Reduce the Healthcare Acquired Infection in Hospital

Dissertation submitted in partial fulfillment of the requirements

For the award of

Post graduate diploma in Health and Hospital Management

By

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PG/10/095

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Action Cancer Hospital

Date: 27th April 2012

CERTIFICATE OF INTERNSHIP COMPLETION

TO WHOM IT MAY CONCERN

This is to certify that Dr. Rehana Ansari (PT) has successfully completed his 3 months internship in our organization from February 14, 2012 to April 25, 2012.

During this intern she has worked on "Reduce the Hospital Acquired Infection in Action cancer hospital" under the guidance of me and my team at Action Cancer Hospital, A-4, Paschim Vihar,New Delhi

She was a hard worker.
(Any positive/ negative comment)

We wish her good luck for her future assignments

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Certificate of Approval

The following dissertation titled " **Reduce the Healthcare Acquired Infection in Action cancer Hospital**" is hereby approved as a certified stu in management carried out and presented in a manner satisfactory to warrant it acceptance as a prerequisite for the award of **Post- Graduate Diploma in Heal and Hospital Management** for which it has been submitted. It is understood th by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve th dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation

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Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Rehana Ansari (PT),** a graduate student of the **Post-Graduate Diploma in Health and Hospital Management**, has worked under our guidance and supervision.

He/She is submitting this dissertation titled "Reduce the Hospital Acquired Infection in ACTION CANCER HOSPITAL" in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

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Abstract

This study helps to determine the importance of infection control practices in the hospital. The knowledge part is very important aspect to reduce infections in the hospital. as we have seen the pre test in knowledge and practice survey among the nursing staff was low average score 18.5 out of 40 that has increase after post test 32.5 out of 40.as literature review indicates that the knowledge aspect is a important part in heath care to reduce Health care associated infections.In ICU his been observed that before and after patient contact staff were not using the standard protocols the percentage was very high for not following the standard procedure. After intervention the nurse and staff were following the standard protocols for infection control.

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Rehana Ansari

IIHMR, New Delhi

Batch 'C'

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List of Acronym

ACH:	Action Cancer Hospital
CDC:	Centres for Disease Control and Prevention
HAIs :	Hospital Acquired Infections
HCAI:	Healthcare Associated Infections
ICC (multidisciplinary):	Infection Control Committee s
ICU:	Intensive Care Unit
IPD:	In patient Department
IV:	Intravenous
MRSA:	Methicillin-Resistant Staphyloccus aureus
NABH:	National Accreditation Board for Hospitals and Healthcare
SARS :	Severe Acute Respiratory Syndrome
WHO:	World Health Organisation

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Part - 1

Internship Report

Organization profile

Action Cancer Hospital

Action Cancer Hospital

Action Cancer Hospital, with its world class facilities and state-of-the-art technologies, has been transforming lives and re-igniting hopes

Action Cancer Hospital had established on April 2, 2010 .It is NABH Accredidated hospital.It is a first-of-its-kind cancer care hospital in the heart of West Delhi and one of the three freestanding hospitals in Delhi and NCR. The hospital features 100 beds and multiple specialisation facilities spread over six floors on 2.5 acres of land. The hospital functions under the aegis of Lala Mange Ram Aggarwal Charitable Trust.The hospital empanels some of the most renowned names in the field of oncology, who, along with well trained paramedical staff believe in healing with a human touch.

The full-fledged super-speciality hospital is well equipped to handle all types of cancer cases. The infrastructure, equipment and technology have been integrated to international standards to provide globally compatible speciality healthcare. Rapid Arc Radiation Machine, Linear Accelerator, 16 Slice PET/CT and Gamma Camera, 1.5 Tesla MRI as well as 64 Slice CT Angio systems among other latest equipment are available for the benefit of the patients at Action Cancer Hospital. The hospital also has a separate treatment department for international patients, which has been drawing audiences from all across the globe.

Mission

Action Cancer Hospital has been established with a mission to provide world class affordable health care facilities to all sections of the society with a humanitarian touch, whilst maintaining high standards of ethical practices and professional competency with emphasis on training and education leading to research

Vision

To become the largest healthcare provider NGO in the country with the human touch

Quality Policy

We are committed to improve the health and satisfaction level of our patients by ensuring continual improvement by

- Providing high quality care according to the health needs of the patients.
- Facilitating patient satisfaction by service and ensuring the dignity and rights of patients.
- Providing a safe and conducive work environment for staff.
- Ensuring accountable, consultative and transparent management process.
- Providing basic and continuing education for staff.

Associates

1. Sri Balaji Action Medical Institute, 400 bedded in Paschim Vihar.
2. Dispensary Located at Shazadabagh.
3. Balaji Nirogdham Naturopathy and Yoga Centre at Bala Bakhtawarpur.
4. Sri Balaji Hospital Hissar, 150 Bedded.

The hospital has different departments to cater to the specific needs of its patients and they are as follows:

Department of Medical Oncology: Department of Medical Oncology deals with the systemic therapy of cancer including chemotherapy, hormonal therapy, targeted therapies, supportive care and bone marrow transplantation.

Department of Surgical Oncology: The surgical oncology teams are experts in performing surgeries of head and neck, breast, thoracic, upper and lower GI, hepatobillary, pancreatic, urology, gynaecology, bone and soft tissue and skin tumours. The modular operation theatres with central supplies and laminar air flow, stainless steel cladding on wall and epoxy coating on floors maintain the electrostatic and infection free environment.

Department of Radiation Oncology: The department is equipped with a computer-controlled dual energy linear accelerator (6MV,15MV) which operates in multiple modes, delivering both photon and electron radiation at different energy levels, so the radiation oncologists can choose the most appropriate energy and depth of treatment for each individual case. The department has the most advanced treatment planning system utilising a CT simulator, numerous software technologies for planning and delivery, and medical imaging technology (CT scan, PET scan, and MRI) that enable the radiation oncologist to precisely define and differentiate the cancerous tumour from normal healthy tissue. The department is also equipped with brachytherapy setup which is capable of performing gynaecological, esophageal, endobronchial, interstitial and surface mould brachytherapy.

Department of Gynae Oncology: The Department of Gynae Oncology deals with female genital cancers. The department provides both preventive and curative treatments for cancers of uterus, cervix, ovary, vulva and vagina and estational tumours. A highly experienced team of doctors provide comprehensive care for gynecological cancers which includes both radical and ultra-radical surgical treatment, medical management and radiotherapy.

Department of Nuclear Medicine and PET.CT: Nuclear Medicine or Department of radio-isotope imaging is equipped with state-of-the-art PET/CT and Dual head Gamma Camera by GE. Dual head gamma camera is used to detect the disease at the functional level. The isotope imaging helps in detecting the disease much earlier than it manifests itself with structural changes to be detected with USG or CT imaging. PET/CT imaging brings the molecular imaging for disease detection.

Department of Radio Diagnostics and Bio Imaging: The department is equipped with the most advanced facilities like:

a)1.5TeslaMRI
b) 64 slice CT scan
c) Digital Fluoroscopy and Compound Radiography
d) CR System
e) Bone Densitometry

f) High end Ultrasound and Color Doppler

g) Mammography

h) Digital and Portable X-ray

Department of Laboratory Medicine and Blood Bank: The hospital is also home to Action Holistic Clinic, a unique healing centre which focuses on the overall physical, mental and spiritual health of patients and not just curing the disease

Objective of internship-

It is imperative in the field of management to do internship at the end of classroom teaching. It allows hands on experience that is sometimes missing in theoretical knowledge.

Fundamental objective to internship are,

- ✓ To get involved in day to day operations.
- ✓ To comprehend the interdepartmental co-ordination.
- ✓ To find an area in the organisation where improvement is required and where management knowledge & skills can be imparted.

Department Visited-

To execute the dissertation, it was indispensable to visit all the department in the hospital but some of key department are enumerated below-

Clinical-

- OPD
- IPD
- ICU
- Day care
- Operation Theatre
- Emergency

- Laboratory
- Radiology

Non clinical-

- CSSD
- Pharmacy
- Medical Record Department
- Store
- Laundry
- Cashless services
- Dietary Department
- Housekeeping
- Security
- Mortuary

1.2Managerial Tasks-

To be a part of NABH core group-

1) Auditing of the Active file in wards, ICU, Day care and discharged patient's file to check the documentation in the file according to the hospital policy and standards(NABH) in the Medical record department(MRD).

2)After pre assessment by the NABH assessors, helped in closure of non confimity(NC):

a)Auditing of the surgical files (active & discharged) compilation, analysis of data and send repot to quality coordinator.

b) Analysis of the code blue(cardiac arrest)and send report to quality coordinator.

3) Time motion study for the discharge process, to analyse the loop holes in whole process of Discharge.

4) Updating the hospital committees and then conducting their regular meeting according to annual schedule.

5) Documenting the minutes of meeting and preparing the action taken report of all Committee meetings.

6) To take infection control round with infection control nurse and analysing infection related rates.

Part - 2

Dissertation Report

Background

National Accreditation Board for Hospitals and Healthcare Providers (NABH) is a constituent board of Quality Council of India, set up to establish and operate accreditation programme for healthcare organizations.

NABH is an institutional member of the International Society for Quality in Health Care (ISQua)

The board while being supported by all stakeholders including industry, consumers, government, has full functional autonomy in its operation. **Patients** are the biggest beneficiaries. Accreditation results in high quality of care and patient safety. The patients get services by credential medical staff. Rights of patients are respected and protected. Patient satisfaction is regularly evaluated. **Hospital** gets stimulated for continuous improvement. It enables hospital in demonstrating commitment to quality care. It raises community confidence in the services provided by the hospital. It also provides opportunity to healthcare unit to benchmark with the best. **Staff** in an accredited hospital is satisfied lot as it provides for continuous learning, good working environment, leadership and above all ownership of clinical processes. It improves overall professional development of Clinicians and Paramedical staff and provides leadership for quality improvement within medicine and nursing. [11]

NABH Standard

Standard is a statement that defines the structures and processes that must be substantially inplace in an organization to enhance the quality of care. It has **Objective Element.** It is a measurable component of a standard. Acceptable compliance with objective elements determines the overall compliance with a standard. To develop standards one need to organize around important functions

- Focus on patient and staff safety
- Set standards that all organizations must pass
- To be revised periodically and raise the “bar”
- Achieve International recognition

The standards provide framework for quality assurance and quality improvement for hospitals.

For ensuring NABH standards should be implemented and integrated in the hospital functioning, patient safety is one of the issues. The following section discusses about the need of assessing infection control practices among the nursing staff and housekeeping staff in Action cancer hospital.

According to NABH the standard [(1)]5th chapter that covers **Hospital Infection Control (HIC)**

Some of the Measurable Elements of the standards which has been included in this project:

- The hospital infection control programme is documented which aims at preventing and reducing risk of Nosocomial infections.
- The hospital has a multi-disciplinary infection control committee.
- The hospital has an infection control team.
- The hospital has designated and qualified infection control nurse(s) for this activity.
- Hand washing facilities in all patient care areas are accessible to health care providers.
- Compliance with proper hand washing is monitored regularly.
- Isolation/ barrier nursing facilities are available.
- Adequate gloves, masks, soaps, and disinfectants are available and used correctly.
- The hospital is authorized by prescribed authority for the management and handling of Bio-medical Waste.
- Proper segregation and collection of Bio-medical Waste from all patient care areas of the hospital is implemented and monitored.
- Appropriate personal protective measures are used by all categories of staff handling Bio-medical Waste.
- It also conducts regular “in-service” training sessions for all concerned categories of staff at least once in a year.

Rationale of study: AS ACH has already faced the pre assessment from the NABH assessors in the month November. After that there was the continues training process among the staff and the nurses related to policies and protocols according to the NABH standards in all the departments.

All these led to the idea of starting a project on infection prevention and control in ACH to see the compliances of the training. The infection prevention and control practices is difficult to assess as it a vast topic which is covering 9 standards and 46 objective elements. So I decided to take some of the standards which is related to both patients and staff safety for eg. Hand hygiene practices, personal protective equipments(PPE),cleaning, knowledge regarding infection and prevention among the nursing staff.

The central question of this project was:

1.How important is the knowledge and practice of the nursing staff to decrease the hospital acquired infection(HAI).

2. How much is the Practices followed by the nursing staff and housekeeping staff to follow the protocol and standards on infection prevention and control in the nursing station before and after supervising?

3. How can the staff be motivated and supervised to follow the protocols and standards on infection prevention and control?

Definitions: (according to Patient safety: Multimodal Hand Hygiene Improvement Strategy WHO 2009)[(2)]

Health care-associated infection (HCAI): *An infection occurring in a patient during the process of care in a hospital or other health-care facility which was not present or incubating at the time of admission. This includes infections acquired in the hospital but appearing after discharge, and also occupational*
infections among staff of the facility.

Hand cleansing : *Action of performing hand hygiene for the purpose of*
physically or mechanically removing dirt, organic material or microorganisms.

