Summer Training

IN

ACTION CANCER HOSPITAL

PASCHIM VIHAR, NEW DELHI

(Feb 1, 2016 to April 30th, 2016)

A

Report on

Infection Control Practices Among Health Care Workers

Prepared By

Dr.PoojaGambhirKakkar

Batch - 2014-2016

Post-graduate Diploma in Hospital and Health Management

International Institute of Health Management Research, New Delhi

IIHMR DELHI

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled ...Infection Control Practices Among Health Care workers .... and submitted by (Name) ..Dr. Pooja Gambhirkalikar .... Enrollment No. ....PG/14/69............ under the supervision of ....Dr. Naveen Aggarwal............ for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from ..1 Feb 2016 to 30th April 2016 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature Pooja Gambhirkalikar

Completion of Dissertation from Action Cancer Hospital)

The certificate is awarded to

Dr. Pooja Kakkar

In recognition of having successfully completed her
Internship in the department of

Pathology

and has successfully completed her Project on

Infection Control Practices
Among Health Care workers

1st Feb to 30th April 2016

Action Cancer Hospital

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish her all the best for future endeavors

Training & Development

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FEEDBACK FORM

Name of the Student: Dr. Pooja Kalekar.

Dissertation Organisation: Action Cancer Hospital

Area of Dissertation: Infection Control Department

Attendance: 100%.

Objectives achieved: (1) Knowledge regarding infection control Measures
(2) To study the Infection Control Rate In Hospital

Deliverables: (1) formed protocols for HRSA and CRE.
(2) Protocol for CAUTI in Bed Ridden patients
(3) Hand Hygiene Drive Initiated.

Strengths: (1) Hard working.
(2) Leadership.

Suggestions for Improvement:
(1)

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

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Date: 24/8/2016
Place: Action Cancer Hospital.

Action Cancer Hospital

18 May 2016

ACH/HR-TR/2016/22

To Whomsoever It May Concern

This is to certify that Dr. Pooja Gambhir D/O Mr. Vinod Gambhir, a student of Post Graduate Diploma in Hospital and Health Management (PGDHM), from International Institute of Health Management Research, New Delhi, has undergone has dissertation in our organization from 01 February 2016 – 30 April, 2016.

She has successfully carried out her study on "**Infection control practices among healthcare workers**".

We wish her success in her future endeavors.

Anuradha Singh

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Certificate of Approval

The following dissertation titled "**Infection control practices among health care workers**" at **Action Cancer Hospital** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award for **Post Graduate Diploma in Health and Hospital Management** for which is has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Dr. Shyamna Nagarajan.	
DIVYA AGGARWAL	

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Pooja Kakkar,** 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 **" Infection Control Practices among Healthcare Workers"** at **"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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TO WHOMSOEVER IT MAY CONCERN

This is to certify that Pooja Gambhir Kakkar student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at Action Cancer Hospital from 1st Feb 2016 to April 30 2016.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

Dr. A.K. Agarwal
Dean, Academics and Student Affairs
IIHMR, New Delhi

Name of the mentor
IIHMR, New Delhi

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IIHMR DELHI

Acknowledgements: My greatest regards to Dr. AshaAggarwalfor enabling me to visit Action Cancer Hospital to observe their daily operations .I offer my sincere appreciation for the learning opportunity provided by IIHMR to undergo summer training and have an overview of the daily operations carried out in various departments in hospital which could be of great help in future.

I would also like to thank Dr.Dr. Naveen Agarwal(Senior Consultant Pathology) for his inputs and cooperation throughout my project and for his valuable and constructive suggestions during the planning and development of this research work. His willingness to give his time so generously has been very much appreciated

Action Cancer Hospital's staffhad been very cooperative all through my project. All the staffs were very approachable regarding any issue.

Due to their friendly attitude my project was easier to be done and I got knowledge about other departments as well.

I would like to thanks my mentor Dr.Divya (Asssitant Professor) IIHMR to guide me throughout the project and make necessary changes if required.

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ABOUT ORGANIZATION: ACTION CANCER HOSPITAL

INTRODUCTION

This report was requested by International Institute OfHealth Management and Research regarding my summer training project which commenced on March 1 2016 in Action Cancer Hospital

VISION

To become one of the leading cancer hospital in north India with a human touch.

MISSION

- To Provide world-class affordable cancer treatment to all sections of the society with a humanitarian touch,
- Maintaining high standards of ethical practices and professional competency with emphasis on education and research.

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.
- Providing basic and continuing education for staff.
- Ensuring accountable, consultative and transparent management process.

SERVICES & AMENITIES

Action Cancer Hospital believes that services and amenities play a highly significant role in healthcare industry.. Listing the services and amenities that Action Cancer provides:

- Ambulance Services
- Support services
- Blood Bank
- Radiology Services

Specialties

- Medical Oncology
- Surgical Oncology
- Radiational Oncology
- Neuro Oncology
- Nucleur Medicine
- PET CT SCAN
- Radiology
- Plastic Surgeries

MEDICAL ONCOLOGY SERVICES

Department of medical oncology includes a wide range of therapies and drugs which generally destroys the cancer cells

These basically include

- ADJUVANT CHEMOTHERAPY
- NEOADJUVANT CHEMOTHERAPY
- INDUCTION THERAPY
- CONSOLIDATION THERAPY
- MAINTAINANCE THERAPY
- FIRST LINE CHEMOTHERAPY
- SECOND LINE CHEMOTHERAPY
- PALLIATIVE CHEMOTHERAPY

SURGICAL ONCOLOGY

- At Action Cancer Hospital, a team of highly qualified and experienced surgeons are dedicated to perform extensive radical surgeries in an advanced infection free environment with back support of modern ICU, anesthesiologist, intensivists and post operative care ward.
- Our surgical oncology teams are experts in performing surgeries of Head and Neck, Breast, Thoracic, upper and lower GI, Hepatobiliary, Pancreatic, Urology, Gynecology, Bone and Soft tissue and Skin tumors. Our Modular Operation Theaters with latest technology and International standards with Central supplies and laminar airflow, stainless steel cladding on wall and epoxy coating on floors maintains the electrostatic and infection free environment.

- **RADIATION ONCOLOGY**
- With the introduction of a state-of-the-art Radiation Oncologydepartment at the Action Cancer Hospital, we established ourselves among the few medical institutes with world-class infrastructure and facilities in North India.
- This highly advanced unit functions in an interdisciplinary setting where radiation oncology is the part of a treatment plan and is given in combination with other oncology methods.
- It is managed by an experienced team of oncologists, physicists, technologists, and nurses to ensure best possible care for patients.

  Radiation oncology is the latest and most accurate innovation in the field of oncology.
- In this method of treatment high energy radiation is used to destroy cancerous cells in the body and different medical equipment and energy levels are used based on the location of tumour and the affected body organs of the body.
- The department is equipped with simulators, linear accelerators, and brachytherapy equipment and is well-supported by the in-house medical imaging technologies such as CT, MRI, and PET scans. Our linear accelerator and computer-controlled image guidance systems are fully integrated via modern networking system for a seamless functioning.

