also extent my gratitude to our visiting faculty members Dr. Richard Cash, Dr. Mark Nichter and Dr. Sajitha Basheer.

Dr. Prasannakumar, Asistant Director of State AIDS Cell helped me in shaping the questionnaire and provided me with literatures and information. I thank him for his help.

I thank the District Medical Officer Thiruvananthapuram for permitting me to conduct the study in institutions under her control.

I take this opportunity to thank Head of the institutions and all staff of General hospital Thiruvananthapuram, W&C Hospital Thycadu and PH Lab Thiruvananthapuram who cooperated with my study.

My classmates at Achutha Menon Center were giving constant encouragement and cooperation for my study without which it may not be possible to fulfill the task. I express my gratitude to all of them.

Miss. Priya Vijayaraghavan, assisted me in computer work for this study, her contribution helped me in finishing the study in time. I extent my sincere thanks to her.

I thank each and every person who gave me support and help in finishing this work.

Thiruvananthapuram,

26-05-1999

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Abstract

Background: Infection with human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) are urgent problems worldwide with broad social, cultural economic, political, ethical and legal implications. Hospital workers being a group vulnerable for infection and transmission of the disease need to acquire reasonable knowledge on its transmission and prevention.

Objectives: The objectives of the study were to 1) assess the extent of knowledge about AIDS (especially about its spread) among health service delivery staff; 2) to observe the actual practice followed by them in preventing HIV infection while delivering their services; 3) to study the reasons for non- adherence to guidelines, if prevalent.

Methods: A total of 379 staff including doctors, nurses, laboratory technecians and helpers (nursing assistants) working in different hospitals and laboratories in Thiruvananthapuram district, the capital district of Kerala in India were surveyed during January and February of 1999 to assess their knowledge about AIDS, its transmission and prevention in the hospital setup. Three major institutions (2 hospitals and 1 laboratory) and two blood banks from public sector, three 75-150 bedded hospitals and three small clinics from private sector were selected. All the staff on duty at the time of visit by the researcher was given questionnaires concerned with the objectives to assess the knowledge part. Observing the activities, which can cause HIV transmission at the work

places, assessed the practice part. The reasons for the non-adherence were assessed by discussion with the staff after the observation.

Results: The results of the study indicate that there was no significant difference in knowledge between those who were trained and untrained. The knowledge on AIDS control measures as perceived by the individuals were quite good irrespective of whether they received training or not. In actual practice of various activities, the correct procedures were not followed. This was more obvious in wards while followed to a certain extent in operation theatres. Blood banks maintained a very high standard on control measures but laboratories were not up to the mark.

Conclusion: The perceived knowledge of trained and untrained group went together while observation showed different picture. In this background the main obstacle in the way of implementing the AIDS control measures appears to be operational. The main problem area lies in the system itself. The system flaws have two dimensions, one is money- driven and other is management- driven. The lack of facility and inadequate control measures were all money- driven were as lack of supervision is management driven. Both would have to be weeded out in order to be successful in the control of AIDS.

PREVENTIVE MEASURES AGAINST HOSPITAL – ACQUIRED INFECTIONS: AWARENESS AND COMPLIANCE BY HEALTH CARE DELIVERY STAFF WITH SPECIAL EMPHASIS ON AIDS

1. Introduction

1.1. Background

Acquired Immuno Deficiency Syndrome, popularly known as AIDS, is caused by a retrovirus known as Human Immunodeficiency Virus (HIV) which breaks down the body's immune system leaving the victim vulnerable to a host of life threatening opportunistic infections, neurological disorders or unusual malignancies. Among the special features of HIV infection is that once infected a person will be infected for life. Strictly speaking, the term AIDS refers only to the last stage of HIV infection.

The global reach of HIV/AIDS pandemic was clear than ever by the end of the year 1992-93. Although the infection rate is beginning to stabilize in some places, the virus has continued to spread. Everywhere AIDS has increasingly claimed the lives of men, women and children and as a result, wreaked destruction on their family, community and the society at large. HIV pandemic has continued to spread despite the unprecedented effort to limit the extent and impact of this truly global threat. Now there is evidence to suggest that stabilization in HIV prevalence may be taking place in areas such as North America, Western Europe and Australia, as well as in the high prevalence areas of Eastern and Central Africa.[1] However, stabilization may mask disproportionate increase in particular modes of HIV transmission. In addition to the changing profile of

HIV/AIDS pandemic in areas where HIV has long been established, there has been spread of HIV among populations and areas previously unaffected. In Asia, the geographical distribution of HIV expanded largely as a result of rapid spread among vulnerable population groups.

Very high levels of HIV infection have been detected among injection drug users in Delhi, Vietnam, Malaysia and China. In Thailand, HIV infection is now spreading in the general population. Over 3.5 per cent of military recruits aged 21 were reported to be HIV positive and the same is true for about 1.4 per cent of the antenatal attendants. Studies indicate that more and more women attending antenatal clinics are testing HIV positive thereby increasing the risk of increasing perinatal transmission. For the year 2000, the current WHO projection is that there will be a cumulative total of 30-40 million HIV infections in men, women and children, of which more than 90 per cent will be in the developing countries.

The HIV virus continues to spread, causing nearly 16,000 new infections a day in the world.[2] It means that there were 5.8 million new infections globally during the year 1997 alone. Some 2.3 million people died of AIDS during the course of 1997. In India, the HIV/AIDS epidemic is now a decade old. Within this short period it has emerged as one of the most serious public health problems in the country. HIV/AIDS, therefore, must be seen as a national calamity and can be fought unitedly by foreign coordination, and convergence in respect of HIV/AIDS prevention strategies between civil society, voluntary and Government sector.

AIDS has entered Indian society with disastrous implications for millions of people living in rural, urban and tribal communities. Every region of India is

experiencing a snowballing increase in the transmission of HIV. It is estimated that about 4 million people in India are living with HIV. That perhaps makes India the country with the largest number of HIV infected people in the world.[3] According to medical experts, given the present rate of increase in the incidence of AIDS cases, two million people would have died from AIDS related cases in India by the turn of the century. Significant levels of HIV infection are now reported from sex workers in Mumbai City and even from rural areas.[1]

The expected impact of AIDS on population growth and structure differs in significant ways among the geographic areas of affinity. Not only do current level of HIV infection vary from negligible to substantial, but the dominant transmission modes that distinguish the areas of affinity are highly relevant to demographic impact. Women of child bearing age tend to get infected and die before having the number of children they otherwise might have had. Also pregnant women may infect their fetuses or newborns, causing increased infant and child mortality, with measurable impact on population growth, two or three decades from now the reduced number of people will be due both to AIDS mortality and to births that did not occur because of the additional mortality among women of reproductive age.[4] From 2005 on about half of the entire crude death rate will be attributable to AIDS, life expectancy at birth decline steeply, under 5 mortality increases. AIDS tends to influence a wide range of social and economic factors, health, social, education, agriculture, industry and trade. The review of impact of HIV/AIDS on demography, economy, and society illustrates some effects of the pandemic as observed today and those that can be reasonably projected for the future.

1.2. The problem

In all parts of the world, the ways in which HIV can be transmitted are the same and these are well established. Apart from sexual intercourse, transmission through blood and blood products and from mother to child are major roots. Progress towards a safer supply of blood and blood products has been achieved in many parts of the world through the appropriate selection of donors, screening of donated blood and through more rational use of blood aimed at decreasing the number of people receiving transfusion. HIV is also found to be transmitted through the use of non sterilized skin pricking instruments.[5]

The infective organism of this disease multiplies rapidly and has not responded to any antiviral drugs as yet. Moreover, the prospect of finding a vaccine too seems to be remote at the moment given the very nature of the infective organism. Till scientists find a cure for this disease, we have to cope with the pain and the devastation of AIDS. The absence of any effective vaccines against this disease further limits the scope of arresting the rise of incidence. The only option left with the health care delivery staff to prevent AIDS is to arrest the disease spread via transmission route.

The transmission occurs at two levels of the health care system; first, it occurs at the consumer level due to their own ill-actions and in the second place, it occurs at the health care provider level owing to the negligence of health care delivery staff. Therefore, as an effective control strategy against AIDS, two different sets of precautions are required to be followed at these two different levels of health care system.

Sensing the need of the hour, various campaigns to educate the consumer side are now in progress. Equally relevant is the other side i.e., the provider side, if we want to

make any significant impact on the spread of AIDS. Sets of guidelines to be followed by the health care delivery staff are available to prevent the spread of any transmittable disease including AIDS. Adherence to these guidelines by the health care delivery staff while delivering their service is absolutely essential to arrest the spread of AIDS (for that matter, any infectious disease) to any considerable extent. An important point about AIDS is that it spreads basically from a conscious choice and personal decisions both by lay individuals and by health sector personnel not following the preventive measures effectively.[6]

It has been fairly established now that about 75 per cent of infection occur through sexual route (both heterosexual and homosexual), about 8 per cent through blood transfusion and another 8 per cent through injecting drugs.[7] In all, over 90 per cent of the reported cases occur in sexually active and economically productive age group of 15-59 years. More over, one in every four case reported is a woman.[4] Although it is clear that the means of transmission may vary, it is the poorer section of the developing or under developed countries of the world who are the most vulnerable to AIDS.[4] According to WHO "the AIDS pandemic emphasizes the 'urgent need for increased support of broad programs of STD prevention, control and research."[8]

The greater variation in the HIV transmission across the regions and the fact that the source of 25 per cent of the transmission (75 per cent is through sexual route) is not clear imply that part of the transmission problem lies elsewhere. In this context, the hospital and related firms provide additional source for the transmission through blood transfusion, injections, and other means.[5] The estimated 16 per cent contribution of these

sources to HIV transmission could very well be an underestimation, given greater variation in HIV transmission among various regions in the world.

All said and done, the contribution of the hospital sources to the HIV transmission can not be easily established because of the complexities surrounding the hospital sources and their interrelationships. Nevertheless, there are certain clear guidelines in this connection to be followed by the hospitals and related firms. If these are properly implemented, then the chances of infections are greatly reduced. The variation in the transmission potential of the hospitals across different regions and across different hospitals within the same region can be better explained by the differences among the hospitals in implementing the set guidelines.

The implementation of the guidelines depends on the knowledge and sincerity of the management and other staff of the hospitals. Knowledge is based on the kind of training the staff (management or others) had while the sincerity depends on the goals of the management and coordination of all the concerned staff members. Keeping this in mind, the present study attempted to document the adherence level of the universal precautions in various hospitals with special emphasis on AIDS. The target groups for the study were the health care delivery staff including the doctors, nurses, helpers, and the blood bank personnel. In short, this study focused on the provider side precautions.

1.3. Rationale for the study

Accidental infection with HIV is a major issue in the health care delivery system. With the emergence of AIDS and related diseases the importance of hospital-acquired infection control program has assumed great importance. Therefore, it is essential to

demonstrate that the hospital practices are safe and infection control measures are adequate and dependable. Besides, national and state governments are spending enormous resources for the control of AIDS and related diseases by way of training healthcare workers including doctors, nurses and other health service staff and providing facilities like specialized hospital equipment's, disposable materials and regulating blood banks. All these efforts from the authorities will strike the target only if the people involved sincerely implement them with technical perfection. The aim of this research was to study the actual practice followed by health care delivery staff in preventing the spread of AIDS, their perception regarding various measures and the reasons, if any, for not adhering to the control measures.

1.4. Objectives

To carry out the infection control measures with any degree of perfection, the individuals concerned should have adequate exposure to the guidelines and precautions to be followed while discharging their duties. Then comes their preparedness to carry out the guidelines in both letter and spirit. The specific objectives of the study were

1. To assess the extent of knowledge about AIDS (especially about its spread) among health service delivery staff;
2. To observe the actual practices followed by them in preventing HIV infection while delivering their services;
3. To study the reasons for non-adherence to guidelines, if prevalent.

1.5. Public Health Relevance

The importance of hospital-acquired infection control program has been re-emphasized world over with the emergence of AIDS. The fear of accidental infection with Human Immune-deficiency Virus (HIV), the causative agent of this new fatal communicable disease exists in all the segments of population, including those involved in the delivery of health care. The fact that infection control measures are found to be sub-optimal in majority of the hospitals poses a potential risk of accidental infection with HIV. Strengthening of infection control measures will result in reassuring both health care workers and patients attending hospitals.[1]

Further, reduction of this preventable hospital-acquired infection will be economically beneficial by way of saving resources which would be otherwise spent on this preventable infection and reallocation of time for other diseases.[2] In addition, this will result in better work efficiency of health care workers and prevent spread through iatrogenic infections.[6]

1.6. HIV Transmission and Infection Control

HIV can be transmitted from one person to another through the use of non sterile syringes, needles and other skin pricking and invasive instruments. Proper sterilization of all such instruments is therefore important to prevent its transmission. HIV is very sensitive to standard methods of sterilization and high level disinfection and methods designed to inactivate other viruses like hepatitis B will also inactivate HIV.

