

# INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

---

Volume 6 | Issue 2

---

2023

© 2023 *International Journal of Law Management & Humanities*

Follow this and additional works at: <https://www.ijlmh.com/>

Under the aegis of VidhiAagaz – Inking Your Brain (<https://www.vidhiaagaz.com/>)

---

This article is brought to you for “free” and “open access” by the International Journal of Law Management & Humanities at VidhiAagaz. It has been accepted for inclusion in the International Journal of Law Management & Humanities after due review.

In case of **any suggestions or complaints**, kindly contact [Gyan@vidhiaagaz.com](mailto:Gyan@vidhiaagaz.com).

---

**To submit your Manuscript** for Publication in the **International Journal of Law Management & Humanities**, kindly email your Manuscript to [submission@ijlmh.com](mailto:submission@ijlmh.com).

---

# A Study on Perception about Biomedical Waste Management Practices among Health-Care Workers During Covid-19 Pandemic at City Hospitals in Bhilwara, Rajasthan

---

NEHA KUMARI BOTHRA<sup>1</sup> AND DR. VISHWA DEEPAK BHATNAGAR<sup>2</sup>

## ABSTRACT

*Usually biomedical waste contains masks, blood samples, syringes, gloves, test materials, etc. which are generated from the hospitals and diagnosis centers during the diagnosis, treatment or immunization of humans. In the wake of the COVID -19 pandemic in recent times, the safe disposal of biomedical waste has become more critical. In spite of our country being governed by the Biomedical Waste Management Rules 2016, the Central Pollution Control Board made revision to the existing laws which were made compulsory to be followed by quarantine centers, isolation wards, hospitals, laboratories, common biomedical waste treatment facilities, sample collection centers and Common Bio Medical Waste Treatment facilities (CBWTFs). The proper collection, safe handling and final disposal of the biomedical waste has become vital and important to stop the transmission of this deadly virus. In this regard a four months study was conducted in seven hospitals at Bhilwara city, with an objective to access the level of awareness & attitude towards the Biomedical Waste Management (BMWM) Rules 2016 among the doctors, laboratory specialists, nurses & house-keepers; the way the staff is trained to handle this waste, the attitude of healthcare workers towards and to access the safety measure carried by them in the safe disposal of the biomedical waste. In order to gather the information, the study was carried out using the questionnaire method, in-depth interview and the data collected was affirmed by observation method. A total of 175 healthcare respondents from government and private hospitals participated in the poll. The results clearly show that during this pandemic the awareness about biomedical waste management rules was found highest among the doctors and nursing staff. However, the results advise improving bio-medical waste management training for healthcare workers. This work will guide the government to establish appropriate hospital biological waste management methods thus preventing environmental and health threats.*

**Keywords:** *Biomedical Waste Management, Treatment, Segregation, Healthcare Workers, Trash.*

---

<sup>1</sup> Author is a Research Scholar at School of legal Studies, Sangam University, Bhilwara, Rajasthan, India.

<sup>2</sup> Author is an Emeritus Professor at School of Legal Studies, Sangam University, Bhilwara, Rajasthan, India.

## I. INTRODUCTION

The term waste refers to any substance or material that has been deemed unnecessary, undesirable, or wasted, regardless of its potential usefulness in the future. During the ongoing COVID 19, the safe disposal of the Medical Waste has become the most important subject. Now the medical waste includes the disposable medical products like used PPE kits, masks, disposed surgical bandages & gloves, shoe covers, blood-soaked items, syringes, needles, blood bags, band etc. affects the ecosystem, particularly plants and animals, when not handled appropriately, posing an immediate threat to the well-being of humans.<sup>3</sup> As per the report generated by Central Pollution Control Board (CPCB), India has produced biomedical wastage of around 18,006 tons from June 2020 of which 5500 tones alone was generated in September Month.<sup>4</sup> In the fight against the COVID-19 pandemic, proper disposal of medical waste is a key factor since it can serve as a vector for the transmission of SARS-CoV2 if not dealt with in a timely, organized, efficient, and risk-free manner.<sup>5</sup> One can see that in the earlier part of the 20<sup>th</sup> century, the proper disposal of biomedical waste was never taken seriously. However, in the recent years there was a concern for the diseases such as hepatitis, HIV/AIDS and other blood borne infections which posed health risks to health workers and to people near health facilities, particularly children and scavengers who directly or indirectly got exposed to infectious waste has sparked more concern about this problem among professionals and environmentalists. It is estimated that between 80,000 and 168,000 new cases of HIV, 2.3 million new cases of hepatitis B, and 4.7 million new cases of hepatitis C are contracted annually due to the reuse of contaminated syringes & needles.<sup>6</sup>

