

Knowledge, Practice and Attitude About Biomedical Waste
Management Among Health Personnel of District Hospital,
Ghaziabad in Uttar Pradesh

By

Kirtee Anand

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

Academic year, 2017-2019



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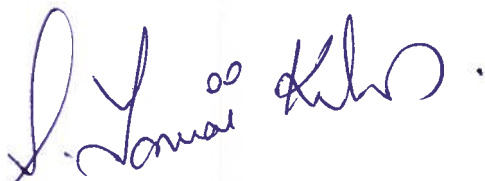
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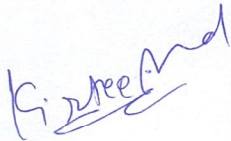
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ABSTRACT

TITLE: Knowledge, Practice and Attitude About Biomedical Waste Management Among Health Personnel of District Hospital, Ghaziabad in Uttar Pradesh

NAME OF AUTHOR: Kirtee Anand

BACKGROUND: Biomedical waste (BMW) is defined as any waste that is generated during diagnosis, treatment or immunization of human beings or animals, or in the research activities pertaining to or in the production or testing of biological and includes categories mentioned in schedule I of the Government of India's Biomedical Waste (Management and Handling) Rules 1998. Wrong disposal and handling of bio medical waste lead to many health problems to health personnel, patients, attendants and local community.

The biomedical waste generated during the treatment of patients for the purpose of ending health problems is dangerous. The waste generated in the course of healthcare delivery carries a higher potential for infection and injury than any other type of waste. Inadequate and inappropriate knowledge, during the Bio-Medical Waste Handling, gives rise to the Serious Health Problems and harm the society as well. Wherever, generated, a safe and reliable method for handling of biomedical waste is essential. Effective management of biomedical waste is not only a legal necessity but also a social responsibility.

Globally in Health Professionals, it has been observed that increased awareness related to Biomedical waste and its hazards and how it is handled but it is low in India. We have a lot of uncertainty about this estimate and it is important to know that we can see a clear picture. Health personnel have an important role in managing the bio-medical waste through their knowledge, attitude and practices.

India after 30 years of making of bio-medical waste management rules there is poor hospital waste management situation everywhere in our country. This indicates the urgent need to assess knowledge, attitude and practices of Health personnel, so that we can do some intervention. Hence this study is conducted to assess the knowledge, attitude and practice among healthcare

personnel about Biomedical waste management in district hospital of Ghaziabad of Uttar Pradesh.

OBJECTIVES:

1. To find out level of knowledge, attitude, and practices of doctors, nurses, laboratory technicians, and sanitary staff regarding biomedical waste management
2. To identify factors responsible for non-compliance to biomedical waste management protocols
3. To develop suggestions to improve compliance to biomedical waste management protocols

MATERIAL AND METHODS:

This is an observational cross-sectional study that was conducted in MMG district hospital of Ghaziabad of Uttar Pradesh having biomedical waste management in their hospital premises among health personnel. This study was conducted from 18th Feb to 17th May 2019.

Study Population: Doctors, Nurses, Lab technician, House Keeping staff

- **Exclusion criteria:** Pharmacist, MIS team and other non-clinical staff
- **Study tools:** Closed ended Questionnaire

Sampling technique: Non-probability Sampling (purposive sampling)

Data collection procedure: Observation of disposal of biomedical waste and checking color coded container material and self-administrative questionnaire was sent to doctor, staff nurse lab technician and housekeeping staff at their WhatsApp number.

Data analysis plan: After the collection of data, it was compiled in Microsoft excel. Most of the data analysis was done in Microsoft excel by using frequency table, cross tabulation, and figures.

Result: As I referenced above, I did purposive testing for information accumulation so there were 52 respondents including (specialist, medical caretakers and lab expert) and all housekeeping staff neglected to react to the poll. It was amazing that lone 3 (14%) medical caretakers had great information about biomedical waste age and enactment while 5 (25%) of attendants had incredibly poor learning about it Only 7 (30%) specialists had a phenomenal information of biomedical waste administration enactment of the 52 subjects who finished the investigation.

