

**Summer Training at
National Health Mission,
Gujrat**

Strategies for Bio-Medical Waste Management and Sustainability

**By
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**Under the guidance of
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**MBA Hospital and Health Management
2015-2017**



**The IIHMR University, Jaipur
2016**

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Dr. Hemangini Solanki**, student of MBA Hospital and Health Management from the IIHMR University, Jaipur has undergone summer training at NHM, Gujarat in Bharuch District from 4th April to 31st May, 2016.

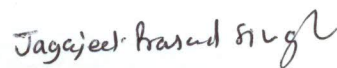
The Candidate has successfully carried out the study designated to her during summer training and her approach to the study has been sincere, scientific & analytical.

The Internship is in fulfilment of the course requirements.

I wish her all success in all her future endeavours.



Col. (Dr.) Ashok Kaushik
Dean (Academics & Student Affairs)
The IIHMR University, Jaipur



Dr. J.P. Singh
Associate Professor
The IIHMR University, Jaipur

+++++

To whomsoever it may be concern

This is to certify that Dr.Hemangini Solanki, has successfully completed her 2 months (4th April'16 to 31st May'16) summer training/internship under NHM Gujarat at District Health Society, District Panchayat, Bharuch. In her training, major activity included project on BMW - management & sustainability and acquaintance with the process of the Health system and various programs executed under it.

- She was found very active & enthusiastic to participate in all other programs such as JananiSishuSuruakshaKaryakaram, JananiSurakshayojana, RBSK, BalSakhaYojana, RMNCH +A, indradhanush etc. and gained immense knowledge for the same.
- She was found curious and participated in field visits such as mamta divas at Aaganwadis, CMTCs and other PHCs (esp. for BMW management).
- She was found anxious to know more and more about the system and also absorbed the knowledge of NHM E- portals such HMIS and E-Mamta.

During the period, she was exposed to all different types of programs and the way of implementation at grass root level. She was found punctual, hardworking and inquisitive. We wish her a very successful career and life ahead.


Chief District Health Officer
District Panchayat, Bharuch

ACKNOWLEDGEMENTS

On completing my project, I would like to dedicate a word of thanks to list of people/organization that helped me to complete my work. I would start with my institution (IIHMR, University) to providing me summer training as a part of my curricular so that I feel enriched with these learning experiences. Next is the organization that has given me opportunity to work with them. So, special thanks to Dr commissioner of National Health Mission (NHM), Gujarat.

As I worked under NHM, Gujarat in Bharuch district, I am highly indebted to Chief District Health Officer (Dr. V.S. Tripathi) for his guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

My special thanks to Additional District Health Officer (Dr.) and Quality Assurance Medical Officer (Dr. Amar Minz) for their support and guidance whenever I needed.

As a team of District Health panchayat, Bharuch all the staff members were very helpful and provided me a very healthy and comfortable environment to learn and grow. So, I also would like to thanks District Data Manager (Mr. Vijay) & District Programme co-ordinator (Dr. Kavita).

To the staff at District Hospital, Community Health Centre, Primary Health Centre, Sub-Centre and block office in Bharuch district my special thanks for providing a supporting and friendly atmosphere to learn.

My report might be incomplete without the guidance of my mentor (Mr. J.P. Singh Sir), with my heartiest gratitude and lot of respect I would like to thank you sir for all your support and guidance during my summer training.

Little support causes a big difference so I would like to Acknowledged my teachers Ms. Neetu Purohit madam & Ms. Seema Mehta madam for their guidance and support.

At the last, I would like to express my gratitude towards my parents for being my back bone. My thanks and appreciations also go to my colleagues and friends in developing the project and people who have willingly helped me out with their abilities.

HEMAMNGINI SOLANKI

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ACRONYMS/ABBREVIATIONS

- ASHA- Accredited Social Health Activist
- ARSH- Adolescent Reproductive and Sexual Health
- AYUSH- Ayurvedic, Yoga, Unani, Siddha and Homeopathy Systems of Health
- BMW- Bio-Medical Waste
- BMWM- Bio-Medical Waste Management
- CHC- Community Health Centre
- DH- District Hospital
- HCW- Health Care Worker
- IDSP- Integrated Disease Surveillance Project
- M.O.- Medical Officer
- NA- Not Applicable
- NABL- National Accreditation Board for Testing & Calibration Laboratories
- NAOCL- Sodium Hypo Chloride
- NDCP- National Disease Control Programme
- NHM- National Health Mission
- NHRM- National Rural Health Mission
- NUHM- National Urban Health Mission
- NLEP- National Leprosy Eradication
- NPCB- National Programme for Control of Blindness
- NPPCD- National Programme for Prevention & Control of Deafness
- NPCDCS- National Programme for Prevention & Control of Cancer, Diabetes, Cardiovascular disease & Stroke
- NVBDCP- National Vector Born Disease Control Programme
- PHC- Primary Health Centre
- PMCC- Performance Monitoring & control center
- RCH- Reproductive & Child Health
- RI- Routine Immunization
- RMNCH+A- Reproductive, Maternal, Neonatal & Child & Adolescent Health

