

Study on Awareness of Bio-Medical Waste Management Among Hospital Staff

By

Anand Athwal

*Dissertation submitted in partial fulfillment of the requirements of the degree
MBA Hospital and Health Management*

Academic year, 2018-2020



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Certificate by Scholar

This is to certify that the dissertation titled “**A study on Awareness of Bio-Medical Waste Management**” and submitted by **Dr. Anand Athwal**, Enrollment No: **IIHMR-U/01/2018-20/0715** under the supervision of **Dr. Sujata Verma** for award of **MBA in Hospital and Health Management** of the University carried out during the period from **4th March 2020 to 4th June 2020** 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.

Dr. Anand Athwal

MBA – Hospital & Health Management

ABSTRACT

Background

The waste generated during the daily operations of health procedures is more likely to be infected and injured than any other type of wastes. Improper knowledge of waste handling can have severe health effects on humans and also have significant environmental impacts.

Methodology

This was a cross sectional study done in a small town 30 bedded hospital. A total of 30 employees were included in the study with their prior consent. Study subjects include nursing staff (20), laboratory technicians (2), laboratory assistant (3), housekeepers (5). A self-established questionnaire was provided to the respondents on awareness of biomedical waste and infection control practices. The questionnaire was performed as part of the process to assess the extent of knowledge and practices of biomedical waste management and to evaluate measures of infection control within the hospital. The data was obtained via interaction with workforce.

Results

Majority of nursing staff and laboratory experts have better knowledge of Biomedical waste management. Although sanitary workforce were less aware about BMW practices. Sanitary workforce need to be trained well in biomedical waste practices. In the study of infection control practices all employees were aware of infection control practices according to collected data. But there was concern, study found that, as per observation checklist all the categories of employee were least practicing of infection control measures.

Conclusion

Focus on the value of training in Biomedical waste management and Infection control practices. Lack of adequate and comprehensive knowledge about Biomedical waste management put negatively effects on practices of waste disposal.

ACKNOWLEDGEMENT

I might earnestly want to acknowledge people who gave me direction, advices all through whole task.

Any endeavor at any dimension cannot be prevailing without help and course of scholarly individuals. A genuine appreciation to Dr. Vinod Sharma (CEO, Neelkanth Hospital, Suratgarh, Rajasthan) for giving me a brilliant chance to work with Suratgarh's driving human services supplier.

I am happy to recognize Dr. Sujata Verma (Ass. Professor), The IIHMR University, for consolidating right demeanor in me towards learning and for supporting me at whatever point required.

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INTRODUCTION:

“Bio Medical Waste means any waste, which is generated during diagnosis, treatment or immunization of human being or animals or research activities pertaining there to or in the production or testing of biological or in health camps.”

Bio-medical waste is most critical concern in hospitals as well as to the nature. Proper management of biomedical waste plays a significant position in any medical organization to avoid negative impact to environment as well as humans which caused by ‘Medical Clinic waste’ produced during the treatment of patient. Clinical waste is health hazard to HCW (health care workers). Major problem in the hospitals is bio medical waste disposal and it is become of serious concern.

The GOI (No. 2018) mentioned that Bio-medical waste generators including medical clinics, nursing homes, dispensaries, veterinary medical organization, pet store, pathological labs, blood donation centres, health-care facility, and clinical foundations should eliminate chlorinated plastic packs (excluding blood sacks) and gloves by March 27, 2019.

“World Health Organization states that 85% of hospital wastes are actually non-hazardous, whereas 10% are infectious and 5% are non-infectious but they are included in hazardous waste.” About 15% to 35% of clinical squander circulated as irresistible waste. That range reliant on aggregate sum of waste produced.

Requirement of Bio-Medical waste management in Healthcare organization:

- Wounds from sharps prompting infection in all categories of healthcare organization work force and waste-handlers.
- Hospital-acquired infection in patients due to inadequate infection control procedures and the disposal of biomedical wastes.
- Chances of contamination outside the medical clinic for waste-handlers and scroungers at same time, for the whole community residing in the local hospital area.
- Risks related to toxic chemical compounds and medicines to the people who is handling wastes at all steps.
- Drugs that have been discarded, being repacked, and auctions off to unsuspected purchasers.
- Possibilities of air, water, and soil contamination due to waste, or due to defective incineration emissions and debris.

