

A STUDY ON ENHANCING HOSPITAL INFECTION CONTROL - AN AUDIT-
BASED APPROACH

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

By

AKSHATA ANIL SHINDE

Under the Supervision and Guidance of

NEETU PUROHIT

2023

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled **A Study on Enhancing Hospital Infection Control - An Audit-based Approach** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Name of Student: Akshata Anil Shinde

Date: 05/06/2023

CERTIFICATE

This is to certify that Akshata Anil Shinde in partial fulfilment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur has successfully completed her internship at Fortis Hospital during February 20- May 19, 2023.

Place: Mumbai

Date: 05/06/2023

Preceptor/Head of the Organization:

Name of the organization: Fortis Hospital

CERTIFICATE

This is to certify that dissertation titled **A Study on Enhancing Hospital Infection Control - An Audit-based Approach** is a record of the research work undertaken by Akshata Anil Shinde in partial fulfilment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

Faculty Guide:

IIHMR University, Jaipur
Jaipur

Date:

School Dean

IIHMR University

Date:

ABSTRACT

Hospital-acquired infections (HAIs) pose a significant challenge to patient safety and quality of care. Infection control practices play a crucial role in preventing the spread of infectious diseases within healthcare facilities. This dissertation aims to explore and evaluate the effectiveness of HIC audits using a focused approach. The study includes reviewing existing literature on hospital infection control with emphasis on comprehensive auditing processes. The research highlights the need for a focused approach, targeting specific departments within a hospital facility, to identify potential gaps in infection control practices. The Hospital Infection Control department deals with effective handling of bio medical waste generated in the hospital through waste disposal, following proper guidelines.

A mixed-methods research design is employed, incorporating both quantitative and qualitative data collection methods. The quantitative phase involves conducting structured audits in selected hospital units, measuring compliance with established infection control protocols. The qualitative phase involves interviews and focus groups with healthcare staff to gain deeper insights into the barriers and facilitators of infection control practices.

This report presents certain guidelines that must be followed to maintain hospital infection levels within the hospital facility. Certain precautions that must be taken by the hospital staff, administrators, treating physicians, and the patients are also mentioned in this report. The audit checklist investigated during the tenure of the dissertation is also mentioned that could be used by any other healthcare facility to perform routine audit checks.

ACKNOWLEDGEMENT

In the first place, I would like to thank IIHMR University, for giving me an opportunity to work on this project. The success and end of this report needed a lot of guidance and assistance from a lot of individuals, and I am fortunate to have received this during my work.

I would like to express my sincere gratitude to Ms. Sanah Farheen (HOD OF OPERATIONS) at Fortis Hospital Mumbai, for giving me the opportunity to do an internship within the organization.

I would like to express my special thanks of gratitude to my mentor Neetu Purohit Ma'am, Professor, IIHMR University for valuable guidance and support in completion of my report.

I am extremely grateful to my fellow trainee who helped me in successful completion of this internship. Which also helped me doing a lot of research and I came to know about so many new things.

Sincerely,

Akshata Anil Shinde

MBA HM – 26

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1. INTRODUCTION

The control and prevention of infections within hospitals are paramount to safeguarding the well-being of patients, healthcare workers, and the community at large. Hospital infection control department plays a critical role in establishing and maintaining robust infection control practices. The audit approach utilized to study the status of safety on infection within the hospital lay special emphasis on pre-planned audits and checklists while constantly improving them based on observations and analysis.

Healthcare-acquired infections pose a significant threat to patient safety and increase morbidity, mortality, and healthcare costs. Hospital-acquired infections (HAIs) are often preventable, so infection control is an important part of quality healthcare. An effective infection control department ensures the implementation of evidence-based strategies and guidelines for the prevention and control of infections in the hospital environment. It is also responsible for establishing infection prevention policies and procedures, monitoring compliance with infection control guidelines, investigating outbreaks, training healthcare workers, and collaborating with other departments to promote a culture of infection prevention and control.

Hospital infection control (HAI) audits:

Audits are the primary tool for evaluating the effectiveness of infection control measures in a hospital. The Infection Control Department conducts regular audits to assess adherence to protocols and guidelines, identify areas for improvement, and ensure implementation of best practices. Through systematic evaluations, audits promote the quality of infection control measures, patient safety, and the reduction of HAI risk.