15 (28%) subjects concurred that protected administration of social insurance waste was not an issue at all while 39 (65%) subjects differ and 4 (7%) subjects did not remark". 39 (75%) human services work force concurred that waste administration requires collaboration and no single colleague is capable. Safe administration endeavors by clinic staff were an additional work

CONCLUSION: By this study it can be concluded that knowledge and awareness about BM waste generation hazards, legislation and management among doctors, lab technicians and nurses in the district hospital, Ghaziabad, India is low. Available literature suggests that this is a common problem in many other health care institutions in both India and other countries. They have lots of work and they think this is the work of housekeeping staff. Continuous monitoring and training are required at all levels of hospital

ACKNOWLEDGEMENT

I feel privileged in expressing my kindest gratitude to **Vidya Kashyap (Hospital Manager) MMG District Hospital, Ghaziabad, UP**, under whose able guidance and supervision this study was conducted. The keen interest he evinced throughout this period and the graciousness with which he gave his valuable advice was his exclusive acumen.

Bearing in mind the previous, I would like to take this opportunity to express my deepest gratitude and special thanks to my mentor, **Dr. S.D. Gupta, Chairman, IIHMR University, Jaipur**, for guiding and keeping me on the correct path throughout the period of internship

I also feel privileged in expressing my thanks to **Yashika Kapoor (External Consultant at IQVAI, Delhi)** whose guidance and support was always there for me.

I express my deepest thanks to **Mr. Pranav Keshan (External Consultant at IQVAI, Delhi)** for taking part in useful decision & giving necessary advices and guidance. I choose this moment to acknowledge his contribution gratefully.

I would be failing in my duties if I miss to acknowledge and thank all those co-operating people who formed the subject of this study. These include the entire staff of **MMG District hospital, Ghaziabad, Uttar Pradesh**. They extended their wholehearted co-operation in different phases of my project.

In the end I thank all those fellows and colleagues who have helped me in making this project a success and my apologies to anyone whose name I would have inadvertently forgotten to mention here

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ABBREVIATIONS

BMW- Bio-Medical Waste

C&D-Construction and Demolition

CBWTF- Common Bio-medical Waste Treatment Facility

CPCB- Central Pollution Control Board

CRTs- Cathode Ray Tubes

EC- Electrical Conductivity

EEE- Electrical and Electronic Equipments

EPA- Environmental Protection Agency

EPR- Extended Producer Responsibility

GHGs- Greenhouse Gases

HDPE- High Density Polyethylene

IWM- Integrated Waste Management

MT- Metric Tonnes

MSW- Municipal Solid Waste

CPCB- Central Pollution Control Board

WHO- World Health Organization

NGO- Non-Governmental Organization

Hg- Mercury

KAP- Knowledge, Attitudes and Practices

HMC- Hospital management committee

HIV- Human immunodeficiency virus

AIDS- Acquired immune deficiency syndrome

INTRODUCTION ABOUT BIOMEDICAL WASTE MANAGEMENT IN HOSPITAL

Biomedical waste produced amid determination, treatment and inoculation forms in human services foundations. It incorporates waste, for example, sharp, human tissue or body parts and different irresistible materials. These squanders are conceivably risky/irresistible and their separate and informal administration presents genuine dangers to human wellbeing.

MEDICAL WASTE AND THE LAW

- During 1994-95, the government of India, under the directions of the supreme court, ordered medical establishments not to discard medical waste in municipal bins but to burn it in incinerators installed in their premises.
- In 1998, the government of India framed the “Biomedical waste (management and Handling) Rules”, to ensure that medical wastes are handled in a humanly and environmentally safe manner (The Gazette of India 1998). Biomedical waste (Management and Handling) rules, 1998.