Literature Review:

1. ARORA, M. (2013.). HOSPITAL WASTE : MANAGEMENT AND HANDLING. *International Journal of Advancements in Research & Technology*, 2 (11), 238-239.
2. Bio-Medical Waste Management Rules 2016. Retrieved 5 15, 2018, from vikaspedia: (<http://vikaspedia.in/energy/environment/waste-management/bio-medical-waste-management/bio-medical-waste-management-rules>)
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AIM OF THE STUDY –

1. To assess the awareness about Bio-medical Waste management policies and practices among hospital staff.
2. To evaluate their knowledge of sharp object injury and its incidence within different groups of hospital workforce.
3. To evaluate the existing bio medical waste management procedures within the hospital.
4. To evaluate in-hospital prevention procedures of infection.

METHODOLOGY –

1.	Study Design	Cross Sectional
2.	Place	Neelkanth Hospital, Suratgarh (Rajasthan)
3.	Duration of Project	March 2020 to May 2020

SAMPLE SIZE – 30

Sr. No.	Staff	No. of Staff
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1.	Nursing Staff	20
2.	Laboratory Technicians	2
3.	Laboratory Assistants	3
4.	Housekeepers	5

SAMPLING TECHNIQUE: Total Population Sampling

SAMPLE SELECTION: The requirements for selection included all the hospital workforce at the hospital except doctor in daytime. Those who were on night duty are excluded.

TOOL: Questionnaire Based included observation checklist.

DATA ANALYTIC SOFTWARE: MS excel.

RESULTS –

For the nursing workforce, laboratory experts and sanitary workforce, a self-established questionnaire was developed.

The questionnaire was conducted within the part of process to evaluate the awareness level and practices of biomedical waste control and to evaluate measures to control infection within hospital manpower. The info was gathered through interaction with workforce.

A checklist of findings was also developed along with questionnaire, and the following of biomedical waste management procedures and methods of infection control had been found through observation list.

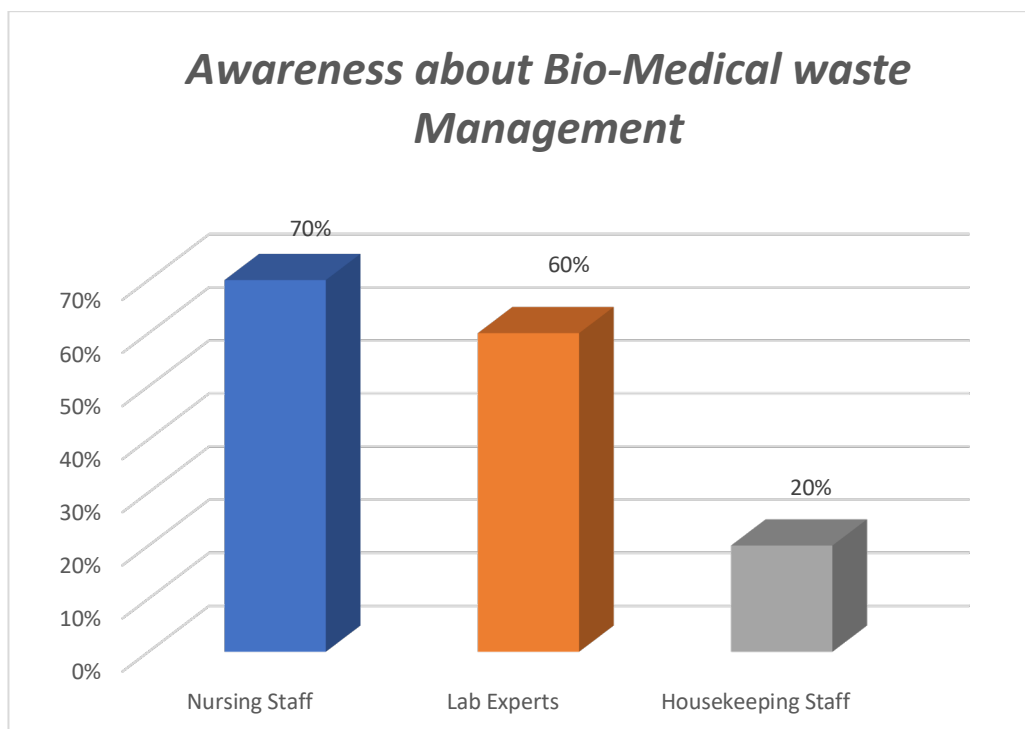
Bio-Medical waste management Awareness among Hospital Workforce–

The tool contained 10 questions for this purpose, and the conclusion was focused on hypotheses that the employee who replied more than 8 questions accurately have expertise and aware of management of biomedical waste.