Heat is the most effective method for inactivating HIV; method for sterilization and high level disinfection based on heat are therefore the method of choice.[6] High level

disinfection by boiling is feasible in most circumstances, as this requires only a source of heat, a container and water. In practical and field settings, high level disinfection with chemicals is far less reliable.

HIV has been found in various body fluids from persons infected with the virus. However only blood, semen, vaginal and cervical secretions have been implicated with HIV transmission.[6] Nevertheless as all body fluids (including pus and other infected discharges and infected body cavity fluids such as pleural fluid and cerebrospinal fluid) may contain blood or WBC, it is essential that all medical instruments for invasive procedures should be cleaned, then sterilized or given high level disinfection for each separate patient to prevent transmission of HIV.

Maximum concentration of virus in an infected person is in his blood. Next highest concentration is in semen and is present in all body fluids like saliva, vaginal secretion, mothers milk, etc.[7] The virus is fragile in nature, it dies within 30 minuets of exposure outside the body or at temperature above 56 degree centigrade.[6] It cannot penetrate human skin unless there is a break in the human skin like an wound or aberration. It can penetrate mucous membrane.[6] Other modes of transmission include conventional sex, injection needles, blood transfusion, and prenatal transmission. Screening of blood sample by Indian Redcross Society has resulted in the detection of HIV virus in 12 children, all these children are given blood by professional donors through private laboratories. The number of laboratory workers who may have acquired HIV infection in the laboratory is difficult to ascertain, as investigations take a long time.

The modes of transmission (sexual contact, blood transfusion and infected factor 8) , and the evidence that the disease has not been transmitted to health care workers

except (and exceptionally) by accidental parental injection of blood suggest that laboratory workers are at lesser risk.[9] There is no evidence that HIV or any other retrovirus is transmitted by inhalation. The potential mode of transmission to laboratory workers then seems to be accidental inoculation of contact with the broken skin.[9]

1.7. HIV Infection Control In Health Care Settings

Application of the principles of infection control is a vital part of effective day-to-day nursing practice. Adherence to guidelines by the health care providers for the prevention of transmission of blood born agents, such as hepatitis B virus, is more than sufficient for preventing HIV transmission.[5]

Health care settings include hospitals, out patient departments, operation theater, medical laboratories where the medical care is provided directly. Transmission has been reported very rarely from patient to nurse through needle-stick injury or exposure of mucous membrane to blood. Infection can pass from patient to patient through the re-use of improperly sterilized needles.[6] Infection control in health care setting consist of:[6]

- precautions in relation to blood and other body fluids;
- precautions in relation to injections and skin-piercing;
- effective use of sterilization and disinfection.

1.8. Literature Review and Research Evidence

A large number of important research reports examining various professional groups and their role in relation to AIDS during the last 10 years are available. The majority of such reports focused on experience and attitudes in relation to AIDS. They

provided some very important messages for future strategies in connection with health care delivery.

Negative attitudes towards those who became HIV infected were found to be a possible factor contributing to the unwillingness or inability of community nurses to cope with the HIV challenge (Bond et al, 1988).[10] More than a quarter of nurses surveyed considered that they should have the right to refuse to care for a patient with AIDS, and more than a fifth felt that they should have the right to refuse to care for those who are HIV positive. In another study of hospital nursing staff, 37 per cent of the 717 randomly selected hospital nurses from 11 health authorities believed that they should also have the right to refuse to deliver care to those infected with HIV (Akinsanya et al, 1991)[11]. A study of general practitioners also reported similar findings but to a lesser extent with 6 per cent of a sample saying they did not wish to deliver care to patients on their list who might develop AIDS and a further 20 per cent expressed doubts about doing so (Gaallagher *et al,* 1989).[12]

Bond et al (1989)[13] found lack of knowledge on HIV among all disciplines of community nursing staff and they were found to have made incorrect and potentially dangerous judgments with regard to the extent of risk of infection. Lack of knowledge of nursing staff was also supported by the results of a multiple-choice test. Akinsanya study (1991)[11] raises alarming findings about the level of knowledge the hospital staff have about the possibility of infection and their consequent rights to have access to the test results and details of patients HIV status. Fifty seven per cent of the nurses felt that the result of an HIV test should be made available to all staff.

In Gaallagher et al, [12] while studying HIV/AIDS and general practice, concluded that most practitioners were aware that the procedures for avoiding hepatitis B infection are also appropriate for avoiding HIV infection. However, there was a degree of confusion about the risk of acquiring HIV from a needle stick injury, an uncertainty with regard to wearing of gloves and the need to abandon the practice of re-heating the needles. Over a quarter of general practitioners wrongly assessed the risk of acquiring HIV after a needle stick injury, and fifth of them were uncertain about this risk. Three out of five doctors had a policy of wearing gloves when taking blood and a quarter of them were against re-heating the needles. Practitioners were lacking knowledge of symptoms and signs of HIV related illness and AIDS and significantly majority of GPs had not seen it as relevant to produce a practice policy in relation to HIV/AIDS clinical management, infection control and referral to other services. The research by Sunitha Sinha[14] about AIDS awareness done among the college students found out that even the educated youth did not have any proper knowledge about this killer disease.

In all, various researches so far indicated a real need for the regular updates of infection control guidelines, as they are applicable to the practice of the professional worker. HIV infection is an illness with rapidly changing knowledge base including the epidemiology, transmissibility and clinical management. All research studies indicated a positive relationship between clear specific knowledge and guidelines and the level of professional confidence in caring for those with HIV/AIDS.

2. STUDY DESIGN AND METHODOLOGY

2.1. Study design

As indicated by the objectives, this study was a descriptive one documenting the knowledge and adherence level of the health care delivery staff including the doctors, nurses, helpers, laboratory and blood bank staff while dealing with the disease preventive measures (based on WHO guidelines). WHO guidelines are specific in relation to performing the activities like sterilization, first aid nursing management and activities in medical laboratory.

The study was conducted in selected hospitals and related firms belonging to the Thiruvananthapuram district, the capital district of Kerala in India. In the state of Kerala, all the national and state sponsored programs are being implemented under direct state level supervision. The required information was collected through personal interviews, questionnaire, and direct observation by the researcher. The questionnaire for the doctors was in English where as for others, it was prepared in the local language (Malayalam).

Major hospitals in the district from the government sector viz., General Hospital (GH) and Women and children (W&C) hospital both located in Thiruvanathapuram city were included in the study. These were tertiary care centers where casualty, operation, delivery, laboratory services, and dermatology were given prominence. From the private sector, three 75-150 bedded hospitals were chosen for the study and all the three had well functional OBG, surgical, and casualty departments. In addition to these five big hospitals from both the government and private sectors, three more private clinics serving about 40-50 outpatients a day were also covered by the study. Two Government blood

banks belonging to the GH and W&C hospitals and the government owned public health laboratory testing about 150-175 blood samples every day were included from the related sector. In all, the study covered 379 individuals from different disciplines (a detailed description of the selected institutions including total staff strength is given in Annex-2).

2.2. Methodology

The present study was an in-depth cross-section study and generally descriptive in nature. The study was done during a seven week period from 1st January, 1999. The study subjects belonged to various professions and to this extent, the study covered varied heterogeneous groups such as doctors, nurses, nursing assistants, helpers and lab technicians. Being heterogeneous, different groups required different approaches especially because their role in the infection control differed. The required data were obtained through questionnaire (for doctors and nurses), interview schedules (for nursing assistants, sweepers, helpers etc.) and observations (applicable to all). The observations followed a structured pattern based on a set of pre-devised guidelines.

All the staff (irrespective of cadre) on duty on the day of visit were observed by the researcher. The interview schedule or the questionnaire, as the case may be, was supplied to them only after the observation. This was done specifically to avoid any bias while we observe because the aim was to observe the regular practice and not the altered one after knowing the purpose of the researcher. The preventive measures expected to be followed in the respective work place were derived from WHO (AIDS) series 1998 (HIV infection control in health care settings).

Observations were done at the work places where activities involving handling of blood and body fluids are common. The casualty wing, operation theatre, labor rooms and surgical wing of major hospitals, sample collection and testing centres of the laboratories and blood banks, and all the activities in small clinics were subjected to observation. The observation was done in all these places for a minimum period of two hours without disclosing the intention of the researcher. The observation included all the routine activities (as expected of the concerned staff) of each staff and general environment in the work place. After completing the observations, the staff were questioned as to why they deviated from the prescribed practice. The observations and reasons were entered on the same day in a pre-designed observation chart.

2.2.1. Sampling

In Thiruvananthapuram district, there are six major hospitals having bed strength above 150 in the government sector. This include one district hospital and five thaluke headquarters hospitals apart from one medical college. About ten major hospitals of similar bed strength and 50-60 small clinics in the private sector also provide health care. Two out of the six major hospitals, public health laboratory and two blood banks from the government sector and three hospitals and three clinics from private sector are randomly selected for study.

A complete enumeration of all the staff members of the selected organizations was done initially to know the possible size of the sample. Given the shift system existing in the hospitals with an eight-hour rotation, it was expected that approximately one-third

of the enumerated staff would be available for study at any point of time. However, this is not true for small clinics and the organizations like the laboratories and the blood banks.

All the target staff on duty (roughly one-third of the total strength) present at the time of the visit were included in the study. Eighty-five doctors from the government sector hospitals and 36 doctors from the private sector hospitals and clinics were included in the study. Therefore, the total number of the doctors covered by this study was 121. The strength of the nurses included in the study was 149 (103 belonging to the government sector and 46 from the private sector). Eighty-four persons (64 from the government sector and 20 from the private sector) enumerated, as the study subjects were helpers such as nursing assistants, lab assistants, and sweepers. In all, the study covered 354 (212, trained in AIDS control) health care delivery staff serving the health sector in different capacities. No staff present during the visit was excluded from the study for want of qualification or position. Also, the subjects were not discriminated based on age, sex or experience.

2.2.2. Survey Methods

A list of various departments prone to HIV and HAI infections was prepared first. Various facilities provided by them and the staffing pattern were then listed out with an aim of preparing the observation site to fulfill the major objective of the study. The sites like casualty, Operation Theater, labor room, laboratory, blood bank etc. were then finalized based on the preliminary and listing keeping the objectives of the study in mind.

The permission to conduct the survey and the details about the government institutions included in the study was obtained from the District Medical Office, Thiruvananthapuram. The heads of various institutions covered by this study were then

approached separately. The objectives of the study and the methods to be adopted especially during the data collection phase were all explained to the respective heads individually.

Before giving the questionnaire, a brief introduction about the background and the objective of the study were presented to the staff and doubts were cleared. Since the nursing assistants, laboratory assistants and helpers were given interview schedule, the researcher assisted them in filling the required information. Generally it took between 15 and 30 minutes to answer a questionnaire where as it was little longer in the case of interview schedule. The whole of observation and the survey was completed in about 50 days.

2.2.3. Variables included in the study

Each category of health care delivery staff is normally expected to adhere to certain guidelines while serving the patients. The role and responsibility of the concerned staff in this connection depend on the staff's assigned routine duties and responsibilities at the place of work. The survey tools such as questionnaire, interview schedule and observation guidelines were prepared keeping these roles and responsibilities of the respective staff cadre. The study variables were of two types - awareness variables and the practice variables. The former was estimated based on the survey (questionnaire and interview schedule) where as the latter were the outcome of the observation. In the end, there were a total of six awareness variables and eleven practice variables. The specific variables are listed below:

Awareness Variables

1) Knowledge on Hospital-Acquired Infections and the related control measures
2) Knowledge on AIDS transmission
3) Knowledge on AIDS prevention in a hospital set up
4) Knowledge on standard practices to be followed by the staff while delivering service to the patients
5) Knowledge about others' knowledge about the same subject
6) Knowledge on the available facilities and their adequacy

Practice Variables

1) Precautions while giving injections
2) Surgical procedures to be followed
3) Dressing of wounds
4) Delivery management
5) Investigative procedures
6) Laboratory procedures
7) Precautions in relation to blood and body fluids
8) Precautions in relation to injections and skin pricking
9) Effective use of sterilization and disinfection
10) Discarding and disposal of disposable materials
11) Disposal of hospital wastes

3. Results and analysis

As already stated in the introduction, the major objective of the study was to study the knowledge and response of the health care delivery staff with regard to various AIDS control measures. Six major hospitals, 3 moderate clinics, 2 blood banks and one clinical laboratory all in Thiruvananthapuram district were chosen to fulfil this purpose. In all, a total of 379 individuals belonging to the above health care institutions were covered; of them, 121 (31.9 per cent) were doctors, 149 (39.3 per cent) nurses, 84 (22.2 per cent) helpers (nursing assistants, laboratory assistants and sweepers) and 25 (6.6 per cent) laboratory technicians (Table-3.1). These individuals were those staff members of the above mentioned institutions who were on duty at the time of the researcher's visit to the respective institution. About 70 per cent of the doctors, 69.2 per cent of the nurses, 76.2 per cent of the helpers, and all the laboratory technicians were government staff while the remaining were private staff.