Fig 1 – Medical waste and the law

Clinic and other medicinal services foundations in India produce a noteworthy amount of waste, presenting difficult issue for its transfer, an issue that has gotten inadequate consideration (figure-1). The serious issue emerges when the medical clinic reject is dumped in the open and is blended with household waste prompting different kind of perils.

Hospital garbage can be dangerous and contaminated, Hospital staff and people carrying it and patients inside the hospital and this garbage produces various diseases, on the basis of which we spread diseases in two types: Infectious and none infectious disease.

Hospital garbage can also contain infected garbage such as human urine containers, glasses, blood gloves and many more items that may cause infection and can cause infective disease such as HIV, Hepatitis B In it, the pointing material is too hot that can pierce someone Hospital garbage can be unintended waste which can get rid of the hospital's laboratory from the surgery department, which can be from an OT department to an infected patient. It is fatal for the hospital and for the hospital staff. There is a completely different type of garbage in the

hospital and for the hospital staff. There is a completely different type of garbage in the hospital, in which the old medicine expired medicine, broken waste medicines can be garbage, it is also counted as a waste of hospital, as well as a waste of equipment in the hospital is also a kind of waste. Which runs diseases and who should manage well.

UNSAFE MEDICAL WASTE DISPOSAL IN INDIA

- According to the All India Syringes and Needles Manufacturers Association, at any rate 20% of syringes sold are from reused sources.
- Recycled syringes may harbor savage infection, for example, those causing hepatitis B and C.
- Used careful cotton and gauzes are frequently used to make blankets and beddings.

Fig 2 – Unsafe Medical waste in India.

It is Important to observe that not in the smallest degree center waste can transmit sully. It is assessed that 80-85% is non-overpowering general waste, 10% is compelling and 5% is diverse perilous waste. In any case, if the overpowering fragment gets mixed with the general non-powerful waste, the entire larger part of the restorative center waste possibly ended up being overwhelming. Misguided exchange routine concerning medicinal center waste impacts the all inclusive community who come in direct contact with it. Waste stacks in like manner attract a combination of illness vectors, including mosquitoes and flies. Along these lines, improper waste organization practices are a noteworthy issue that incorporate not only to the crisis center association yet society free to move around at will.

In making countries, establishment and incredible practice guidelines describe therapeutic waste and express the distinctive possible way to deal with amassing, transport, storing and exchange of such wastes. In addition, the best open developments are used for the progression of decisions for the exchange of restorative waste with least peril to human

prosperity and the earth. In making countries, for instance, India, in any case remedial Waste Materials have not gotten satisfactory thought.

The BMW (the administrators and Handling) Rules, 1998(The Gazette of India 1998) endorsed under the regular protection Act 1986 is a critical piece of order for the organization of crisis facility waste. According to "Biomedical waste (Management and Handling) Rules", BMW must be secured freely from other waste and is requested into ten unmistakable arrangements, all of which has a doled out system for treatment. The treatment method are incinerator, autoclaving, microwaving, mixture treatment, significant burial and move in a secured land fill (or blend of these methodology).

The occupier of the human administrations office is accountable for detachment, amassing and the most ideal exchange of BMW. The common body remains accountable for the amassing and exchange of disconnected non-biomedical waste start from medicinal center. Additionally, the metropolitan expert is required to give sensible exchange or treatment site to the human administrations workplaces. In urban regions with the quantity of occupants in less than 3 million, these treatment workplaces should have been in action since 31 December 2000 for the crisis facilities and nursing homes with 200 and 300beds. The treatment and waste managing workplaces for therapeutic centers and nursing homes with a cutoff of 50 to 200beds should have been a spot by 31 December 2001. For smaller crisis centers and nursing homes and various foundations, the treatment and waste managing workplaces were required to be set up by 31 December 2002. Consistently, a ton of risky waste are made by various divisions in restorative centers. Dependent upon the workplaces, such waste could fuse general waste (office cafeteria waste), compelling waste radioactive waste or harmful compound waste. For all intents and purposes waste streams are normally intermixed, which grows the unconventionality of the exchange decision. It fuses squander, for instance, sharps, demolished waste, disposables, anatomical waste, social orders, discarded substance waste, etc. These are possibly dangerous, overpowering and their eccentric and casual exchange presents authentic threats to human prosperity.

