

VANI SANSTHA

To find the Bio Medical Waste problems and its proper disposal methods in PHC
Kapura Maluka, Block Bayana, Bharatpur

By Ishan Dwivedi

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VANI SANSTHA

Head Office: 126, Mahaveer Nagar-Y, 80 Feet Road, Near AVM School, Sanganer, Jaipur, Rajasthan-302029. **Phone & Fax:** 0141-2730212, **Cell:** +91-9414322708, +91-8209317910
E-mail: vanisansthan@gmail.com, sansthavani@gmail **Website:** www.vanisansthan.org

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Ishan Dwivedi a student of MBA (Rural Management) of The IIHMR University Jaipur, Rajasthan has successfully completed his 2 month summer internship (from 3rd May to 2nd July 2021) long internship with Vani Sanstha, Jaipur at Kapurmulaka PHC, Bayana block, Bharatpur district.

During the period of his internship program with us, he was found punctual, hardworking and sincere.

We wish him every success in life.


Chief Executive Officer
Vani Sanstha

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C-O-N-T-E-N-T

Serial No.	Subject	Page No.
1	Introduction	2-3
2	Question Set	3-6
3	Background of research Area	6
4	Background of PHC Kapura Maluka	6-7
5	PHC wise Comparison with PHC Ramana, Varanasi	7-8
6	Findings	8
7	Sample Size and Data Collection	8-9
8	Conclusion and Recommendations	9
9	Limitations of the study	10
10	References	10

I. Introduction

The twentieth century witnessed the fast doubling of public health centers in urban as well as in rural areas, dictated by the needs of the expanding population, producing large quantities of garbage and biomedical waste each day from wards and OPDs which affect the health of the people and environment.

The PHCs generally provides short term and long-term medical care consisting of diagnostic, delivery services which ultimately produce biomedical wastes. With the advent of the 21 century and the increased utilization of disposable materials that have been implemented to reduce the rates of infectious diseases, it is of utmost importance to manage hazardous biomedical waste in order to avert consequences in the form of morbidity and mortality. Medical services foundations which are liable for the protected consideration of the populace are delivering enormous amount of trash and biomedical waste every day from wards, center rooms and so forth. Proper management of biomedical waste is essential to maintain hygiene, aesthetics, cleanliness and control of environmental pollution. With the growth of hospitals and health care centers in response to rapid population growth, the problem of safe handling and disposal of biomedical wastes also increased. The 20th century witnessed the rapid mushrooming of hospitals in public and private sectors in urban as well as in rural areas, dictated by the needs of the expanding population. Notwithstanding, biomedical waste is the normal wellspring of numerous transferable illnesses including HIV and Hepatitis-B and C, which is a significant concern. And unfortunately, the management of biomedical waste is still in its infancy stage.

There is a lot of confusion among the generators, operators, decision makers and the general community about the safe management of bio-medical waste. The reason may be due to the lack of awareness. The ministry of Environment and Forest of India has notified bio-medical waste (Management and Handling) Rules in the year 1998 (which was further amended in 2016). According to which, "Bio-medical waste means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animal or in research activities pertaining thereto or in the production or testing of biological and including all categories of waste". Though the waste produced by PHCs seems to be vary in quantity, it is felt that even the smallest unit of infectious material can spread the diseases faster in the rural area when compared to urban area due to non-availability and poor facilities related to disposal of waste such as drainage, water supply, etc. Therefore, it is necessary to find out the existing practice of biomedical waste management in PHCs. And Here I am researching on the PHC Kapur Mulaka, Block Bayana, Bharatpur.

II. Background of Research Area

PHC Kapoor Maluka village is in the rural area of Bayana Block in Bharatpur district in Rajasthan State. According to Census 2011 information the location code or village code of Kapoor Malooka village is 075171. Kapoor Malooka village is located in Bayana Tehsil of Bharatpur district in Rajasthan, India. It is situated 20km away from sub-district headquarter Bayana and 65km away from district headquarter Bharatpur. As per 2009 stats, Kapoor Malooka village is also a gram panchayat. The total geographical area of village is 498 hectares. Kapoor Malooka has a total population of 1,278 people. There are about 215 houses in Kapoor Malooka village. As per 2019 stats, Kapoor Malooka villages comes under Bayana assembly & Bharatpur parliamentary constituency. Bayana is nearest town to Kapoor Malooka which is approximately 20km away.