The key to minimization the disease spread is by effective management of biomedical waste is by identifying the waste and its segregation at source. According to Biomedical Waste Management (BMWM) rules, most appropriate way of categories of biomedical waste is by sorting the waste into containers/ bags based on colour. There is evidence that anywhere from 18% to 64% of medical facilities around the world have subpar biomedical waste management

---

<sup>3</sup> “Renju Rajan, Delvin T Robin & Me Vandananani, *Biomedical waste management in Ayurveda hospitals--current practices and future prospectives*, 10 J. AYURVEDA INTEGR. MED. 214 (2019).”

<sup>4</sup> “Gaurav Saini, *India generated over 18,000 tonnes covid-19 waste since June*, OUTLOOK THE NEW SCROLL, 2020, <https://www.outlookindia.com/newscroll/india-generated-over-18000-tonnes-covid19-waste-since-june-maharashtra-biggest-contributor/1953733>.”

<sup>5</sup> “Marcos Paulo Gomes Mol & Sérgio Caldas, *Can the human coronavirus epidemic also spread through solid waste?*, 38 WASTE MANAG. & RES. 485 (2020).”

<sup>6</sup> “Stephen Obekpa Abah & Elijah Ige Ohimain, *Healthcare waste management in Nigeria: A case study*, 3 J. PUBLIC HEAL. EPIDEMIOL. 99 (2011).”

(BWM) systems due to a combination of inadequate education, inadequate funding, and inadequate waste disposal practices.<sup>7</sup> Moreover, several nations lack official documentation of government regulations concerning BMWM. The transmission of infectious diseases can be stopped by following the BMWM regulations, which were initially implemented in India.<sup>8</sup> Despite regulations, it can be observed that the majority of Indian hospitals still fall short of meeting the ideal benchmarks for BMWM procedures.<sup>9</sup> The hospitals generally generate about 10%–25% of bio medical wastage which is hazardous in nature and remaining 75%–95% are non-hazardous.<sup>10</sup>

It's important to recognize that any amount of hospital waste might turn extremely hazardous if the pathogenic element of biomedical waste got somehow contaminated with rest of the not contagious waste. Even though India already has Bio Medical Waste Management Rules in the year 2016 in place, even then with spread of the COVID 19 across the countries, the CPCB issued a fresh guideline of BMWM Rules for safe scientific disposal of biomedical waste from healthcare centers which includes hospitals, quarantine, diagnostics & sample collection centers, laboratories and common biomedical waste treatment facilities (CBWTFs) in order to control the virus, spread.

Now this present study is based on the safe disposal of biomedical waste from the hospitals in Bhilwara city. Especially during COVID 19 lockdown-1 starting from March 22, with the strict implementation of the quarantine rules, district of Bhilwara was the first in India to successfully halt the transmission of the new diseases after only two weeks.

Strict quarantine and from individual testing by medical professionals frequently mentioned as examples of how the 'Bhilwara model' resulted this catastrophic transmission.<sup>11</sup> From this it can be assumed that the healthcare workers in Bhilwara City are doing a good job and are well aware of BMWM Rules. They must also be practicing segregation and disposal of biomedical waste as well. So, a study was done with the following objectives:

---

<sup>7</sup> “WHO, *Wastes from health-care activities*, Factsheet No.253, (2011), <http://www.who.int/mediacentre/factsheets/fs253/en>.”

<sup>8</sup> “Saurabh Gupta et al., *Rules and management of biomedical waste at Vivekananda Polyclinic: A case study*, 29 WASTE MANAG. 812 (2009).”

<sup>9</sup> “P Hanumantha Rao, *Hospital waste management system—a case study of a south Indian city*, 27 WASTE MANAG. & RES. 313 (2009).”