NEURO ONCOLOGY

Neuro Oncology Department of Action Cancer Hospital is well equipped for primary and secondary tumors of the nerves system including brain, spine and nerves as well as the neurological complications of cancer. The department having a team of experienced,

dedicated and well knownneuro surgeons is capable of dealing with various kinds of neuro related cancer problem

NUCLEUR MEDICINE AND PET CT SCAN

Nuclear Medicine or Department of radio-isotope imaging is equipped with state of art PET.CT and Dual head Gamma Camera by GE. Dual head gamma camera is used for whole body and SPECT imaging. It is used to detect the disease at the functional level.

RADIOLOGY

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

- SignaHDxT 1.5 T16 Channels
- CT 64 Slice Scan
- Digital Fluoroscopy and Compound Radiography
- CR System
- Bone Densitometry
- High end Ultrasound and colour Doppler
- Digital and Portable X-Ray

PLASTIC SURGERY

The Department of Plastic Surgery provides a wide array of complex and routine services in both inpatient and outpatient surgical setting.

1. All the latest and advanced procedures are done like Rhinoplasty, Liposuction, Breast reduction & augmentation.
2. Removal of scars, birth marks, tattoos, facial features correction, hair transplant, laser surgeries, Maxillofacial surgery, limb reconstructive surgery, microsurgery & congenital anomalies (birth defects).

3. Surgical corrections for congenital anomalies, trauma etc are routinely performed.

4. The Craniofacial Anomalies Clinic specializes in the surgical correction and management of cleft lip and palate, Pierre Robin sequence, syndromes, genetic disorders and maxillofacial reconstruction.

Section 2:Mode of Data Collection: Data was mainly collected through daily observations,andreportings

ABOUT PROJECT:

INFECTION CONTROL

KNOWLEDGE AND PRACTISES

PROJECT REPORT

CHAPTER I – PLANNING OF PROJECT

Section - 1:Introduction

The report concerns the study of the infection control Compliance in hospital.

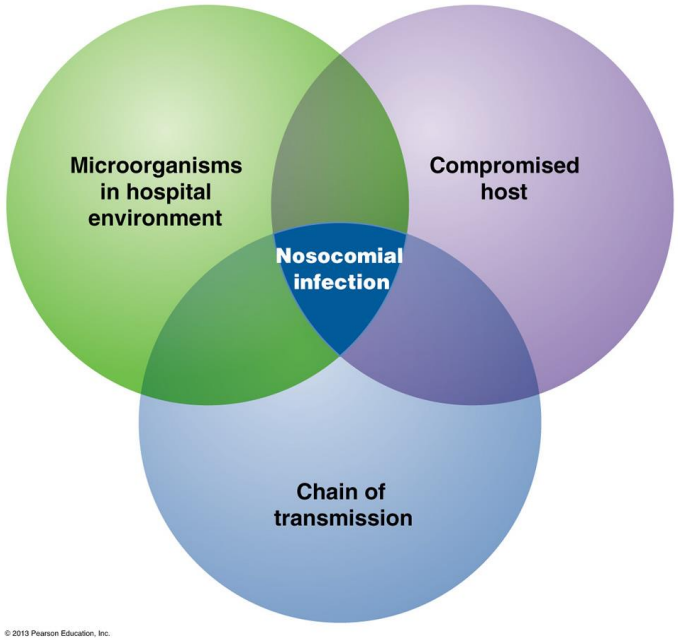
The main aim of the report is to identify the causes of low infection control Compliance and recommend ways to boost it.

The other objectives include reducing the incidence of infections in all areas by following active measures. It also puts emphasis on sensitizing the nursing staff, doctors, pharmacists, regarding the preventive measures against infection.

What is Hospital Acquired Infection?

According to the modern CDC guidelines, hospital acquired infections are health care associated infections that patient acquires during the course of receiving health care treatment for other conditions

Infections are considered nosocomial if they appear 48hrs or more after hospital admission or within 30 days after discharge.



Types of Hospital acquired infections

1.Hospital Acquired Pneumonia

2.Ventilator Associated pneumonias

3.Urinary Tract Infections

4.Gastroenteritis

5.Peuperal Fever

6. Surgical site infections

7.Central line associated infections

1.Hospital Acquired Pneumonia:**Hospital-acquired pneumonia** (HAP) or **nosocomial pneumonia** refers to any**pneumonia** contracted by a patient in a **hospital** at least 48–72 hours after being admitted.

2.**Ventilator Associated pneumonia:****Ventilator-associated pneumonia** (VAP) is a type of lung infection that occurs in people who are on breathing machines in hospitals. As such, VAP typically affects critically ill persons that are in an intensive care unit (ICU). VAP is a major source of increased illness and death.

3.**Catheter associtated UTI"S:**Urinary tract infection attributed to the use of an indwelling urinary catheter is one of the most common infections acquired by patients in health care facilities. As biofilm ultimately develops on all of these devices, the major determinant for development of bacteriuria is duration of catheterization

4.**Surgical site infection:**A surgical site infection is an infection that occurs after surgery in the part of the body where the surgery took place. Surgical site infections can sometimes be superficial infections involving the skin only.

5.**Central line Associated Blood Stream Infection:**

A "central line" or "central catheter" is a tube that is placed into a patient's large vein, usually in the neck, chest, arm, or groin. The catheter is often used to draw blood, or give fluids or medications. It may be left in place for several weeks. A bloodstream infection can occur when bacteria or other germs travel down a "central line" and enter the blood. If you develop a catheter-associated bloodstream infection you may become ill with fevers and chills or the skin around the catheter may become sore and red.

Organisms causing Hospital Acquired Infections

1.StaphylococcusAureus

2.Methillin Resistant Staphylococcus Aureus

3.CandidaAlbicans

4.PseudomonasAeuriginosa

5.Acinetobacterbaumanii

6.Clostridiumdifficule

7.Escherichia Coli

8.Tuberculosis

9.Vancomycin resistant Enterococcus

CAUSES OF HOSPITAL ACQUIRED INFECTION

- **Transmission**

  Indwelling catheters have recently been identified with hospital acquired infections. Procedures using Intravascular Antimicrobial Lock Therapy can reduce infections that are unexposed to blood-borne antibiotics. Introducing antibiotics, including ethanol, into the catheter (without flushing it into the bloodstream) reduces the formation of biofilms.

Main routes of transmission

Route	Description
Contact transmission	The most important and frequent mode of transmission of nosocomial infections is by direct contact.
Droplet transmission	Transmission occurs when droplets containing microbes from the infected person are propelled a short distance through the air and deposited on the patient's body; droplets are generated from the source person mainly by coughing, sneezing, and talking, and during the performance of certain procedures, such as bronchoscopy.
Airborne transmission	Dissemination can be either airborne droplet nuclei (small-particle residue {5 μm or smaller in size} of evaporated droplets containing microorganisms that remain suspended in the air for long periods of time) or dust particles containing the infectious agent. Microorganisms carried in this manner can be dispersed widely by air currents and may become inhaled by a susceptible host within the same room or over a longer distance from the source patient, depending on environmental factors; therefore, special air-handling and ventilation are required to prevent airborne transmission. Microorganisms transmitted by airborne transmission include *Legionella Mycobacterium tuberculosis* and

	the rubeola and varicella viruses.
Common vehicle transmission	This applies to microorganisms transmitted to the host by contaminated items, such as food, water, medications, devices, and equipment.
Vector borne transmission	This occurs when vectors such as mosquitoes, flies, rats, and other vermin transmit microorganisms.