Management of biomedical waste:

Proper management of biomedical waste is crucial to infection control in healthcare facilities. The Infection Control Department oversees the proper sorting, collection, transport, processing, and disposal of biomedical waste. By ensuring compliance with

regulatory standards and guidelines, the department minimizes the risk of spreading infectious material and protects the environment and public health. Effective integration of inspections and biomedical waste management into the infection control department is critical for comprehensive infection control. Audits help identify gaps and deficiencies in waste management practices, allowing for targeted actions and improvements. At the same time, compliance with proper waste management practices is assessed through audits to ensure compliance and minimize the risk of contamination and spread of infection.

Fortis' Approach to Handling Infections

As the vision and mission of the hospital clearly state that it aims at providing comprehensive and extensive quality healthcare services to its clients at efficiently and effectively, it is but obvious that Fortis lays huge importance on maintaining the hospital infection standards.

Fortis aims at maintaining the appropriate standards of hospital infection control using protective personal equipment, hand hygiene awareness camps, frequent audits, pre-planned checklists, feedback forms from patients as well as doctors, and testing disease prevalence or hospital revisits.

2. REVIEW OF LITERATURE

<u>Sr.no</u>	<u>TITLE</u>	<u>AUTHOR</u>	<u>FINDINGS</u>
<u>1</u>	Hospital organisation, management, and structure for prevention of healthcare-associated infection	Walter Zingg, Alison Holmes	ten key components identified: organisation of infection control at the hospital level; bed occupancy, staffing, workload, and employment of pool or

			agency nurses; availability of and ease of access to materials and equipment and optimum ergonomics; appropriate use of guidelines; education and training; auditing; surveillance and feedback; multimodal and multidisciplinary prevention programmes that include behavioural change; engagement of champions; and positive organisational culture. These components comprise manageable and widely applicable ways to reduce health-care-associated infections and improve patients' safety.
2	An economic analysis of surgical wound infection	J. Reilly a f1, S. Twaddle b, J. McIntosh c, L. Kean a	Our study indicates that the cost of surgical wound infection is three-fold: cost to the hospital, the community services and the patient. Although the greatest costs were due to prolonged stay or re-admission to hospital (just under £90 000), costs to the community and patient cannot be ignored. Hospital expenditure varied according

			to the type of operation. The study clearly demonstrated the potential cost savings to be highlighted by this type of audit.
<u>3</u>	An evaluation of surveillance methods for detecting infections in hospital inpatients	<u>H.M. Glenister</u> <u>*, L.J. Taylor *</u> , <u>C.L.R. Bartlett</u>	Eight selective surveillance methods were compared with a reference method for their ability to detect hospital infections in patients occupying 122 beds of a district general hospital. The time for data collection was also assessed. In the reference method, case records were reviewed three times a week, and during the 11-month period of study, 668 infections were identified amongst 3326 patients. Three hundred and thirty-eight were community acquired infections (CAI) and 330 were hospital acquired infections (HAI).
4	Under resourced hospital infection control and prevention programs	Kathryn B. Kirkland, Keith S. Kaye	To estimate the cost of healthcare associated infections in a network of 28 community hospitals and to compare this sum to the amount budget for infection

			control programs at each institution and for the entire network. In the modern age of infection control ratio will become the key component of successful infection control programs.
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3. OBJECTIVES OF STUDY

1. To study the standard precautions of cleanliness and general hygiene in a hospital.
2. To Assess the level of familiarity of infection reporting process.
3. To investigate the compliance of hospital standards to NABH standards of infection control.
4. To study the various audit methodologies in hospital infection control department and assess their efficiency.

5. METHODOLOGY

HOSPITAL INFECTION CONTROL DEPARTMENT

Duration of training: 26th Feb/2023 to 28th May/2023

TYPE OF RESEARCH:

The research is conducted on the principles of a descriptive cross-sectional study, wherein the report provides a descriptive study of the status of hospital infection control within a hospital facility and recommendations to enhance the level of safety along with boosting patient satisfaction.