Table-3.1. Particulars of study subjects.

Category	Total	Govt.	Private	Trained	Untrained
Doctors	121 (31.9)*	85 (70.2)	36 (29.8)	47 (38.8)	74 (61.2)
Nurses	149 (39.3)	103 (69.1)	46 (30.9)	108 (72.5)	41 (27.5)
Helpers	84 (22.2)	64 (76.2)	20 (23.8)	46 (54.8)	38 (45.2)
Lab tech:	25 (6.6)	25 (100)	0	11 (44)	14 (56)
TOTAL	**379 (100)**	**277**	**102**	**212**	**167**

* figures in parentheses are percentages.

The whole analysis of the results is based on two things essentially - the questionnaire and the observation. The first part of the results chapter carries the results derived from the

derived from the questionnaire while the second part is based on the actual observation of the researcher. In essence, the first covers the knowledge and the perceived practice of the staff where as the latter part comes out with the actual practice as observed by the researcher.

Section A

Knowledge and perceived practice

Over all, 56.9 per cent of the staff covered under this study had undergone some sort of training on Hospital-Acquired Infections; 49.4 per cent of the Govt. doctors and 13.9 per cent of the private doctors were trained. Similarly, 83.5 per cent of the government nurses and 47.8 per cent of the private nurses were trained; thirty-six (56.3 per cent) out of the 64 helpers from government sector and 10 (50.0 per cent) out of the 20 helpers in the private sector got trained. The maximum training duration in all the cases was two weeks and the training schedule included lecturing and demonstration. In all, the proportion of staff trained was considerably higher in the government sector when compared to the private sector. This holds good for all the categories of the staff.

3.1. Knowledge on hospital acquired infections and related control measures

Training did not seem to influence the awareness level of the staff and there was no significant difference ($P < 0.05$) in the awareness level between those who received training and those who didn't receive one (Table-3.2). This is true for all the cases except the government

Table-3.2. Familiarity of the existing guidelines.

1. Doctors

Familiarity	Govt.					Private				
	Trained		Not trained		P valu e	Trained		Not trained		P valu e
	No	%	No	%		No	%	No	%	
Familiar	40	95	33	77	0.03	5	100	25	81	0.66
Not familiar	2	5	10	23	0.03	0	0	6	19	0.66
TOTAL	**42**	**100**	**43**	**100**		**5**	**100**	**31**	**100**	

2. Nurses

Familiar	85	98.8	16	94.1	0.74	22	100	24	100	-
Not familiar	1	1.2	1	5.9	0.74	0	0	0	0	-
TOTAL	**86**	**100**	**17**	**100**		**22**	**100**	**24**	**100**	

3. Laboratory technicians

Familiar	11	100	12	85.7	0.57
Not familiar	0	0	2	14.3	0.57
TOTAL	**11**	**100**	**14**	**100**	

doctors. Overall, the awareness with regard to the existing guidelines was quite high among all the staff members included in the study including the doctors, nurses and helpers. This is true for both government and private health care delivery staff.

3.1.1. Precautions to be followed in labour room and operation theatre

The knowledge on the precautionary measures to be followed in the labour and operation theatre was assessed among the individuals. The measures included various items to be used in these places as part of precaution against any infection. The complete results with regard to the three groups of staff is given in Table-3.3. The results revealed that the trained staff did not seem to have any

Table-3.3. Knowledge on precautions in LR and OT

1. Doctors

Knowledge on precautions in LR & OT		Govt:					Private				
		Trained		Not trained		P value	Trained		Not trained		p-value
		No	%	No	%		No	%	No	%	
1	Use of glove	3	7.1	4	9.3	0.97	0	0	7	22.6	0.68
2	Use of masks	1	2.4	0	0	-	0	0	0	0	-
3	Use of goggles	0	0	2	4.6	-	0	0	0	0	-
4	Use of apron	0	0	2	4.6	-	0	0	0	0	-
5	Use of boots	0	0	0	0	-	0	0	0	0	-
6	Use of all	22	52.4	25	58.1	0.59	4	80	15	48.4	0.40
7	Use of 1,2 & 3	0	0	0	0	-	0	0	4	13	-
8	Use of all but boots	6	14.3	1	2.3	0.10	0	0	3	9.6	0.24
9	Use of all but apron	2	4.8	0	0	-	0	0	0	0	-
10	Use of 1 & 2	0	0	3	6.9	-	0	0	0	0	-
11	Use of 1 & 4	0	0	3	6.9		0	0	0	0	-
12	Use of 1,2 & 4	8	19	3	6.9	0.18	1	20	2	6.4	0.98
TOTAL		**42**	**100**	**43**	**100**		**5**	**100**	**31**	**100**	

2. Nurses

1	Use glove	18	20.9	6	35.3	.33	5	22.7	9	37.5	0.44
2	Use masks	0	0	0	0	-	0	0	0	0	-
	Use goggles	0	0	0	0	-	0	0	0	0	-
4	Use apron	0	0	0	0	-	0	0	0	0	-
5	Use boots	0	0	0	0	-	0	0	0	0	-
6	All the above	41	47.7	5	29.4	.26	11	50	11	45.8	0.98
7	1&2	27	31.4	6	35.3	.54	6	27.3	4	16.7	0.38
TOTAL		**86**	**100**	**17**	**100**		**22**	**100**	**24**	**100**	

3. Helpers

1	Wear glove	15	41.7	4	14.3	.18	3	30	4	40	.64
2	Wear mask	0	0	0	0	-	0	0	0	0	-
	Wear goggles	0	0	0	0	-	0	0	0	0	-
4	Wear apron	1	2.8	0	0	.37	0	0	0	0	-
5	Wear boots	0	0	0	0	-	0	0	0	0	-
6	All the above		55.5	14	50	.66	4	40	2	20	.34
7	1&2	0	0	10	27.7	.0001	3	30	4	40	.64
TOTAL		**36**	**100**	**28**	**100**		**10**	**100**	**10**	**100**	

significant ($P < 0.05$) additional knowledge on the precautionary measures to be taken at their work place and this true for all the staff irrespective of the cadre. However, some difference was pronounced in the case of private doctors wherein the trained doctors had advantage. In all, over 50 per cent of the doctors and helpers and about 40 per cent of the nurses had sufficient knowledge with respect to the precautionary steps to be followed while performing their duties. There is surprisingly not much difference between the doctors and the helpers.

3.1.2. Knowledge on AIDS Transmission

Awareness regarding the spread of AIDS was found to be relatively high among the government nurses (Table-3.4) and there was no difference between those trained and untrained. It is true with respect to the laboratory technicians. Training seemed to have helped the helpers in improving their knowledge on AIDS transmission. There is a significant difference ($P < 0.01$) in knowledge between those trained helpers and the untrained ones. This is specifically true in the case of their knowledge on the role of sex workers. Over all, the awareness level regarding the transmission of AIDS was high among the study subjects with the exception of the untrained helpers in the government sector. The fact that most of the trained staff were employed in the government sector contributed to the knowledge of the staff only in the case of nurses and in the case of others, there was not much of a difference in knowledge between government and private sectors.

3.1.3. Prevention of AIDS in the hospital set up

Sterilisation of syringes and needles, preparation and use of bleaching solution, cleaning of gloves are all-important aspects relevant for the prevention of AIDS. The opinions on these factors were elicited from the concerned staff group normally involved in the respective activity. In this sense, all the factors were not studied among all the staff

Table-3.4. Knowledge regarding transmission of AIDS

1. Nurses

AIDS virus spreads through		Govt:					Private				
		Trained		Not trained		P value	Trained		Not trained		P value
		No	%	No	%		No	%	No	%	
1	Touch	0	0	0	0	-	0	0	0	0	-
2	Droplets	0	0	0	0	-	0	0	0	0	-
3	Mosquito	0	0	1	5.9	-	0	0	0	0	-
4	Blood and blood products	81	94.2	16	94.1	0.99	15	68.2	20	83.3	0.23
5	All the above	5	5.8	0	0	0.31	7	31.8	4	16.7	0.23
6	Don't know	0	0	0	0	-	0	0	0	0	-
TOTAL		**86**	**100**	**17**	**100**		**22**	**100**	**24**	**100**	

2. Helpers

1	Sex workers	33	91.7	11	39.3	0.001	10	100	7	70	.06
2	Drug addicts	0	0	3	10.7	0.045	0	0	0	0	-
3	Hospital workers	0	0	0	0	-	3	0	3	30	1.
4	All the above	3	8.3	7	25	0.07	0	0	0	0	-
5	Don't know	0	0	7	25	0.001	0	0	0	0	-
TOTAL		**36**	**100**	**28**	**100**		**10**	**100**	**10**	**100**	

3. Laboratory technicians

1	Touch	0	0	0	0	-
2	Droplets	0	0	0	0	-
3	Mosquito	1	9.1	0	0	0.25
4	Blood and blood products	10	90.9	13	92.9	0.84
5	All the above	0	0	1	7.1	0.37
6	Don't know	0	0	0	0	-
TOTAL		**11**	**100**	**14**	**100**	

groups. The results are presented in the tables from 3.5 to 3.8. Among the government doctors, 88.8 per cent of those trained and 79 per cent of those untrained mentioned that either disposable syringes should be used or else the syringes should be boiled for more than 20 minutes (Table-3.5). In the private sector, only 40 per cent of those trained mentioned that the above two are the possible ways of preventing AIDS; this proportion is surprisingly high (80.6 per cent) among those who did not have any training. The awareness level was relatively high among nurses than among doctors in general and

Table-3.5. Optimum time required for sterilising the syringes and needles as expressed by the staff.

1. Doctors

Minimum time required to sterilise syringes and needles		Govt.					Private				
		Trained		Not trained		p-value	Trained		Not trained		p-value
		No	%	No	%			%	No	%	
1	5 minutes	3	7.1	3	7	0.97	0	0	0	0	-
2	10 minutes	3	7.1	6	14	0.31	3	60	6	19.4	0.05
3	20 minutes	36	85.8	31	72	0.12	1	20	18	58	0.11
4	Use disposable syringes	0	3	3	7	0.08	1	20	7	22.6	0.89
TOTAL		**42**	**100**	**43**	**100**		**5**	**100**	**31**	**100**	

2. Nurses

1	5 minutes	0	0	0	0	-	0	0	0	0	-
2	10 minutes	1	1.2	0	0	0.65	0	0	0	0	-
3	15 minutes	6	7	2	11.8	0.50	10	45.5	7	29.2	0.001
4	20 minutes or more	79	91.8	15	88.2	0.63	12	54.5	17	70.8	.25
TOTAL		**86**	**100**	**17**	**100**		**22**	**100**	**24**	**100**	

3. Lab technicians

1	5 minutes	0	0	2	14.3	0.20
2	10 minutes	0	0	5	35.7	0.02
3	15 minutes	3	27.3	0	0	0.04
4	20 minutes or more	8	72.7	7	50	0.25
TOTAL		**11**	**100**	**14**	**100**	

the government-private difference remained the same as in the case of doctors. Fifty per cent of the untrained lab technicians and 27.3 per cent of the trained ones did not think that the syringes should be boiled for more than 20 minutes.

Private sector nurses were not better off when it comes to the preparation of bleaching solution. Only about 18 per cent of the private nurses were apparently following the correct method of preparing the bleaching solution where as the proportion

Table-3.6. Knowledge on preparation of bleaching solution and its efficacy

1. Nurses

Preparing bleaching solution		Govt:					Private				
		Trained		Not trained		p-value	Trained		Not trained		p-value
		No	%	No	%		No	%	No	%	
1	Following correct method	19	22.1	4	23.5	0.89	4	18.2	0	0	0.03
2	Not following correct method	67	77.9	13	76.5	0.89	18	81.8	24	100	0.03
TOTAL		**86**	**100**	**17**	**100**		**22**	**100**	**24**	**100**	

2. Helpers

1	Answered correctly	20	58.8	4	25	0.02	2	50	0	0	0.26
2	Answered wrongly	14	41.2	12	75	0.02	2	50	2	100	0.26
TOTAL		**34**	**100**	**16**	**100**		**4**	**100**	**2**	**100**	

3. Laboratory technicians

1	Following correct method	10	90.9	11	78.6	0.41
2	Not following correct method	1	9.1	3	21.4	0.41
TOTAL		**11**	**100**	**14**	**100**	

was 22 per cent in the case of government nurses (Table-3.6). Once again, there was a significant difference ($P < 0.05$) in knowledge between the trained and untrained helpers.