Hand hygiene : *A general term referring to any action of hand cleansing.*

Hand rubbing: *Applying an antiseptic hand rub to reduce or inhibit the growth of microorganisms without the need for an exogenous source of water and requiring no rinsing or drying with towels or other devices.*

Handwashing: *Washing hands with plain or antimicrobial soap and water.*

Alcohol-based handrub : *An alcohol-containing preparation (liquid, gel or foam) designed for application to the hands to reduce the growth of microorganisms. Such preparations may contain one or more types of alcohol with excipients, other active ingredients and humectants.*

For this project the term infection prevention and control is used instead of hygiene. According to literature hygiene is a collective term for all the ways that will keep people and animals healthy by keeping away pathogenic microorganisms. Infection prevention and control is a part of hygiene. Infection prevention and control is an essential, though often underrecognised and under supported part of the infrastructure of healthcare.

The following aspects of infection prevention and control will be included in this project :

1. Hand hygiene / hand washing

2. Personal protective equipment

3. Cleaning

4. Disposable waste

5. Training and education of nursing and housekeeping staff.

LITERATURE REVIEW:

A prospective study was performed over a period of 15 months in two ICUs of Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry, India. Surveillance samples were collected from the HCWs and the ICU environment. results shows that ICU environment was observed to be the potential reservoir for VAP pathogens; therefore, strict adherence to environmental infection control measures is essential to prevent health-care-associated infections.(Joseph *et al*.2010) .

A cross-sectional interventional study was conducted including a random sample of (120) nurses in medical and surgical wards. Data was collected through a predesigned questionnaire and check list. The number and types of bacteri on hands of nurses before and after disinfection with alternative agents and after drying were evaluated by the standard microbiological method. The results revealed that, the compliance of nurses with hand washing between patients' contact is quite poor (1.7%) which referred mainly to work overload (94.9%) and lack of resources (39.8%). The majority of nurses have transient bacterial flora (97.5%). The frequency of Staphylococcal aureus, E. coli, Klebsiella and Streptococcal faecalis hand infections was (47.5%), (30%), (5%) and (4.2%), respectively. The betadine and alcohol disinfectants have the highest efficacy (95.5%) and (90%) in medical ward and (90.9%) and (82.9%) in surgical ward, respectively. The efficacy of alternative hand disinfectants generally improved after hand drying with paper towel. For plain soap and tap water the efficacy after drying became nearly similar to betadine and alcohol. In conclusion, scientific evidence and easy use support the use of plain soap and tap water with drying with paper towel for routine hand hygiene. (*Abou El-Fath et al 2003)*

Aim and objective

Aim: To reduce health care associated infections in Action Cancer Hospital.

Objective:

1) To develop and administer a Knowledge and Practices survey on Infection prevention and control among the nursing staff of Action cancer hospital.

2) To measure the adherence of infection, prevention and control standards and protocol in the ICU (ACH).

3) To motivate the staff in the ICU and IPD to follow infection prevention and control protocols and standards.

INTRODUCTION

Each year infections associated with health care occur in a large number of patients, making healthcare associated infection (HAI) the most common complication affecting patients in hospitals. These infections have a number of adverse effects for both patients and the hospital.

For the patient

- The risk of life-long disabilities or even death
- The possible need for stronger and more expensive medications, with the added risk of complications
- Prolonged hospital stays.

For the hospital:

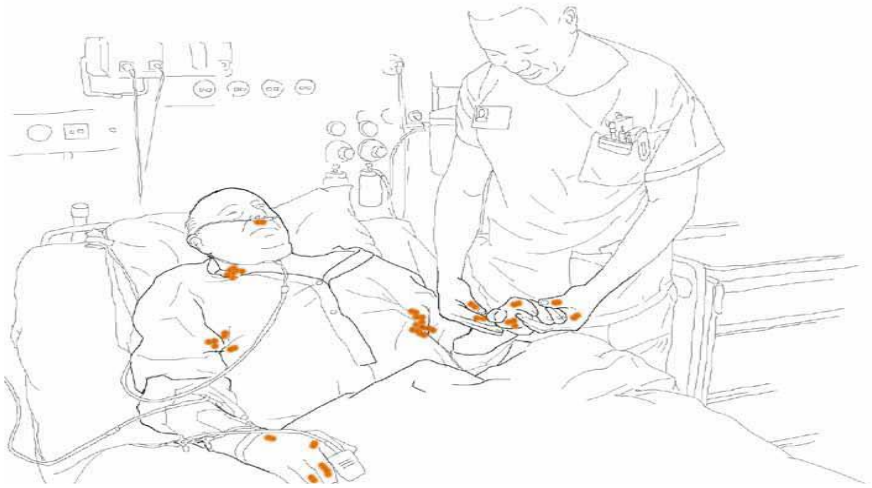
- Significant resource costs
- The need for more comprehensive quarantine/isolation procedures
- More work for healthcare staff (such as the use of laboratory tests and other tools to diagnose the infection)

- Prolonged hospital stays, which increase the cost of admission, and reduce the beds available for new admissions.

However, at least half of HAIs are preventable and the ability of a healthcare facility to significantly reduce the rate of these adverse effects, for both patients and the hospital, has been repeatedly demonstrated. Just as there is no single cause of healthcare associated infections, there is no single solution to the problems posed by them. In addition, infectious agents evolve and constantly present new challenges in healthcare environments. A major current concern is preventing the transmission of antimicrobial resistant bacteria such as methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococci (VRE) in healthcare facilities. Successful infection control requires a range of strategies at different levels of the hospital and a collaborative approach among the corresponding areas of hospital management. Health care-associated infections, are a significant public health problem around the world. Although estimates of the global burden of health-care associated infections are hampered by the limited availability of reliable data, it is estimated that in developed countries, between 5% and10% of patients admitted to acute care hospitals and acquire one or more infections. In developing countries, on the other hand, the risk of infection is 2-20 times higher and the proportion of patients infected can exceed 25% (*Pittet d et al 2008*). The World Health Organization (WHO) is stimulating the prevention of infections. In 2005 WHO started a campaign called „Clean hands are safer hands". In this campaign Dr. D. Pittet claims that Clean Care is Safer Care*" is not a choice, but a patient's right for quality care". He also states that clean hands prevent suffering and saves lives.*

Infection Prevention & Control, based on World Health Organisation (WHO) guidelines, provides valuable training and ongoing education on standard precautions for staff operating in a range of healthcare settings. The study will focuse on four key content areas: Infection Prevention & Control; Hand Hygiene; Waste Management & Decontamination Issues; and Personal Protection.

Figure I. Organism transfer from patient to HCWs' hands



Contact between the HCW and the patient results in cross-transmission of microorganisms. In this case, Gram-positive cocci from the patient's
own flora transfer to HCW's hands. By *Global Patient Safety Challenge 2005–2006: "Clean Care is Safer Care".*

Guidelines and standards on infection prevention

The global awareness regarding importance of infection prevention and control has increased. There are so many factors which initiated this area to be so focused and important for the health care industry. The emerge of severe acute respiratory syndrome (SARS) and methicillin-resistant Staphyloccus aureus (MRSA) are examples of those causes. When the virus SARS appeared in 2003 and spread to almost 10 thousand people in two dozen countries across the world within weeks (10 percent of whom were killed), the primary cause was the hands of healthcare workers During that outbreak it appeared that the virus easily spreads through close hospital contact with infected persons[(1).] This outbreak increased the awareness of the importance of precautious actions for all healthcare workers. Nurses can reduce the risk for infection and colonization using evidence-based aseptic work practices that diminish the entry of endogenous or exogenous organisms via invasive medical devices. Proper use of personal protective barriers and proper hand hygiene is paramount to reducing the risk of exogenous transmission to a susceptible patient.(Patient Safety and Quality: An Evidence-Based Handbook for Nurses: Vol. 2)

2.1.1 Infection control programme

Knowing about the problem of hospital acquired infections and the factors that cause the spread of these infections, it is clear that something need to be done. The need to control the level of hospital acquired infections is mainly because of the emergence of antimicrobial-resistant microorganisms. Also the emergence of life threatening infections such as severe SARS and re-emerging infectious diseases like plague and tuberculosis have highlighted the need for efficient infection control programmes in all healthcare settings and capacity building for healthcare workers so they can implement them. An infection control programme puts together various practices which, when used appropriately, restrict the spread of infection. (Samlee Plianbangchang, M.D., P.H. Shigeru Omi, M.D., 2004)

A lack of infection control practices facilitates transmission of infections from patients to healthcare workers, other patients and visitors. It is therefore important for all healthcare workers, patients, their family members, friends and close contacts to adhere to the infection control guidelines strictly. It is also absolutely necessary for healthcare administrators to ensure implementation of the infection control programme in healthcare facilities (Samlee Plianbangchang, M.D., P.H. Shigeru Omi, M.D., 2004). The WHO (2004) describes that responsible health authorities should develop a national programme to support hospitals in reducing the risk of Hospital Acquired Infections (HAIs). There are a lot of things that this national programme should develop for the hospitals. Still the hospital itself has the ultimate responsibility for prevention and control of infection. The hospital director is responsible for establishing an infection control committee (ICC).

Infection control committee

Of course the aim of the infection control committee is to reduce the number of HAIs as much as possible.

The scope of IPC programs (Core components for infection prevention and control programs

WHO/HSE/EPR/2009.1)

The purposes of IPC in health care are:

- *To prevent the occurrence of HAI in patients, health-care workers, visitors and other persons associated with health-care facilities.*

These infections may be:

− endemic, associated or not with the use of devices or procedures during health care;

− epidemic, originating within the population of the health-care facility; − a consequence of the transmission of community-acquired infections to patients in the health-care facilities that provide care, generating the amplification of epidemics of community-acquired infections.

- *To prepare health-care facilities for the early detection and management of epidemics and to organize a prompt and effective response;*
- *To contribute to a coordinated response to control community-acquired infectious diseases, endemic or epidemic, that may be "amplified" via health care;*
- *To contribute to preventing the emergence of antimicrobial resistance and/or dissemination of resistant strains of microorganisms; and*
- *To minimize the environmental impact of these infections or their management. The proposed components identified as essential or "core" elements of IPC programmes are limited to those considered by the participants to be of the utmost importance, being basic, indispensable and necessary for any IPC programme to meet its objectives.*

According to WHO "world alliance for patient safety
who guidelines on hand hygiene in health care" 2005
Health-care worker educational training and motivational programmes

In hand hygiene promotion programmes for health-care workers, focus specifically on factors currently found to significantly influence behaviour, and not solely on the type of hand hygiene products. The strategy must be multifaceted and multimodal and include education and senior executive support for implementation

- *Educate health-care workers about the type of patient-care activities that can result in hand contamination and about the advantages and disadvantages of various methods used to clean hands*
- *Monitor health-care workers' adherence to recommended hand hygiene practices*

and provide them with performance feedback

- *Encourage partnerships between patients, their families and health-care workers to promote hand hygiene in healtsh care*

Infection control practices

Microorganisms are commonly transmitted by healthcare workers; from one patient to another or from the environment to the patient (Board of Science, 2006). For that reason healthcare workers can play a big role in preventing and reducing the prevalence of cross contaminations of microbes. The prevention of cross contaminations requires that healthcare workers assume that the blood and body substances of all patients are potential sources of infection, regardless of the diagnosis, or the presumed infectious status (WHO, 2004). According to the WHO (2004) the application of infection control precautions is very important: "*...they must be applied to all patients at all times, regardless of diagnosis or infectious status, and additional (transmission-based) precautions which are specific to modes of transmission (airborne, droplet and contact)".*

When to decontaminate hands

Current national and international guidance suggests that in deciding when it is necessary to decontaminate hands prior to patient contact, four key factors need to be considered

- the level of the anticipated contact with patients.
- the extent of the contamination that may occur with that contact;
- the patient care activities being performed;
- the susceptibility of the patient.

Standard precautions

According to the WHO‟s guideline (WHO, 2004) standard precautions include the following:

- *hand washing and antisepsis (hand hygiene);*
- *use of no touch technique, avoiding direct contact of the hand with equipment wherever possible;*
- *use of personal protective equipment (e.g. gown, mask, eye protection) when contamination with blood, body substances, excretions and secretions with clothes or face is anticipated ,(OSHA,CDC Guidance for the Selection and Use of Personal Protective Equipment (PPE) in Healthcare Settings.2004)*
- *appropriate handling of patient care equipment; s*
- *appropriate handling of soiled linen; discard, disinfect or sterilize between each patients use;*
- *prevention of needle stick/sharp injuries;*
- *environmental cleaning and spills management;*
- *appropriate handling of waste.*

The complete guidelines which are used for the project can be found. They are taken from WHO *"Practical guidelines for infection control"* (2004) and from Pratt and Pellowe "*Epic2: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England" (2007),* and integrated in one part. These two documents are chosen because they are written by worldwide accepted organisations in

healthcare. Also many other (small) organisations copied the WHO‟s guidelines in their documents.