III. Background of the PHC Kapura Maluka

Before discussing about the background of PHC Kapura Maluka, let's go through with the term PHC.

(PHC) Primary Health Centre, sometimes referred to as public health centers, are state-owned rural health care facilities in India. They are single-physician clinics usually with facilities for minor surgeries. They are part of the government-funded public health system in India and are the most basic units of this system. As on 31 March 2019 there are 30,045 PHCs in India in which 24,855 are in rural areas and 5,190 are in urban areas.

In general, Primary health center is installed in an area consisting of 30,000 population and in tribal areas they are installed on 20000 population. Moreover, it covers 25 villages and acts as contact point between village community and the medical officer. Its functions can be further classified as TYPE A & TYPE B.

- **Type A-** They manage 20 deliveries per month.
- **Type B-** They manage more than 20 deliveries per month.

For these deliveries government provides few medicines which are of-course not treated properly, which further leads to serious problem in newborn babies and old age people near hospitals (PHCs).

PHC Kapura Maluka is located in the area where overall population is approximately 1500, which is being dealt with one medical officer and 16 other health care workers. Having conversation with one of the staff, it came into light that this PHC runs on the PPP model, Public Private Partnership model (PPP), it is collaborative efforts between private and public sectors, with clearly defined partnership structures, shared objectives and specified performance indicators for delivery of a set of health services in a stipulated period.

As in reality, the Rural Health services provided by Government Hospitals are always underused due to the non-availability of doctors, absence of motivated and geared health staff and unavailability of services to serve the rural population. In fact, almost 79% of the Indian population use out of pocket expenses for availing of health facilities from private sectors. Considering this as a problem, The National Health Policy (NPP) 2002 and National Health Mission (NHM) 2005 have increased the cooperation between public and the private sectors to achieve this ambitious task set out by the year 2010 in health services.

PPPs in PHC can facilitate access to health care services, especially in remote areas. Governments should consider long-term plans and sustainable policies to start PPPs in PHC and should not ignore local needs and context. Partnership, Integration and Convergence are the need of the hour for imparting the best quality health care based on values of efficiency, effectiveness and equity. PPP in rural health care centers can deliver services to people at the right place, at the right time and at affordable costs.

Basically, this PHC works under: -

- Provision of medical care
- Maternal-child health including family planning

- Safe water supply and basic sanitation
- Prevention and control of locally endemic diseases
- Collection and reporting of vital statistics
- National health programmes
- Referral services
- Basic laboratory workers

PHC-wise comparison to understand the basic differences between PHC Kapura Maluka, Bayana and PHC Ramana, Pindra, Varanasi

- With the same methodology and tools used above, I reached out to PHC in my hometown, that is, Varanasi named PHC Ramana which is in the village Harahua of block Pindra, district Varanasi. According to Census 2011 information the location code or village code of Harhua village is 208836. Harhua village is in Pindra Tehsil of Varanasi district in Uttar Pradesh, India. It is situated 15km away from sub-district headquarter Pindra and 25km away from district headquarter Varanasi. As per 2009 stats, Harahua is the gram panchayat of Harhua village. The total geographical area of village is 47.07 hectares. Harhua has a total population of 2,221 peoples. There are about 350 houses in Harhua village in present.
- Likewise, PHC Kapura Maluka, PHC Ramana is also based on PPP model which gives the opportunity to deal with the basic problems without being interfered by government officials.

IV.Objectives: To assess the existing Biomedical Waste Management (BMWM) practices of Primary Health Centre (PHC) Kapura Maluka, Block Bayana, Bharatpur and to find the possible solutions to reach the break-even between medicines provided by government and its waste.