Contact transmission is divided into two subgroups: direct-contact transmission and indirect-contact transmission.

SOURCE:

What is Infection control?

Infection control is the discipline concerned with preventing nosocomial or healthcare-associated infection, a practical (rather than academic) sub-discipline of epidemiology It is an essential, though often underrecognized and undersupported, part of the infrastructure of health care. Infection control and hospital epidemiology are akin to public health practice, practiced within the confines of a particular health-care delivery system rather than directed at society as a whole.

Anti-infective agents

include antibiotics antibacterials antifungalsantiviralsand antiprotozoals

Infection control addresses factors related to the spread of infections within the healthcare setting (whether patient-to-patient, from patients to staff and from staff to patients, or among-staff), including prevention (via hand hygiene/hand washing, cleaning/disinfection/sterilization, vaccination, surveillance), monitoring/investigation of

demonstrated or suspected spread of infection within a particular health-care setting (surveillance and outbreak investigation), and management (interruption of outbreaks). It is on this basis that the common title being adopted within health care is "infection prevention and control."

Measures for Infection Control?

1.Sterilisation

2.Hand Hygiene

3.Isolation

4.Gloves

5.Surface Sanitation

6.Antimicrobial Surfaces

7.Cleaning

8.Disinfection

9.Use of Personal Protective Equipments

Literature Review

Evidence of hand hygiene to reduce transmission and infections by multidrug

resistant organisms in health-care settings

CONTENTS

1.INTRODUCTION

2.OBJECTIVES

3.REVIEW OF LITERATURE

4.GAPS AND RESEARCH PERSPECTIVES

5.CONCLUSIONS

INTRODUCTION

Infections by multidrug-resistant organisms (MDROs) are increasing worldwide (1). Prevention of spread and control of MDROs in health-care settings are critical and urgent as

the number of antibiotics available to treat these infections is extremely limited and development of new antibiotics is not forthcoming in the foreseeable future. Worldwide, the

most common bacteria causing health-care associated infections (HAIs) are:

- **MRSA M**ethicillin **r**esistant ***S****taphyloccous****a****ureus*
- **VRE V**ancomycin**r**esistant ***E****nterococci* spp.
- **ESBL E**xtended-**s**pectrum **b**eta (β)-**l**actamase gram-negative organisms
- **CRE C**arbapenems**r**esistant **E**nterobacteriaceae
- **MRAB M**ulti-**r**esistant ***A****cinetobacter****b****aumannii*

The emergence of resistance in these microorganisms has mainly been caused by an inappropriate use of antibiotics in general and use of broad spectrum antibiotics in particular.

In addition the spread of MDROs in health-care settings is common and occurs mostly via health-care workers' (HCWs) contaminated hands, contaminated items/equipment and environment often leading to outbreaks and serious infections especially in critically ill patients.

Therefore, implementation of standard precautions for *all* patients *all* the time is key to

preventing spread of all microorganisms and MDROs in particular. Hand hygiene performance

according to recommendations (2) I;s the most important measure among standard precautions.

REVIEW OF LITERATURE: Through a systematic literature review from January 1980 to December 2013 conducted using

Medline, the WHO Clean Care is Safer Care team has evaluated the available evidence about

the impact of hand hygiene improvement interventions to reduce transmission and/or infections

by MDROs'.

The review primarily focused on studies where hand hygiene was the key intervention implemented in the study period and hand hygiene indicators (hand hygiene compliance and/or

alcohol-based hand rub (ABHR) products consumption) were measured along with MDRO infection and/or transmission rates. The review identified 39 papers with these characteristics.

Some relevant and higher quality papers were selected and summarized (see Table). Three nonsystematic

reviews also discussed this topic in the context of the role of hand hygiene to reduce HAIs (3-5). A further 60 papers included major hand hygiene interventions but in the context

of a broader infection control programme or implementation of other measures aimed at reducing antimicrobial resistance (AMR).

Most of the published studies were “before and after” intervention studies (17/39); a limited number of randomized controlled trials (2/39) was available. In addition, a number of studies
investigated the temporal association between hand hygiene indicators and MDRO infection
trends (12/39) and some estimated the impact of hand hygiene interventions by applying mathematical models (4/39). The great majority of these papers offer convincing evidence that
improved hand hygiene practices lead to a reduction of HAIs and/or transmission or colonization by MDROs.

Overall, in most studies, the intervention was based on a multimodal strategy including the introduction of ABHRs or an improvement of their location and provision, hand hygiene observation and performance feedback, HCWs education, use of reminders and various methods of communication (posters, memos, poster-board communications, internal marketing
campaign, etc.). It is important to highlight that most of the studies reported the implementation of such a strategy hospital-wide, and many were multicentre and even rolled
out nationally. One cluster randomized study demonstrated significant reduction of MRSA infections in 18 long-term facilities, although the follow-up was short (four months) (12).

Only a handful of studies evaluated the interesting question concerning the levels of hand hygiene compliance or of the relative increase to observe MDRO rates reduce. A study by Song and colleagues showed that when hand hygiene compliance increased from poor (<60%)

to excellent (90%), each level of improvement was associated with a 24% reduction in the risk

of MRSA acquisition. This risk decreased significantly (by 48%) with hand hygiene compliance levels above 80%. Two additional clinical studies supported this data, showing lower incidence rates of MRSA (13), resistant *E. coli* and carbapenem resistant *P. aeruginosa*

(14) in wards achieving compliance levels higher than 70% and the greatest degree of compliance increase.

Through time series analysis and other methods, a number of papers including a review with

data pooling (3), reported a temporal association or correlation between increasing consumption of ABHR and decreasing MRSA infection or isolation rates. This effect was also

reported for ESBL-producing Gram negative bacteria (15) and carbapenem resistant *P. aeruginosa*(16). In particular, two papers from Australia and England described this association in the context of national hand hygiene campaigns (10, 17) with reductions of MRSA or *S. aureus*bacteremia nationwide.

GAPS AND RESEARCH PERSPECTIVES

While bringing important information about the actual role of hand hygiene improvement inreducing the spread and infection by MDROs in healthcare, this review also identified somegaps and key areas where more research is needed. For example, the great majority of studieswere conducted in high-income countries. Good quality surveillance data on AMR and thefeasibility and impact of interventions based on hand hygiene promotion compliance areurgently needed from low- to- middle income countries. In addition, the study settings werehospitals apart from one study conducted in long term health care facilities. Given that

AMR isa cross-cutting problem affecting all health-care settings and the community, it is important toacquire evidence from these settings too. Finally, most papers focused on the role of handhygiene in preventing and controlling MRSA, while other MDROs such as VRE, ESBLproducing

Gram negatives, CRE where rarely included as an outcome. We are aware thatstrategies to combat the spread of these microorganisms are more complex and comprehensive,but hand hygiene remains a cornerstone.

Patient education was included in only one study (22); the role of patients and the civil societyin combating AMR is crucial at different levels and hand hygiene is one simple yet keymeasure that can be practiced and advocated for by them.