This is more so in the case of government helpers. About 91 per cent of the government lab technicians followed the correct procedure.

About 50 per cent of the nurses knew that the bleaching solution once prepared should be changed after a prescribed period (12 hours) of use (Table-3.7). Similar pattern emerged with respect to government and private sectors with a minor difference between trained and untrained. The same is true for helpers where as in the case of lab technicians, the

Table-3.7. Knowledge on usage of the bleaching solution once prepared

1. Nurses

Knowledge on usage of bleaching solution once prepared		Govt:					Private				
		Trained		Not trained		p-value	Trained		Not trained		p-value
		No	%	No	%		No	%	No	%	
1	12 hours	34	39.5	8	47	.56	9	40.9	14	58.3	0.24
2	24 hours	48	55.8	9	52.9	.42	7	31.8	0	0	0.002
3	48 hours	2	2.3	0	0	.52	0	0	2	8.3	0.17
4	1 week	1	1.2	0	0	.65	6	27.3	4	16.7	0.38
5	Don't know	1	1.2	0	0	.65	0	0	4	16.7	0.47
TOTAL		**86**	**100**	**17**	**100**		**22**	**100**	**24**	**100**	

2. Helpers

1	12 hours	18	50	16	57.1	0.67	6	60	5	50	0.66
2	24 hours	15	41.7	7	25	0.16	0	0	3	30	0.06
3	1 week	0	0	3	10.7	0.04	0	0	2	20	0.14
4	Don't know	3	8.3	2	7.1	0.86	4	40	0	0	0.02*
TOTAL		**36**	**100**	**28**	**100**		**10**	**100**	**10**	**100**	

3. Lab technicians

1	12 hours	5	45.4	9	64.3	.35
2	24 hours	4	36.4	3	21.4	.41
3	48 hours	2	18.2	0	0	.13
4	1 week	0	0	0	0	-
5	Don't know	0	0	2	14.3	.2
TOTAL		**11**	**100**	**14**	**100**	

untrained were more knowledgeable than the trained ones. When compared to 64.3 per cent of the untrained lab technicians, only 45.4 per cent of the trained ones knew that the bleaching solution should be changed every 12 hours after it has been prepared.

Table-3.8. Knowledge on treatment of used gloves

1. Nurses

Glove after use should be		Govt:					Private				
		Trained		Not trained		p-value	Trained		Not trained		p-value
		No	%	No	%		No	%	No	%	
1	Only washed before reuse	1	1.2	0	0	0.65	4	18.2	2	8.3	0.32
2	Sterilised	25	29	10	58.8	0.01	13	59.1	22	91.7	0.009
3	Put in bleaching solution	60	69.8	7	41.2	0.02	5	22.7	0	0	0.01
TOTAL		**86**	**100**	**17**	**100**		**22**	**100**	**24**	**100**	

1. Helpers

Glove after use should be		Govt:					Private				
		Trained		Not trained		p-value	Trained		Not trained		p-value
		No	%	No	%		No	%	No	%	
1	Washed and used	0	0	0	0	-	0	0	0	0	-
2	Sterilised before use (without bleaching)	3	8.3	6	21.4	.13	2	20	2	20	1.
3	Bleached and sterilised	31	86.1	19	67.9	.08	0	0	2	20	.14
4	Distorted without bleaching	2	5.6	3	1.7	.44	8	80	6	60	.34
TOTAL		**36**	**100**	**28**	**100**		**10**	**100**	**10**	**100**	

There is a big difference between the government and private sector in the processing of the used gloves. While 78.1 per cent of the government helpers followed the correct procedure of bleaching and sterilising them, only 10 per cent of the private helpers did so (Table-3.8). This trend is reversed in the case of nurses. As in an earlier case, there was a difference between the trained and the non-trained helpers in this case also and training made a difference in the case of government helpers. This is quite consistent with our earlier findings that the helpers were the major beneficiaries of the training programmes.

Table-3.9. Knowledge on proper disposal of injection needles after use

1. Nurses

	Used injection needles are disposed by	Govt:					Private				
		Trained		Not trained		p-value	Trained		Not trained		p-value
		No	%	No	%		No	%	No	%	
1	Thrown away	1	1.2	0	0	0.65	0	0	4	16.7	0.04
2	Burnt	13	15.1	6	35.3	0.04	15	68.2	4	16.7	0.0004
3	Crushed	0	0	2	11.8	0.001	6	27.3	10	41.6	0.31
4	Crushed and put in bleaching solution	72	83.7	9	52.9	0.004	1	4.5	6	25	0.05
	TOTAL	**86**	**100**	**17**	**100**		**22**	**100**	**24**	**100**	

2. Helpers

1	Thrown away	3	8.3	0	0	0.11	0	0	5	50	0.01
2	Burnt	4	11.1	10	35.7	0.01	2	20	0	0	0.47
3	Bleached, crushed and disposed	29	80.6	18	64.3	0.14	8	80	5	50	0.34
	TOTAL	**36**	**100**	**28**	**100**		**10**	**100**	**10**	**100**	

3. Lab technicians

1	Thrown away	2	18.2	1	7.1	0.56
2	Burned	6	54.5	4	28.6	0.24
3	Crushed	0	0	2	14.3	0.48
4	Crushed and put in bleaching solution	3	27.3	7	50	0.41
	TOTAL	**11**	**100**	**14**	**100**	

Government nurses seemed to have better knowledge about the disposal of used injection needles (Table-3.9) and the trained ones were significantly ($P < 0.01$) doing better than the untrained one in this case. Similar trend was found in the case of helpers too; but the

Table-3.10. Knowledge of helpers on the disposal of contaminated cotton and dressing materials.

Used cotton should be	Govt.					Private				
	Trained		Not trained		p-value	Trained		Not trained		p-value
	No	%	No	%		No	%	No	%	
1 Buried	3	8.3	2	7.1	0.86	0	0	0	0	-
2 Burnt	21	58.3	11	39.3	0.13	10	100	8	80	0.14
3 Buried or burnt after bleaching	12	33.3	15	53.6	0.10	0	0	2	20	0.14
TOTAL	**36**	**100**	**28**	**100**		**10**	**100**	**10**	**100**	

Tabl-3.11. Management of aberrations with surgical equipment or injection needle

1. Nurses

Wound or aberration should be	Govt:					Private				
	Trained		Not trained		p-value	Trained		Not trained		p-value
	No	%	No	%		No	%	No	%	
Dressed	13	15.1	7	41.2	0.01	0	0	2	8.3	0.16
Washed and dressed	6	7	3	17.6	0.15	22	100	10	41.6	0.51
Wash, apply antiseptic	67	77.9	7	41.2	0.002	0	0	12	50	0.001
TOTAL	**86**	**100**	**17**	**100**		**22**	**100**	**24**	**100**	

2. Lab technicians

Dressed	0	0	0	0	-
Washed and dressed	4	36.4	3	21.4	0.65
Wash, apply antiseptic	7	63.6	11	78.6	0.65
TOTAL	11	100	14	100	

difference between the trained and untrained was not significantly pronounced. Lab technicians did it differently and 54.5 per cent of those trained had the habit of burning the needles after use.

The government helpers had better knowledge when it comes to the disposal of used cotton or dressing materials (Table-3.10). The government nurses and the lab technicians managed the wound or aberration with surgical equipment or injection needles (Table-3.11). However, there was a significant difference ($P < 0.01$) between the trained and the untrained in the case of government nurses with trained ones doing better. In the case of lab technicians, the untrained ones were marginally better although the difference was not statistically significant. The private nurses were not doing well at all in this front.

3.2. External View of the Staff on the Knowledge of Other Staff

After assessing the knowledge of the staff members on several issues pertaining to the control of AIDS, the external view of them on the level of knowledge of fellow staff members was ascertained in an attempt to get a clear picture on the level of knowledge of the staff members. The results are presented in Table-3.12. The qualitative assessment by the doctors about their staff varies from poor to average and this is true for both government and private sectors. In the case of government sector, the trained doctors gave more credit to their staff when compared to the untrained doctors. In the case of private sector, both trained and untrained doctors assessed their staff uniformly. The overwhelming assessment of the nurses about their fellow staff was that they were average although the government nurses sprayed them in all categories. The private

nurses classified the knowledge of their fellow staff between average and excellent. Both the trained and untrained nurses expressed identical views. Helpers too almost had the similar opinion, as that of the nurses although the dominant opinion of the trained

Table-3.12. View on other staff regarding the knowledge about AIDS control measures

1. Doctors

View about other staff		Govt:		Private	
		Trained	Not trained	Trained	Not trained
1	Excellent	0	0	0	0
2	Good	5	4	0	4
3	Average	22	14	5	20
4	Poor	15	23	0	6
5	Very poor	0	2	0	1
TOTAL		**42**	**43**	**5**	**31**

2. Nurses

1	Excellent	4	0	6	5
2	Good	8	2	1	4
3	Average	61	10	15	15
4	Poor	11	3	0	0
5	Very poor	2	2	0	0
TOTAL		**86**	**17**	**22**	**24**

3. Helpers

1	Excellent	19	4	2	0
2	Good	3	4	5	2
3	Average	12	20	3	5
4	Poor	1	0	0	0
5	Very poor	1	0	0	3
TOTAL		**36**	**28**	**10**	**10**

4. Lab technicians

1	Excellent	0	2
2	Good	5	2
3	Average	6	7
4	Poor	0	3
5	Very poor	0	0
TOTAL		11	14

government helpers was that the staff's knowledge was excellent. The trained private helpers too placed their staff between average and excellent. Majority of lab technicians put their staff between average and good. Overall, the staff, with the exception of the doctors, had high opinion about the knowledge of their fellow staff.

3.3. Prevention Practices in the Hospital

The practices followed in the hospital set up normally go with the kind of supervision and the guidance provided by the doctors and the knowledge of the doctors is extremely important in this context. As one can see from the Table-3.13, the insistence of the doctors goes with their knowledge on the specific subject. About 86 per cent of the government doctors and above 90 per cent of the private doctors insisted on the boiling of

Table-3.13. Doctors' role in making the staff do proper sterilisation

Role of the doctor		Govt.					Private				
		Trained		Not trained		p-value	Trained		Not trained		p-value
		No	%	No	%		No	%	No	%	
1	Insist on boiling for 20 minutes	36	85.7	37	86	0.96	5	100	30	96.8	0.68
2	Will not insist to boil	2	4.8	6	14	0.1	0	0	1	3.2	0.68
3	Not answered	4	9.5	0	0	0.03	0	0	0	0	-
TOTAL		**42**	**100**	**43**	**100**		**5**	**100**	**31**	**100**	

syringes for a minimum period of 20 minutes. The correct instruction was given to the subordinates or to those who matter in this regard irrespective of whether the doctor was trained or not. Table-3.14 indicates that only 50 per cent of the government doctors and 40 per cent of the private doctors among those trained supervised the blood handling

Table-3.14. Supervision role of doctors in blood handling

Role of doctor		Govt.					Private				
		Trained		Not trained		p-value	Trained		Not trained		p-value
		No	%	No	%		No	%	No	%	
1	Supervises	21	50	17	39.5	0.21	2	40	7	22.6	0.41
2	Does not Supervise	19	45.2	26	60.5	0.16	3	60	24	77.4	0.41
3	Not answered	2	4.8	0	0	0.14	0	0	0	0	-
TOTAL		42	100	43	100		5	100	31	100	

activity in their work place. The respective proportions were less in the case of untrained doctors signifying that 60.5 per cent of the untrained doctors in the government sector and 77. 4 per cent of them among the private sector did not supervise the activities of their subordinates especially in the case of the crucial aspect of blood handling.