- RNTCP- Revised National Tuberculosis Control Programme
- SC- Sub Centre
- SQIP- State Quality Improvement Programme
- THO- Taluka Health Officer
- WHO- World Health Organization



National Health Mission

State Health Society, Health and Family Welfare Department,
Government of Gujarat

OBSERVATIONAL LEARNING

CHAPTER: 1

INTRODUCTION

NHM, Gujarat

About NHM, NHM in India was launched on 12th April, 2005. It was conceived mainly to provide effective health care to the rural population, especially the disadvantaged groups including women and children, by improving access, enabling community ownership and demand for services, strengthening public health systems for efficient service delivery, enhancing equity and accountability and promoting decentralisation. It seeks to provide accessible, affordable and quality health care to the rural population, especially the vulnerable sections.

NHM is the combination of national programmes, namely, the Reproductive and Child Health II project, (RCH-II) the National Disease Control Programmes and the Integrated Disease Surveillance Project. NRHM also enable the mainstreaming of Ayurvedic, Yoga, Unani, Siddha and Homeopathy Systems of Health (AYUSH).

National Health Mission, state health society Gujarat has created wide network of health and medical care facilities in the state to provide primary, secondary and tertiary health care at the door step of every citizen of Gujarat with prime focus on BPL families, marginalized population and weaker sections in rural and urban slum areas.

Department also takes appropriate actions to create adequate educational facilities for medical and paramedical manpower in the state of Gujarat.

The Union Cabinet vide its decision dated 1st May 2013 has approved the launch of National Urban Health Mission (NUHM) as a Sub-mission of an over-arching National Health Mission (NHM), with National Health Mission (NHM) being the other Sub-mission of National Health Mission.

NHM has 6 financing components

- NHM-RCH Flexipool
- NUHM Flexipool
- Flexible pool for Communicable disease
- Flexible pool for Non communicable disease including Injury and Trauma
- Infrastructure Maintenance
- Family Welfare Central Sector component

National Health Mission (NHM) encompassing two Sub-Missions, National Health Mission (NHM) and National Urban Health Mission (NUHM). It is both flexible and dynamic and is intended to guide States towards ensuring the achievement of universal access to health care through strengthening of health systems, institutions and capabilities.

VISION OF NHM:-

"Attainment of Universal Access to Equitable, Affordable and Quality health care services, accountable and responsive to people's needs, with effective inter-sectoral convergent action to address the wider social determinants of health".

- Safeguard the health of the poor, vulnerable and disadvantaged, and move towards a right based approach to health through entitlements and service guarantees
- Strengthen public health systems as a basis for universal access and social protection against the rising costs of health care.
- Build environment of trust between people and providers of health services.
- Empower community to become active participants in the process of attainment of highest possible levels of health.

- Institutionalize transparency and accountability in all processes and mechanisms.
- Improve efficiency to optimize use of available resources.

The NHM shall be a major instrument of financing and support to the states to strengthen public health systems and health care delivery. This financing to the state will be based on the state's Programme Implementation Plan (PIP). The PIP shall have following parts:

- **Part I:** NHM RCH Flexipool
- **Part II:** NUHM Flexipool,
- **Part III:** Flexible Pool for Communicable Diseases
- **Part IV:** Flexible Pool for Non Communicable Diseases, Injury and Trauma
- **Part V:** Infrastructure Maintenance

❖ **PROGRAMME under NHM Gujarat-**

1) RMNCH+A- programme under it are as below

- Maternal Health
- Child Health
- Nutrition
- Family Planning
- Safe Abortions
- Urban RCH
- Rural Health
- ARSH (Adolescent Reproductive and Sexual Health)
- RBSK (Rashtriya Bal Swasthya Karyakram)
- Training & Capacity Building /SIHFW
- Programme Management
- Vulnerable Groups

2) NUHM

3) Immunisation programme having a 5 major components including.