According to data statistics gathered via questionnaire, the consequences showed that 70 percent nursing manpower had adequate information and awareness of biomedical waste management.

60 percent laboratory technicians had sufficient information and awareness of biomedical waste management.

20 percent sanitary group of workers had right information and focus of biomedical waste control.

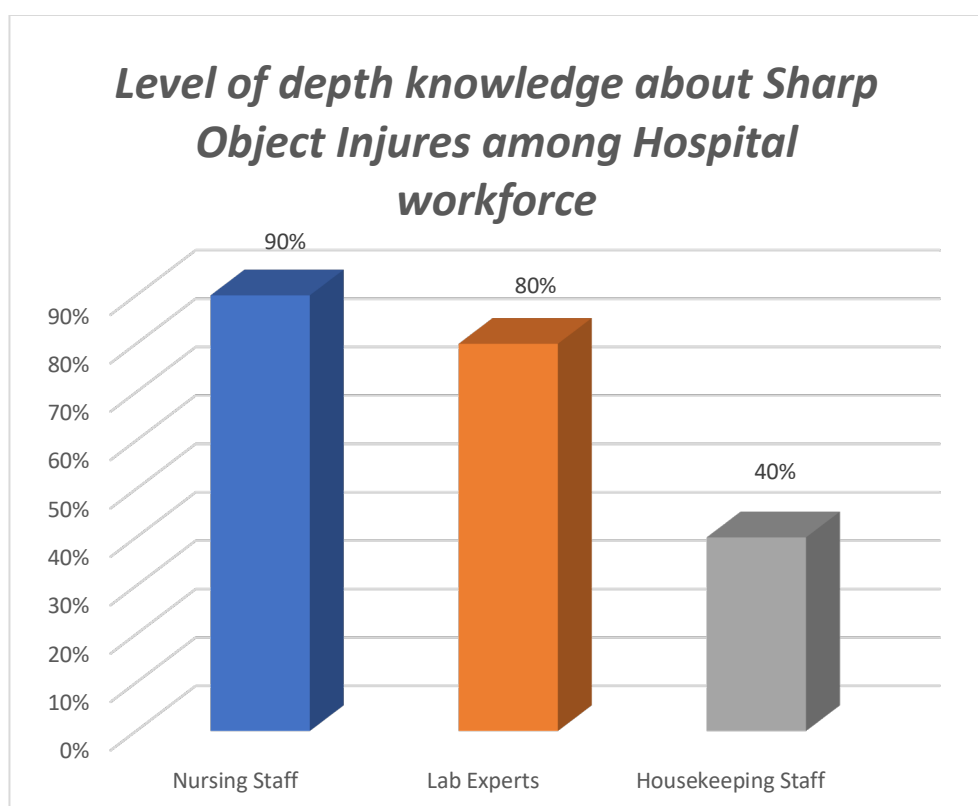


Information level among Hospital Workforce on Sharp object injuries-

The tool contained 5 questions for this purpose, and the conclusion was focused on hypotheses that the employee who replied more than 4 questions correct had adequate knowledge of sharp object injuries.

According to the collected data via questionnaire, the results showed that 90 percent nursing workforce, 80 percent of laboratory experts and 40 percent of sanitary staff had adequate knowledge of sharp object injuries.

Visual representation of the depth of knowledge on sharp object injuries among Nursing workforce, Laboratory technicians and Housekeepers –



OBSERVATION LIST –

To evaluating the current trends of biomedical waste management in the hospital –

- Record maintaining – **YES**
- Sharp shredders are provided– **YES**
- The containers are coded in color – **YES**
- Well finished segregation - **YES**
- Common biomedical waste treatment facility (CBWTF) vehicle lifts Biomedical waste everyday – **YES**
- Are drugs that have been discarded or expired kept differently in yellow bags – **YES**
- Liquid waste disposal/treatment – **NO**
- Using non-chlorinated hospital garbage bags- **YES**
- Bar-code tag affixed on color coded bags – **YES**
- Given adequate training to staff and record maintaining of trainings for BMW – **YES**
- Immunization for hospital workforce safety – **Nursing workforce and Lab experts were immunized, and no housekeeper was immunized.**
- Are hospital workforce using PPE's during dealing with BMW- **YES**
- Is there established BMW Committee - **NO**
- Cutting gloves into colour coded containers before disposal/treatment – **NO**

Observed loopholes in current practices of Bio-Medical Waste Management –

1. The hospital did not follow the procedure of cut gloves and glucose bottle till they were placed into colour coded containers.
2. There was lack of arrangements for the treating the produced liquid waste generated from general ward, lab etc. A large quantity of spill is being discharged into the sewage system.
3. Absence of colour-coded containers at final storage area.