RATIONAL OF THE STUDY

Disregarding the way that, there is an extended overall care among prosperity specialists about the risks and legitimate organization systems yet the component of care in India is seen to be unsuitable. It is major to raise for a couple of reasons, there is liberal weakness around this check and more research and data are relied upon to get a strong picture of this situation. Prosperity personnel have a huge activity in managing the bio-helpful waste through their knowledge, attitude and practices .

India following 30 years of production of bio-remedial waste organization controls there is poor crisis facility waste the administrators situation any place in our country.

Biomedical waste is a kind of garbage in which a garbage from which a patient is examined to treatment, is produced in a hospital, clinic, laboratory and research institute, it is called biomedical waste. Schedule of the Bio-Medical Waste (Management and Handling) Rules, 1998. All of the activities coordinated in a restorative facility contribute in time of either kind of waste.

There are some measures for the safe and effective disposal of Hospital West such as segregation, disinfection, transport and final disposal. Segregation In this process, different waste products are put in different colored bags and all of which are disposed of in different ways. Disinfection By this process the harmful germs are removed and this will be done in some special way. It gets

The substances in transport are taken inside and outside the hospital, the workers who work, they wear gloves in their hands and keep in mind that these substances do not go out of the trolley and the final disposals are burnt. Takes medical and takes money by the same amount as it is planted to do it, all of them are treated there after they are treated.

LITERATURE REVIEW

A Cross-sectional Study about L & A Practices about Biomedical Waste Management among Healthcare Personnel

RP Misra et al

The examination was led among medical clinics (bed limit >100) of Allahabad city. The goal was to evaluate information, mentality, and practices of specialists, attendants, research facility experts, and sterile staff in regards to biomedical waste administration. Specialists, medical caretakers, and lab professionals have preferable information over sterile staff with respect to biomedical waste administration. Information with respect to the shading coding and waste isolation at source was observed to be better among medical attendants and research facility staff when contrasted with specialists. As to identified with biomedical waste administration, clean staff were unmindful on every one of the tallies. Be that as it may, damage detailing was low over every one of the gatherings of wellbeing professionals(1).

A Cross-sectional Study about K & A in a THC Bijapur

Aditya S Berad, et al

This cross-sectional examination was done in the extended length of Nov 2008. Around 234 delegates were present. A total of 380 belonged to non-educating and 254 belonged to teaching fraternity. Before controlling the survey the inspiration driving the examination was uncovered to each and every taking an intrigue agent.

Biomedical Waste Management: An investigation of learning, frame of mind and practice among human services faculty at tertiary consideration clinic in Rajkot

Rajesh K Chudasama*, Matib Rangoonwala**, Ankit Sheth**, SKC Misra**, A M Kadri***, Umed V Patel*

The examination was coordinated from January 2013 to June 2013. It was a particular observational crisis facility based cross sectional examination. Study individuals consolidated the inhabitant masters right hand pros, nursing staff, look into office specialists, ward young fellows and sweepers working in the establishment who are overseeing BMW. It included 123 occupant pros and aides, 92 medicinal specialists, 13 explore office specialists, and 54 clean staff. A lot of study individuals has a spot with 21-30 years (61%) age gathering. More than two third of study individuals working in medicinal center from 1 to 5 years. Simply 44.3% examination individuals got getting ready for bio restorative waste organization. HIV (74.47%) and Hepatitis B (56.03%) were the essential overwhelming illnesses transmitted by the bio remedial waste(3).