2 Action cancer hospital standards and protocols on infection prevention and control

Introduction

ACH is implementing the standards as written by the National Accreditation Board for Hospitals and Healthcare providers (NABH 2009), as already mentioned in the background. This paragraph describes the standards and protocols related to infection prevention and control used within Action cancer hospital. The infection control manual of ACH must be somewhere in the hospital, but until now it was not found. Dr. Anju Gomber (Microbiologist) had prepared the infection control manual for use at ACH, based on the standards written by NABH. According to the NABH, there must be an infection control manual, which contains a description of the high-risk areas and methods of surveillance of the high-risk areas. Besides, the manual should also contain the standard precautions, cleaning and sterilization, antibiotic policy, laundry and linen management, engineering and kitchen, and mortuary practices and procedures (NABH, 2009).

According to the NABH, every organisation should have a hospital infection control programme. This includes having a multidisciplinary infection control committee (ICC) and an infection control team. The infection control team is responsible for the surveillance in the high-risk areas. A qualified infection control nurse should also be included, join the committee and if possible the team (NABH, 2009).

2.2.2 Infection control programme

The infection control programme should be supported by the hospital management and includes training of staff and employee health. This support should contains regular trainings and also adequate funds should be available in its annual budget. During this project supervision and classes will be provided for the ICU staff.

According to the NABH (2006) it is important that proper facilities and adequate resources are provided in order to support the infection control programme. This is for example; hand washing facilities in all patient care areas. The proper hand washing should be monitored

regularly by observation and random checking. There must be isolation/barrier nursing facilities. Gloves, masks, soap and disinfectants should be available and used correctly. During the project the standards on infection prevention and control prescribed by NABH will also be used after comparing with international standards.

HOSPITAL INFECTION CONTROL PROGRAMME

The provision of an effective infection control program is the key to the quality and the reflection of the overall standard, provided by the health care institution. The infection control program is developed for good infection control practices and to ensure the wellbeing of both patient and staff by preventing and controlling hospital acquired infection.

HOSPITAL INFECTION CONTROL COMMITTEE (HICC)

The hospital infection control committee was formed at Action Cancer Hospital (ACH) with representative from various specialties as its members.

FUNCTION OF HICC

- Formulation of documented policies and procedures directed towards achieving prevention and control of spread of infection.
- Monitoring of hospital associated infection by regular collection of data from wards and periodic analysis of data of infection.
- Meeting on regular and as needed basis to discuss current infection control issues.
- Anticipate and plan for seasonal pattern of infectious diseases(e.g. addressing mosquito-borne infection in summers)
- Address an emerging outbreak by relevant investigation and control by rectification of technical lapses, if any
- Review surveillance findings, identify disease and trend and act accordingly.
- Monitor the disinfection and sterilization practices in the hospital including CSSD.
- Monitor the rational use of antibiotics in the hospital and assess the trend of resistance.
- Providing facilities to the hospital staff to maintain good infection control practices.

- Periodically assess staff awareness of and the adherence to the infection control policies and procedure.
- Monitoring of staff health to prevent staff to patient and patient to staff spread of infection.
- Conducting infection control audits including inspection of waste disposal, laundry and kitchen.
- Conducting ongoing education/training programmes for all cadre of hospital staff.

INFECTION CONTROL POLICY AT ACH

HICC meetings are held once every month to discuss the feedback from surveillance activities and action to be taken for any lapse. The following hospital infection control policies have been formulated and are being practiced in the hospital and monitored by HICC:

- Infection surveillance
- Disinfection
- Isolation
- Anti biotic policy (including chemophylaxis)
- Policy for investigation of an outbreak
- Waste management

INFECTION CONTROL TEAM

From within the HICC a core group has been formed to monitor infection control and procedures and to look after day to day problem regarding infection control. It also implements the educational and training programmes for the hospital staff.

The team is responsible for a day to day reporting on surveillance procedures in collaboration with infection control nurse.

ROLE OF INFECTION CONTROL OFFICER (ICO)

Under the guidance of the infection control committee, the ICO besides being the resource person for the committee .performs the following function:

- Determination of incidence of the hospital acquired infection.
- Investigation in order to trace the resource of infection.
- Identification of root cause of infection.
- Finding the mode of transmission.
- Institution of effective measures to check the infection.
- Investigation of outbreak.
- Training and education of staff in infection control procedures.
- Preparation on infection control manual and periodic reviewing and revising it.

ROLE OF INFECTION CONTRO NURSE (ICN)

- Regular visits to all the wards and high risk units.ICN will maintain a register with entries of all septic complication with relevant clinical data.
- Checking nursing records and files for cases suggestive of infection.
- Collection of samples from different areas of the hospital for surveillance purpose and sending them to the laboratory.
- Daily visits to microbiology laboratory to ascertain results of samples collected for surveillance ,if any .and to liaise between microbiology and clinical department as when organism like MRSA,VRE,ESBL positive gram negative organism, open cases of TB and others are reported as per isolation policy.
- Compilation of ward wise, discipline wise and procedure wise statistics of HAI.
- Monitoring and supervising of infection among the hospital staff.
- Training of nursing aides and paramedical personnel on correct hygiene practices and aseptic technique.

Problems that likely to hamper the infection control programme.

1. Lack of quality control of sterilization and disinfection.

2. The quality of water and food made available in the hospital.

3. Hospital environment.

4. Lack of trained staffs.

5. Lack of knowledge of hospital infection control principle and practices among the staff.

6. General issues of anti biotic therapy both in the hospital and in the community**.**

Standard precautions by ACH:

Universal precautions for the staff as written in the set of nursing standards for ACH are about hand hygiene, protective clothing, spills, needles and laundry. After contamination with any body fluid the hands should be washed immediately. This guideline also assumes that all body fluids are infectious and the hands must be treated as infected.

The following rules for hand washing and alcohol rub are developed by an ACH hospital : (Standard protocol by ACH regarding time duration ,steps to followed for alcohol rub and hand washing ,according to WHO guideline)

- Wash hand or use alcohol rub before and after contact with patient.
- Wash hands or alcohol rub before and after meals;
- Wash hands or alcohol rub before and after all procedures, even when gloves are used;
- Wash the hands before performing invasive procedures, before caring for particularly susceptible patients, before and after touching wounds (even when gloves are used) and after dealing with any situation where microbial contamination is likely (even when gloves are used);
- Between handling patients, between procedures on the same patient and after handling contaminated articles like urinals, bed pans, etc.

The other following precautions besides hand washing;

- Use appropriate protective clothing if there will be any contact with body fluid or contamination;

- Gloves (sterile or non-sterile, depending on the procedure) should be worn for all invasive exposure prone procedures (including inserting IV-lines, taking blood samples), for contact with body fluids, non-intact skin and mucous membranes;
- Wear shoes or protective boots on the ward;
- The cleaners must wear rubber gloves;
- Clean up spills of blood and other body fluids directly and carefully.
- Directly after use, store needles in a rigid container for disposal;
- Laundry which is contaminated with blood or body fluids should be transported in leak proof bags to the laundry.

CHAPTER 3

RESEARCH METHODOLOGY

The Research Design:

1.The study design- This study used a quantitative research methodology. Type of study is interventional Study. The present study was carried out in the Action Cancer Hospital, New Delhi from 12th February 2012 to 25th April 2012.

2. Study population

- Total 42 nurses has given the Pre test and Post test for the KAP Study among the nursing staff (clinical area).
- During ICU observation period 4 Docters,2 Physiotherapist,6 Nursing staff, 2 Housekeepingstaff.

Selection criterion:

a) Inclusion criteria for sampling.

- Out of 62 nurse in ACH, 12 nurses were new joining, 6 nurses were not in direct care of patient, only 42 nurses were in direct patient care.
- For ICU observation out of 9 nursing (morning ,evening and night staff) staff only 6 nurses had been observed.(morning and evening staff)
- Registered nurse working in ACH Hospital.
- Nurses involved in direct patient care (ICU,IPD,OT)

b) Exclusion criteria for sampling

- Nurses who are not present at the time of my study.(2 nurses were on leave for one montne)
- Nurses who are in supervisory category or recently joined to the hospital.
- Visitors(relatives,consultants)

3. Tools used

Pre – test:

- Structured Questionnaire - Questionnaire was given

Post – test:

- Structured Questionnaire - Questionnaire was given

- Pre Observation Check List - Observation of Infection Control Strategies Performed by ICU staff
- Post Observation Check List - Observation of Infection Control Strategies Performed by ICU staff

- Presentations,Video from the internet has been used for the training and education purpose.

4. Tools preparation

The entire study was conducted in following steps-:

1)Objective :To develop and administer a Knowledge, Attitudes and Practices (KAP) survey on Infection Control among the nursing staff.

a) Data was collected with the help of questionnaire. Questionnaire had been prepared from the Infection control manual(2^{nd} issue 2011) of Action cancer hospital with the help of Microbiologist and infection control nurse(ICN). (Annexure A)

2) Objective: To measure the adherence of infection, prevention and control standards and protocol in the ICU .

Observation list had been prepared:

As written in the introduction the following aspects of infection prevention and control will be measured; hand hygiene and hand washing, personal protective equipment, cleaning and waste disposal. These subjects are all covered in the observation list and will be the focus of the project.

The observation list is developed by using the literature study. This includes international guidelines and standards and specific ACH hospital standards and protocols on infection prevention and control. For the observation list the project group looked critically at the ACH guidelines in comparison with the international guidelines. After checking the observation list within the project group the observation list was tested by doing a pilot for one day in morning shift(8am to 2pm). The problems were written down and by the end the day the observation list was changed according to the suggestions of the project group members.(Annexure-B)

3)Objective: To motivate the staff in the ICU and IPD to follow infection prevention and control protocols sand standards.

- Videos from the internet on Hygiene Hand washing, personal protective equipments, disposal and cleaning have been downloaded.
- Presentation on topic "infection prevention and control" which has been prepared from the ACH Infection control manual.(Annexure-C)

6. Data collection

Primary Data was collected for the all the objectives.

A) Data was collected for the Knowledge and practice study among the nursing staff for one month as it is difficult to take the test for all the nursing staff at same time.

- Conduction of test (pre and post) had been divide into two shifts morning and evening.
- In the morning time (8:00 AM) the night staff had been given the pre test after signing off the duty hours. Immediately after completing the pre test the intervention or training had been given.
- Post test had been conducted on for the same staff on the very next day.

- For Morning shift same instructions had been followed at 2:00pm after signing off the duty. The nurses who came to join evening shift for them test and training had been conducted before the joining of the duty.

B) First observation or measurement was taken in two days for 12 hrs(8 am -8 pm)for Morning and Evening shifts in the ICU.

- On third day intervention or training had been admit to the ICU staff (Doctors, Nurses, physiotherapist, housekeeping staff) for the infection prevention and control by the means of presentation and Videos.
- After that second observation had been taken from the ICU for again following two days.

7. Data analysis:

Questionnaire (Pres test and post test) for the nursing staff has analyzed in SPSS (16.0).

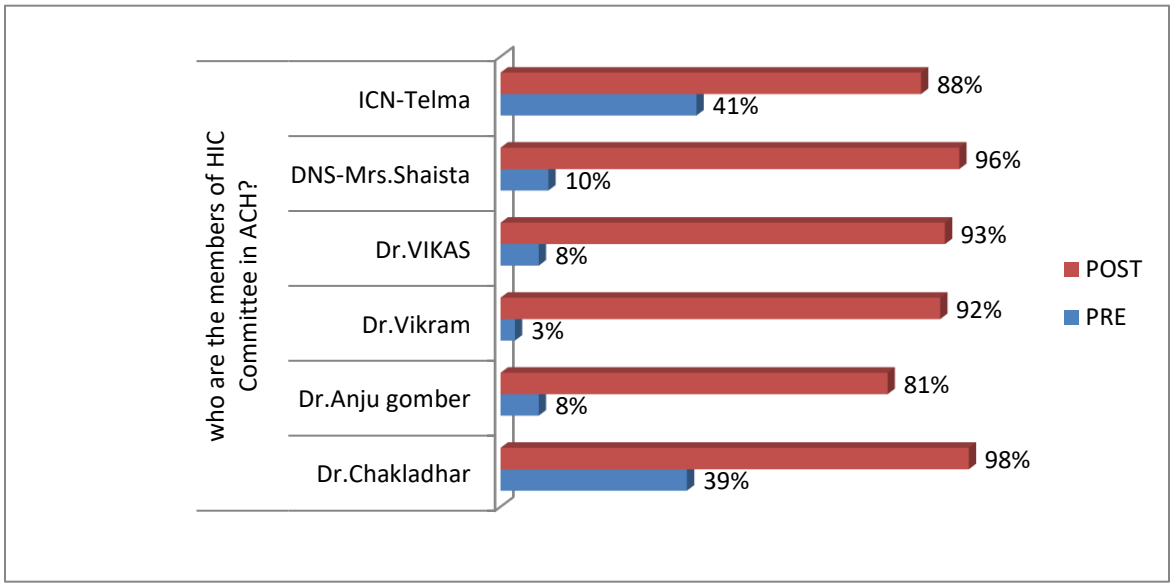
Observation list for ICU has analyzed in Microsoft office excel sheet.