CONCLUSIONS

Studies where hand hygiene was used as the main intervention and a significant improvementin hand hygiene compliance and/or increased ABHR consumption were achieved,demonstrated substantial decrease of MDROs' infections and/or colonization rates, mainly forMRSA.

To be successful, these interventions need to be multimodal and sustained over time in thecontext of an improved patient safety climate; in addition, particular attention should be paid toembed hand hygiene in the care flow and within best practices for specific procedures. Finally,combating AMR spread and infections involves the implementation of other specificprevention and control measures too.

Section 2. Why did we take this project?

- To study the Infection control measures among health care workers
- To study the incidence of Hospital Acquired Infections
- To improve our clinical HAI compliance.
- .To sensitize the all the staff of the hospital regarding infection control measures
- To form an effective protocol for reducing CAUTI in bedridden patients

Problem statement:

- Review of the Infection Rates
- Review of Hospital Acquired Infection Cases from Jan-March
- Review of all the infection control parameters
- Observation of Hand Hygiene drive

Project Charter:

Project Charter was prepared in which the following two areas were covered:

1.Goal Statement

2.Project duration

1. Goal Statement

To study the various infection control parameters in detail and to take adequate measures to improve the infection control compliance

2.Project Duration:

Project started on 1st March and ended on 30 May 2016

PROJECT SCOPE:

The project scope was defined.

This included the

- Longitudinal Scope
- Lateral Scope
- Outside scope.

The longitudinal scope included doctors, nursing staff and pharmacy, lateral scope included All IPD Patients and the outside scope included Triage,OPD and OT patients.

5.**Project Survey**:

SURVEYS DONE

1.FOLLOW UP OF NEEDLE STICK INJURY

2.WARD PERFORMANCE PARAMETERS

3.SURFACE SAMPLING

4.BIOMEDICA WASTE AUDIT

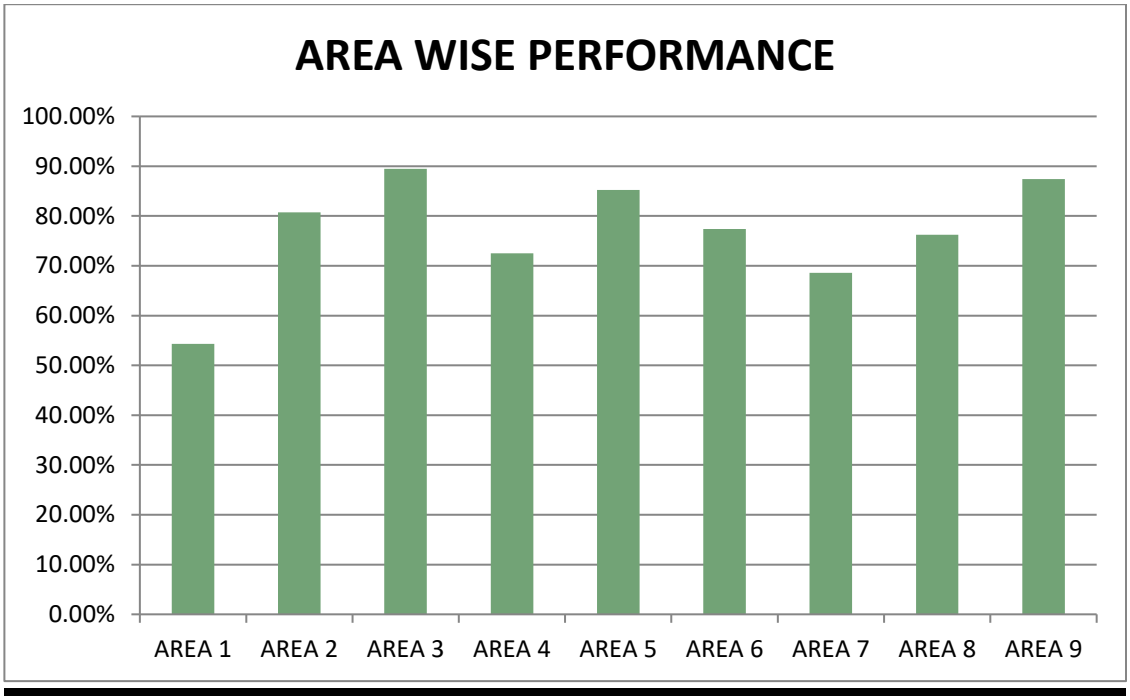
5.HAND HYGIENE COMPLIANCE

2.Ward wise performance parameters were taken which included:

- **BMW MANAGEMENT**
- **SUCTION OXYGEN OUTLET**
- **DRESSING TROLLEY MAINTAINCE**
- **MAINTENANCE OF ASEPTIC HAND HYGEINE**
- **HANDLING OF LINES BY STAFF**
- **CARE BUNDLES**

WARD WISE PERFORMANCE JAN-MARCH 2016

AREA 1	**54.30%**
AREA 2	**80.70%**
AREA 3	**89.50%**
AREA 4	**72.50%**
AREA 5	**85.20%**
AREA 6	**77.40%**
AREA 7	**68.60%**
AREA 8	**76.20%**
AREA 9	**87.40%**



SURFACE SAMPLING STATUS

MONTH	DEPARTMENT	REPORT	Action taken
JAN'16	**AREA I**	**Heavy growth of aerobic spore bearer**	Inform to the incharges of concerned area. Resampling after fumigation and moping. no growth found.
MAR'16	**AREA II**	**Heavy growth of gram negative bacilli**	Inform to the incharges of concerned area. Resampling after fumigation and moping. no growth found.

Biomedical Waste Compliance

MONTH	COMPLIANCES
JAN'16	86%
FEB'16	83.5%
MAR'16	86.2%

	JAN	FEB	MARCH
MRSA (*Methicillin resistant staphylococcus aures*)	5	4	3
VRE (*Vancomycin resistant enterococci)*	3	1	0
CRE (C*arbopenam resistant enterobactiaceae*)	9	13	10

DEFAULT RATE(NON COMPLIANCES Jan- Mar)

MOMENTS	DOCTORS	NURSES	HK	TOTAL	%
Before touching patient	43	55	09	107	48.8%
Before aseptic technique	02	0	0	02	0.9%
After body fluid exposure	0	0	0	0	0%
After touching patient	04	06	03	13	5.9%
After touching patient surroundings	49	40	08	97	44.2%