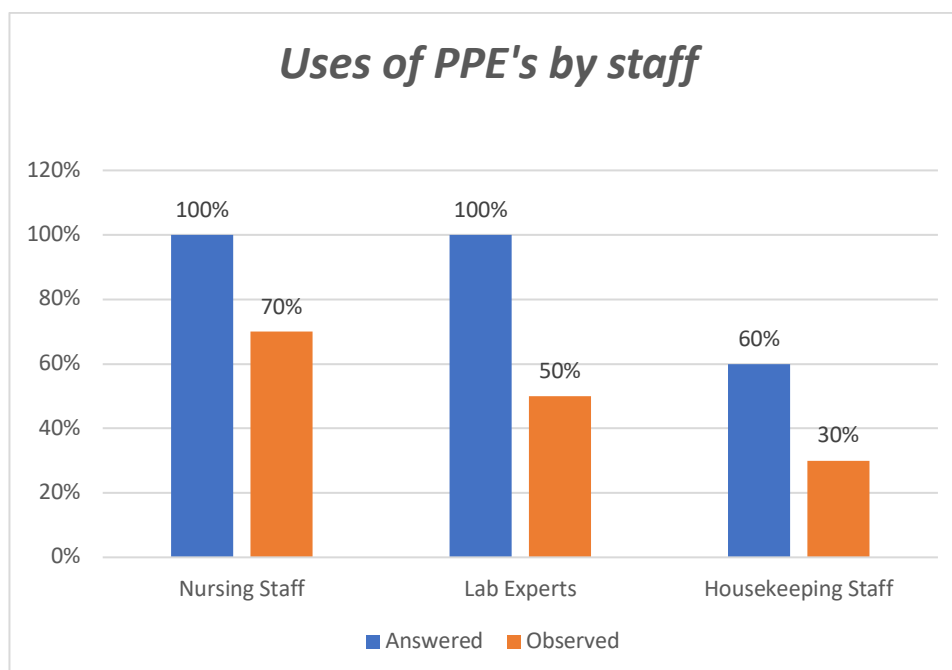
Evaluation of Infection Management practices among Hospital workforce –

Questionnaire contains 5 questions, and for the exact analysis, a list of observations was prepared.

Result -

- When the employees were told that personal protection equipment is essential to use, 100 percent nursing workforce, 100 percent lab experts replied as yes and 60 percent sanitary staff replied as yes. But the outcome was as follow on observation for the use of PPE's -

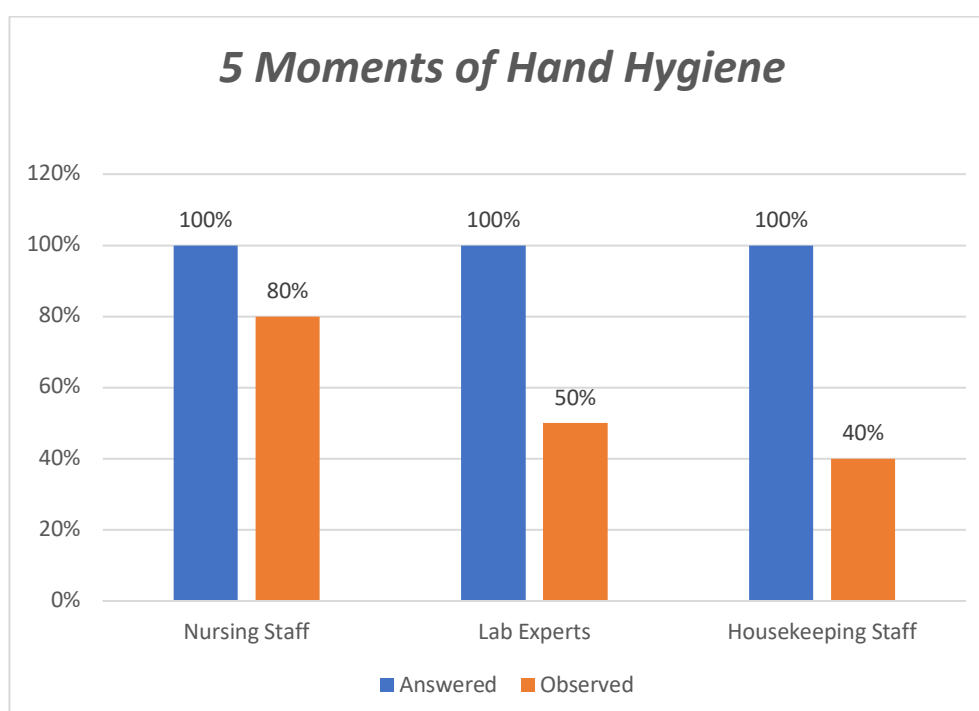
In fact, 70 percent of nursing work force, 50 percent of lab experts and 30 percent of housekeepers used the PPEs.