<sup>10</sup> “Priya Datta, Gursimran Mohi & Jagdish Chander, *Biomedical waste management in India: Critical appraisal*, 10 J. LAB. PHYSICIANS 6 (2018).”

<sup>11</sup> “BUSINESS STANDARD, *Bhilwara model: How this Rajasthan district brought Covid-19 under control*. BUSINESS STANDARD, 2020, [https://www.business-standard.com/article/current-affairs/bhilwara-model-how-this-rajasthan-district-brought-covid-19-under-control-120041000286\\_1.html](https://www.business-standard.com/article/current-affairs/bhilwara-model-how-this-rajasthan-district-brought-covid-19-under-control-120041000286_1.html).”

1. To Assess the knowledge of healthcare staff in regard to biomedical waste management rules.
2. To Observe the prevailing practices adopted in the hospitals in regard to collection and segregation of bio medical waste.
3. To Understand the Practices followed by healthcare workers for safe disposal of the biomedical waste.

### **(A) Material and methods**

There are 77 hospitals and 156 diagnostic and clinics in Bhilwara district. From August 2020 to November 2020, a study was carried out in seven significant hospitals in Bhilwara city. Healthcare workers e.g., nurses, doctors, paramedical staff and technicians of hospital were approached using structured questionnaire in order to acquire their response. Each hospital's anticipated daily quantity of biological waste (in kilograms), their familiarity with the biological Waste (Handling and Management) Rules, 2016, and their practices involving waste classification, collecting, identification, transportation, and disposal were all covered in the questionnaire. Areas that were visited were Waste Collection Points & Treatment Rooms of Wards, Emergency Units, ICUs and OTs. A separate isolation ward was set up in each of the hospital for corona patients where entry was restricted. The views and suggestions of health care workers about the present practices of segregation of biomedical waste management in accordance to BMW Rules in the hospitals were also recorded. Data acquired via questionnaire was supplemented and confirmed through on-site, in-person observation of supervisory practices. In order to determine the extent to which waste handlers are receiving training and to get additional information about the potential dangers involved in their work, a formal interview was carried out. The data was double-checked through direct observation to ensure its accuracy. The investigation was carried out after receiving permission from all involved parties.

## **II. SURVEY OF THE STUDY AREAS**

The survey was carried in seven hospitals which included one government hospital and rest were privately run hospitals. The hospitals are as follows:

1. Mahatma Gandhi Hospital: This is the main Government hospital in Bhilwara with the strength of about 433 beds.

2. Krishna Hospital: A Hospital with 150 bedded multi- speciality hospital with latest modernized equipments and it was established in 1997.
3. Arihant Hospital: There are 250 beds available in the "Arihant Hospital & Research" Sansthan, which is run by a nonprofit organization. The hospital opened its doors in 2002. A skilled workforce optimising the resources available within a complex physical setting.
4. Soni Hospital: Smt. Kesarbai Soni Hospital is a multispecialty hospital which specializes in treatment for all diseases. It is a leading hospital in Bhilwara and was established in the year 1993. This is a 100 bedded hospital.
5. Ram Snehi Hospital: Ramsnehi Hospital and Research Centre is a 300 bedded multispeciality hospital established in 2000.
6. Brijesh Bangar Memorial Hospital: This is a 200 bedded Multispeciality hospital which specializes in treatment for all diseases.
7. Shree Sidhi Vinayaka Hospital: This is a 100 bedded multispecialty hospital.

**Sample Size:** The total number of respondents studied from all the 7 hospitals was 175. The limitation of this study was many were not willing to answer to any the questionnaire.

**Number of Visits:** Each area was visited four times for taking interviews and observations on Bio medical Waste management Practices on any three different days throughout the research. Visits on Sundays and public holidays was not allowed due to limited staff presence. Researcher made site visits at specific times, specifically during morning hours between 9-11 am and the corresponding afternoon hours between 2-4 pm on the same day, ensuring a comprehensive evaluation of the areas.