CHAPTER 4

RESULTS FINDING AND INTERPRETATION

OBJECTIVE 1) To develop and administer a Knowledge and Practices survey on Infection Control among the nursing staff.

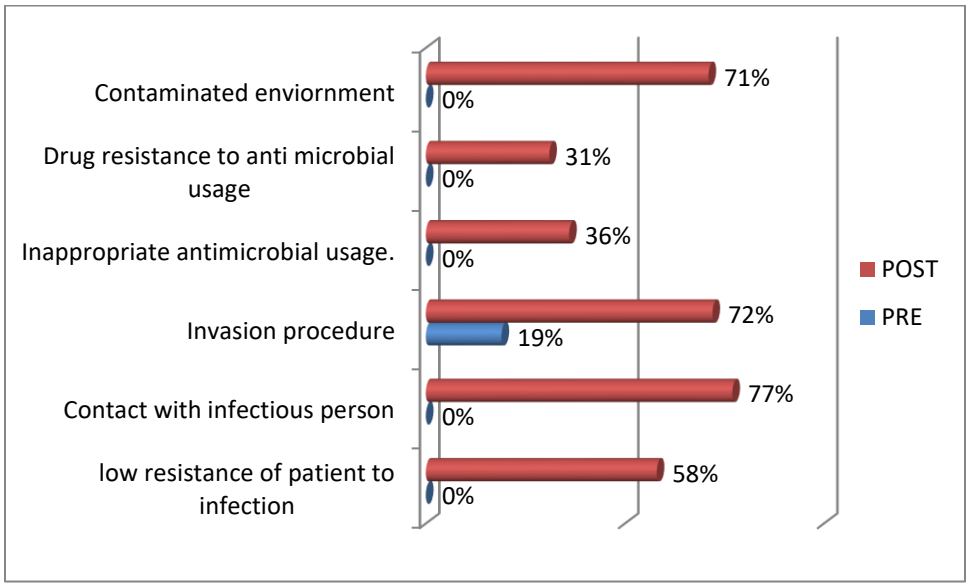
Q1) **who are the members of HIC Committee in ACH?**



Above graph indicates that the knowledge regarding nurses about the member of infection control committee was very low before the intervention only 41% nurses know that Infection control nurse(ICN) is Telma. and other members like DNsS(10%),Dr. vikram (Intensivist)3%,Dr.vikas(DMS)3%,Dr.Anju Gomber(microbiologist)8%,Dr.chakladhar(Anesthetist)39%.After conduction of training it has increased drastically now they know the ICN(88%)and other members also Mrs.Shaista(DNS)96%,Dr.vikram(Intensivist)92%,Dr.vikas(DMS)93%,Dr.Anju Gomber(microbiologist)81%,Dr.chakladhar(Anesthetist)98%.

Q 2) what are the main risk factors for hospital associated infections.

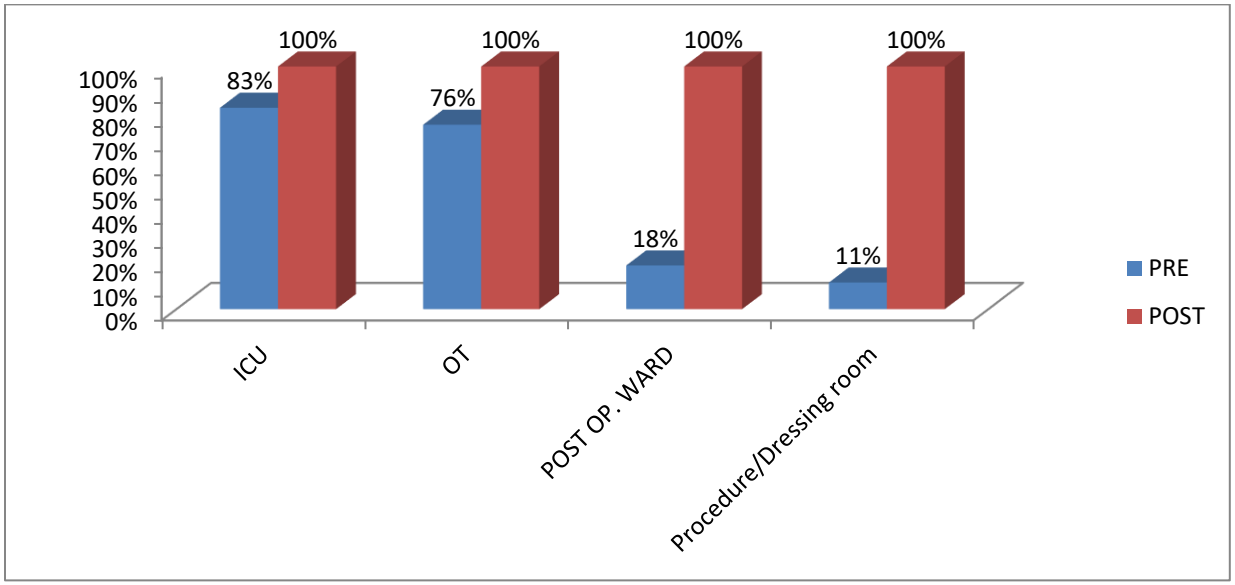
RISK FACTORS FOR HOSPITAL ASSOCIATED INFECTIONS



Knowledge regarding main risk factors for infection was very low only 19% of the nurses knows the risk factor for infection is invasive procedure other factors were not known by them :contaminated environment (0%),Drug resistance to antimicrobial usage(0%)Inappropraite antimicrobial usage(0%),contact with infectious person(0%),low resistance of patient to infection(0%).After conducting training results were changed or increased by contaminated environment (71%),Drug resistance to antimicrobial usage(31%)Inappropraite antimicrobial usage(31%),contact with infectious person(77%),low resistance of patient to infection(58%),invasive procedure(72%).

Q)what are the high risk area in action cancer hospital?

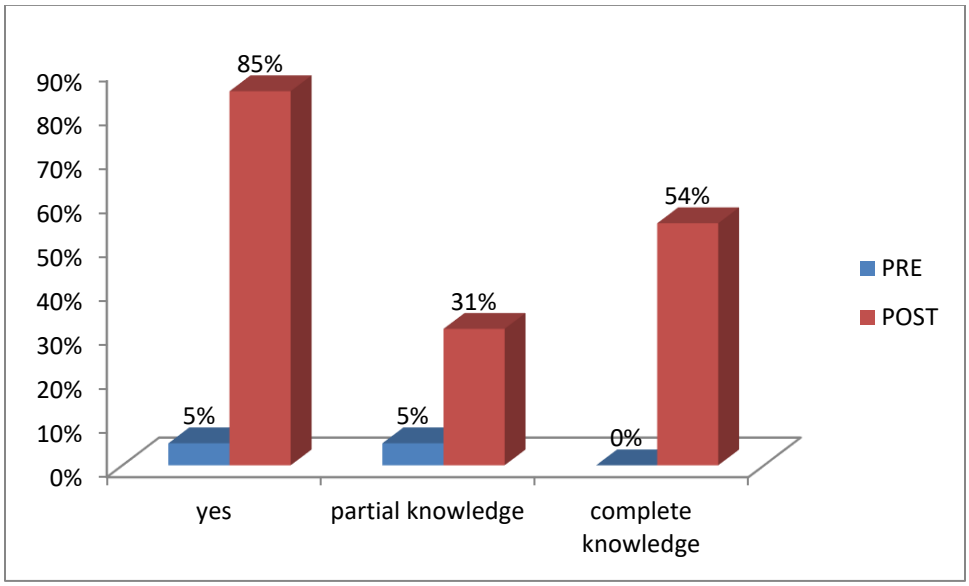
HIGH RISK AREAS IN HOSPITAL(ACH)



Above graph indicate that the knowledge in PRE test among nurses regarding high risk area was ICU (83%), OT (76%),post operative ward(18%),Procedure room or dressing room(11%) it has increased by 100% in all the areas.

Q)Do you know about Outbreak ?

This question further divided into a)YES, can define ,b)Partial knowledge, c)complete knowledge:

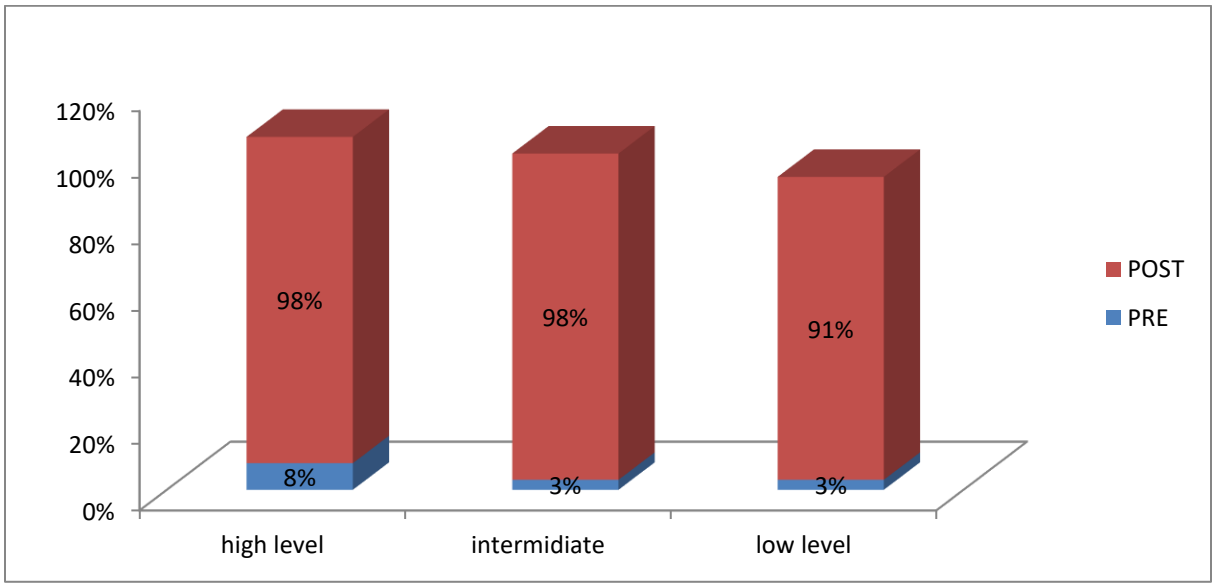


Above graph shows that only 5 % of the 100% nurses was able to define OUTBREAK complete knowledge-0%.Post test partial knowledge had increase up to 31% and complete knowledge to define outbreak was 55%.rest of the 15% was not able to define outbreak even after training.

Q)Do you know the types of disinfectant use in action cancer hospital?:

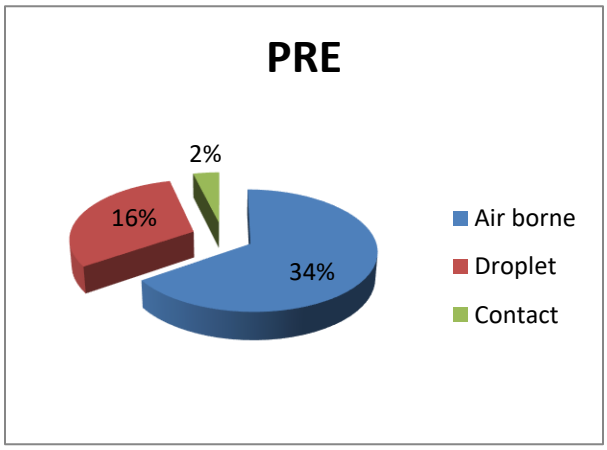
Below graph is showing that nurses have the low knowledge regarding the type of disinfectant that they use in ACH. Only 8%of the nurses know about the high level of disinfectant.3% know about intermediate level of disinfectant,3%low level of disinfectant after training 98% of the nurses know a high level of disinfectant.98% know about intermediate level of disinfectant,91%low level of disinfectant after training.2% of the nurses still don't know about the high and intermediate level of disinfectant use.9% do no t about low level disinfectant.

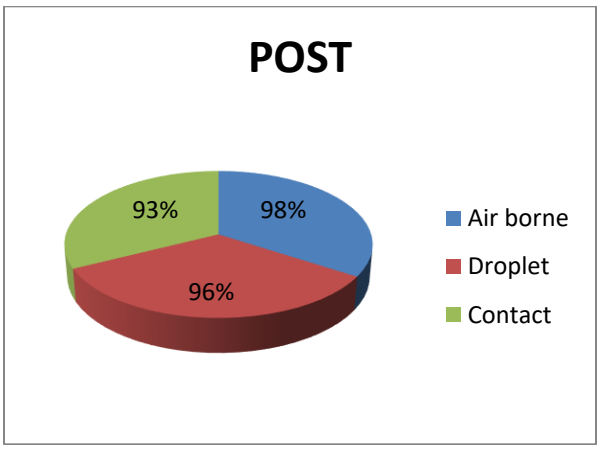
TYPES OF DISINFECTANT



Q)what are the three categories of transmission?