NEW INIATIVES

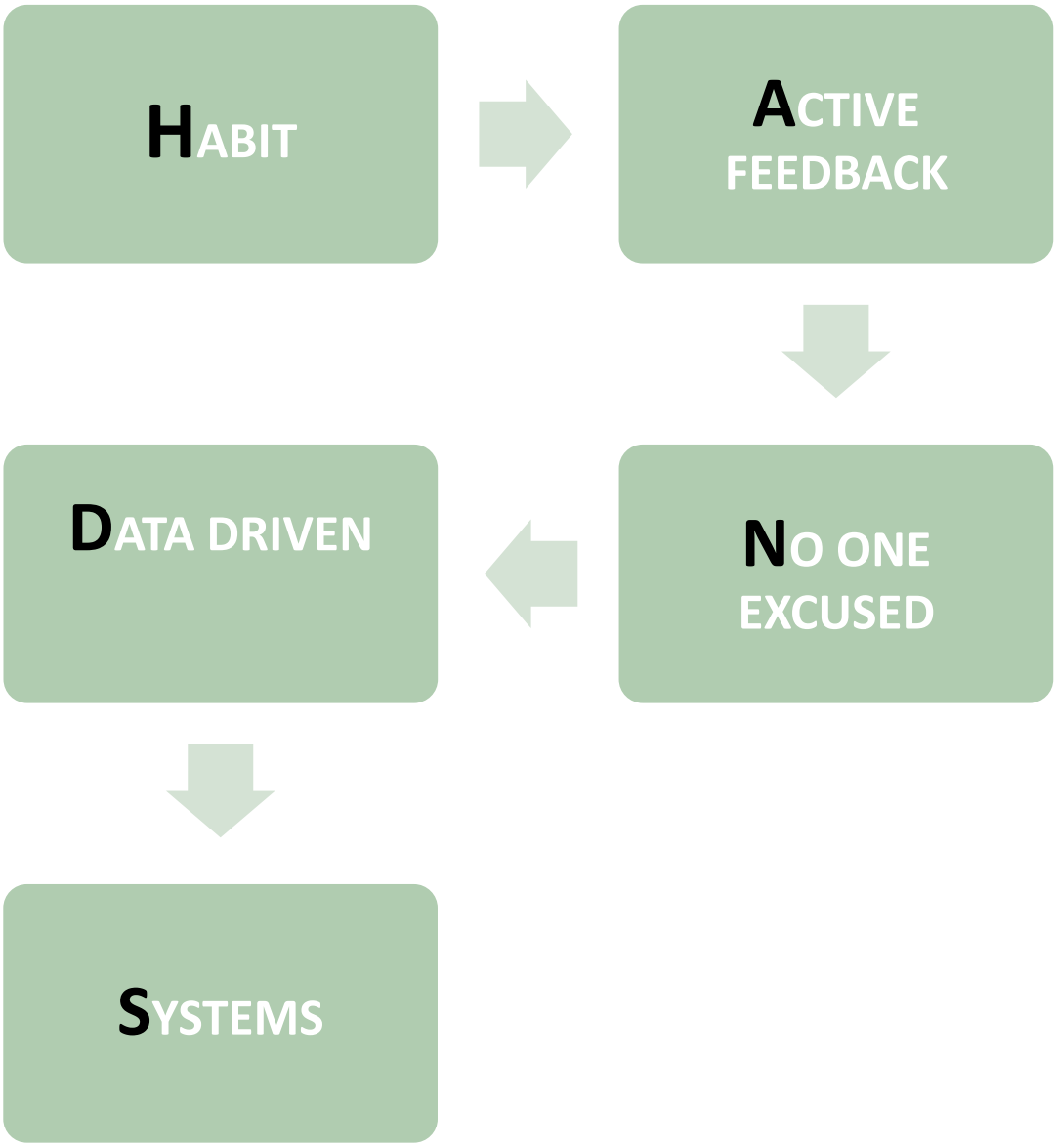
- Hand hygiene drive
- Implementation of new BMW guidelines
- MRSA and CRE protocol
- Information to health care staff for high risk patients
- Protocol for prevention of CAUTI in bed ridden patients

HAND HYGIENE PROTOCOL

Probable Causes of Failure to Clean Hands in ACH

- Health care workers forget.
- Hand hygiene compliance data are not collected or reported accurately or frequently.
- Lack of accountability and just-in-time coaching.
- Safety culture does not stress hand hygiene at all levels.
- Hands were full
- Perception that hand hygiene is not needed if wearing gloves.

EFFECTIVE HYGIENE IS IN OUR**HANDS**



PROTOCOL TO PREVENT *CAUTI* IN BED RIDDEN PATIENTS

Regularly assess the need of catheters during daily rounds.

1) Use sterile technique at insertion and removal.

2) Perform perineal care daily after bowel movements.

4) Keep urinary catheter always lower than patient's bladder level.

5) Maintain closed drainage system.

6)Perform catheter irrigation with normal saline on catheter obstruction toavoid unobstructed urine flow.

7) Maintain hand hygiene before and after touching catheter.

8) Keep alerts or reminders to collect urine sample of bed ridden patients at regular intervals.

9)Obtain urine sample aseptically.

10) Educate nurses for proper nurse directed insertion and removal of catheters.

11)Prevent catheter and collecting tube from kinking.

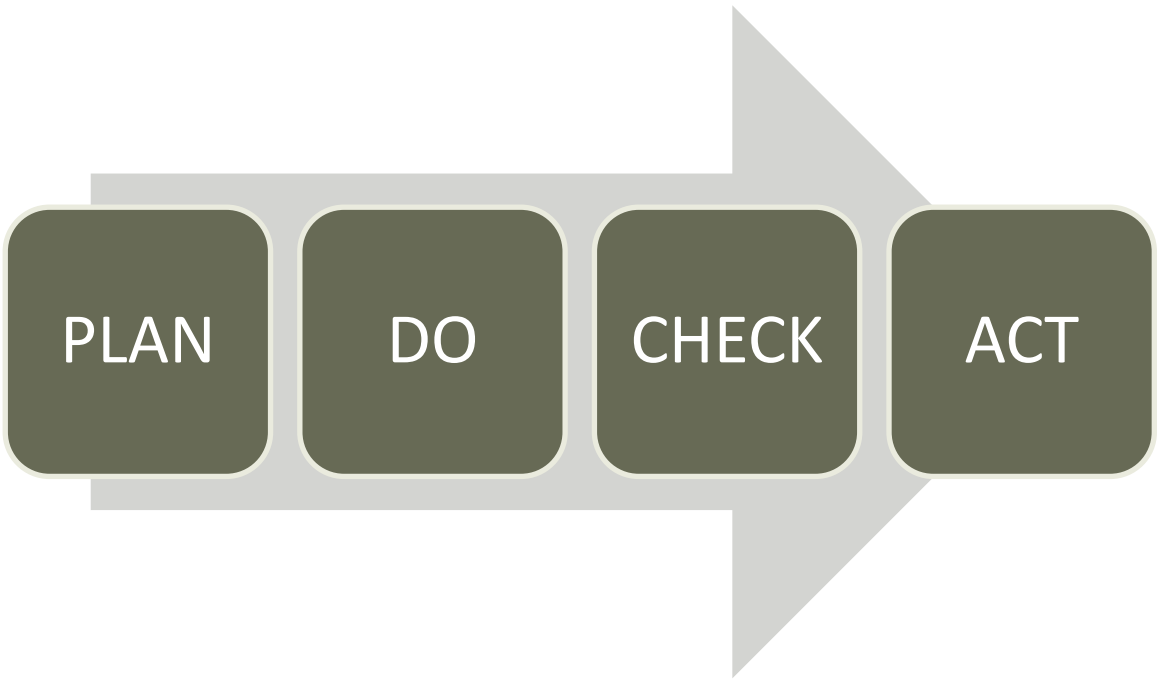
PROTOCOL FOR MRSA PATEINTS

1) Alert system to inform ICN and necessary staff.
2) Isolation of MRSA patient
3) Line listing and classification of MRSA patient.
4) Treating patients with daily chlorohexidine baths.
5) Contact precautions and wear PPE.
6) Educate HCP and patient attendants.