**Segregation, Collection & Treatment:** Any facility that deals with biomedical waste must take precautions to ensure its scientific and safe management, including the following: mutilation, disinfection, handling, storage, segregation, disposal & transportation. Biomedical waste can be reduced and managed more efficiently by segregation (separate) and identification. Color-coded bins are ideal for distinguishing between different types of biological waste. To comply with the Biomedical Waste (handling and management) Rules 2016, this must be separated into containers/bags at the time of generation.<sup>12</sup>

---

<sup>12</sup> "S Kumar et al., *Bio-medical waste disposal in India: From paper to practice, what has been effected*, 12 INDIAN J. HEAL. SCI. BIOMED. RES. 202 (2019)."

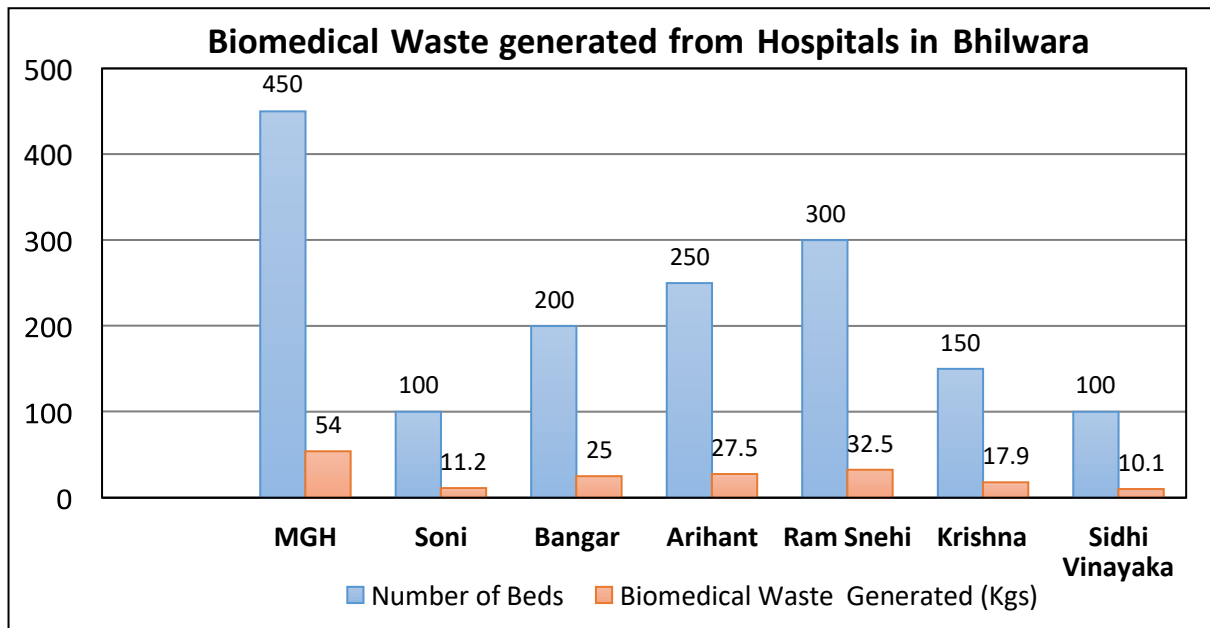
A custom checklist was used to record the relevant information at the point of waste production, and it covered a wide range of topics related to BMW management.

At the point of origin, four primary tasks are completed: (i) putting out four separate garbage cans in different colours (white, yellow, red, and blue) and lining them with garbage bags of the same colours; sorting trash in such garbage bags i.e., Yellow Category waste is typically treated and disposed of using several common methods, including plasma pyrolysis, incineration or deep-burial; To treat and dispose of Red Category waste, commonly used methods include chemical disinfection, microwaving and autoclaving; White Category waste is typically subjected to shredding & sterilization, followed by either burial & disinfection within a pit made of concrete, encapsulation or foundry recycling; Blue glass Category wastage is typically washed-out, sterilized, & then recycled. Otherwise, the Black bins are for common waste such as used paper, medicine packaging, plastic, uneaten food, etc. The collection and treatment done was recorded.