AWARENESS ABOUT FIVE MOMENTS OF HAND HYGIENE AMONG HOSPITAL WORKFORCE:

- When employees were asked to follow five moments of hand hygiene, 100 % nursing workforce, 100% of lab experts and 100 % of sanitary staff replied yes. But the result was changed on observation-

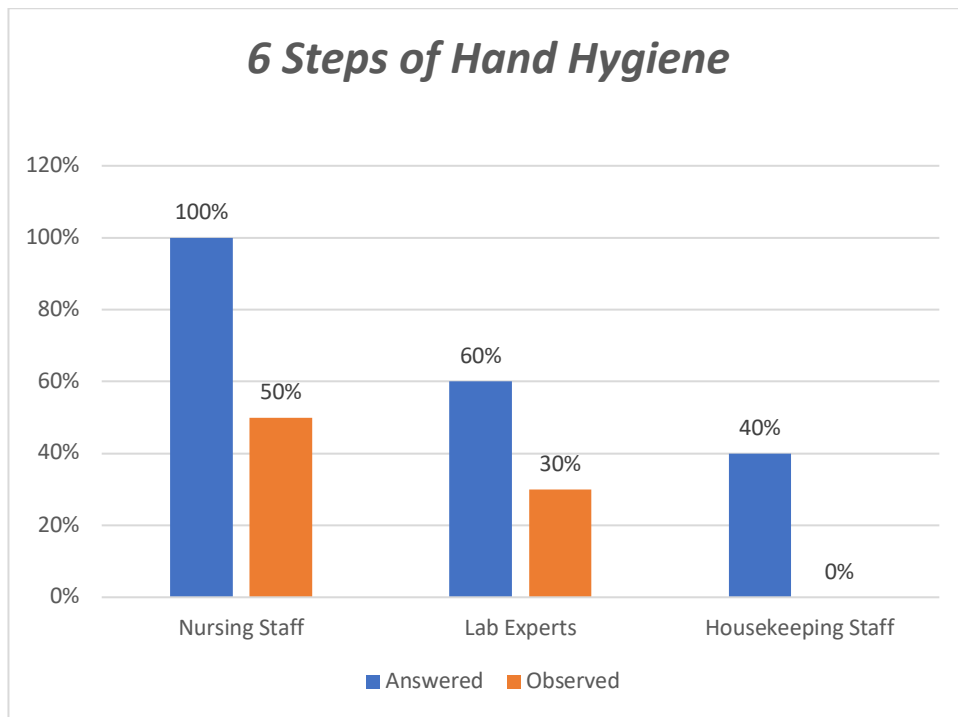
It was actually followed by 80 percent staff nurses, 50 percent lab experts and 40 percent of housekeepers.



AWARENESS ABOUT SIX STEPS OF HAND WASHING AMONG HOSPITAL WORKFORCE:

- When employees were asked to aware about 6 steps of Hand Washing, 100 percent nursing workforce, 60 percent lab experts, 40 percent sanitary workforce replied as yes.