V.Methodology: Descriptive survey with secondary method, with 1 week data, was used to find out the existing practice of Biomedical Waste Management in Primary Health Centre Kapura Maluka. The study was conducted in Rajasthan in Bharatpur district in rural area of Bayana. An observational with appropriate approach, and involving questionnaires, was conducted during 14-20 June 2021. The existing system of BMW management, funds, resources, etc., knowledge and practices about BMW were assessed amongst health-care workers. Further, the collected data were analyzed and interpreted

VI.Sample size and data collection

Online mode has been adopted to achieve the study objectives. Firstly, the discussion has been held with the Deputy Director of PHC, Batra Sir, and Anuj Parmar Sir to understand existing practice, provision of human resources and training, the supply of materials and disposal system regarding BMW in the PHC.

The information was obtained from the local staff members (Manoj Sir & Virendra Sir) through a pre-designed questionnaire with both open and close-ended questions. Various ways were used to collect data related to the existing system of BMW, training of health-care staff, funds for BMW, resources and process of BMW, segregation, and final treatment of BMW. The data collection for the study was conducted during 20 to 29 June 2021.

VII. Current scenario of Bio-Medical Waste Management System in PHC Kapura Maluka, Bayana, Bharatpur

Please answer these questions for respective dates.

- How many patients visited on the given dates?

Date	OPD	IPD	Male	Female
June 14	44	2	27	17
June 15	44	12	19	25
June 16	44	0	27	17
June 17	47	4	30	17
June 18	50	4	31	19
June 19	40	4	22	18
June 20	20	0	12	8

- How much waste is generated in medical store in a week?

	Number of Packages Used	Waste Generated (kg)
Referred Week	15	5 Kg

- How medicine Cartons is managed?

Answer: - They are burnt and buried in the pit

- (a) While check-up process how many injections were used?

Date	Injections Used
June 14	2
June 15	12
June 16	0
June 17	4
June 18	4
June 19	4
June 20	0

(b) How do you manage these wastes?

Answer:- They are burnt and buried in pit

(c) What is the quantity of the waste generated in the referred week?

Waste Generated (kg)

Referred Week	~ 10 kg
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- How many child deliveries took place?

Date	Number of Deliveries
Referred Week	2

- What waste is generated during child Deliveries?

Answer:- Tissues, Injections, Bottles

- How do you manage the waste generated in the delivery room?

Answer:- They are burnt and buried in pit

- What is the quantity of waste generated and managed in delivery room?

	Waste Generated (kg)	Waste Managed (kg)
Referred Week	10kg	0

- What is the number of Dustbins per room?

Answer: - 2 dustbin

- What kind of waste is generated in dressing room and how you manage them?

Answer: - 4 to 5 Syringe, Cottons and they are burnt and buried in pit.

- How much waste is generated in dressing room?

	Waste Generated (kg)
Referred Week	2.8 Kg

- How much lab waste is generated?

	Waste Generated (kg)
Referred Week	3kg

- How you manage lab waste? What kind of waste is generated in labs?

Answer:- They are burnt and buried in pit. Lab waste consist of Chemical waste, catalyst waste, glass, plastics & rubber.

- What is the Collection methods of waste in your PHC?

Answer:- General

- How much funding is allocated by PHC to manage waste?

Answer: - NA

- Do the staffs get training/workshop for managing wastes?

Yes
No

- Do the PHC uses Color Coded Dustbins?

Yes	Red & Yellow
No	

- How much waste is collected by PHC per day?

Date	Waste Collected (Kg)
Referred Week	12 kg

- Is there a proper record about the quantity of waste generated and their discharging measures?

Yes
No

- Do the PHC ever took initiative to minimize the quantity of waste generation in PHC?

Yes	Letter to Block Chief MO
No	

- Do the PHC provide personal protective equipment such as gloves, apron, mask etc. to their workers?

Yes
No

- In this pandemic period, how do you dispose off masks, apron, PPE kit and etc.?

Answer:- They are burnt and buried in pit

- If the Lab Technicians are aware of BIO Medical Waste management & handling rules 1998?

Yes
No

- Any major or innovative steps taken by PHC to handle the disposal methods?

Answer: - No

- Do you segregate BMW according to different categories?

Yes
No

- How do you manage the waste from OPD?

Answer:- They are burnt and buried in pit

What's the quantity of waste generation?

Date	Waste Generated (kg)
Referred Week	4 Kg

- What's the quantity of the waste generated in IPD?