CATEGORIES OF TRANSMISSION



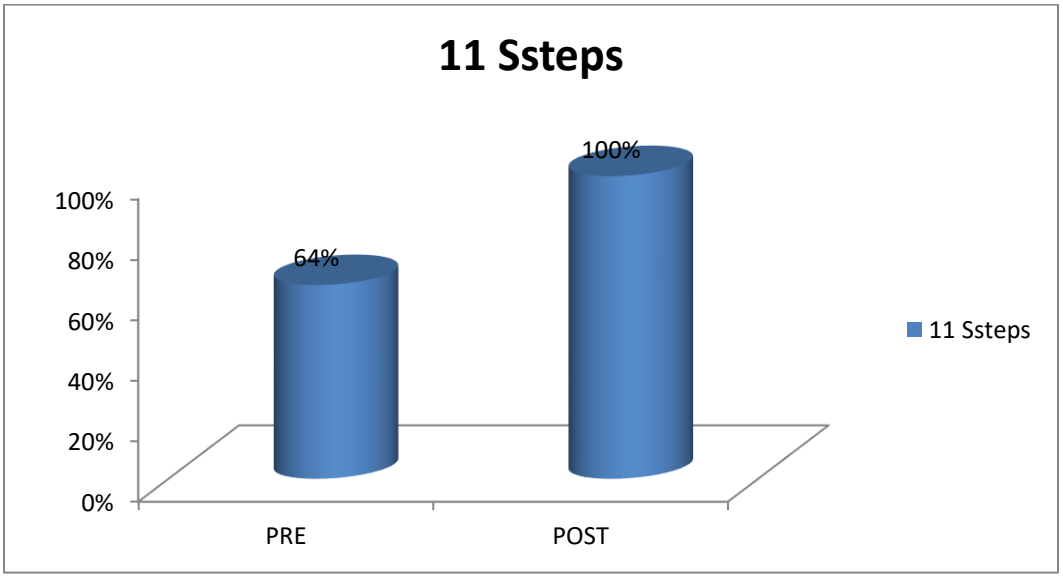


Above chart shows that before the training 34% of the nurses knows the category of Air borne transmission,16% about Droplet transmission,2% about contact transmission.after the

training it has increase by Air borne transmission(98%),96%Droplet transmission,93% contact transmission.

Q) According to WHO Guidline.How many steps are there in Hand washing?

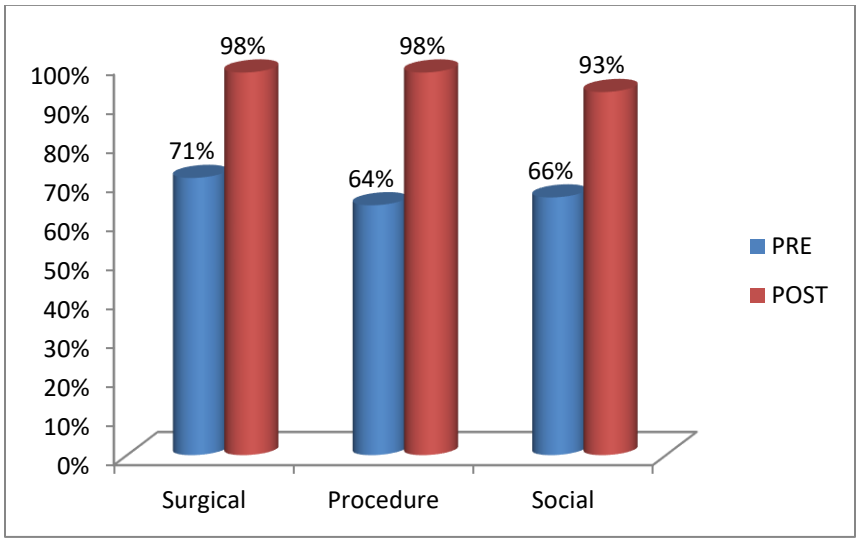
STEPS IN HAND WASHING



Before the intervention done 64 % nurses were aware about the 11 steps of hand washing (according to who guideline 2009,Safe and clean hands)After training all were know the total steps of hand washing it has achieved fully(100%).

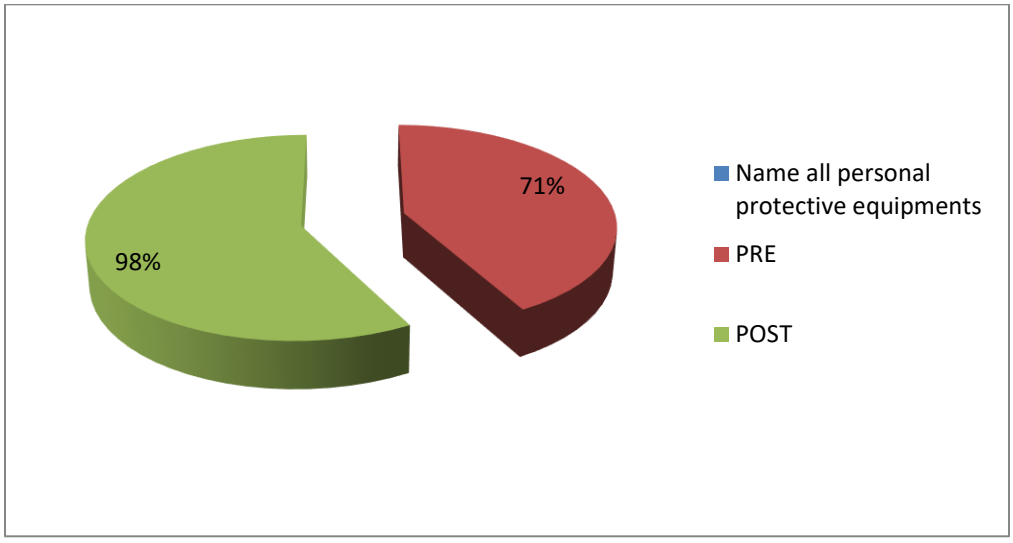
Q) what are the types of hand washing ?

TYPES OF HAND WASHING



There are three types of hand wash surgical, procedure and social .In pre test nurses were know about the surgical hand wash(71%), procedure(64%) and social hand wash(66%).after training it has increased up to surgical hand wash(71%), procedure(64%) and social hand wash(66%).

Q)Name all Personal protective equipments(PPE):



Q)In which Disease should take Isolation precaution.

According to ACH there are 18 disease(Can be differ according to different hospital policy) in which all the hospital staff should take isolation precaution.

Below data shows the no. of correct answers for e.g.-if respondent had written pulmonary tuberculosis (TB),chicken pox it indicate she/he wrote only 2 correct answers.

Some of the disease which had been mentioned in infection control manual(ACH) were e.g, Pulmonary

tuberculosis(tb),SARS,cholera,meningitis,plague,Rabies,Diptheria,MRSA,B.pertussis(whopping cough)Leprosy with positive nasal smear etc.

No. of correct answers (PRE TEST)

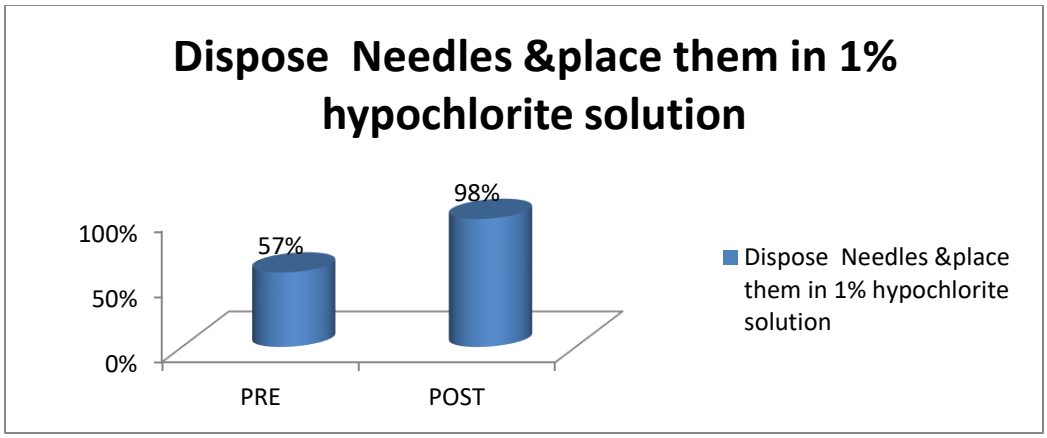
	Response	Frequency	Percent
	Don't know	9	21.4
	1 correct	9	21.4
	2 correct	12	28.6
	3 correct	10	23.8
	4 correct	1	2.4
	5 correct	1	2.4
	Total	42	100.0

No. of correct answers (POST TEST)

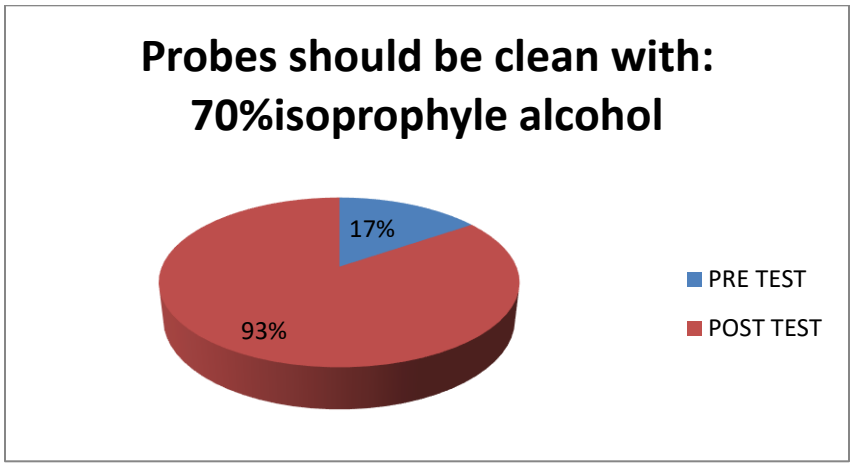
Response	Frequency	Percent
Don't know	1	2.4
1 correct	4	9.5
4 correct	4	9.5
5 correct	7	16.7
6 correct	26	61.9

Response	Frequency	Percent
Don’t know	1	2.4
1 correct	4	9.5
4 correct	4	9.5
5 correct	7	16.7
6 correct	26	61.9
Total	42	100.0

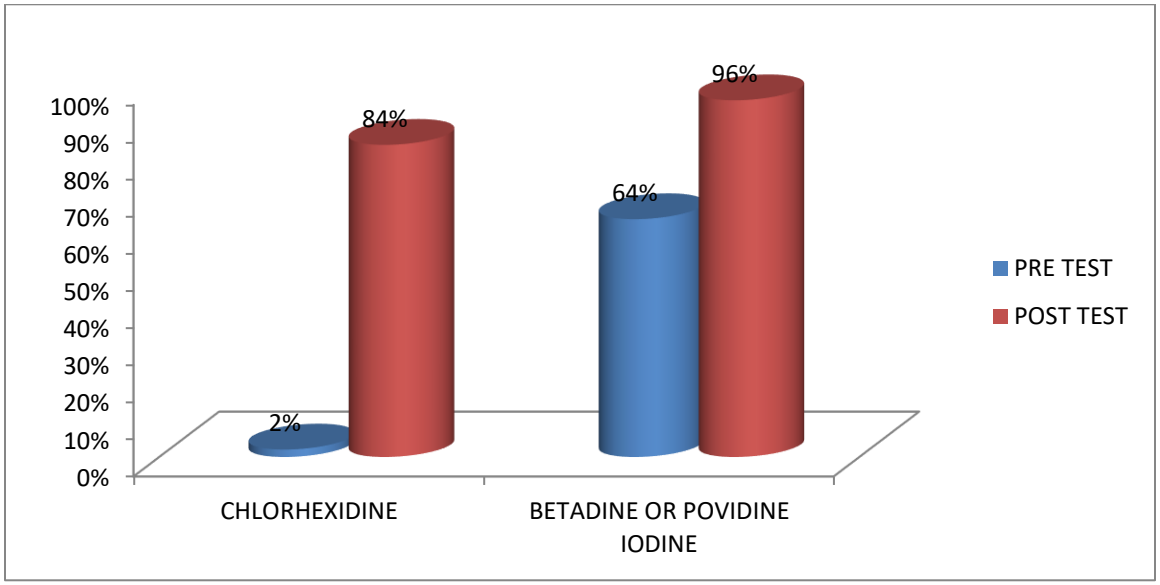
Q)According to ACH policy(IC manual) only disposable needles should be used and should be destroy by incinerating needles from tip to end, and place them in 1% hypochlorite solution in puncture proof. Below graph shows that before training 57% nurses were disposing needle and placing them in 1% hypochlorite solution and 43% were not doing the same. After intervention or training it has increased to 98%.



Q) According to ACH policy probes of pulse oximeter and Temperature probe they should be cleaned with 70% isopropyl alcohol if visible soiled. before the intervention or training only 17 % of the nurses know that is should be cleaned with 70% isopropyl alcohol and after the training it has increased to 93%.