3.3.1. Adherence of AIDS control measures in hospitals

An overwhelming 69.4 per cent of the government doctors and 41.7 per cent of the private doctors felt that the AIDS control measures were not effectively followed in their respective hospitals. Only 20 per cent of the government doctors and 50 per cent of the private doctors said they have been followed in their work places. About 10 per cent of the doctors belong to both government and private sectors didn't even know whether they were being followed or not. When asked whether the staff generally complied with the guidelines whenever instructed, 61.2 per cent of the government doctors and an overwhelming 86.1 per cent of the private doctors opined that they did comply (Table-3.15). Only 5.6 per cent of the private doctors and 28.2 per cent of the government doctors came out an emphatic "NO" in this regard. Similarly, 83.5 per cent of the

government nurses and 87 per cent of the private nurses felt that the guidelines were generally adhered to, if directed so. A clear majority of both government (67.2 per cent)

Table-3.15. Opinion on staff compliance to guidelines for infection control

1. Doctors

Staff compliance		Govt. doctors	Private doctors
1	Generally comply	52 (61.2)*	31 (86.1)
2	Do not comply	24 (28.2)	2 (5.6)
3	Don't know	9 (10.6)	3 (8.3)
TOTAL		**85 (100)**	**36 (100)**

2. Nurses

Generally Comply	86 (83.5)	40 (87.0)
Do not comply	15 (14.6)	6 (13.0)
Not answered	2 (1.9)	0 (0.0)
TOTAL	**103 (100)**	**46 (100)**

3. Helpers

Generally comply	43 (67.2)	12 (60.0)
Do not comply	5 (7.8)	1 (5.0)
Don't know	16 (25.0)	7 (35.0)
TOTAL	**64 (100)**	**20 (100)**

4. Lab technicians

Generally comply	12 (48.0)
Do not comply	11 (52.0)
TOTAL	**25**

* figures in parentheses are percentages.

and private nurses (60.0 per cent) also said that the staff generally comply with the guidelines. The opinion of the lab technicians was divided in this respect and 52 per cent of them said the staff do not comply even when directed to do so.

3.3.2. Reasons for not adhering to the guidelines

The reason for not adhering to the guidelines were also recorded along with the fact that how many are complying with them and the results are reported in Table-3.16. As it can be seen from the table, vast majority of the staff was following the guidelines whenever provided to them. Among the reasons, lack of facility was quoted as a main

reason by 14.9 per cent of the respondents. The reason quoted by them was that others in the work place did not co-operate with them even if they wanted to implement them. Two nurses came out with the point that the doctors, who are expected to implement the directives, did not insist on following the guidelines.

Table-3.16. Reasons for not adhering to the guidelines

1. Nurses

Reasons	Govt. sector	Private sector
Doctors not insisting	2	0
Other staff not co-operative	2	5
Lack of facility	11	4
Following	84	35
Not answered	2	2
Total	**103**	**46**

2. Lab technicians

Other staff not co-operative	2
Lack of facility	11
Following	12
TOTAL	25

Table-3.17. Efforts initiated by the authorities in AIDS control

	Doctors' opinion about the efforts	Govt. doctors	Private doctors
1	Excellent	0 (0.0)*	0 (0.0)
2	Adequate	19 (22.3)	25 (69.4)
3	Not adequate	65 (76.5)	11 (30.6)
4	Not answered	1 (1.2)	0 (0.0)
	TOTAL	85 (100)	36 (100)

* figures in parentheses are percentages.

Not a single doctor from both the sectors felt that the efforts initiated by the hospital authorities towards the prevention and control of AIDS were very good (Table-3.17). More than two-third from the private sector and around one-fifth in the

government sector was of the opinion that the efforts were just adequate. The crucial point is that 76.5 per cent of the doctors working in the government sector did not think that that effort from the authorities were adequate; 30.6 per cent from the private sector felt the same way.

Section B

Actual practice as observed

The results covered under this section are based on the actual observation of the researcher who happened to be a physician. The activities and methods pertaining to the handling of blood and other body fluids at their work place were specifically observed for a prescribed period (two hours). The observation was done in specific work spots such as casualty, operation theatre, labour room and the wards. Observation findings were classified as right or wrong activity based on WHO guidelines. The reasons for not doing things rightly were also noted down in a chart. The details included in the chart are found in the Annexure-4.

The results pertaining to this section are presented in tables from 3.18 to 3.26. Each table is related to a particular activity. For each activity, there is a right way (R) of doing it and Table-3.18 represents information about injections. Major error was committed in the ward both in the case of government and private health care centres. In both the cases, sterilisation of the needles and syringes was not done properly. So, this is a major area for improvement. Another activity which require attention is the disinfecting before the injection in the case of government centres and disposal of syringes and needles after use in the case of private centres. The important thing is the reason given for not doing the

respective activity correctly. In the case of government centres, the reason was the non-availability of facility where as in the private centres, the staff were not instructed to do so.

Table-3.18. Observation while giving injections

Activity	Place observed (govt)								Reason			Place observed (pvt:)								Reason		
	A		B		C		D		1	2	3	A		B		C		D		1	2	3
	R	W	R	W	R	W	R	W				R	W	R	W	R	W	R	W			
N1	2	0	2	0	1	0	5	1	1	0	0	2	0	2	0	2	0	5	0	0	0	0
N3	2	0	2	0	1	0	6	0	0	0	0	1	1	2	0	2	0	1	4	0	5	0
N6	1	0	2	0	0	1	2	4	4	1	0	0	2	1	2	0	2	0	4	1	7	2
R/W	**5/0** 100%		**6/0** 100%		**2/1** 66%		**13/5** 72%		**5**	**1**	**0**	**3/3** 50%		**5/2** 71%		**4/2** 67%		**6/8** 43%		**1**	**12**	**2**

Note: N1 - Disinfecting before injection N3 - sterilising needles and syringes
N6 - Discarding needles and syringes after use
A- Casualty B- Operation theatre C- Labour Room D- Ward
1 - No facility 2 - Not instructed 3 - Not aware

Table-3.19 brings out the outcome of the observation at the surgical procedures. The expansion for the activity codes is given in the annex and in simpler terms 'D' refers to an activity concerning the doctor, 'N' refers to an activity by a nurse, 'H' refers to an activity normally performed by a helper and 'L' refers to an activity performed by a lab technician. Similarly, 'A' refers to casualty, 'B' denotes operation theatre, 'C' indicates labour room and 'D' is the ward. As one can view it from the table, even doctors were doing certain activities wrongly and reason offered by them was that there was no facility available in their work place to carry out the concerned activity rightly. This was mostly happening in the casualty and the wards and in both government and private care centres. Overall, the wards were the worst hit and one of the reasons quoted by the staff

themselves was the lack of awareness. The other two reasons - lack of facility and not being instructed - too played a role in restricting the staff from doing an activity rightly.

Table-3.19. Observation of surgical procedures

Activity*	Govt.								Reason			Private								Reason		
	A		B		C		D		1	2	3	A		B		C		D		1	2	3
	R	W	R	W	R	W	R	W				R	W	R	W	R	W	R	W			
D1	1	1	2	0	1	0	1	2	3	0	0	1	0	2	0	1	0	0	3	3	0	0
D2	1	1	2	0	1	0	0	2	3	0	0	1	0	2	0	1	0	0	3	3	0	0
D3	1	1	2	0	1	0	2	1	0	2	0	1	0	2	0	1	0	2	2	1	1	0
N2	1	1	2	0	1	0	2	4	0	3	2	0	1	2	1	2	0	0	5	3	1	3
H1	2	0	0	0	0	0	3	3	1	0	2	0	2	1	0	0	0	0	5	3	1	3
H2	0	2	1	1	0	1	0	6	3	2	5	0	2	2	0	1	1	1	4	0	4	3
R/W	**6/6** 50%		**9/1** 90%		**4/1** 80%		**8/18** 31%		**10**	**7**	**9**	**3/5** 37.5%		**11/1** 92%		**4/1** 80%		**3/22** 12%		**13**	**7**	**9**

*Description of activity code given in annexure-4.

Table-3.20. Observation of wound dressing

Activity*	Place observed								Reason			Place observed								Reason		
	A		B		C		D		1	2	3	A		B		C		D		1	2	3
	R	W	R	W	R	W	R	W				R	W	R	W	R	W	R	W			
D2	1	1	2	0	1	0	0	2	3	0	0	1	0	2	0	1	0	0	3	3	0	0
D3	1	1	2	0	1	0	2	1	0	2	0	1	0	2	0	1	0	2	2	2	0	0
N2	1	1	2	0	1	0	2	4	0	3	2	0	1	2	1	2	0	0	5	4	0	3
R/W	**3/3** 50%		**6/0** 100%		**2/0** 100%		**4/7** 36%		**3**	**5**	**2**	**2/1** 67%		**6/1** 86%		**4/0** 100%		**2/10** 17%		**9**	**0**	**3**

*Description of activity code given in annexure-4.

Table 3.20 shows the out come of observations of activities related with wound dressing. Parameters like whether fresh and old wounds are dressed at different places, hands are

washed before and after dressing. One can see that doctors and nurses do not strictly follow these activities in casualty and wards of both government and private care centres and it is worst in wards. However the staff in operation theatre and labour rooms reasonably follows guidelines. The reasons attributed are lack of facility and lack of instruction from the authorities.

Table-3.21. Observation of management of delivery

Activity*	Place observed								Reason			Place observed								Reason		
	A		B		C		D		1	2	3	A		B		C		D		1	2	3
	R	W	R	W	R	W	R	W				R	W	R	W	R	W	R	W			
D4	0	1	1	1	1	1	0	0	3	0	0	0	0	2	0	1	1	0	0	1	0	0
N9	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	1	2	0	0	0	2	0
H13	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	1	2	0	0	0	1	1
R/W	**0/1** 0%		**1/1** 50%		**2/4** 33%		-		**4**	**2**	**0**	-		**2/0** 100%		**3/5** 37.5%		-		**1**	**3**	**0**

*Description of activity code given in annexure-4.

Table 3.21 Shows that guidelines for managing delivery are not followed correctly by doctors and nurses while followed to a certain extent in operation theatres (in both sectors). The placenta is not treated as per guidelines by helpers of both sectors. Lack of facilities and proper instructions being the major reasons for this in the government sector and not being instructed being the reason in the private sector.

From table 3.22, it is found that the activities are performed strictly according to the guidelines by technetions in government blood banks but it is not so in laboratories. The reason for the same is mainly lack of instructions and facility. A few are not aware of the guidelines. On table 3.23 one can see that the staff generally comply with guidelines in operation theatre while it decline in the casualty, labour room and least in wards. The

pattern is almost same in both sectors. The major reasons the staff sees for this is the lack of facilities in the casualties. Labour rooms and wards. The reason for maximum compliance in the operation theatre is being the strict supervision by the superiors.

Table-3.22. Observation of laboratory procedures

Activity*	Place observed				Reason		
	Blood bank (A)		Laboratory (B)				
	R	W	R	W	1	2	3
L1	2		2				
L2	2		1	2			2
L3	2			2		2	
L4			2				
L5	2			1		1	
L6	2		2	1		1	
L7	2		2				
L8	2		2				
L9	2		1	1		1	
L10	2		1	1		1	
L11	2		2	1	1		
L12	2		2				
TOTAL	**22/0** 100%		**17/9** 65%		**1**	**6**	**2**

*Description of activity code given in annexure-4.

Table-3.23. Observation of activities involving handling blood and body fluid

Activity*	Place observed								Reason			Place observed								Reason		
	A		B		C		D		1	2	3	A		B		C		D		1	2	3
	R	W	R	W	R	W	R	W				R	W	R	W	R	W	R	W			
D1	1	1	2	0	1	1	1	2	4	0	0	1	0	2	0	1	0	0	3	3	0	0
N12	2	0	0	0	1	0	1	1	1	0	0	1	1	0	0	0	0	0	0	1	0	0
H1	2	0	0	0	1	0	1	5	1	2	2	0	2	1	0	0	0	0	5	3	1	3
R/W	**5/1** 83%		**2/0** 100%		**3/1** 75%		**3/8** 27%		**6**	**2**	**2**	**2/3** 40%		**3/0** 100%		**1/0** 100%		**0/8** 0%		**7**	**1**	**3**

*Description of activity code given in annexure-4.

Observation of practices concerned with effective sterilisation and disinfection techniques in table 3.24 shows that followed wrongly by nurses and helpers and it is markedly noted in wards. Generally the techniques are followed wrongly in private

sector. The major reasons are being lack of facility and instruction in government sector and lack of instruction and non-awareness in private sector.

Table-3.24. Observation of activities related with sterilisation and disinfection

Activity*	Place observed								Reason			Place observed								Reason		
	A		B		C		D		1	2	3	A		B		C		D		1	2	3
	R	W	R	W	R	W	R	W				R	W	R	W	R	W	R	W			
N3	1	1	1	1	1	0	2	4	4	2	0	1	1	2	0	2	0	1	4	0	5	0
N4	0	2	2	0	1	0	4	2	4	0	0	1	1	1	1	2	0	0	4	0	4	2
N5	2	0	2	0	1	0	5	1	1	0	0	1	1	1	1	1	1	0	4	0	5	2
H3	1	1	0	2	0	1	2	4	2	4	2	0	1	0	1	1	1	2	3	2	4	0
H4	3	0	1	1	1	0	4	2	2	1	0	1	1	0	0	0	1	0	4	1	2	3
H5	2	0	2	0	1	0	4	2	0	2	0	1	0	0	1	0	1	0	5	0	0	7
R/W	9/4 69%		8/4 67%		5/1 83%		21/15 58%		13	9	2	5/5 50%		4/4 50%		6/4 60%		3/24 11%		3	20	14

*Description of activity code given in annexure-4.