Date	Waste Generated (kg)
Referred Week	3.5 Kg

- Do the patients follow Covid Guidelines?

Yes	50%
No	

- Are the Dustbins properly segregated according to Covid Guidelines?

Yes
No

- While X-Rays what type of waste is generated? How do you manage them?

Answer: - NA

VIII. Findings

In the study, many of them in PHC Kapura Maluka have not received any training pertaining to Bio Medical Waste. The results showed a poor level of knowledge and awareness of BMW management amongst health-care personnel. But the upper management knew the categorization of BMW and its disposal in proper color-coded bins/bags. But still it seems that health care workers were good at theoretical knowledge such as rules, legislation, and public-health importance of BMW management. Further, the attitude of health-care staffs was favorable about BMW. According to the data retrieved, there is no proper disposing methods in the PHC as all the wastes are burnt and buried in pit hole.

Referring to the dates/weeks, it shows that all the waste that is released by the PHC in the form of rubber, glass, plastics, paper, cotton, tissues, and other chemicals are disposed of (as a whole) in the pit hole just by after burning it. When asked for any initiative taken by the PHC regarding waste disposal, then they replied that they have been contacting their BCMO (Block Chief Medical Officer) via letters to find the solutions regarding disposal methods. Also, it shows bad health of maintaining records. However, the staffs and health care workers were provided with protective equipment such as masks, apron, PPE kits and keeping two dustbins per room.

As the awareness and practice regarding BMW management were poor across different health-care staffs, there is a need to conduct periodic training and regular maintenance of records.

On the other hand, PHC Ramana conducts a small workshop every six months (in July and December) in which one BMW Activist hosts and talks about segregation and waste management methods. Due to which many upper as well as lower health care workers are theoretically aware of bio medical waste management system. Be it, Color coded bins or covid 19 bins/bags. But on the contrary, since workshops/trainings are given to the workers, it was

noticed that dustbins were not used properly as all the wastes were thrown away in the free land area and wasn't burn or buried instead for 2-3 days. Until and unless, the *Safaikarmi* comes to clean/collect the wastes to dispose of. PHC has partnership with local BMW company who comes and collects all the wastes every 2-3 days with proper segregation methods.

IX. Conclusion and Recommendations

Training of health staff regarding BMW is very crucial in handling and management of BMW. In the selected PHC, the training status of health-care staff on BMW management was not so good, as such there is no regular training on the topic and somehow very few staff have been received hands-on training. The data collected through telephone calls with health-care staff revealed that majority of the staff have not received any of the formal training for the management BMW.

As the management of BMW is required significant funds for training, procurement of resources, outsourcing with common treatment facility (CTF), etc., hence, proper financial flow is particularly important. However, staff stated that as such there is no separate financial budget for the same.

Awareness of correct categorization of BMW and its proper color-coding disposal according to BMW rules, was poor amongst public health-care personnel. Although, doctors were observed to be good in theoretical knowledge such as rules, legislation, and public health importance of proper waste management than in the more practical aspects of BMW management.

The need for comprehensive training programs about BMW management including-segregation, in-house transportation, storage of waste in color bins and final disposal for treatment, etc., for all health staff is highly recommended. *For instance, PHC Ramana has partnership with local BMW treatment company and for that they allocate certain amount of funds, just to dispose of the wastes.* Biomedical waste rules should be implemented strictly. Establish proper supervision on following protocols, guidelines regarding BMW in each facility. Steps should be taken for supply of PPE Kits, masks and covid protective equipment and its proper use by sanitary staff. Ensure the availability of necessary resources i.e., trolley, color-coded bins, and bags, display of charts on the dustbins, etc. Further, ensuring the timely removal of BMW from facility center.

While PHC Ramana can conduct a training program not just for theoretical purpose but also on the practical grounds. No doubt, PHC has partnered with some local treatment plant, but they need to work internally with hands on training to their staffs. Because the condition of bins in PHC Ramana wasn't up to the mark.

X. Limitations of the study

The study was conducted in health facility of Kapura Maluka, Bharatpur via telephonic/secondary data due to lockdown in the state of Rajasthan. Hence, the results may not represent

up to the mark analysis report of public health facility and health-care staffs as mentioned in the report.

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