TYPE OF DATA:

- **PRIMARY DATA:**

The primary data for the report was collected from the hospital infection control department of the hospital as well as from patients. The department provided pre-planned checklists, audit forms, and general operating procedures that aided the observations and interpretations of the study. The patients were provided with open-ended questions and feedback forms which proved to be a source of information.

- **SECONDARY DATA:**

Secondary data for the report was collected through secondary sites including websites pertaining to hospital infection standards and general guiding procedures as well as articles cited in different scientific journals. Interaction with the employees at the hospital facility also proved to be a source of secondary data.

Inclusion Criteria: The whole staff including doctors, patients, paramedical staff, and housekeeping department.

Exclusion Criteria: All the people working the hospital who have non-interactive job roles with the general traffic flow in hospital such as administrators and back-end executives.

Limitations of the study:

1. Due to the short duration of the study, it was difficult to provide accurate and reliable results.
2. Another limitation of the study includes the inaccessibility of resources to confirm the use of all techniques by treating physicians.

6. RESULTS & DISCUSSIONS

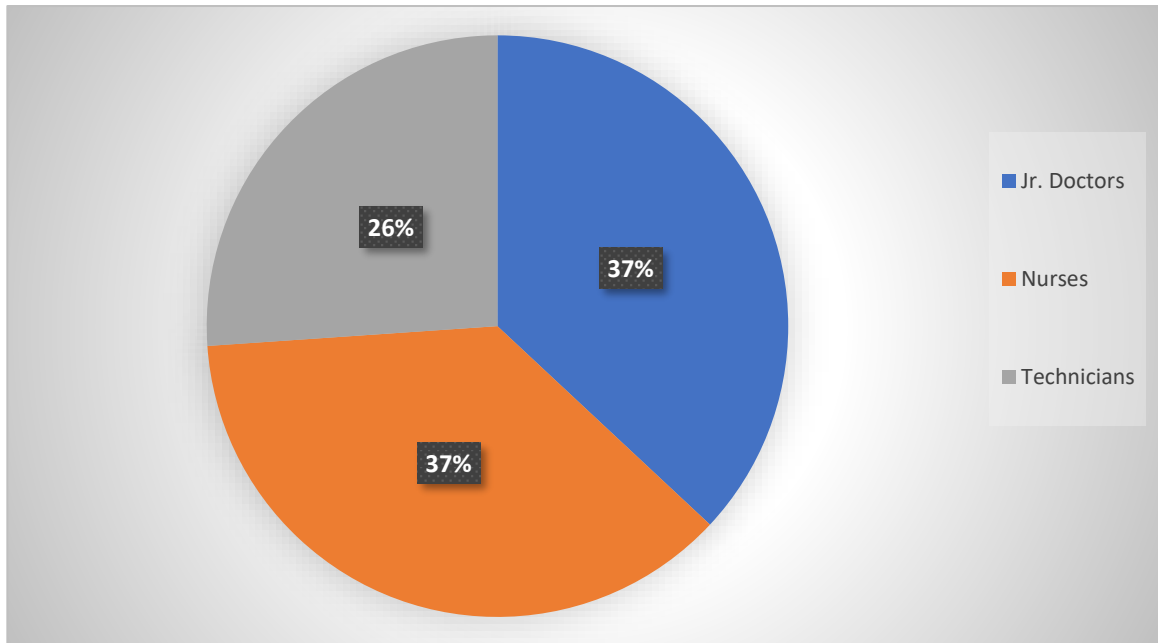


Figure 5.1: Level of familiarity with reporting process

5.1 Above indicates that among the surveyed healthcare professionals, both junior doctors and nurses, have the same level of familiarity with the process of reporting hospital acquired infection at 37% each.

On the other hand, technicians have slightly lower familiarity accounting to 26% due to the lower level of trainings conducted at the hospital facility for the technicians. Hence, appropriate trainings are a must to be provided to them as this can increase their level of awareness and knowledge.