CHAPTER II

METHODOLOGY

PDCA CYCLE



PLAN - DO - CHECK - ACT CYCLE

PDCA is an acronym for the four-step model for improving performance:

P LAN

• Developing a plan involves setting an objective; identifying actions, responsibilities, timeframes; and defining the method of and frequency of measurement.

DO

• Teams implement or test the changes, documenting any problems or unexpected observations. Changes are tested before making widespread modifications to policy, procedures or systems.

CHECK

• Teams review measurement results and summarize the findings.

ACT

• Teams act based on the results of the check. Often, another change is tried. Sometimes a change is implementing in a broader setting. The team will continue to monitor to monitor the change in order to determine that the improvement is being sustained.

When to Use, Plan - Do - Check - Act

• As a model for continuous improvement

• When starting a new improvement project

• When developing a new or improved design of a process, product or service

• When defining a repetitive work process

• When planning data collection and analysis in order to verify and prioritize problems or root causes

• When implementing any change

PLAN

Infection Control Measures Planning involved mainly defining the Objective of the project, specific objectives of the project ,identifying actions, and responsibilities and timeframes of the tasks in which the project needs to be put in action.

OBJECTIVES

GENERAL OBJECTIVE

- ***To assess the knowledge of health care workers regarding basic infection control measures***

SPECIFIC OBJECTIVES

- To reduce the incidence of Hospital Acquired Infections
- To reaffirm standard precautions as the foundation for preventing transmission of infectious agents during patient care in all settings
- To sensitize the nursing staff, doctors, housekeeping and other staff regarding knowledge of hospital infection control measures
- To evaluate the effect of training and implementation of policies on infection control practices.

INFECTION CONTROL COMMITTEE

Every healthcare facility uses interdisciplinary task forces such as the Safety Committee and the Infection Control Committee to minimize patient and employee risk

Although its existence may not be widely recognized by patients, the Infection Control Committee plays an integral part in the care of every patient

ROLE OF INFECTION CONTROL COMMITTEE

The role of infection control committee is multifaceted .The following are the roles of infection control committee:

- Planning
- Monitoring
- Evaluating
- Updating
- Educating

It sets general infection control policy and provides input into specific infection control issues.

- Mentor : Dr.NaveenAgarwal
- Infection Control Nurse
- Members : All Consultants, Assistant Consultants,Nurses

PART 2. DO

METHODOLOGY

RESEARCH PROBLEM:"Effectiveness and knowledge of the hospital staff regarding basic infection control practices in the hospital"

MODE OF DATA COLLECTION: 1.DAILY OBSERVATIONS

2. SELF PREPARED QUESTIONARES

3. INTERVIEWS, AUDITING

4.MEDICAL RECORDS

5. SURVEYS

METHODS OF DATA ANALYSIS:

1.FISH BONE ANALYSIS

2.THREAT OPPORTUNITY MATRIX

3.PDCA CYCLE

SAMPLING: RANDOM SAMPLING

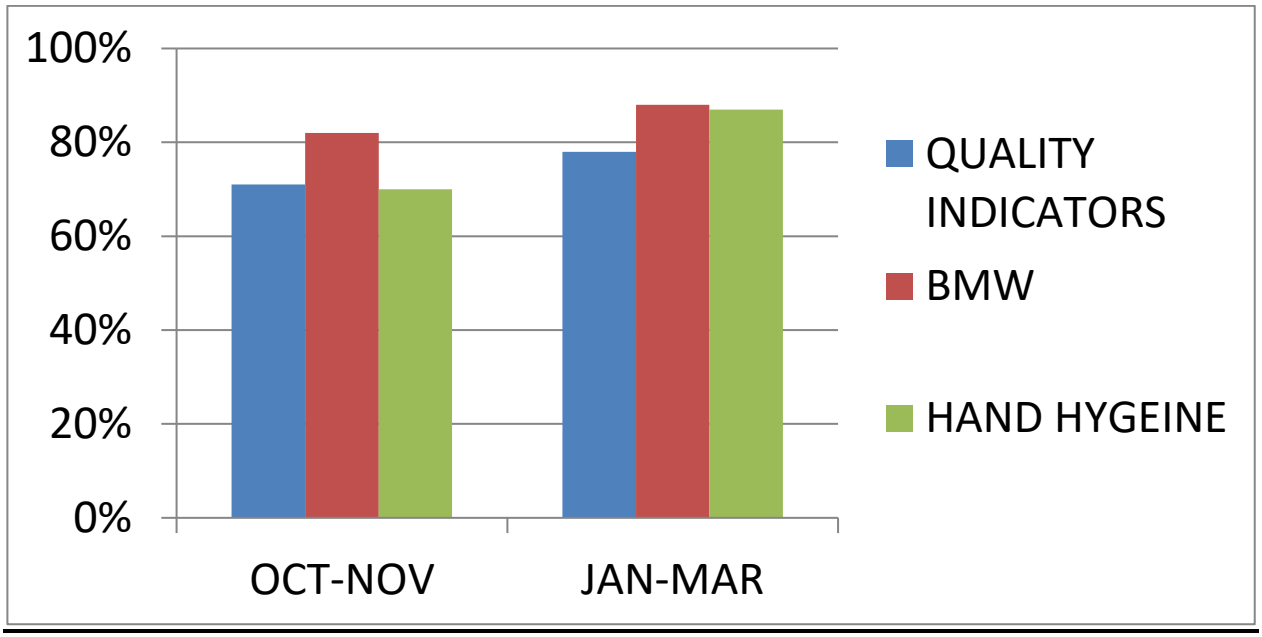
SAMPLE SIZE: SAMPLE OF 150 HOSPITAL STAFF HAD BEEN TAKEN

Mode of Data Collection:

Mode of Data Collection is mainly through questionnaire design, daily reporting by the ICN,daily observation by the ICN

PROJECT ANALYSIS:

Comparison of compliance of infection control practices



Interpretation:It was observe that there is an increase in compliance of infection control measures compared to previous data.