Table-3.25. Observation of activities related with discarding and disposal of disposable materials

Activity*	Place observed								Reason			Place observed								Reason		
	A		B		C		D		1	2	3	A		B		C		D		1	2	3
	R	W	R	W	R	W	R	W				R	W	R	W	R	W	R	W			
D6	1	1	1	1	0	1	1	2	4	1	0	1	0	1	1	1	0	1	2	0	3	0
D7	1	1	2	0	1	0	2	1	2	0	0	0	1	1	1	1	0	0	3	1	4	0
H6	1	1	0	0	1	0	2	4	4	2	0	1	1	0	0	0	2	1	5	1	6	1
H7	1	1	1	1	1	1	4	2	2	3	0	0	1	0	2	0	2	1	3	2	5	1
N6	1	0	1	1	1	0	5	1	1	1	0	1	1	1	2	0	2	0	4	2	7	0
N7	2	0	2	0	1	0	5	1	1	0	0	0	1	0	2	0	1	0	5	0	8	1
R/W	7/4 64%		7/3 70%		5/2 71%		19/11 63%		14	7	0	3/5 37.5%		3/8 27%		2/7 22%		3/17 15%		6	33	3

*Description of activity code given in annexure-4.

From table 3.25 one can see that disposable materials are not treated in the correct way. This more true in the private sector than in the government sector. Table shows that the non-compliance to guidelines in the private sector is to a great extent due to lack of instruction rather than facility deficiency.

Table-3.26. Observation of activities related with disposal of hospital wastes

Activity*	Place observed								Reason			Place observed								Reason	
	A		B		C		D		1	2	3	A		B		C		D		1	2
	R	W	R	W	R	W	R	W				R	W	R	W	R	W	R	W		
D8	1	1	1	1	0	1	1	2	1	4	0	0	1	0	2	0	1	0	3	0	7
N8	0	1	1	1	0	1	0	6	6	3	0	0	2	0	2	0	1	0	4	1	6
H8	1	1	1	1	0	1	1	4	5	2	0	0	3	0	2	1	1	0	5	0	11
H9	1	1	2	0	1	0	5	1	0	2	0	1	1	1	1	2	1	2	2	0	4
H13	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0
R/W	3/4 43%		5/3 62.5%		1/4 20%		7/13 35%		12	12	0	1/7 12.5%		1/7 12.5%		5/4 55.5%		2/14 12.5%		1	28

*Description of activity code given in annexure-4.

From table 3.26 it is viewed that hospital wastes are not properly disposed in either sector and it is worst in the private sector. The reason for the improper disposal being lack of facilities and instructions by authorities in government sector while it is the lack of proper instructions to the staff in the private sector.

4. Discussion and Conclusions

As it must be clear by now, the main thrust of this study was to find the awareness level pertaining to AIDS and related control measures of various health care delivery staff working in different set up such government hospitals, private hospitals, private clinics, and clinical laboratories. The study covered 12 different institutions and 379 staff members belonging to various categories such as doctors, nurses, helpers and lab technicians. All the chosen staff performed varied economic roles ranging from a salaried employee to an entrepreneur. In short, the study covered a wide range of individuals differing in qualification, duty responsibility, working environment etc.

About 70 per cent of the respondents were employed in government sector where as the remaining 30 per cent were private employees or entrepreneurs. About 56 per cent of people, irrespective of the cadre, covered by this study had prior training on AIDS control measures. Most of the trained individuals belonged to the government sector indicating that the scope for training was relatively high in the government sector. A vast majority of the nurses received some form of training and trained nurses outnumbered all the other categories of staff. However, the maximum duration of the training was only two weeks and it appears to be too short a period to make any significant impact on the behavior of the individuals concerned. In fact, the results of the present study indicated exactly this and there was no significant difference in knowledge between those who were trained and untrained (Table-3.2).

The study results have two dimensions - the first set of results is based on the perception of the individuals and the other set depends on the actual observations of the researcher. In this context, what we found was that the knowledge on AIDS control

measures as perceived by the individuals was quite good irrespective of whether the concerned individual(s) received training or not. The fact that there was no significant difference between trained and untrained individuals comes to state that the acquired knowledge came from outside the purview of the training they received. However, it is a different matter altogether if the perceived knowledge doesn't make a difference in the individual behaviour and therefore, it is too early to write the training programme off. The training programme seems to have helped at least one category of the staff - the helpers. This was proved on more than one occasion. Also, the fact that the nurses possessed more knowledge on many issues than even the doctors appears to strengthen the argument in favour of training because we can recall that the nurses had more training the doctors in general. All said and done, if we view the difference category wise, then different picture emerges. Hence, the existing training programmes may be altered in such a way that the beneficiaries stand out in terms of knowledge.

With regard to the results on specific issues, the overall knowledge of the group of people covered by this study was good. The issues covered included the mode of AIDS transmission, precautionary steps to be taken in an hospital set up for the prevention of Hospital-Acquired Infections in general or AIDS in particular such as sterilization of syringes and needles, disposal of used materials, treatment of used gloves, preparation and correct use of the bleaching solution, management of wound or aberration with surgical equipment or injection needles, and so on. On many issues, government staff had better knowledge than their private counter part and to quote a few, the management of the aberrations and the disposal of used injection needles. The trained ones did better on this count.

In addition to the self-assessment of the individuals on several issues, the staff also assessed the knowledge of the fellow staff on the same issues. On the average, the assessment put the knowledge level of the staff between average and good. While the self-assessment assesses the level of knowledge in quantitative terms, the assessment of fellow staff comes out with qualitative judgement. On both the counts, the level of knowledge of the individuals has come out as fairly good. However, the doctors assessed the knowledge of their staff as somewhere near poor to average.

In addition to the knowledge of the staff, the supervision and guidance of the doctors are absolutely essential to successfully promote the control measures in an hospital set up. From this point of view, the doctors' supervisory role was also assessed. The study found that a vast majority of the doctors properly advise and their staff to carry out the measures effectively. However, only 40 per cent of the doctors, whether government or private, supervised their staff regularly. That is, although nearly 90 per cent of them insisted on correct procedure to be followed, only about 40 per cent really supervised it giving the effective rate of implementation as 40 per cent.

Despite fairly good proportion of trained staff coupled with better awareness among even untrained ones, if the doctors do not perform their supervisory role, then the effective implementation rate of the control measures would be low even if the doctors insist on them. Practically speaking, this would be the actual practice given the structure of the hospital as an institution and the responsibility of various staff members in such institutions. This happened in spite of the fact that a good proportion of the government doctors felt that the staff do not comply with the guidelines even if they are aware of them (Table-3.15). In fact, two nurses mentioned that the reason for their non-compliance

was that the doctors were not insisting (Table-3.16). One can now link up all these points and draw the conclusion. The others reasons (in fact, they were quoted as the major reasons) for non-compliance of the guidelines despite having been aware of them was the lack of facility and lack of co-operation from other staff. A major chunk of doctors (mostly from government sector) felt that the measures initiated by the hospital authorities towards the control of AIDS were not adequate.

From the discussion so far, one thing is clear. The effective implementation of AIDS control measures requires co-operation from many quarters. More than 75 per cent of the government doctors and 31 per cent of the private doctors (62.8 per cent of all doctors) felt that the measures themselves were not adequate. That is, only 37.2 per cent of the doctors were satisfied with the measures themselves. Therefore, for argument sake, we can say that the adequacy rate is 37.2 per cent. Since about 90 per cent of the doctors insisted on these measures, and given the fact that only 40 per cent of them really supervised the activities of their staff, the effective rate becomes 14.9 per cent (40 per cent of 37.2). The compliance rate for these measures as expressed by the doctors was 68.6 per cent. If we account for this compliance rate in the original rate, then we can get 25.5 per cent. Hence, from the doctors' perspective, the effective adequacy rate can be estimated as 14.9 per cent after taking into account the adequacy rate expressed by the doctors and their supervisory role. Similarly, from the perspective of other staff, the rate can be worked out as 25.5 per cent. In the end, we can say that various measures initiated by the hospital authorities towards the control of AIDS were adequate to the extent of 14.9 - 25.5 per cent after considering the opinions of doctors on various fronts.

Even if all the measures are implemented with 100 per cent sincerity by all those concerned, the current measures are adequate up to the level of 37.2 per cent. In terms of scope for improvement, the authorities have a major role to play and there is 62.8 per cent (100 - 37.2) scope for improvement. If the staff comply to the measures to perfection, then the scope for improvement on this count is in the tune of 11.7 per cent (37.2 per cent). If only the doctors supervise all the activities of their staff, then the scope for improvement is 10.6 per cent (25.5 - 14.9). Overall, the major scope for further improvement lies with the hospital authorities to the extent of 62.8 per cent followed by the staff other than doctors (11.7 per cent). The doctors alone can improve it to the extent of 10.6 per cent. All these quantitative figures were from the opinion percentages and the interpretation is limited to that extent.

Now we shall turn to the actual practice of various activities as observed by the researcher. In this count, the major problem area seems to be the ward (Table-3.18). Here, correct procedures were not followed while giving injection to the patients 13 out of 18 times (72.2 per cent) in the case of government sector and 6 out of 14 times (42.9 per cent) in the case of private sector. Giving injection is a normal routine activity and it was done correctly on 27.8 per cent times in the case of government sector and 57.1 per cent times in the case of private sector. These figures do not tally at all with the awareness level of the staff. These figures even fall short of the doctors' expectations regarding the compliance level of the staff. Lack of facility in the case of government sector and lack of instruction in the case of private sector were given as the major reasons for their wrong doings.

With regard to surgical procedures (Table-3.19), the government sector flops 10 out of 18 times (55.6 per cent) while the private sector fumbles 19 out of 22 times (86.4 per cent). It is certainly alarming to note that the correct procedure was followed only in one out of ten cases and this is a poor show by any standard. What was puzzling more is the major reason given for their wrong doing - it was lack of awareness. This is again contrasting with the perceived knowledge of the staff.

Similar pattern was observed in other activities as well such as wound dressing, blood handling and handling of hospital wastes. All these activities were performed wrongly in the wards and all the other places like casualty, operation theatre and labour room were relatively better off. In the government wards, the wound dressing was done wrongly in 7 cases out of 11 (63.6 per cent) while in the private wards, it was wrongly done 10 out of 12 times (83.3 per cent). One can imagine the public health impact of an important but day-to-day activity such as wound dressing, which was done wrongly 10 out of 12 times.

More seriously, the handling of blood and other body fluid by the staff was done wrongly in the wards on more than 70 per cent occasions in the case of government sector and all the times in the case of private sector. Similar tendency was there in the case of waste management. All these listed activities are relevant in the context of AIDS control and this fact renders the issue little more serious. One surprising thing was that even doctors were involved in the wrong activities on many occasions. However, lab technicians were found to be relatively better off in whatever was expected of them.

The main message is that knowledge did not go with the practice for whatever reasons. By knowledge, we mean the perceived knowledge here. Therefore, the reasons

for not doing the activities correctly were mostly operational. Lack of facility does not seem to be a valid reason on many occasions especially when the activity concerned doesn't require any extra effort in terms of money. Similarly, can we take 'lack of instruction' as a 'negative instruction' not to do? Unless money is involved, both these reasoning are simply unacceptable given their merit. The third reason was the lack of awareness and this sounds plausible. In the end, what one can smell is a hidden reason for their wrong doings and only an elaborate in-depth study can unearth such a thing. Nevertheless, if money plays a role, then there may be some genuine problems with respect to some of the listed activities. No body can deny that.

4.1. Conclusions

First of all, for the successful control of any disease, the measures must be adequate both in terms of quantity and quality. Second, the measures have to be carried to their logical conclusion by those who play the role of a supervisor (here, it is doctor). Third, those who are in a position to really implement them at the grass root level should possess adequate knowledge and willingness. This study was conducted by keeping all these points in mind and self perceived knowledge, knowledge perceived by others and the observation by the researcher were the key elements of this study.

As already demonstrated, the perceived knowledge of both kinds went together while the observation showed different picture. Given this background, the main obstacle in the way of implementing the AIDS control measures appear to be operational. This is one side of the problem for a given system and the other side is the system itself. We

tried to capture all these issues in our study to illustrate the holes in the development and implementation of the control measures with special reference to AIDS.