### **III. RESULTS**

**Waste Generated from hospitals:** It was observed that the biomedical waste generated was deepened on the type of activities performed in each hospital. Both the General and Medical waste was generated from each hospital was surveyed. The amount of non-hazardous and hazardous bio medical waste generated was between 80-90% and 10-20%, respectively. It was observed that about 440-470 g/bed/day of medical waste was produced from the patients admitted in ICU and other wards. However, waste generated from operation theatre and corona isolation wards was between 575-630 and 700-750 g/bed/day, respectively. The Biomedical waste generated greatly differed as per the number of beds occupied in all the hospitals surveyed (Fig 1). The highest waste was produced from MGH hospital (54 kg/day) which was followed by Ram Snehi (32.7 kg/day), Arihant (27.7 kg/day) and Banger (25 kg/day) hospital just behind it in numbers. All the beds were not occupied at the time when the survey was done in the hospitals.

**Fig 1. Biomedical waste generation from Hospitals in Bhilwara**



**Respondent from the hospital:** There were a total of 175 healthcare workers who responded to question asked on biomedical waste.

**Table 1. Demographic response of the Respondents from Government and Private Hospitals**

Demographic	Variables	Government	Private	Total
	Doctors	20	33	53
	Nurses	40	39	79
<b>Laboratory</b>				
	Quality management	2	5	7
	X Ray Technician	3	4	7
	Cleaner	6	14	20
	Administration	4	5	9
	Total	75	100	175

The highest percentage (79%) of nurses took part in this interview and questionnaire followed



by doctors (53%). Table 2. shows that about 55.5% of the respondents agree about biomedical waste being segregated. This group mostly compromise of doctors and nurses. However, about 21 % of the respondents disagree to the segregation and the remaining 23 % remained neutral in this regard.

**Table 2. Perception for Biomedical Waste Segregation**

	N	%
Strongly Disagree	7	4
Disagree	30	17.1
Neutral	41	23.4
Agree	52	29.7
Strongly Agree	45	25.8
Total	175 Respondents	100 %

In regard to the training, it was recorded that about 61 % of the respondents mostly doctors and nurses were trained about the Bio Medical Waste Management Rules, and they are either trained internally by Quality Control Unit of each hospital or as in case of Banger Hospital the training is conducted by ICA Institute. In a separate observation in regard to waste segregation about 67 respondents from both Government and private Hospitals said that the cleaning staff segregate the biomedical waste (Table 3). However, 62 respondents said that the waste is stored in a separate storage place in hospital and about 92 respondents said that the containers are not identified.

**Table 3. Medical waste Segregation in Government and Private hospitals**

Segregation Practice	Variables	Government	Private	Total
Who Segregate Medical Waste	Medical Staff	15	21	36
	Cleaning Staff	25	42	67
	Don't Know	35	37	72

	Total	75	100	175
Place of Segregation	At the beginning near the source	21	32	53
	Waste storage Place in Hospital	27	35	62
	Don't Know	27	33	60
	Total	75	100	175
Are Container identified and distinguished	Yes	25	35	60
	No	40	52	92
	Don't Know	10	13	23
	Total	75	100	175
Are waste sacks Fastened Properly	Sometimes	17	26	43
	Rarely	18	19	37
	No	9	16	25
	Don't Know	31	39	70
	Total	75	100	175

**Bio Medical Waste Disposal:** The segregated waste generated in each hospital were being transported to storage area in hospital. From storage area the wastes were being transported for further treatment and safe disposal by the skilled workers of 'Sales promoter Company' which is situated in Ajmer. Everyday morning between 7 am to 10 am the company people make a visit in each of the hospitals in study for disposing the bio medical waste. It was observed that the Sales promotor workers do segregate mixed waste in different colour coded bags at a room provided by the hospital where all biomedical waste is dumped. The sales promotor personals do not open the waste present in yellow bags. The company have incinerator which have a capacity to burn 100 Kgs of biomedical waste every hour. The non- Incinerator technology used by the company includes Microwave irradiation, autoclaving, plasma pyrolysis and chemical methods as described in Bio Medical waste Management Rules for the safe disposal of

biomedical waste. However, the general waste in black bags is carried by Bhilwara Municipal Persons every day.