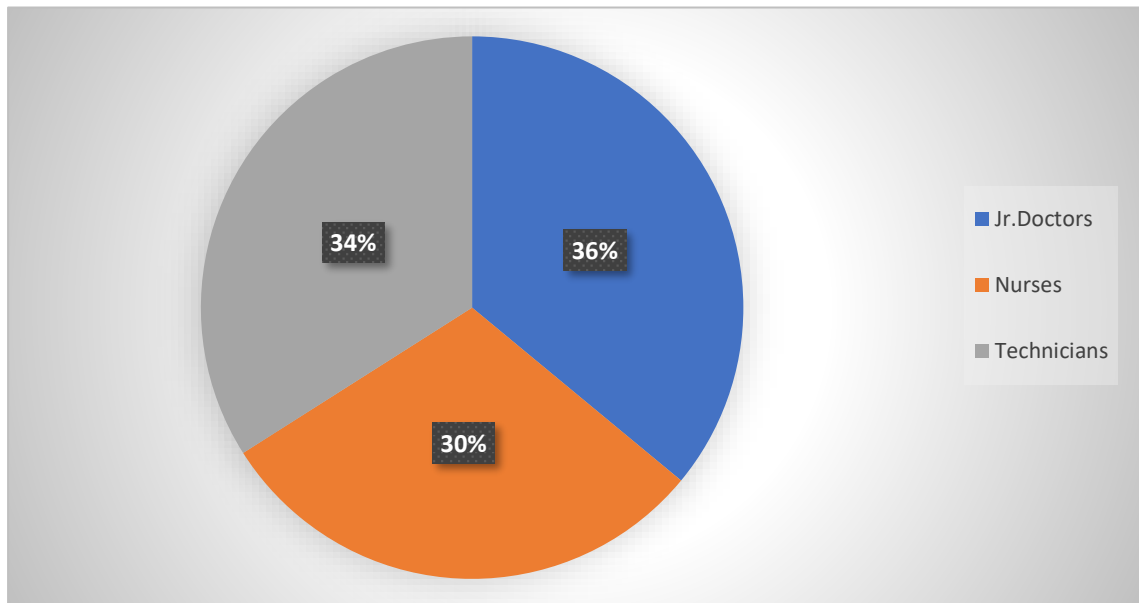


Figure 5.2: Impact of workload on adhering to guidelines

An assessment of the impact of workload on the staff to adhere to infection guidelines established and maintained by the concerned department shows that 36% of junior doctors and 30% nurses believe that increased amount of workload increases the amount of negligence towards obeying the set guidelines either due to ignorance or memory. In addition, 34% technicians also believe the same.

HAND HYGIENE SURVEILLANCE – SAMPLE CHECKLIST

Month: Year: Location:

S. No	Item(Hand hygiene)Alternative	Date		Date		Date	
		Y	N	Y	N	Y	N
1.	Hand Preparation						
2.	Palm to Palm giving more attention to the inter-digital space						
3.	Right palm over left dorsum with interlaced fingers and vice versa						
4.	Back of fingers to opposing palms with fingers clenched						
5.	Rotational rubbing of left thumb followed by all the finger						
6.	Rotational rubbing backwards and forwards with clasped fingers of right hand in the left palm and vice-versa						
7.	Rotational rub around the left wrist and vice-versa						
8.	Rub from wrist to elbow downwards in a rotational manner and vice-versa						
9.	Allowed the water to drip fully from the hand before leaving from the scrub area						
	Emp no of the staff						
	Infection control Nurse name						
	SCORING						

Y = Yes, N = No

Figure 5.3: Hand Hygiene Surveillance Checklist

BIO MEDICAL WASTE SEGREGATION AUDIT - SAMPLE CHECKLIST:

MONTH: _____ YEAR: _____ LOCATION: _____

S.NO	PARAMETERS TO BE CHECKED	DATES							
1	BMW area kept clean								
2	Effective pest control measures.								
3	PPE used effectively.								
4	Hand wash provision available.								
5	BMW labelling data adequate.								
6	Waste containers intact and kept clean.								
7	Disinfection of the containers after waste clearance.								
8	Clearance done as per the norms.								
9	Availability of needle cutters in the user end and sharp disposal container for sharps.								
10	Availability of red waste bins								
11	0								
12	Availability of black (General) waste bins								
13	Availability of yellow waste bins								
14	Waste weighing record monitored.								
	ICN signature:								
	Scoring:								

Figure 5.4: Bio-medical Waste segregation checklist

HOSPITAL INFECTION CONTROL DEPARTMENT

The standards guide the provisions of the effective infection control programme in the organisation. The programme is documented and aims at reducing the infection rates to patients, visitors, and providers of care.