Investigation of KAP about Biomedical Waste among Paramedical staffs

Mohd Shafee, NB Kasturwar, and N Nirupama

This examination focused on assessing the stat and practices of crisis facility staff related to biomedical waste companies. The staff lacked the required data about BMW the officials. The chaperons had better data and temper, and moreover practiced BMW the officials better than the housekeeping and concentrated staff.

Learning, demeanor, and practices about biomedical waste administration among dental medicinal services staff in Kothamangalam

Sanjeev R, Suneesh Kuruvilla, Subramaniam R, Prashant PS1 , Meera Gopalakrishnan

A cross-sectional survey based outline containing 23 request to study the data, attitude and practice on biomedical waste organization. The precedents were the appearing and understudies of 4 dental schools in Kothamangalam, Kerala. The mean learning, mood and practice scores were 7.35 ± 1.63 , 7.69 ± 1.97 , 7.43 ± 0.78 exclusively with most noteworthy scores of 9, 5 and 10. Enormous complexities existed in association with informative ability of respondents in learning and practice scores(5).

RESEARCH QUESTIONS

1. To check the dimension of Knowledge, disposition, and practices about biomedical waste administration among specialists, medical attendants, research facility professionals, and housekeeping staff in area emergency clinic Ghaziabad?

Destinations OF RESEARCH

1. to discover dimension of information, frame of mind, and practices of specialists, medical caretakers, research facility professionals, and sterile staff with respect to biomedical waste administration
2. to recognize factors in charge of resistance to biomedical waste administration conventions
3. to create proposals to improve consistence to biomedical waste administration conventions

Confinement OF THE RESEARCH

1. It is a territory explicit investigation, so the consequences of this examination can't be summed up in the region.

Approach

This is an observational cross-sectional examination that was directed in MMG region medical clinic of Ghaziabad of Uttar Pradesh having biomedical waste administration in their emergency clinic premises among wellbeing work force. This investigation was led from eighteenth Feb to seventeenth May 2019.

Study Population: Doctors, Nurses, Lab specialist, House Keeping staff

- ☐ Exclusion criteria: Pharmacist, MIS group and other non-clinical staff
- ☐ Study apparatuses: Closed finished Questionnaire

Testing strategy: Non-likelihood Sampling (purposive examining)

Information gathering strategy: Observation of transfer of biomedical waste and checking shading coded compartment material and self-authoritative poll was sent to specialist, staff nurture lab expert and housekeeping staff at their WhatsApp number.

Information examination plan: After the accumulation of information, it was ordered in Microsoft exceed expectations. The majority of the information examination was done in Microsoft exceed expectations by utilizing recurrence table, cross organization, and figures.

Investigation OF THE STUDY

10 Questions on Knowledge of biomedical waste age, risks and enactment

Questions dependent on biomedical waste enactment

1. Do you think about BM squander age and enactment
2. Do you think it is essential to think about BM squander age, perils and enactment?
3. Biomedical Waste (Management and Handling) Rules were first proposed in?
4. Corrections to the Biomedical Waste (Management and Handling) Rules were made in?

Questions dependent on biomedical waste dangers

5. As per the Biomedical Waste India Rules, waste ought not be put away past?
6. Who manages the protected transport of medicinal waste?
7. Do you need a different license to transport biomedical waste?
8. One gram of mercury is sufficient to sully the accompanying surface region of a lake in India

Questions dependent on biomedical waste age?

9. Which explanation depicts one kind of BM squander?
10. What agency regulate squanders produced at clinic and nursing home?