The study identified that the measures themselves were not adequate in the first place and 62.8 per cent of the respondents felt that the measures were inadequate. Therefore, absence of a perfect system is a serious obstacle coming in the way of AIDS control. But, what is the adequate or optimal level? is not immediately answerable.

From the point of view of the implementation, it can be said that knowledge was not the major constraint. That the staff had adequate knowledge was proved by the qualitative assessments done by the staff for self and others. The major constraint seemed to be lack of supervision. Lack of facility could be another stumbling block in some cases but not all.

To conclude, the main problem areas lie in the system itself. How else can one explain the huge gap between the knowledge and practice of the staff? System flaws have two dimensions - one is money-driven and the other is management-driven. The lack of facility or inadequate control measures were all money-driven where as lack of supervision is management-driven. Both would have to be weeded out in order to be successful in the control of AIDS.

4.2. Limitations

Although we attempted to quantify the adequacy of the control measures with the help of our qualitative results, the whole study should be seen as a qualitative one to throw light on some of the issues relevant for the control of issues and real quantification should be done in order to suggest any policy measures. Also, some of the issues thrown open for discussion by this study require further verification and in-depth analysis. The results and conclusions of this study should be viewed with these limitations in mind.

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Annexur-1
(WHO) Guidelines for observation at work places

1.1 Guidelines for first aid

Bleeding

1. Use glove if possible
2. Avoid contact with blood.
3. If contaminated with blood do not touch his or her own eye or mouth.

Cleaning up blood spills

1. Soak with absorbent cloth without direct contact with blood.
2. Blood soaked absorbent material disposed in plastic bag, burned or buried.
3. Area contaminated with blood should be washed with disinfectant.
4. Rubber gloves should be used while cleaning.
5. Hands must be washed with soap and water cleaning.

1.2 Guidelines for nursing management *(Precautions in relation to blood and body fluids)*

Hand washing-- Hand and other body parts that have been contaminated with blood or body fluid should be washed thoroughly with soap and water. Hands should be washed immediately after removing protective gloves.

Gloves and other attire. -- Nurses should wear gloves for all direct contact with blood and body fluids. If glove is not available other methods should be used to prevent direct contact with blood.

During procedures like childbirth, surgery eyes, nose and mouth should be protected with face shield, mask, glasses and gowns or aprons should be worn.

Needle-stick and other sharp injuries. -- To avoid needle stick injury needle should not be recapped, bent, broken, removed from disposable syringes or manipulated by hand. After use needle and other sharp instruments should be placed in puncture proof containers located as close as possible and handled as infected material.

1.3 Precautions for laboratory workers

1. Where gloves when handling infectious materials or where there is a possibility of exposure to blood or body fluids.
2. Discard gloves whenever they are thought to have become contaminated, wash hand and put on new glove.
3. Do not touch your eyes, nose or other exposed membranes or skin with gloved hands.
4. Do not leave the work place or walk around the laboratory wearing gloves.
5. Wash your hands after any contamination with blood or body fluids.
6. Wear a laboratory gown or uniform when in laboratory.
7. Keep laboratory clean, neat and free from extraneous materials.

8. Disinfect work surfaces when procedures are completed and after each working day.
9. Never pipette by mouth.
10. Perform procedures in a way that minimize risk of aerosol, spills, splashes.
11. Do not eat, drink, smoke, apply cosmetics or store food items in the laboratory.
12. Make sure that there is an effective rodent control program.

Guidelines for collection of blood samples

1. Inspect hands for cuts, scratches or brake in the skin. If skin is broken wear gloves.
2. Take care to avoid contaminating hands while taking blood.
3. Wash the hands after work.
4. If you wear glove wash your hand s with soap and water after removing gloves.
5. Wear a laboratory gown.
6. Seal specimen containers securely. Wipe outside of container free of any blood contamination with disinfectant.
7. In needle prick, wash the wound with soap and water, encourage bleeding.
8. Report any contamination of hands or body with blood, any puncture wound or cut to supervisor and the health services.

Annexur-2

Institutions included in the study.

2.1 General Hospital Thiruvananthapuram.

General hospital Thiruvananthapuram is the biggest institution under Kerala health service department. It is a tertiary care center with multiple specialties and 735 inpatients beds, delivering health care for patients referred from Thaluk hospitals, community health centers and primary health centers of Thiruvananthapuram district.
The center has a 24-hour emergency department in which medical emergencies and surgical emergencies like fatal injuries following road traffic accidents and violence are dealt with. The casualty department is providing service to a minimum of 250 patients every day and most of the activities done here like wound suturing, wound dressing, taking injections etc involve handling of blood and body fluids of patients and chance of contaminating them among patients and hospital staff are high.
The operation theatre complex of the center is one of the biggest among government setup with separate operation wing for general surgery, orthopedics, ENT and ophthalmology surgeries. To an average 15-20 major operations and about 25 minor operations takeplace every day in the complex. The center is also equipped with a well-

equipped blood bank to provide blood for transfusion and a clinical laboratory which handles more than 100 blood samples every day.
In the view of HIV transmission through contamination of infected blood and body fluids, the strict adherence to prescribed guidelines for preventing hospital acquired infections on activities taking place in these places can to a great extent help in controlling HIV transmission.

2.2 W&C Hospital Thycadu, Thiruvananthapuram

Women and Children Hospital is a major institution under Kerala health services delivering maternal and childcare. The institution has Obstrectic and gynecology department with labor room and theatre facilities providing antenatal care, prenatal care, family planing services and a pediatric department providing immunization services and pediatric care. It has a staff strength of 36 doctors, 91 nurses, about 100 nursing assistants and other supporting staff.. Every day about 15-25 deliveries take place in labor room and about 10-15 gynecological operations including cesarean sections are being done in operation theatre.

2.3 Public Health Laboratory.

Public health laboratory is a government clinical laboratory which handles laboratory investigations of about 140 to 150 patients every day. The laboratory undertakes blood tests like blood glucose estimation, blood urea, serum cholesterol, serum bilirubin, liver function tests, HbsAg, blood-grouping etc apart from hematological investigations. Body fluid examinations like cerebro spinal fluid analysis and ascitic fluid study are also being done. The institution has a staff strength of 9 doctors,20 Laboratory technicians and 12 laboratory assistants. 6 Doctors are having post graduation in clinical pathology and all laboratory technicians are having diploma in medical laboratory technology.

2.4 Private hospital –1

One of the biggest hospital in Thiruvananthapuram district with turnover of 400 to 500 out patients every day , providing service through different specialties like general medicine, general surgery, OBG, ENT, ophthalmology, pediatrics, dermatology etc. It has a well functioning casualty department, operation theatre and labor room. 10 to 15 operations and 8 to 10 deliveries takeplace every day in the hospital. With these parameters it is comparable with General hospital Thiruvananthapuram.

2.5 Private hospital –2

This institution is a moderate hospital with 45 beds and specialties like medicine, surgery, OBG, pediatrics, ENT, ophthalmology etc. The casualty department, labor room and operation theatre are equipped with modern facilities and handles about 50 emergencies, 3to5 deliveries and 5to10 operations respectively. The hospital has staff strength of 34 doctors, 64 nurses and 29 supportive staff.

2.6 Private hospital –3

This is a 55 bedded hospital functioning in rural Thiruvananthapuram with all major specialties and staff strength of 22 doctors, 30 nurses and 14 supportive staff. It is the referral center for peripheral hospitals of Thiruvananthapuram and Kollam districts with turnover of 150to200 out patients every day. The hospital has emergency department, operation theatre, labor room and all specialties.

2.7 Private clinics

Three private clinics from different parts of Thiruvananthapuram district with similar infrastructure were included in the study. They where functioning with one or two doctors, three to five nurses and one or two helpers each. The service is mainly through out patient consultation, giving injections, wound dressings ect:. Each clinic had an average turnover of 75 patients every day.

Annexur-3

Questionnaire used for assessing knowledge of the staff. (In English for doctors and in Malayalam, (local language) for nurses and helpers).

3.1 Questionnaire for doctors.

PREVENTIVE MEASURES AGAINST HOSPITAL-ACQUIRED INFECTIONS : AWARENESS AND COMPLIANCE BY HEALTH CARE DELIVERY STAFF WITH SPECIAL EMPHASIS ON AIDS

Questionnaire for doctors

Note : This is a questionnaire to study the awareness and practice of the disease preventive measures ollowed in the hospitals by the health care delivery staff with special reference to AIDS. This forms part of the dissertation work for the award of MPH degree carried out by Dr.R.Suresh, MPH student, Sree Chita Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala - 695011. There is no right or wrong answer and the information provided here will be kept confidential. So, feel free to express your opinion.

Personal details

Name of the respondent
(Optional)
Age Qualifications
Designation Specialization
Institution
Department
(Casualty/OT/LR/blood bank/dermatology/surgery/any other)

Questionnaire

Note: There can be multiple answers, if you so desire

1. Have you ever had any training on AIDS control measures in hospital?
   a) Yes b) no

2. If yes, at what level?
   a) National b) State level c) Departmental d) Both
   e) Other (specify)
3. Duration of training?
   a) About a week b) 2weeks c) 1 month d) more than a month

4. Transmission of AIDS virus can be interrupted in hospitals through
   a) Isolation of infectious staff or patients
   b) Avoiding contacts with blood and body fluids
   c) Washing of hands, disinfection of equipment, and change of working cloth
   d) Protecting the susceptible host by protective vaccination
5. Are you familiar with the existing guidelines for the control of Hospital-Acquired Infections (HAI) and AIDS?
   a) Yes b) no
6. Are you able to follow them in your workplace (Hospital)?
   a) Yes b) no

7. If no, why?
   a) Other staff not cooperative b) short supply of material
   c) lack of time due to overcrowding d) low probability of infection
   e) Any other (specify) ...
8. Universal precautions followed in OT/LR are?
   a) Wearing gloves b) masks c) goggles d) apron e) boots f) all
9. Syringes and needles are boiled for minimum... minuets before use.?
   a) 5 Mts. b) 10 Mts. c) 20 Mts.
10. Do you insist on boiling surgical instruments and syringes for prescribed minimum time in your hospital or clinic?
   a) Yes b) no
11. Do you supervise the activities involving blood handling in your work place?
   a) yes b) no
12. Do you think that you can get AIDS from a patient?
   a) yes b) no c) don't know
13. Do you think all patients need to be screened for HIV before any surgical procedure?
   a) yes b) no c) don't know
14. Have you taken Hepatitis B vaccination?
   a) Yes b) no
15. Do you believe that AIDS control measures are effectively followed in your hospital?
   a) yes b) no c) don't know
16. What in your opinion, is the level of knowledge of other health care staff about the guidelines in relation to HAI and AIDS?
   a) Excellent b) good c) average d) poore) very poor
17. Do you think that the staff generally comply with the guidelines as and when they come to know of them?
   a) Yes b) no c) don't know

18. What is your suggestion for the improved compliance to the guidelines by the health care staff?

19. The efforts at your work place so far towards the control of AIDS is
    a) More than adequate b) adequate c) not enough
20. Do you give training for your subordinates?
    a) Yes b) no
21. If no why?

Remarks (if any):

Date...

3.2 Questionnaire for nurses.

PREVENTIVE MEASURES AGAINST HOSPITAL-ACQUIRED INFECTIONS : AWARENESS AND COMPLIANCE BY HEALTH CARE DELIVERY STAFF WITH SPECIAL EMPHASIS ON AIDS

Questionnaire for nurses

Note : This is a questionnaire to study the awareness and practice of the disease preventive measures followed in the hospitals by the health care delivery staff with special reference to AIDS. This forms part of the dissertation work for the award of MPH degree carried out by Dr.R.Suresh, MPH student, Sree Chita Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala - 695011. There is no right or wrong answer and the information provided here will be kept confidential. So, feel free to express your opinion.