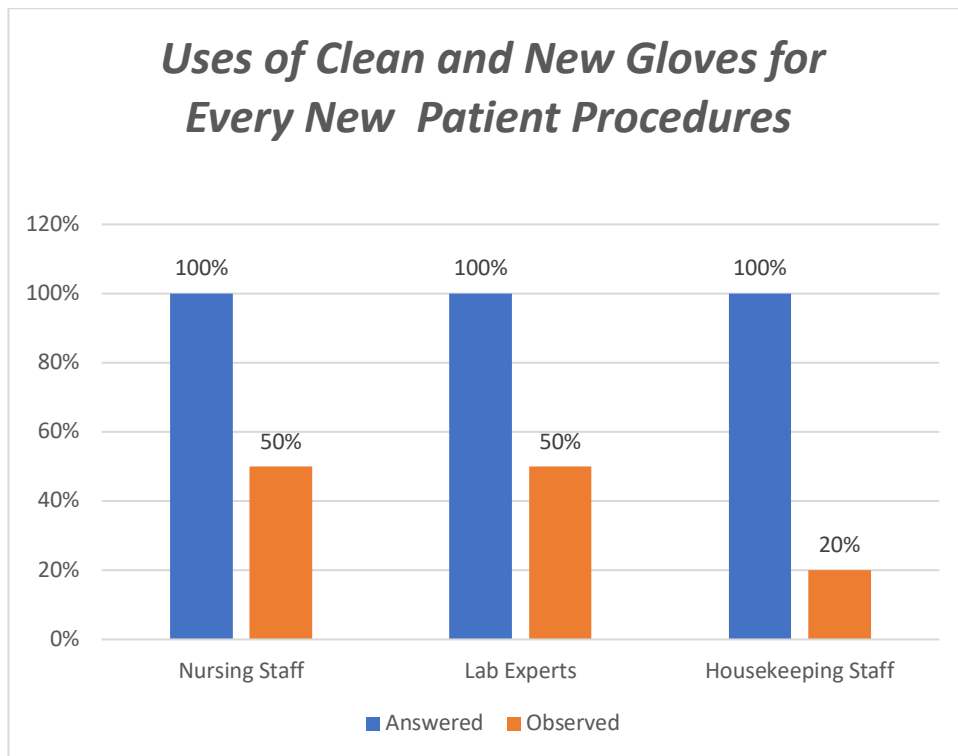
But as per observation the result was changed- in fact, only 50 percent nursing workforce, 30 percent lab experts and 0 percent housekeepers were following it.



AWARENESS ABOUT USE OF CLEAN AND NEW GLOVES AMONG HOSPITAL WORKFORCE:

- When employees were questioned to use clean and new gloves, 100 percent of nursing workforce, 100 percent of lab experts, and 100 percent sanitary workforce replied as yes.

But as per observation, it was actually followed by only 50 percent nursing workforce, 50 percent lab experts and 20 percent sanitary workforce.



DISCUSSION –

A hospital-based study was conducted among healthcare providers including Staff nurses, Laboratory technicians and housekeeping staff.

All the participants were aware about biomedical waste management and infection control measures.

About 70% of staff nurses and 60% of laboratory technicians and 20% housekeeping staffs had adequate knowledge and awareness of Biomedical waste management.

About 90% of nursing staff, 80% of lab technicians and 40% housekeeping staff had adequate knowledge of sharp object injuries.

On observation major gaps observed by comparison with the assessment of current practices of Biomedical waste management were,

- Before disposing of gloves and glucose bottles in the color-coded bin, the hospital did not adopt the practice of cutting.
- The hospital has not given treatment plans for liquid waste produced from the General ward and Laboratory.
- In the final storage room, the hospital did not provide any color-coded bins.

CONCLUSION -

- Wastes ought to be grouped as indicated by their sources, typology, hazardous factors related with their handling, storage and disposal.
- The main step is the segregation of wastes at source and reuse and recycling should be considered from a proper perspective.
- Eventually, all the participants know about Biomedical waste and steps to prevent infections. Yet there is a shortage of adequate information on BMW practices.
- Sanitary staff have lesser information of BMW practices as compare to nursing workforce and lab experts.
- Sanitary staff were unaware in many aspects, particularly in regard to sharp object injuries.
- Incidence reporting of Sharp object injuries has also been low among sanitary staff.
- After review of infection management procedures, it was reported that staff nurses and other healthcare workers were knowledgeable of all infection prevention strategies, but a limited percentage of hospital workforce were currently practicing.
- At the time of evaluating the observation list, it was evaluated that until disposal, gloves were not cut. Primarily by nursing students on training posted at various wards.

SUGGESTIONS-

1. Specific number of persons should be trained for the use of incinerators.
2. Hospital should provide some sort of separate bins for medical waste.
3. Should not be combine bio-medical waste with any other industrial waste.
4. Housekeepers should wear appropriate protective kits, such as gowns, masks, gloves and boots.
5. Should be given emphasis on the importance of bio-medical waste management trainings.
6. Daily supervision is needed for manpower, particularly for the nursing interns and housekeepers.
7. A bio-medical waste management committee should be established to supervise all aspects of infection control and management of biomedical waste.
8. Biomedical waste management and handling rules 2018 should be followed by hospital and train workforce to implement rules properly.

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