#### IV. DISCUSSIONS

During the ongoing Pandemic Covid-19 the Central Pollution Control Board added more guidelines to the Biomedical Waste Management Rules 2016 which further strengthens for the safe and scientific disposal of the biomedical waste from Healthcare centers especially hospitals in the current study and these guidelines for segregating the medical waste into various colour coded bins till the final disposal in Common Bio-medical Waste Treatment Facility (CBWTF) are sufficient enough to combat the spread of corona virus if implemented strictly. Because the possibility for contamination and spread is much higher in this garbage than in any other garbage of any kind, it must be properly disposed of. Segregation at the source, followed by proper treatment and secure disposal of all medical waste is crucial.

The present study which included the doctors, nursing staff, laboratory technicians, quality managers & cleaners was important to see how well these rules were being carried out by both Government and private hospitals in Bhilwara, Rajasthan. A total of 175 health care personnel participated in the study. The majority of participants in this study heard about the BMWM Rules but more than half of the respondents (61%) have actually received training in BMW management. As a comparison, a study of 400 healthcare workers (nurses, doctors, students of nursing, and a lab technician) in Medical College of Coimbatore city found that only 1.7% of nurses had adequate knowledge, while the remaining 75% had poor knowledge.<sup>13</sup> The reason for the better training percentage among the healthcare workers in the present study which may be due to COVID pandemic 2020 which augmented the need for Biomedical waste management training for the staff by the Hospital Management as the prime step for controlling the Virus Spread. It should be kept in mind that because of the arousal of a serious life threatening situation the need felt for such training is not ethical. The trainings regarding BMWM rules should be made compulsory and periodically be given to all the staff. Moreover, in the present study it was observed that training was given only for Doctors, Nurses and lab technicians. However, the housekeeping staff, cleaning staffs and low- grade medical staff were not given any training. This may be because of high cost towards the training and these staff once trained leave for a

---

<sup>13</sup> “Vetrivel Chezian Sengodan & K H Amruth, *Knowledge attitude and practice study on biomedical waste management among health care professionals and paramedical students in a Tertiary Care Government Hospital in South India*, 3 INT. J. ENVIRON. HEALTH ENG. 12 (2014).”

better earnings. However, whatever the reason might be there is a need to train and protect these essential workers as well to get a complete safe and secure environment.<sup>14</sup> It was further observed that the greater amount of biomedical waste to the tune of 700-750 g/bed was collected in all the hospitals from the corona isolation wards compared to Intensive care units where 450-470 g/bed/day waste was generated. This waste production was almost similar to studies carried by Srivastav in a 650 bedded government medical college in Jhansi where the generated waste was 500 g/bed/day.<sup>15</sup> Similar results were observed in a study carried on 15 hospitals in Nanjing, China showing an average of 680 g/bed/day of medical waste is generated (range, 500-800 g/bed/day).<sup>16</sup> However, in a similar study carried in a 660 bedded tertiary hospital at Rohilkhand, Uttar Pradesh the mean waste generated was 1.32 kgs/bed/day.<sup>17</sup> However, in separate research done tertiary care hospital with 1800 beds, located in Mumbai, India's largest metropolis, the bio medical waste generated was 2.7 kgs/day which is much higher than what we observed in our studies on hospitals in Bhilwara [16].

This is because of the healthcare workers were tasking precaution not to generate unnecessary waste which is often seen in many hospitals. Proper precautions were taken while using PPE kits as there was severe shortage in many other parts of our country. It must be noted that unnecessary generation of more biomedical waste will create more problems for its safe disposal. Also, in the present study it was found that about 55.5 % of the healthcare workers who strongly believe in the importance of Biomedical waste segregation especially during the COVID 19 pandemic as compared to 21 % respondent mostly untrained who disagreed to waste segregation due to ignorance. It was further observed that these healthcare workers comprised mostly doctor and nurses working either in corona wards, operation theatre or ICU and especially those who were aged took waste segregation as a responsibility for self and for other's safety. Another reason for taking extra precautions might be due to increased fear and tension among healthcare workers who are working as frontline warriors fighting in hard times for saving lives. It must be noted that the hospital carries major attitudinal and behavioral

---

<sup>14</sup> "Nikhil Srivastav & Payal Hathi, *The precarious condition of hospital cleaning staff*, THE HINDU, 2020, <https://www.thehindu.com/opinion/op-ed/the-precarious-condition-of-hospital-cleaning-staff/article31975421.ece>."