CHECK

FISH BONE ANALYSIS

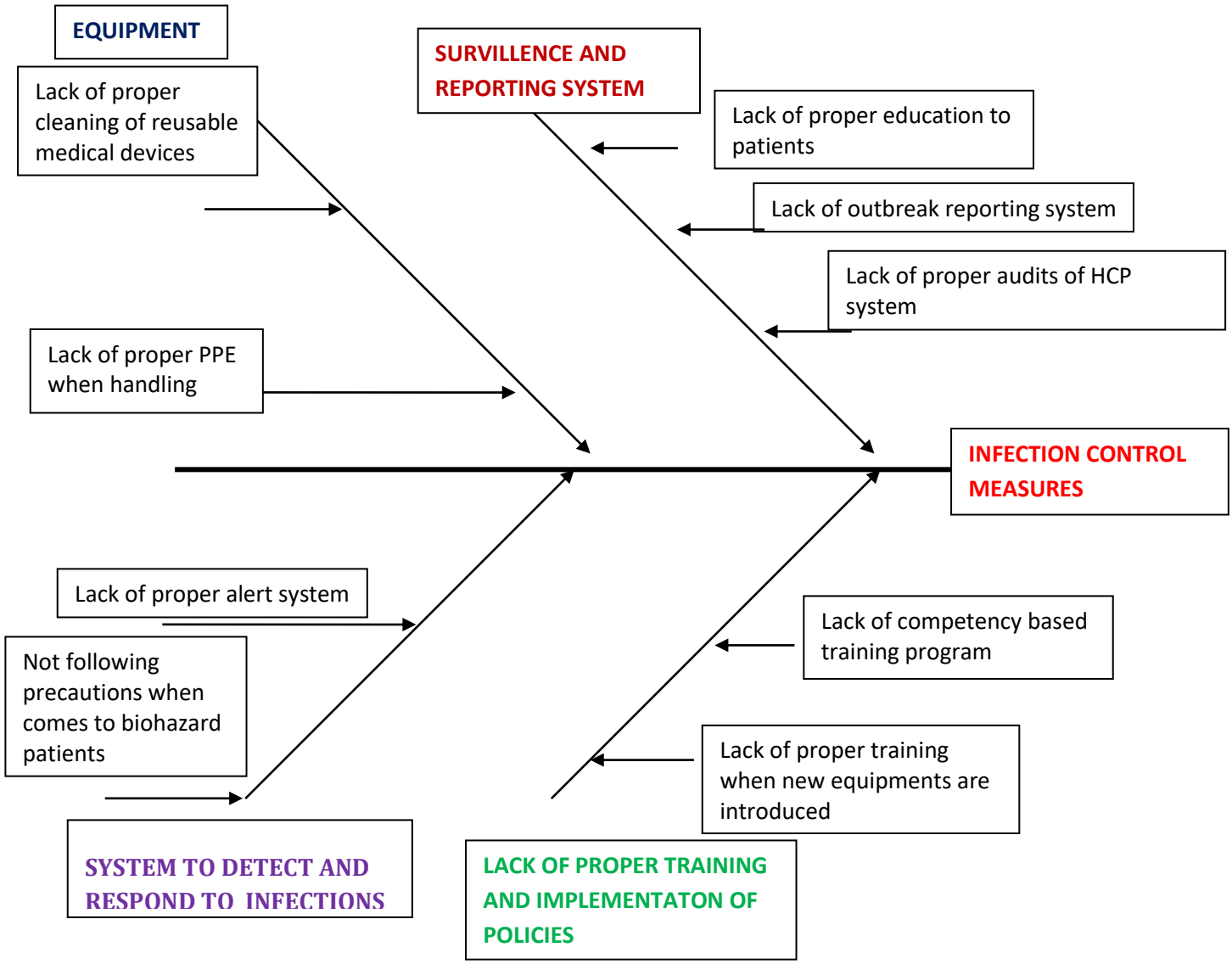
WHAT IS FISH BONE ANALYSIS/ISHIKAWA DIAGRAMS?

Ishikawa diagrams were popularized by Kaoru Ishikawain the 1960s, who pioneered quality management processes in theKawasaki shipyards, and in the process became one of the founding fathers of modern management.

The basic concept was first used in the 1920s, and is considered one of the seven basic tools of quality control.It is known as a fishbone diagram because of its shape, similar to the side view of a fish skeleton.

Mazda Motors famously used an Ishikawa diagram in the development of the Miata sports car, where the required result was "JinbaIttai" (Horse and Rider as One — jap. 人馬一体). The main causes included such aspects as "touch" and "braking" with the lesser causes including highly granular factors such as "50/50 weight distribution" and "able to rest elbow on top of driver's door". Every factor identified in the diagram was included in the final design.

Fish bone analysis was done in which the root cause of Infection control measures were identified


EQUIPMENT
Lack of proper cleaning of reusable medical devices
Lack of proper PPE when handling
SURVILLENCE AND REPORTING SYSTEM
Lack of proper education to patients
Lack of outbreak reporting system
Lack of proper audits of HCP system
INFECTION CONTROL MEASURES
Lack of proper alert system
Not following precautions when comes to biohazard patients
SYSTEM TO DETECT AND RESPOND TO INFECTIONS
Lack of competency based training program
Lack of proper training when new equipments are introduced
LACK OF PROPER TRAINING AND IMPLEMENTATON OF POLICIES

MAIN CAUSES IN FISH BONE ANALYSIS

1.EQUIPMENTS

2.SURVILLENCE AND REPORTING SYSTEM

3.LACK OF PROPER TRAINING AND IMPLEMENTATION OF POLICIES

4.SYSTEMS TO DETECT PREVENT AND RESPOND TO HEALTH CARE ASSOCIATED INFECTIONS

1.EQUIPMENTS: The main cause of concern in terms of equipment was

1.Lack of proper cleaning of reusable medical devices

2.Lack of proper PPE when handling and reprocessing contaminated medical devices

KEY RECOMMENDATIONS:

- Reusable items must be cleaned and reprocessed and maintained according to manufacturers instructions
- Assign responsibilities of reprocessing of medical devices to health care provider with appropriate training
- Hands on training for proper selection an appropriate wear f PPE when handling and reprocessing contaminated medical devices

2.SURVILLENCE AND REPORTING SYSTEM:

The gaps observed in terms of surveillance and reporting system was mainly:

1.Lack of proper education to patients who have undergone procedures at th facility regarding signs and symptoms of infection that may be associated with the procedure.

2.Lack of outbreak reporting system

3.Lack of proper audits of HCP system of adherence to infection prevention practices.

KEY RECOMMENDATIONS:

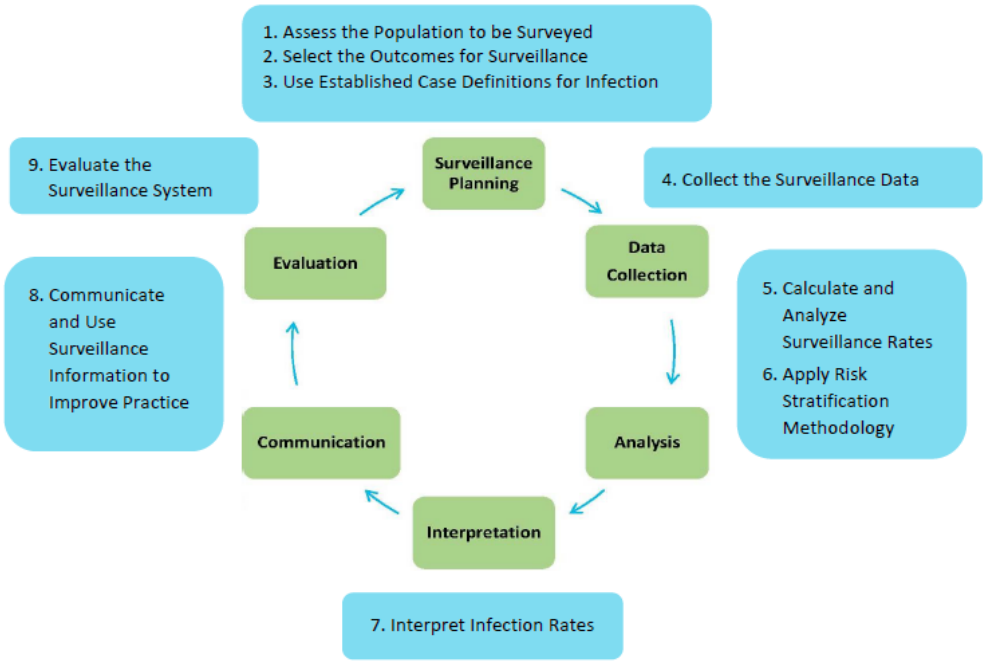
1. Proper education of patients regarding line care to prevent blood stream infections

2.Proper use of line care bundles

3.Provide information to inform,educate and reinforce practices

4.Communicate and use surveillance information to Improve Practice

Figure 1 illustrates these recommended steps within the planning, data collection, analysis, interpretation, communication and evaluation phases of surveillance.