The organisation proactively monitors adherence to infection control practices such as standards precautions, cleaning, sanitation, and sterilization. Adequate facilities for protection of the staff are available. Bio Medical Waste is managed as per policies and procedures.

The hospital takes major action to prevent or reduce the risks of Hospital Associated Infections in patients and employees.

1. Hand hygiene facilities in all patient care areas are accessible to health care providers.
2. Adequate gloves, masks, soaps, and disinfectants are available and used correctly.
3. Appropriate pre and post exposure prophylaxis is provided to all concerned staff members.

Infection Control Team

- Medical Superintendent
- Infection Control Officer
- Infection Control Nurse
- Anaesthetist
- H.O.D Facility Management
- H.O.D Food and Beverages
- H.O.D House Keeping

The ICT is a small activity group, which is concerned with surveillance, prevention, and control of infection in the hospital, and which provides day-to-day advice regarding infection related problems.

The ICT will be responsible for review of notifications of communicable disease and nosocomial infections and recommend appropriate actions.

There are majorly 2 tiers of Recommended preventions to prevent the spread of infections in health care settings.

- Standard Precautions
- Transmission – based precautions

Standard precautions are used for all the patients care activities. They are based on a risk assessment and make use of common practices and personal protective equipment use that protect health care providers from infection and prevent the spread of infection from patient to patient.

Transmission based Precautions are the second tier of basic infection control and are to be used in addition to standard precautions for patient who may be infected or colonized with certain infectious agents for which additional precautions are needed to prevent infection transmission.

Infection Control in the hospital is prevention of the spread of the microorganisms from

- Patient to Patient
- Patient to Staff Member
- Staff Member to Patient

Health care associated infection is a major burden for patient, society, and healthcare management. The emergence of life-threatening infections such as severe acute respiratory syndrome and re-emerging infectious disease like plague and tuberculosis has been highlighted the need for efficient infection control programmes in all healthcare settings and capacity building for healthcare workers to implement them. Good infection control also reduces Morbidity and Mortality, length of hospital stays, and cost associated with hospital stay.

STANDARD PRECAUTIONS

1. Personal Protective Equipment (PPE)

Assess the risk of exposure to body substances or contaminated surfaces BEFORE any health care activity.

This should be a routine:

GLOVES:

- Wear when touching blood, body fluids, secretions, excretions, mucous membranes, and non-intact skin.
- Change between tasks and procedures on the same patient after contact with potentially infectious material.

Remove after use, and before going to another patient. Perform hand hygiene immediately after removal.

GOWN:

- Wear to protect skin and prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.
- Wear a surgical or procedure mask and eye protection or a face shield to protect mucous membranes of the eyes, nose, and mouth during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, excretions from the patient.

Remove soiled gown as soon as possible and perform hand hygiene. Facial protection (eyes, nose, and mouth).

3. RESPIRATORY HYGIENE AND COUGH ETIQUETTE

- Place acute febrile respiratory symptomatic patients at least 1 meter away from others in common waiting areas, if possible.

- Consider making hand hygiene resources, tissues, and masks available in common areas and areas used for the evaluation of patients with respiratory illnesses.
- Provide education for health workers, patients, and visitors.

3. PREVENTION OF NEEDLE STICK AND INJURIES FROM OTHER SHARP INSTRUMENTS

Use care when:

- Cleaning used instruments.
- Handling needles, scalpels, and other sharp instruments.
- Handling needles, scalpels, and other sharp instruments or devices.

4. ENVIRONMENTAL CLEANING

- Use adequate procedures for the routine cleaning and disinfection of environmental and other frequently touched surfaces.

6. LINEN

Handle, transport, and process used linen in a manner which:

- Prevents skin and mucous membrane exposures and contamination of clothing.
- Avoids transfer of pathogens to other patients and or the environment.

7. WASTE DISPOSAL

- Ensure safe waste management.
- Treat waste contaminated with blood, body fluids, secretions, and excretions as clinical waste, in accordance with local regulations.
- Human tissues and laboratory waste that is directly associated with specimen processing should also be treated as clinical waste.