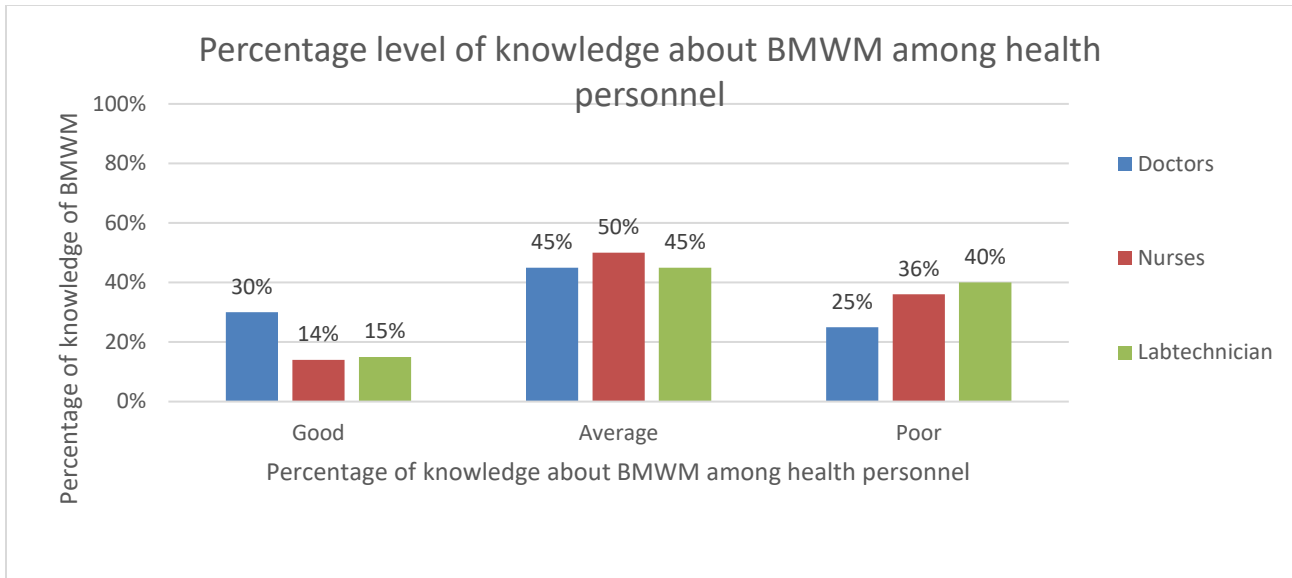


Chart-1

Superb: 8 right answers out of 10

Normal: 4 to 7 right answers out of 10

Poor: underneath 4 right answers out of 10

Translation:

Based on over 10 addresses graph 1 is portraying that 30% doctors, 14% attendants and 15% lab expert have great information of biomedical waste age, dangers and enactment. 45% specialists, half medical caretakers and 45% lab professional have normal information of biomedical waste age, dangers and enactment. 25% specialists, 36% attendants and 40% lab professional have poor learning of biomedical waste age, risks and enactment.

**10 Questions based on biomedical waste management practice/handling in hospital/
nursing home**

1. Do you think about shading coding isolation of BM squander?
2. Do you pursue shading coding for BM squander?
3. Is the hospital waste practice right in your district hospital?
4. Items that might be fit for causing punctures By what means should these items be discarded?
5. Reports with classified patient data are to be discarded into the paper reusing canisters.
6. The shading code for the hospital waste to be autoclaved, purified is
7. The surmised extent of irresistible waste among complete waste produced from a medicinal services office is
8. The shading code for transfer of ordinary waste from the hospital is
9. All the accompanying advances ought to be pursued an introduction with tainted blood/body liquid and polluted sharps EXCEPT:
10. All the accompanying articulations about unsafe waste holders are valid, with the exception of