3.Infection control training ,competency and implementation of policies and procedures

Gaps identified are:

1.Lack of competency based training program

2.Lack of proper training when new equipments are introduced or protocols are implemented.

KEY RECOMMENDATIONS:

- Training s provided to all health personnel who deal with patient care. Training should include

  1.Accessing the catheter

  2.Dressing changes in case of central line catheter

  3.Hospital **regularly audits** (monitors and documents) adherence to recommended practices for **maintenance** of central venous catheters.

  4.Hospital provides **feedback** to personnel regarding their infection control practices

5. Pertaining to prevention of **CAUTI** following measures to be adhered:

- Hospital has competency based training program for **insertion** and **maintainance**of urinary catheters
- Pertaining to prevention of **CLABSI** following measures to be adhered:

  Hospital **regularly audits** (monitors and documents) adherence to recommended practices for **maintenance** of central venous catheters

  Pertaining to prevention of **VAP** following steps to be taken:

- Training is provided to all personnel who provide respiratory therapy for ventilated patients
- Hospital regularly audits (monitors and documents) adherence to recommended practices for management of ventilated patients (e.g., suctioning and administration of aerolised medicines
- Hospital has an oral-hygiene program
- **Key steps to prevent SSI include**:
- Hospital regular audits adherence to recommended practices for prevention of SSI: Auditing includes:
    - Adherence to preoperative scrub and hand hygiene
    - Adherence to aseptic technique and sterile field
    - Proper ventilation requirement in surgical sites
    - Adherence to cleaning and disinfection of environmental surfaces

4)**Systems to detect prevent and respond to Health care Associated Infection;**

1.Lack of proper alert system

2.Not following precautions when comes to biohazard patients

3.Lack of hand hygiene supplies at the waiting areas

Recommendations:

- Hospital has system in place for **INTER-facility** communication of infectious status and isolation needs of patients **prior to transfer to** other facilities
- Offering face masks to coughing patients
- Providing adequate space in patient waiting areas

- Posting signs at entrances
- Facility for proper isolation of infectious patients

<u>Gaps during Analysis:</u>It was observed that Infection rates can be reduced if an ICSP had four components which were: 1. surveillance; 2. control including policy development, education and review of clinical practice; 3. an infection control nurse (ICN) to collect and analyse surveillance data in addition to having overall responsibility for co-ordinating the control program; and 4. active involvement of a physician or microbiologist in the program.Areas which need utmost importance for review are to be examined include:

• the characteristics and activity of the ICN, hospital epidemiologist and infection control committee (ICC); •

the methods of surveillance and outbreak investigations;

• monitoring of the environment

; • isolation practices;

• infection control team's (ICT) relationship with administration and other hospital departments;

• nurses' reports of patient care;

• staff training in IC; • methods employed to change staff IC behaviour;

• housekeeping and disinfection activities; and • the role of the microbiology laboratory.

Risk Analysis :- Threat-Opportunity Analysis

Threat-Opportunity Analysis was done in which the the long term and short term opportunities and threats were defined.

	Threat	Opportunity
Short Term	• Staff unwillingness • Staff unawareness • Lack of proper training to staff • Material unavailability	• Increase Patient safety • Improve patient Outcomes • Staff awareness and adherence to compliance
Long Term	• Poor patient Outcome • Increase risk of patient to infection	• Reputation of Hospital improved • Increase compliance to infection control

IDENTIFYING THE X'S:

The vital problems were identified. After identifying the problems the solutions were also sought The responsibility of each and every member was defined and the deadline to complete the particular project was formed.

The vital problems identified were

1 TRAINING

2 DOCTOR AWARENESS

3 LACK OF ASEPTIC TECHNIQUES WHILE HANDLING THE PATIENTS

4.LACK OF PROPER STERLISATION

5.LACK OF ADHERENCE TO POLICIES

PART 4. ACTION

RECOMMENDATIONS:

NO.	PROBLEM(VITAL X)	SOLUTION
1.	Training	1.Daily training of SR,JC &coordinators, housekeeping ,nurses and other staff regarding infection control measures 2.Infection control policy charts in each OPD/RMO room, nursing stations, wards for effective implementation
2.	Doctor Awareness	1.All meetings /CME to have 1 min aseptic techniques flash 2.Small video by I T on steps on Infection Control practises
3.	Ownership not defined	Infection Control team is responsible for getting all the infection control measures implemented
5.	Attitude of following infection control measures	1. Daily Audits to be done on hand hygiene, biomedical waste,aseptic techniques and consultants to be called in case of non compliance. 2. To be rechecked in 24hrs for same.

CHAPTER III –

PROJECT CONCLUSION

CONCLUSION

- Infection control is a very vital and integral part of hospital\
- These are the principal goals which one should follow to prevent infection

A) Protect the patients

B) Protect the health care workers

C) Accomplish the previous two goals in a cost effective and cost efficient manner whenever possible;

- Observance of aseptic technique
- Frequent hand washing especially between patients
- Careful handling, cleaning, and disinfection of fomites
- Wherever possible use of single-use disposable items
- Patient isolation

- Avoidance where possible of medical procedures that can lead with high probability to nosocomial infection (urinary catheter)
- Various institutional methods such as air filtration within the hospital
- Appropriate isolation precautions to protect patients, visitors, and HCWs.
- Surveillance for common infections, monitoring of high risk patients, and hospital area to identify outbreaks, document incidence and prevalence rate of specific infections and set goal for improvement.

RECOMMENDATIONS

COMPONENT	RECOMMENDATIONS
Patient Care Recommendations	1.All the needles and sharps should be handled with extreme care and disposed in puncture proof steel containers 2. Facilities should follow safe injection practices as specified under Standard Precautions.
Personal Protective Equipment (PPE)	Practices of occupational safety and health can use **hazard controls and interventions to mitigate workplace hazards**, which pose a threat to the safety and quality of life of workers.
Hand hygiene	HCP should perform **hand hygiene frequently,** including before and after all patient contact Healthcare facilities should ensure that supplies for

	erforming hand hygiene are available.
Monitoring and Management of Potentially Exposed Personnel	Facilities should develop policies for monitoring and management of potentially exposed HCP
Environmental Infection Control	To reduce exposure among staff to potentially contaminated textiles (cloth products) while laundering, discard all linens, nonfluid-impermeable pillows or mattresses, and textile privacy curtains into the waste stream and disposed of appropriately.
MRSA AND VRE PATEINTS ISOLATION	• Alert system to inform ICN and necessary staff. • Isolation of MRSA patient • Line listing and classification of MRSA patient. • Treating patients with daily chlorohexidine baths. • Contact precautions and wear PPE. • Educate HCP and patient attendants.

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ANNEXURE:

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