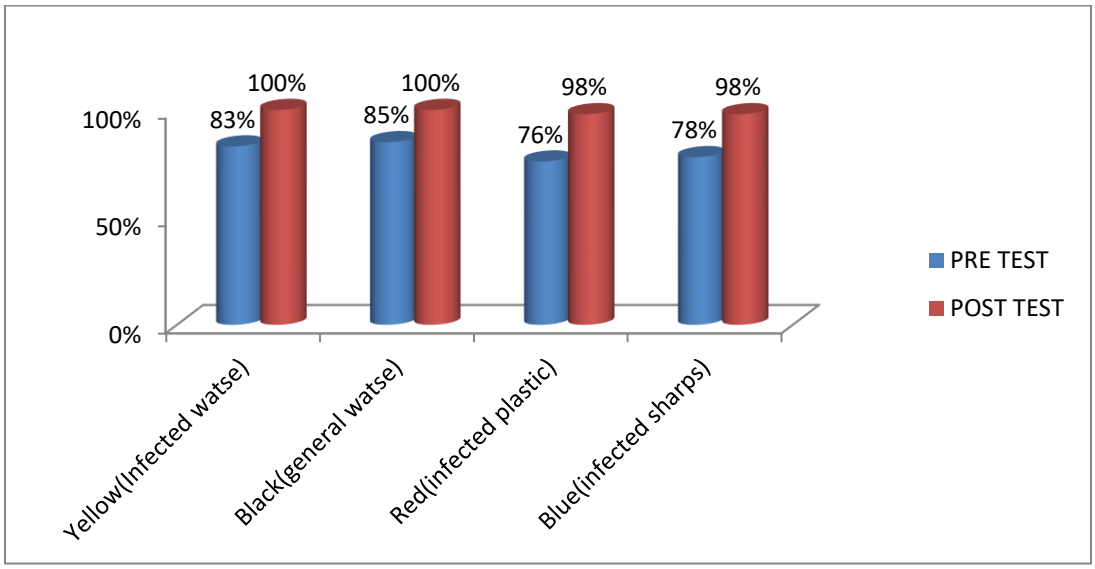


Q) According to ACH policy the site of the patients body(skin) should be prepare with chlorhexidine and povidine iodine or batedine solution before the catheterization and below graph shows that before the training nurses were using betadine solution(64%) only but not chlorhexine(only 2%) as compare to betadine after the training it has increased to 84% and 96%



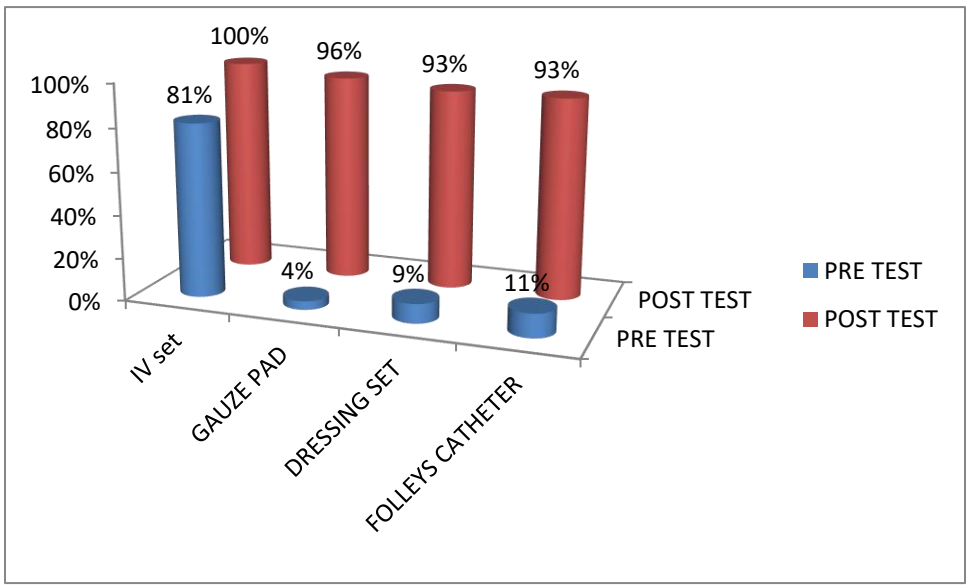
Q) Knowledge regarding segregation of waste among the nurses was not so poor as compare to the other findings after training it has increased between 98% to 100%.

BIOMEDICAL WASTE (segregation)

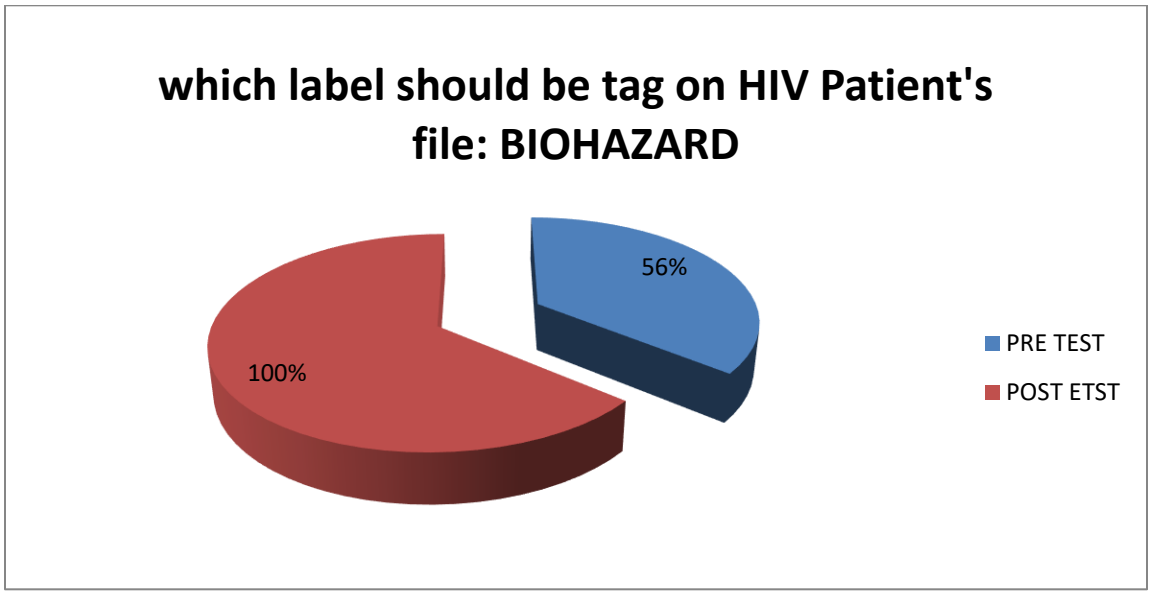


Q)Knowledge regarding expiry days or hours for the IV set(81%),gauze pad(4%)dressing set(9%)folleys catheter(11%) among the nurses has been found and it has increased by IV set(100%),Guaze pad(96%),dressing set(93%)folleys catheter(93%) after the training.

EXPIRY DAYS OR HOURS FOR FOLLOWING:



Q) Knowledge regarding Labeling on HIV Patients' file by the nurse was only 56% which has been increased 100 % after the training of th nurse.

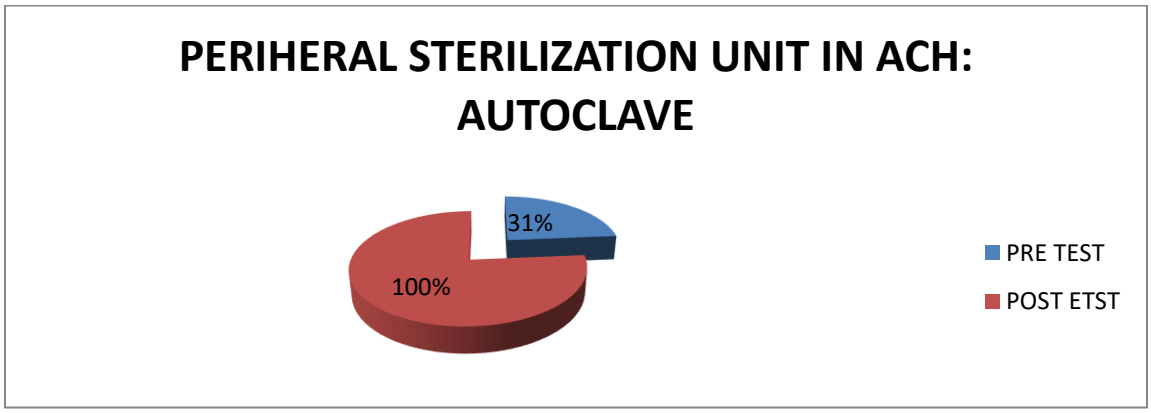


f) There are 10 categories of waste according to ACH (IC manual) in this question I have asked the nurses whether the categorization is true or false in pre test only 21% nurses were correct in marking the category 1-human anatomical waste(true),11.9% in category 2-liquid waste(false),9..5% category -3 sharp(false),9.5%category-4 plastic and disposable(false).after training it has increase by 95.5%category 1-human anatomical waste(true),97.6% in category 2-liquid waste(false),97..5% category -3 sharp(false),95.2%category-4 plastic and disposable(false).

Response		**human anatomical waste**		**liguid waste**		**sharp**		**plastic and disposable**	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Pre test	yes	9	21.4	5	11.9	4	9.5	4	9.5
Post test	yes	40	95.2	41	97.6	41	97.6	40	95.2

Q) knowledge regarding sterilization unit(Autoclave) available in operation theater(OT) apart from CSSD in the hospital was low only 31 % nurses know that there is a peripheral

sterilization unit available in there hospital(ACH).After intervention or training it has increase by 100%.



Results for objective:

- To measure the adherence of infection, prevention and control standards and protocol in the ICU and IPD Ward.

- To motivate the staff in the ICU and IPD to follow infection prevention and control protocols sand standards.

Observation

Length:	2x 12hrs
Amount of staff members:	14 (4 doctors, 6 nurses, 4 others)
Amount of patients:	7 patients, 2 admissions and 4 transfers

OBSERVATION BEFORE THE TRAINING AMONG THE ICU STAFF

a) Graph-1

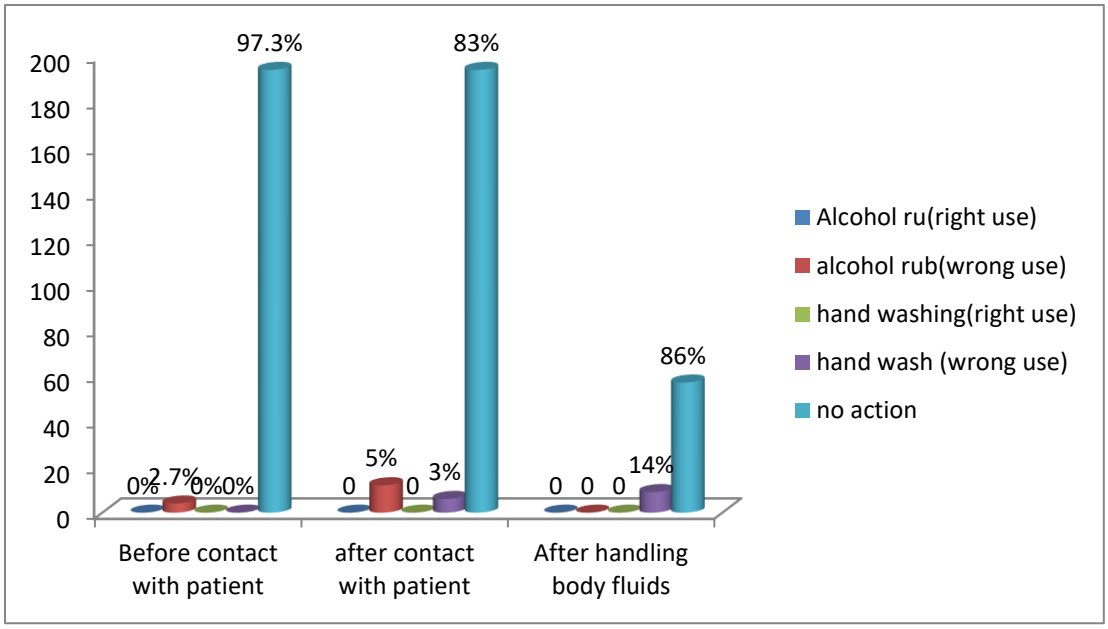


Table-graph 1)

	ALCOHOL rub (right use)	ALCOHOL RUB(wrong use)	HAND WASHING(right use)	HAND WASHING (wrong use)	NO ACTION	TOTAL
Before contact with patient	0	4	0	0	194	198
after contact with patient	0	12	0	6	176	212
After handling body fluids	0	0	0	9	57	66

Interpretation-graph 1)

1)Above graph indicating observation before the training among the ICU staff:

a) Before contact with patient: There are total 198 observation out of that 97.3% was missed opportunities and only 2.7% use of alcohol rub that too in a wrong way.

b)After contact with patient: There are total 198 observation found out of that 83% missed opportunities,5% wrong use of alcohol rub,3% wrong use of hand wash.

c) After handling body fluids: There are total 66 observation noticed out of which 86% were missed opportunities, 14% hand wash performed in a wrong way.Graph-2