8. PATIENT CARE EQUIPMENT

- Handle equipment Soiled With blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of pathogens to other patients or the environment.
- Clean, disinfect, and reprocess reusable equipment appropriately before use with another patient.

BIOMEDICAL WASTE MANAGEMENT

Bio Medical Waste is generated during diagnosis, treatment and immunization hospitals, laboratories, and blood banks. The total Biomedical Waste generated in the country is 484 tonnes per day from 1,68,869 health care facilities. Improper or unsafe handling of biomedical waste can cause serious health problems in the community, and therefore require proper storage and collection.

RATIONALE OF HOSPITAL WASTE MANAGEMENT

- Injuries from sharp lead to infection to all the categories of hospital personnel and waste handlers.
- There is a risk associated with hazardous chemical and drugs, to persons while handling waste.
- Syringes and other disposables are being repacked and sold by unscrupulous elements.
- Disposed drugs are being repacked and sold off to unsuspecting buyers.

SAFETY MEASURES

All the generators of biomedical waste should adopt universal precautions and appropriate safety measures while doing diagnostic activities and while handling the bio medical waste.

It Should be ensured that:

- Drivers, handlers, and the collectors are aware of the nature and risk of the waste.
- Written instructions are provided for the procedures to be adopted in the event of spillage.
- Protective gears are provided and instructions regarding their use are given.
- Workers are protected by vaccination against tetanus and hepatitis B.

IMPORTANT THINGS THAT SHOULD BE KEPT IN THE SPILLAGE KIT:

Every department should have spill kit in the hospital:

1. CAP
2. MASK

3. GLOVES
4. SHOE COVER
5. PLASTIC DISPOSAL GOWNS
6. NEWS PAPER
7. TISSUE PAPER
8. PUREHYDROCHLORIDE 200ML
9. DISPOSAL TOUNGE DEPRESSER

MANAGEMENT AND ADMINISTRATION

Heads of the hospital will have to take the authorization for generation of waste from appropriate from authorities as notifies by concerned state/ government, ahead of time and to renew as per the time schedule laid down in the rules. The committee should be responsible for making hospital a specific action plan for hospital waste management and its supervision, monitoring, and implementation. The annual report, accident reports as required under the BMW rules should be submitted to the concerned department.

EMPLOYEE VACCINATION CARD			
Name: _____		Age/ Gender: _____ / _____	
Employee Code: _____		DOJ: _____ Designation: _____	
Sr No	Vaccine	First Dose	Signature of HICNO
1	Inj. Hepatitis B	1 st Dose	
		2 nd Dose	
		3 rd Dose	
		Booster Dose	
		Antibody Titre	
2	Inj. Tetanus Toxoid	1 st Dose	
		2 nd Dose	
3	H1N1 (Seasonal)		
4	Typhoid		
5	Cholera		
6	Any other,		
Reaction if any:			
Signature of CEO		Signature of HICO	

Figure 5.5: Vaccination Card

VACCINATION POLICY

➤ HEPATITIS B VACCINE

Employees who do tasks that could expose them to blood or bodily fluids as part of their jobs should be provided with the vaccine.

E.g.- nurse, doctors, housekeeping staff

➤ TYPHOID VACCINE

Is offered to the kitchen staff and all food handlers once in every two years.

➤ H1N1 VACCINE

It is a voluntary vaccine given to HCW'S in clinical department. It is an annual vaccine.

➤ Tetanus

Tetanus toxoid given to the staff at the time of an injury if there is no history of vaccination in past year.

Every HCW is given a vaccination record card, which will be updated after every vaccination and kept with HR department.

CONCLUSION

The hospital infection control department plays a vital role in ensuring the safety and well-being of patients, staff, and visitors within the hospital settings. The audit of proper hygiene practices in the hospital that everyone should follow, including the monitoring of BMW, is a very essential component of their responsibilities.

By conducting and helping in regular audits it serves as a valuable feedback mechanism for the hospital administration and healthcare personnel, enabling them to address any deficiencies promptly and implement corrective measures in every department. Therefore, the hospital infection control department commitment to conducting regular audits and ensuring adherence of proper hygiene practices, including the safe management of BMW, is crucial for creating a safe and healthy environment for all stakeholders in the hospital.

REFERENCE

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