<sup>15</sup> "Srivastav Shalini, Mahajan Harsh & B P Mathur, *Evaluation of bio-medical waste management practices in a government medical college and hospital*, 3 NATL. J. COMMUNITY MED. 80 (2012)."

<sup>16</sup> "Zhang Yong et al., *Medical waste management in China: A case study of Nanjing*, 29 WASTE MANAG. 1376 (2009)."

<sup>17</sup> "Arun Singh et al., *Evaluation of bio-medical waste management practices in a tertiary care hospital of Rohilkhand region in Uttar Pradesh, India*, 3 INT. J. MED. SCI. PUBLIC HEAL. 1187 (2014)."

components when pertaining to biomedical waste segregation. The findings of the literature review indicate a lack of adequate knowledge, attitude, and practices regarding the handling of biomedical waste amongst employees. It was recommended that immediate action be taken to provide comprehensive training and education to all staff members, with the aim of promoting the adoption of efficient waste management practices.<sup>18</sup> About 54.3% respondent found it hard to put waste in correct coloured container. This may be attributed to irregular practice or lack of correct knowledge. It may also be due to very hectic burden on healthcare workers due to shortage of staff. It is often observed that the health care workers are drained completely due to extra hours of work. They hardly get time or given a holiday due to pandemic situation. Many of them even are not allowed to go to homes and they are compelled to stay back for carrying out responsibilities. Often the healthcare workers are seen in stressful condition or lack of time which often leads to an unstable mind where in it gets difficult to properly think what to separate in which colour coded container. Apart from this the people attached with the patients throw general waste into these coded containers which are kept for biomedical waste. So very often the biomedical waste generated by hospitals is the mixed type of waste. Further it was observed that a separate room was kept to store the biomedical waste in all the Hospitals which was in accordance to BMWM 2016 rules. The biomedical waste stored at storage house was disposed by a contractor company. This created another problem of negligence towards biomedical waste segregation at source. They simply over looked these important aspects with this attitude that if the disposal of waste is outsourced to a company it is his responsibility to do its safe disposal because he is paid for this job. Hence, this attitude from the hospital in regard to waste disposal at source came as a complaint from the outsourcing company. So now it became his responsibility to segregate the waste at the room provided for them and then carry the hospital waste in different colour coded bags for its safe disposal at their unit at Ajmer city. This attitude makes it very clear that the biomedical waste segregation at source was not done properly as per the norms laid down in BMWM 2016 Rules. Simply to say this is that knowledge gained was not put into practice. A significant favourable result of the current investigation was the implementation of electrically powered needle cutting instruments by hospitals to sever needles and nozzles (hubs) of single-use syringes. Additionally, plastic tubing was sliced using blades and one percent bleaching solution was utilised for decontaminating

---

<sup>18</sup> “Sushma Rudraswamy, Naganandini Sampath & Nagabhushana Doggalli, *Staff's attitude regarding hospital waste management in the dental college hospitals of Bangalore city, India*, 16 INDIAN J. OCCUP. ENVIRON. MED. 75 (2012).”

materials. The study revealed that the technically competent employees demonstrated a superior understanding of the separation of waste and the colour coding system for bags, that is a critical aspect of waste management. In contrast, the sanitary staff exhibited a comparatively lower level of knowledge in this area. Low level of knowledge is mainly attributed to poor training facilities and also to relatively low educational level of the sanitary staff. Knowledge, attitudes and practices toward biomedical waste management were better among the nurses and doctors than the other cadre of staff. For a successful segregation of biomedical waste, the management, Quality assurance team and the training staff need to put more efforts to see that the rules laid in BMW Rules 2016 are followed strictly.

## **V. RECOMMENDATIONS**

1. Training should be provided not only to doctors and nurses but also to the housekeeping, sanitary and cleaning staff.
2. Bio-medical waste (Management & Handling) rules, 2016 and changes thereto require that every medical facility that produce such trash adhere carefully to the laws governing its separation, handling procedure and color coding.
3. Records of waste generation, treatment and disposal should be maintained properly by the hospital.

\*\*\*\*\*