Personal details

Name of the respondent
(Optional)
Age Qualifications
Designation Institution
Department
(Casualty/OT/LR/blood bank/dermatology/surgery/any other)

Questionnaire

Note: There can be multiple answers, if you so desire

1. Transmission of AIDS virus can be interrupted through
    a) Isolation of infectious staff or patients
    b) Avoiding contacts with blood and blood products
    c) Washing of hands, disinfection of equipment, and change of working cloth
    d) Protecting the susceptible host by protective vaccination
2. What are the possible ways of controlling infection in a hospital? (List)

3. Are you familiar with the existing guidelines for the control of Hospital-Acquired Infections (HAI) and AIDS?
    a) Yes b) no

4. Are you able to follow them in your workplace (Hospital)?
   a) Yes b) no
5. If no, why?
   a) Doctor not insisting b) I don't think it is effective
   c) Other staff not cooperative d) patients not cooperative
   e) Short supply of material f) lack of time due to overcrowding
   g) low probability of HIV infection
6. Do you boil surgical instruments and syringes before use?
   a) Yes b) no
7. If yes, how long?
   a) 5 minutes b) 10 minutes c) 15 minutes c) 20 minutes or more
8. Do you think you can get AIDS while treating patients?
   a) Yes b) no c) don't know
9. What are the possible ways of getting AIDS from a patient?
   a) by touch or skin to skin contact b) from droplets
   c) by mosquito d) contact with blood and blood products
   e) all f) don't know
10. AIDS patients should be isolated?
   a) yes b) no c) don't know
11. Do you need any precaution while treating AIDS patient?
   a) yes b) no c) don't know
12. If yes, what is it?
   a) Wearing gloves b) masks c) goggles d) apron e) boots f) all
13. Universal precautions followed in OT/LR are?
   a) Wearing gloves b) masks c) goggles d) apron e) boots f) all
14. Bleaching solution is prepared by
   a) adding powder to water b) keeping powder pouch in water
   c) bleaching paste to water
15. Once prepared, bleaching solution can be used for?
   a) 12hrs b) 24hrs c) 48hrs d) 1 week e) don't know
16. After use, gloves are
   a) Washed and used b) sterilized c) washed and put in bleaching solution
17. For an aberration on your hand?
   a) Dress b) wash and dress c) wash with soap and apply antiseptic
18. Injection needles are disposed by
   a) Throwing away b) burning c) crushing
   d) crushing, bleaching and disposing
19. When you don't follow the usual procedure, what is the reaction of the doctor?
   a) Ignores it b) encourages it
   c) advises not to repeat it d) punishes
20. Do you believe that AIDS control measures are effectively carried out in your hospital?
   a) Yes b) no c) don't know
21. Have you ever had any training on AIDS control measures in hospital?
   a) Yes b) no

22. If yes, at what level?

a) National b) State level c) Departmental

d) Both e) Other (specify)

23. Duration of the training?

a) About a week b) 2 weeks c) 1 month d) more than a month

24. Do you remember the content or messages of the training program?

a) Remember very well b) to some extent c) don't remember at all

25. Are you convinced that the present AIDS control measures in hospitals would help in preventing transmission of AIDS?

a) Yes b) no c) don't know

26. If no, why?

27. What in your opinion, is the level of knowledge of other health care staff about the guidelines in relation to HAI?

a) Excellent b) good c) average d) poor e) very poor

28. Do you think that the staff generally comply with the guidelines as and when they come to know of them?

a) Yes b) no c) can't say

29. What is your suggestion for the improved compliance to the guidelines by the health care staff?

30. What do you think is the best way of controlling AIDS in hospital settings?

a) AIDS awareness campaign among the community

b) AIDS awareness campaign among the health care delivery staff

c) Carefully followed precautions in the hospital set up

d) Allocating more money towards AIDS control program

e) any other (specify)

Remarks (if any):

Date...

3.3 Questionnaire for helpers.

PREVENTIVE MEASURES AGAINST HOSPITAL-ACQUIRED INFECTIONS: AWARENESS AND COMPLIANCE BY HEALTH CARE DELIVERY STAFF WITH SPECIAL EMPHASIS ON AIDS

Interview schedule for nursing assistants, sweepers, helpers etc.

Note : This is a questionnaire to study the awareness and practice of the disease preventive measures followed in the hospitals by the health care delivery staff with special reference to AIDS. This forms part of the dissertation work for the award of MPH degree carried out by Dr.R.Suresh, MPH student, Sree Chita Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala - 695011. There is no right or wrong answer and the information provided here will be kept confidential. So, feel free to express your opinion.

Personal details

Name of the respondent
(Optional)
Age Qualifications
Designation Institution
Department
(Casualty/OT/LR/blood bank/dermatology/surgery/any other)

Interview Schedule

Note: There can be multiple answers

1. Transmission of AIDS virus can be prevented by
   a) Isolation of infectious staff or patients
   b) Avoiding contacts with blood and blood products
   c) Washing of hands, disinfection of equipment, and change of working cloth
   d) Protecting the susceptible host by protective vaccination
   e) Any other (specify)
2. What are the possible ways of controlling infection in a hospital? (List)

3. Do you think that you can contribute to the prevention of AIDS?
   a) Yes b) no c) don't know
4. If yes, How?

5. If no, Why?

6. The existing guidelines for the control of Hospital-Acquired Infections (HAI) and AIDS are?
   a) Wearing gloves b) masks c) goggles d) apron e) boots f) all
7. Are you able to follow them in your workplace (Hospital)?
   a) Yes b) no
8. If no, why?
   a) Doctor not insisting
   b) I don't think it is effective
   c) Other staff not cooperative
   d) patients not cooperative
   e) short supply of material
   f) lack of time due to overcrowding
   g) low probability for infection
9. Have you ever had any training on AIDS control measures in hospital?
   a) Yes b) no

10. If yes, what kind of training?
    a) Class room teaching b) demonstration c) pamlets
    d) Any other (specify)...
11. Do you remember the messages delivered during the training?
    a) Remember very well b) to some extent c) don't remember at all
12. What are the possible ways of getting AIDS from a patient?
    a) By touch or skin to skin contact b) from droplets
    c) by mosquito d) contact with blood e) all
    f) Don't know g) any other (specify)
13. Do you think you can get AIDS from a patient?
    a) Yes b) no c) don't know
14. Do you need any precaution while treating AIDS patient?
    a) Yes b) no c) don't know
15. If yes, what is it?

16. AIDS patients should be isolated
    a) yes b) no c) don't know
17. Who are responsible for the spread of AIDS?
    a) Sex workers b) drug addictsc) hospital staff d) all
    e) Any other (specify)
18. Universal precautions followed in OT/LR are
    a) Wearing gloves b) masks c) goggles d) apron e) boots f) all
19. Do you know how to prepare bleaching solution?
    a) Yes b) no
20. If yes, bleaching solution is prepared by
    a) Adding powder to water b) keeping powder pouch in water
    c) bleaching paste to water
21. Once prepared, bleaching solution can be used for?
    a) 12hrs b) 24hrs c) 48hrs d) 1 week e) don't know
22. After use, gloves are
    a) Washed and used b) sterilized
    c) washed and put in bleaching solution and sterilize
23. How will you dispose soiled cotton?
    a) Burying b)-burning c) bleaching and burning.
24. For an abrasion on your hand what will you do?
    a) Dress b) wash and dress c) wash with soap and apply antiseptic
25. Injection needles are disposed by
    a) Throwing away b) burning c) crushing
    d) bleaching crushing and disposing
26. When you don't follow the usual procedure, what is the reaction of the doctor?
    a) Ignores it b) encourages it
    c) advises not to repeat it d) punishes
27. Do you believe that AIDS control measures are effectively carried out in your hospital?
    a) Yes b) no c) don't know

28. Are you convinced that the present AIDS control measures in hospitals would help in controlling AIDS?

a) Yes b) no c) don't know

29. If no, why?

30. What in your opinion, the level of knowledge of other health care staff about the guidelines in relation to HAI?

a) Excellent b) good c) average d) poore)very poor

31. Do you think that the staff generally comply with the guidelines as and when they come to know of them?

a) Yes b) no c) can't say

32. What is your suggestion for the improved compliance to the guidelines by the health care staff?

33. What do you think is the best way of controlling in hospital setting AIDS?

a) AIDS awareness campaign among the community
b) AIDS awareness campaign among the health care delivery staff
c) Carefully followed precautions in the hospital set up
d) Avoiding contacts with blood and blood products
e) Any other (specify)...

Remarks (if any):

Date: .....

Annexur-4

Guidelines for observation

4.1 Guidelines for observing activities at work place (based on WHO guidelines) for doctors.

Activity code for doctors.

Activity code	Activity	Guideline
D1	Handling of injury	Use glove, avoid contact with blood, do not touch eye, nose, and mouth with contaminated hand.
D2	Dressing of wounds	Clean wounds and dirty wounds dressings are done at separate places.
D3	Hand washing	Wash with soap and water before and after removing the glove.
D4	Preparations to attend delivery, operations	Use apron, mask, glove, glass, foot wear and do not touch eye, nose, and hand with contaminated hand.
D5	Measures on contamination of body with blood, any puncture wound or cut	Allow bleeding, wash disinfect and report to superior.
D6	Discarding needles and syringes	Put in disinfectant fluid, dispose in puncture proof containers. Separate containers for reusable and disposable.
D7	Disposing of disposable materials	Treat as reusable and destroy (crush or melt)
D8	Disposal of contaminated dressings	Collect in three separate containers containing disinfectants, two are puncture proof for sharp objects, one for disposable and one for reusable and a polythene bag for contaminated dressings.

4.2 Guidelines for observing activities at work place (based on WHO guidelines) for nurses.

Activity code for nurses

Activity code	Activity	Guideline
N1	Disinfecting skin before injection	Clean with soap, Water, spirit, iodine.
N2	Hand washing.	Wash with soap and water before removing glove. Wash hand after removing glove.
N3	Sterilization of used syringes.	Wash with water, put in bleaching powder solution for mts, boil for 20 mts
N4	preparation of bleaching powder solution	1gm powder in 1L water.
N5	Duration of use of prepared bleaching powder solution.	12 hours
N6	Discarding needles & syringes	Put in disinfectant fluid dispose in puncture proof container, separate container for reusable and disposable.
N7	Discarding of disposable materials.	treated as reusable and destroy (crush or melt)
N8	Disposal of contaminated dressings.	In three separate containers, two are puncture proof, contain disinfectant for sharp objects one for reusable and other for disposable and one polythene bag in bucketfor used cotton, dressings etc;
N9	Preparation to attend delivery	Use apron, mask, gloves, glass, foot wear and don't touch eye, nose, mouth with contaminated hand.
N10	Use of glove and gown	should be used
N11	Cleaning blood soiled space	cover with adsorbent, disinfect the surrounding, then disinfect the adsorbent and keep for 10 min
N12	Handling of injury.	Use glove, avoid contact with blood, do not touch eye, nose, mouth with contaminated hand.
N13	Dressing of wounds	clean wound and dirty wound dressing done at separate places.

4.3 Guidelines for observing activities at work place (based on WHO guidelines) for nursing assistants.

Activity code for nursing assistants.

Activity code	Activity	Guideline
H1	Handling of injury.	Use glove, avoid contact with blood, dont touch eye, nose, mouth with contaminated hand.
H2	Hand washing.	Wash with soap and water before removing glove. Wash hand after removing glove.
H3	Sterilization of used syringes.	Wash with water, put in bleaching powder solution , boil for 20 mts
H4	preparation of bleaching powder solution	1gm powder in 1L water.
H5	Duration of use of prepared bleaching powder solution.	12 hours
H6	Discarding needles & syringes	Put in disinfectant fluid dispose in puncture proof container, separate container for reusable and disposable.
H7	Discarding of disposable materials.	treated as reusable and destroy (crush or melt)
H8	Disposal of contaminated dressings.	In three separate containers, two are puncture proof, contain disinfectant for sharp objects one for reusable and other for disposable and one polythene bag in bucket for used cotton, dressings etc;
H9	Discarding of blood soaked material	disinfect, incinerate, burn or bury deep
H10	Cleaning of gloves	wash, soak in bleaching power and sterilize
H11	Cleaning blood soiled space	cover with adsorbent, disinfect the surrounding, then disinfect the adsorbent and keep for 10 min
H12	Use of glove and gown	should be used
H13	Treatment of placenta	incinerate, burn or bury deep with bleaching power all around

4.4 Guidelines for observing activities at work place (based on WHO guidelines) for Laboratory technetions.

Activity code for laboratory technicians.

Activity code	Activity	Guideline
L1	Disinfecting skin before blood sample collection	clean with soap, Water, spirit, iodine.
L2	Use of glove and gown	should be used
L3	Hand washing.	Wash with soap and water before removing glove. Wash hand after removing glove.
L4	Pipeting by mouth	never do
L5	Cleaning blood soiled space	cover with adsorbent, disinfect the surrounding, then disinfect the adsorbent and keep for 10 min
L6	Sterilization of used syringes.	Wash with water, put in bleaching powder solution , boil for 20 mts
L7	preparation of bleaching powder solution	1gm powder in 1L water.
L8	Duration of use of prepared bleaching powder solution.	12 hours
L9	Discarding needles & syringes	Put in disinfectant fluid dispose in puncture proof container, separate container for reusable and disposable.
L10	Discarding of disposable materials.	treated as reusable and destroy (crush or melt)
L11	Transport of specimen	seal container, wipe outside free of blood with disinfectant
L12	Measures on contamination of body with blood, any puncture wound or cut	Allow to bleed, wash, disinfect and report to supervisor