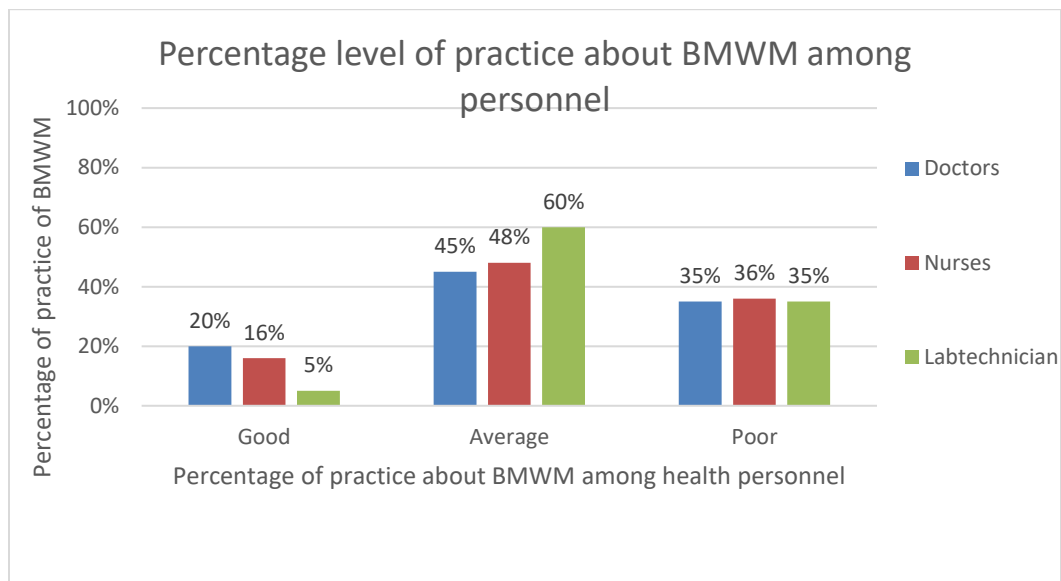


Chart-2

Amazing: 8 right answers out of 10

Normal: 4 to 7 right answers out of 10

Poor: beneath 4 right answers out of 10

Elucidation:

Based on over 10 addresses diagram 2 is portraying that 20% doctors, 16% medical attendants and 5% lab specialist have great information of biomedical waste administration practice. 45% specialists, 48% medical caretakers and 60% lab professional have normal learning of biomedical waste administration practice. 35% specialists, 36% medical caretakers and 35% lab expert have poor learning of biomedical waste administration practice.

RESULTS:

As I referenced above, I did purposive testing for information accumulation so there were 52 respondents including (specialist, medical caretakers and lab expert) and all housekeeping staff neglected to react to the poll. It was amazing that lone 3 (14%) medical caretakers had great information about biomedical waste age and enactment while 5 (25%) of attendants had incredibly poor learning about it Only 7 (30%) specialists had a phenomenal information of biomedical waste administration enactment of the 52 subjects who finished the investigation.

15 (28%) subjects concurred that protected administration of social insurance waste was not an issue at all while 39 (65%) subjects differ and 4 (7%) subjects did not remark". 39 (75%) human services work force concurred that waste administration requires collaboration and no single colleague is capable. Safe administration endeavors by clinic staff were an additional work weight and 26 (half) respondents concurred that it expanded the money related weight on the board.

DISCUSSION

Indian government has instructed the new draft Bio-restorative Waste Rules, 2011 under the Environment Protection Act, 1986 to supplant the prior Bio-supportive Waste (Management and Handling) Rules, 1998 and remedies thereof. A few new plans have been added to the new norms including the level of use of these standards only to biomedical waste alone and not particular squanders like radioactive, risky built blends, metropolitan strong squanders, and so forth.

this examination was facilitated with the goal of investigating the learning, viewpoint and work on concerning biomedical waste association among dental social assurance staff(5).

Higher practice found in nursing staff in the present examination might be an aftereffect of higher responsibilities assigned.

By this examination it might be contemplated that learning and care about BM waste age dangers, institution and the board among masters, lab experts and medicinal guardians in the area crisis facility, Ghaziabad, India is low. Available composing suggests this is a run of the mill issue in various other social protection associations in the two India and various countries. They have loads of work and they think this is created by housekeeping staff. Consistent watching and getting ready are required at all components of crisis center.

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