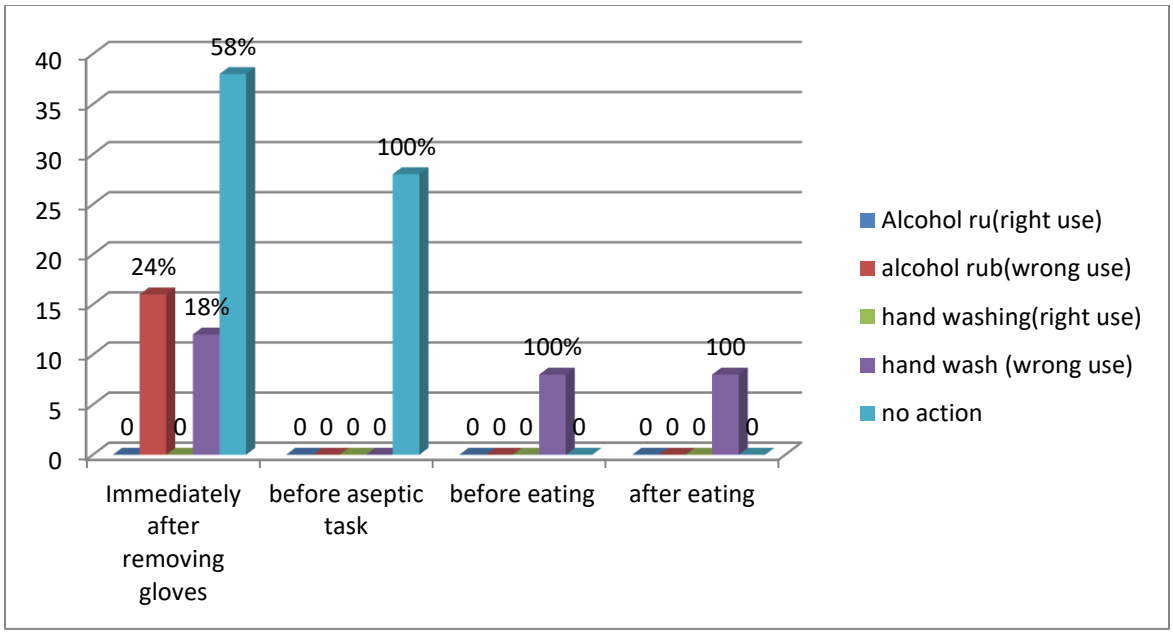


Table –Graph 2)

	Alcohol rub(right use)	alcohol rub(wrong use)	hand washing(right use)	hand wash (wrong use)	no action	Total
Immediately after removing gloves	0	16	0	12	38	66
before aseptic task	0	0	0	0	28	28
before eating	0	0	0	8	0	8
after eating	0	0	0	8	0	8

Interpretion:Graph-2

2) Before the intervention:

a) Immediately after removing gloves:There are total 66observations out of that 58% missed opportunities,24% wrong use of alcohol rub,0% hand wash(right use),18% hand wash but in wrong way had noticed.

b) Before aseptic task: There are total 28 observations .there were 100% missed opportunities. None of the protocol had been followed.

c) Before eating: There are total 8 observation, there was 100% wrong use of hand wash technique.

d) Again after eating: There are 100% wrong technique used in hand wash.

POST INTERVENTION AMONG THE ICU STAFF

Graph -3)

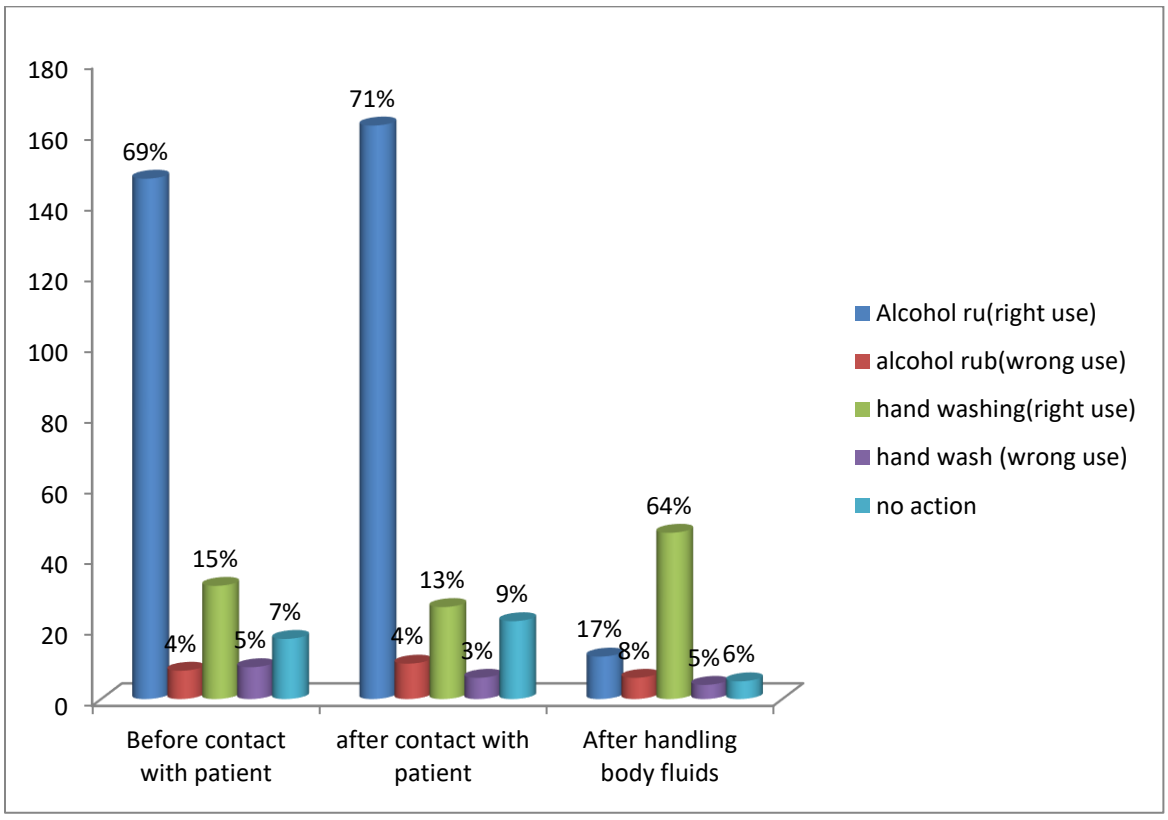


Table:3

	ALCOHOL RUB(RIGHT USE)	ALCOHOL RUB(WRONG USE)	HAND WASHING(RIGHT USE)	HAND WASHING (WRONG USE)	NO ACTION	TOTAL
Before contact with patient	147	8	32	9	17	213
after contact with patient	162	10	26	6	22	226
After handling body fluids	12	6	47	4	5	74

Interpretation: graph-3

a) Before contact with patient: There was total 213 observations out of which 69% alcohol rub had been used in a right way by the staff, 8% in wrong way. 115%Hand washing done in right way, 5%wrong way. There are still 7% missed opportunities.

b) After contact with patient: Total 226 observations listed among that 71%Alcohol rub had used in right way, 4%used in a wrong way. Hand washing 12%in right way,9 times in wrong way. still 9% opportunities were found**.**

c) After handling body fluids: Total 74 observations were found out which use of alcohol rub performed 17% in a right way and 8%in wrong way. hand washing performed 64% by the staff in a right way,65% wrong way.5% missed opportunity was observed.

Graph-4

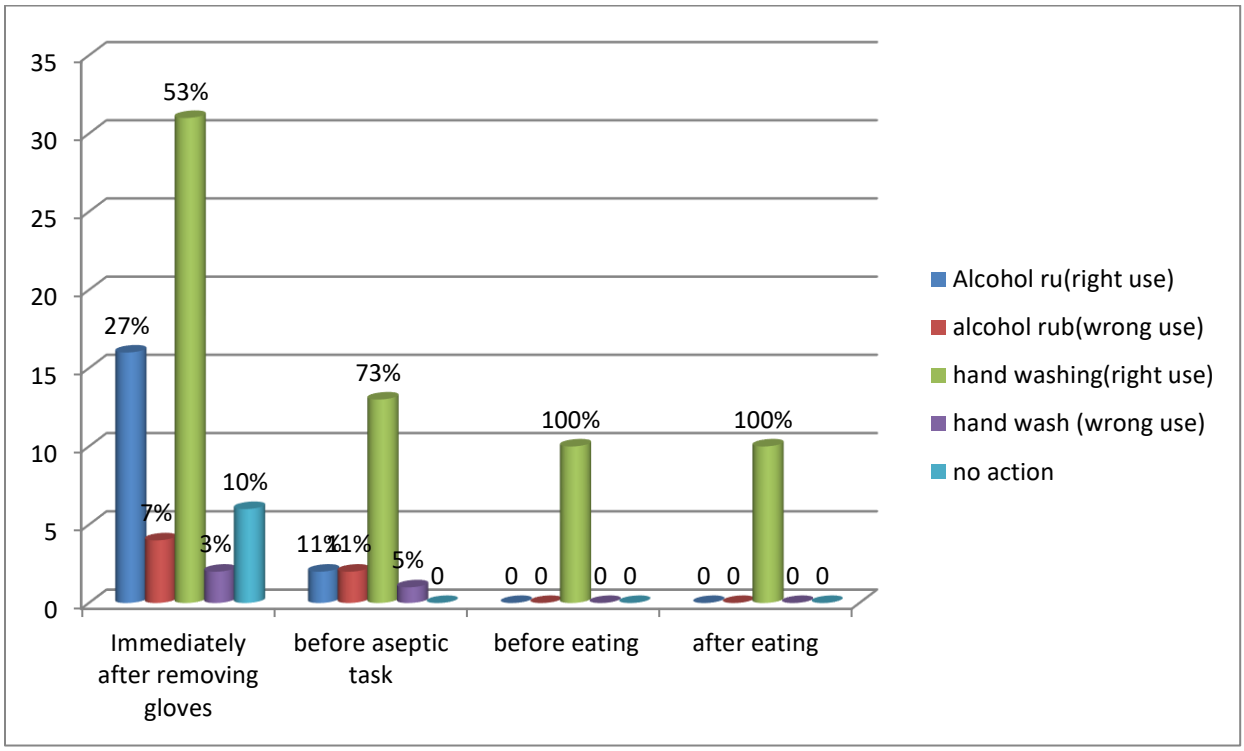


Table: Graph-4

	Alcohol rub(right use)	alcohol rub(wrong use)	hand washing(right use)	hand wash (wrong use)	no action	total
Immediately after removing gloves	16	4	31	2	6	59
before aseptic task	2	2	13	1	0	18
before eating	0	0	10	0	0	10
after eating	0	0	10	0	0	10

Interpretation Graph-4

a) Immediately after removing gloves: There are total 59 observations out of that 10% missed opportunities were noticed, ,58% hand wash performed in an right way,3% in wrong way.28% right use of alcohol rub, 7 % wrong use.

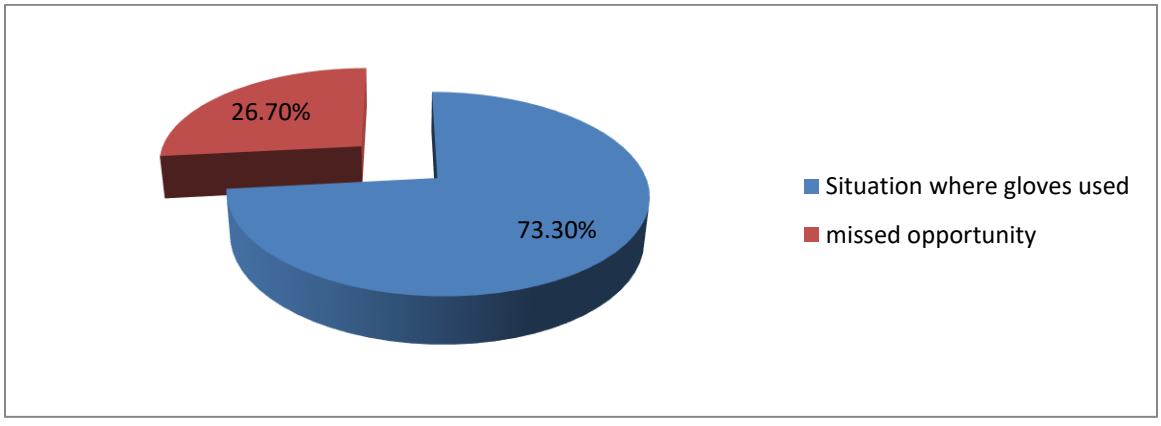
b) Before aseptic task: There are total 18 observations out of that no missed opportunity had observed.11% right use of alcohol and 11%wrong use of alcohol had been found. Hand washing was performed 72% in a right way5% in wrong use by the staff.

c) Before eating: There are total 10 observation, there was 100% use of right hand wash technique.

d) Again after eating: There are total 10 observation, it was achieved 100%.

2) PERSONAL PROTECTIVE EQUIPTMENT

PRE INTERVENTION



s

Calculative formula:- a) _____situation where gloves used_____ X 100

Situation where Gloves used +Missed opportunity

b) **Missed oppertunity** **X**

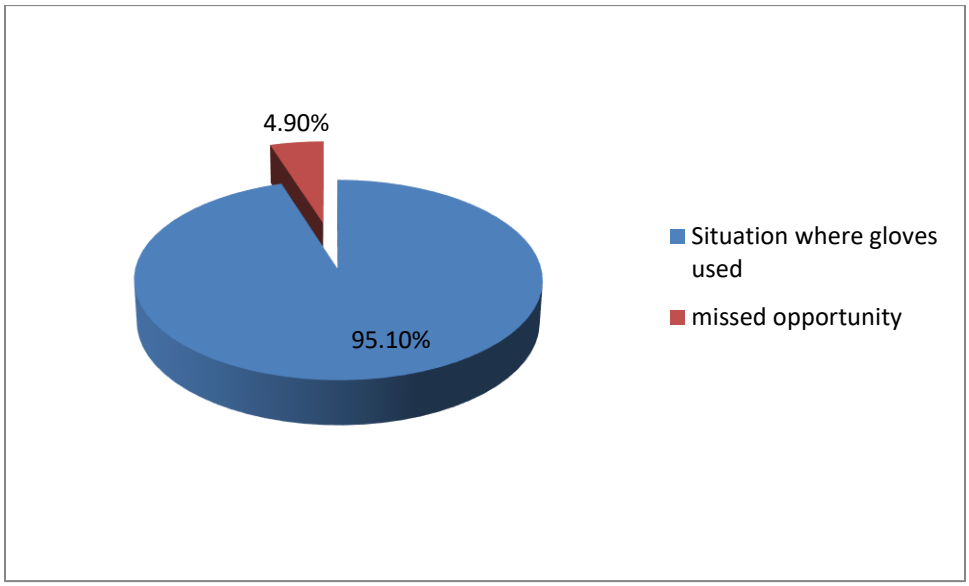
100

Situation where Gloves used +Missed opportunity

Table:5 **PRE INTERVENTION**

GLOVES:	**YES**	**%**	**NO**	**%**	**TOTAL**
a)used during invasive procedure	13	81%	3	19%	16
b)used when risk of exposure to body fluids (secretion, excretion, blood)	32	78%	9	22%	41
c)used when contact with mucous membrane	12	100%	0	0%	12
d)changed between contact with different patient	9	64%	5	36%	14
e)changed between task/procedure on same patient	**0**	**0%**	**7**	**100%**	**7**
f)removed immediately	**42**	**63%**	**24**	**37%**	**66**

POST INTERVENTION



After training or education among the ICU staff (doctors. nurses, housekeeping staff, physiotherapist) the use of gloves has increased up to 95.1% and the missed opportunity has decreased to 4.9%.

Table:6 **POST INTERVENTION**

GLOVES:	**YES**	**%**	**NO**	**%**	**TOTAL**
a)used during invasive procedure	4	100%	0	0%	4
b)used when risk of exposure to body fluids (secretion, excretion, blood)	34	94%	2	6%	36
c)used when contact with mucous membrane	7	100%	0	0%	7
d)changed between contact with different patient	8	88%	1	12%	9
e)changed between task/procedure on same patient	6	100%	0	0%	6
f)removed immediately	56	94%	3	6%	59

3.DISPOSAL WASTE

Table:8 PRE INTERVENTION POST INTERVENTION

	Yes	**No**	**Yes**	**No**
Yellow (big)	3	0	3	0
Yellow(small)	17	2	16	0
Red (big)	3	0	3	0
Red (small)	21	0	21	1
Blue (big)	3	0	3	0
Blue (small)	18	0	17	0
Black	24	5	28	2
Closed container	8	0	4	0
Waste is removed from ward	2	0	2	0

The above table for pre intervention and post intervention are self explanatory. above data are in numbers in the observation list.

4. Cleaning

M = Morning duty, E = Evening duty

Table:9 PRE INTERVENTION POST INTERVENTION

	yes	**No**		
Soiled linen is immediately removed from the bedside	2	0	0	0
Dirty beds are cleaned	2	0	0	0
Beds are cleaned after discharge or transfer	1	0	3	1

Excretion on the floor is immediately cleaned with chemical disinfectant	1	0	0	0
Walls and ceilings are swept	1	0	3	0
Ward is carbolized	4	0	3	0
Floors are swept	**M**	**E**		
	3	**0**	**3**	**0**

CHAPTER-4

CONCLUSIONAND RECOMMENDATIOS

KEY FINDINGS:

A) Knowledge and practice among nursing staff:

1) Knowledge regarding members of the infection control committee (ICC) was very low among the nurses they should know at least the ICN is main lead in this committee who directly supervise the nurses in case of any event related to Infection so they can inform ICN directly about the event.

2) High risk factors for the infections is very important aspect for the nurses because they are the one who directly approaches the patients so they are more prone for acquiring infection so for their safety also so they should have knowledge regarding high risk factor among the patients. After intervention or training there was markedly change among the nurses regarding risk factors.

3) In pre test most of the nurse were aware about the ICU, OT as a high risk area in action cancer hospital but knowledge regarding other high risk areas like post operative room, procedure room/dressing room was low after training it has also very increased in very good percentage.

4) Every nurse should know the meaning of OUTBREAK so that in case of outbreak they can immediately inform the ICN.pre test only 5% of the nurses has partial knowledge regarding outbreak. After training it has increase by 85%.

5) A very important aspect of Infection , prevention and control is transmission by which means the bacteria or virus can be travel into the body. Air borne transmission was known by some of the nurses but other were not so popular (contact and droplet).Post test it has also increased .

6) Knowledge regarding steps in hand washing was also low it was not up to the expectations. But post test it was 100%.which is a good indicator.

7) Site of the patient's for catheterization were only cleaned or prepare by betadine or iodine solution although it should be cleaned with chlorhexadin & betadine both.post test it has also increased so much.

8) Knowledge regarding expiry days or hrs for the IV Set, catheter Foleys, dressing set, gauze pad was not so good because it has been recently changed in ACH, So nurses were not aware about the expiry days or hrs for the above. That will help them in keeping the patient safe by avoiding hospital acquired infections.

9) Knowledge regarding segregation of Biomedical waste was quite fair among the staff but if we see the observation part in ICU.

10) Hospital nursing staff should know that there should be a peripheral sterilization unit available in the hospital apart from major CSSD. Availability of autoclave in OT room knowledge was very low about that.

PRE & POST OBSERVATION IN ICU AND IPD

1) Use of alcohol rubs and hand wash in ICU & IPD was the major concern during pre intervention it has been seen that there was large number of missed opportunity seen in before and after patient contact, handling body fluids, after intervention it has been markedly increase.

2) Use of gloves among the ICU staff was also very low, Wearing of gloves/beliefs that glove use obviates the need for hand hygiene during the risk of exposure to body fluids (secretion, excretion, blood), changed between task and procedure on same patients. It has increase after the intervention.

3) Other findings on disposal of wastes in ICU was good before the intervention also there was no scope to improvement as the staff is already following the guideline for disposal.

4) In IPD ward segregation of waste was matter of concern before the intervention,the segregation of waste was very poor among the staff(nurses).after intervention it has increase but not to the expectation. there is still scope of improvement after the intervention also.

RECOMMENDATION:

1) Knowledge regarding infection control (e.g risk factor for HAI, defining outbreak, types of disinfectant use, types of hand washing)were very low. Regular training of nurses regarding infection control should be done at least once in a week.

2) Display of motivational videos at nursing station (Hand washing technique, Use of PPE)

3) Equipping of elbow close tap or sensored tap should be placed instead of hand closed faucet.

4) Placing of alcohol rub solution should be placed at side of every bed in the in the ICU.

5)As there was one team leader for nursing staff on each floor(3 floors ,2 wings each,6 team leaders were there, 1 team leader in ICU) they should became the role model for everyone to perform all infection control practices and can supervise them as they come

6) Wearing of gloves/beliefs that glove use obviates the need for hand hygiene. This should be encourage by the team leaders

7) Lack of nursing staff because of that the nursing staff was Often too busy/insufficient time to perform hand hygiene practices. Ratio of nurse to patient should be increase in ICU.

8)observation study should be conducted by the ICN every month to measure the compliances on infection control practices.

Conclusion:

This study helps to determine the importance of infection control practices in the hospital. The knowledge part is very important aspect to reduce infections in the hospital. as we have seen the pre test in knowledge and practice survey among the nursing staff was low average score 18.5 out of 40 that has increase after post test 32.5 out of 40.as literature review indicates that the knowledge aspect is a important part in heath care to reduce Health care associated infections.In ICU his been observed that before and after patient contact staff were not using the standard protocols the percentage was very high for not following the standard

procedure. After intervention the nurse and staff were following the standard protocols for infection control.

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Annexure:- A **QUESTIONAIRE**

Name-

ID-

KAP study on Infection, prevention & control among the Nursing staff in ACH

Do you know about HAI ?

- Yes
- No

Q1)What is the full form of HAI?

Ans)

Q2 who are the members of HIC Committee in ACH?

Ans)

Q3) Name any 4 risk factor of hospital associated infections?

Ans)

Q4) what are the high risk areas in hospital?

Ans) a) b)

c) d)

Do you know about Outbreak ?

YES

NO

Q5) define outbreak?

Ans)

Q6) Name any 8 notifiable disease?

Ans)

Do you know the type of Disinfectant

YES

NO

Q7) what are the types of disinfectant?

Ans)

Q8)what are the three categories of transmission?

a) b)

c)

Q9) how many steps are there in hand washing?

Ans)

Q10) Types of hand washing?

Ans)

Q11) what is PPE? Name all PPE.

Ans)s

Q 12) Name any 6 disease in which strict isolation precaution should be taken ?

Ans-a) b)

c) d)

e) f)

Q13) Fill up.

a) Use only disposable needles, destroy by incinerating needles from tip to end, and place them in ____% hypochlorite solution in puncture proof.

Q14) Probe of pulse oximeter and temperature probes should be cleaned if visibly soiled and disinfected with____%_____.

Q15) Before catheterization site should be prepared using _____ & _____ and should be draped.

Q16) segregation of BMW should be done as follows:

How the segregation of BMW follows in following category ?

a)Yellow_____

b)Black_____

c) Blue _____

d) Red_____

Q17) write expiry days or hours for following:

a) IV set_____ b)Gauze pad_____ c)Dressing set____ d)silicon folly_____

Q18) which label should be put on HIV/HPV Patient's file?

Ans)

Q19) TRUE or FALSE:

a) category 1=Human anatomical waste___ ___ b)category 2=Liquid waste_____

b) Category 3= sharp_____ d) category 4=Plastic & Disposable_____

Q20) Is there any peripheral sterilization facilities available at ACH. YES /NO.

Annexure:B

OBSERVATION LIST

DATE:

1.HAND HYGINE

Total amount of hand hygiene interventions done:

a) Before contact with patient.

Alcohol		**Hand wash**		**No action**
Right use	Wrong use	Right use	Wrong use	

b) After contact with patient

Alcohol		**Hand wash**		**No action**
Right use	Wrong use	Right use	Wrong use	

c)After handling body fluids(secretions, excretions and blood)

Alcohol		**Hand wash**		**No action**
Right use	Wrong use	Right use	Wrong use	

d) Immediately after removing gloves

Alcohol		**Hand wash**		**No action**
Right use	Wrong use	Right use	Wrong use	

e) Before aseptic task

Alcohol		**Hand wash**		**No action**
Right use	Wrong use	Right use	Wrong use	

f) Before eating

Alcohol		**Hand wash**		**No action**
Right use	Wrong use	Right use	Wrong use	

g) After eating

Alcohol		**Hand wash**		**No action**
Right use	Wrong use	Right use	Wrong use	

2) PERSONAL PROTECTIVE EQUIPTMENT

2.1 Gloves

Total of gloves (disposable and sterile):

Gloves are:

Yes	No

a)used during invasive procedure

b) used when risk of exposure to body fluids (secretions, excretions, blood)

Yes	No

c) used when contact with the mucous membranes

Yes	No

d) changed between contacts with different patients

Yes	No

e) removed immediately after use

Yes	No

	Yes	No	Not applicable
Closed shoes from ICU are worn			
Jewellery (hand and wrist) removed			
Cuts and abrasions covered			
Fingernails short, clean and free from nail-polish			

Others (personal protective equipment and hand hygiene)

3. Disposable waste

	Yes	No
Yellow (big)		
Yellow(small)		
Red (big)		
Red (small)		
Blue (big)		

Blue (small)		
Black		
Closed container		
Waste is removed from ward		

4. Cleaning

M = Morning duty, E = Evening duty

	yes	**No**
Soiled linen is immediately removed from the bedside		
Cleaning of:		
Toilets		
Bathrooms		
Sinks		
Dirty beds are cleaned		
Beds are cleaned after discharge or transfer		
Excretion on the floor is immediately cleaned with chemical		

disinfectant		
Walls and ceilings are swept		
Ward is carbolized		
Floors are swept	**M**	**E**