- Vaccination
- Monitoring of vaccination coverage
- Surveillance of vaccine preventable diseases

- Reporting of adverse event following immunization and
- Training

4) NDCPs include: -

In Communicable- NVBDCP, RNTCP, IDSP, NLEP

In Non-communicable- National programme for Health Care of Elderly people,
NPPCD, NPCB, NPCDCS

❖ **SCHEMES under NHM Gujarat-**

- Mukhyamantri Amarutum
- Rogi Kalyan Samiti
- Bal Sakha Yojna
- Janani Suraksha Yojna
- Various schemes for Immunization

❖ **INITIATIVE of NHM Gujarat-**

- SQIP
- Sickel Cell Anaemia Control Programme
- ASHA Sammelan
- E- Mamata
- Mission BalamSukham
- MamtaDoli
- PMCC

Bharuch district is located in the Southern part of Gujarat, near the Gulf of Khambhat in Arabian Sea. In 1997, Bharuch district is bifurcated into Two parts (1) Narmada District and (2) Bharuch District. The newly formed Bharuch District has 5253.30 Sq.km. area and situated between 21.30' to 22.00' North Latitude and 72.45' to 73.15' East Longitude. Bharuch District comes under Seismic Zone- III. Total population of Bharuch district is 1,551,019 according to census 2011. As my project in NHM Gujarat in Bharuch district, different public health facilities in Bharuch district are described in Table No.1

Table 1: List of Total Number of Public Health Facility in Bharuch District

Name	Total Number
District Hospital	1
Sub District Hospital	0
CHCs	8
PHCs	38
SCs	237

MODE OF DATA COLLECTION-

Direct observational learning and data collected in check list provided by the IIHMR University.

CHAPTER: 2 **GENERAL FINDINGS ON LEARNING**

➤ Department wise-

1. District Panchayat Office- Co-ordination gap between district and taluka level officer, as there was a meeting at 3:00pm and documents/information required for meeting was demanded by district officer at 1:00pm on same day. Salary is inequitable with respect to the ranks of the staff & less lucrative like other government job because it is on contractual basis.
2. District Hospital- Posts that are vacant should be filled first for smooth management in all departments.
Low level of accountability found in staff as it was observed that lot of time was wasted by staff on trifle matter instead of focusing on patients.
3. CHC- Lack of manpower while having proper infrastructure and equipments making the facility inefficient like there was an operation theater in building, all equipments present for surgery but the absence of the surgeon at the facility made all resources of no use. Nursing staff from one CHC deputed to other CHC which are about 70km apart. So, I found it difficult for nursing staff to manage his/her duty at both CHC with full enthusiasm. Reference only to DH from any CHC of that particular district even when the DH of the neighbouring district is nearer for high risk patient through 108 Ambulance is difficult and even time consuming.
4. PHC- Security level issue especially for 24*7 PHC as there was no safety of staff against violence and cases of such violence increased. Data manager cum accountant both the work managed by a single person, which was found difficult especially for PHCs where workload is more as compared to the others. Staffs at PHCs or SCs level change, transferred frequently, making it difficult for rest of the staff to form a team. When there was an immunization programme at Block level, MOs of all PHCs of that particular block participate in that and no medical officer at PHCs making PHCs inefficient in functioning.

5. SC-
6. Block Office- As there was lot of money spent on infrastructure for development of building, providing all necessary equipments but with little use of that due to lack of man power. As Valia, a wonderful new building with only 3 staff present there was a single THO who also had responsibility of other (Netrang) block, finance officer & accountant since long time. There was a meeting of all MOs at block level at 2:00pm-4:00pm and no MO was going back to his/her job after completion of the meeting.

BMW MANAGEMENT AND SUSTAINABILITY

CHAPTER:1

INTRODUCTION

Bio-Medical Waste (also popularly called as Health Care Waste) is a by-product of healthcare and includes sharps, non-sharps, blood, body parts, chemicals, pharmaceuticals, medical devices, and radio-active materials. Generation of BMW in sizable quantities, depending upon the number of the patient and the nature of the activities, is an unavoidable side effect of health care delivery which primarily and predominantly takes within its fold processes like diagnosis, treatment, surgical intervention, post-operative care, rehabilitative care, clinical research, clinical trials, etc. Inadequate and poor handling and management of this waste exposes health care providers, waste handlers, patients and the citizens of community in general to infection and serious fatal consequences as well. BMW has sharply increased in term of quantity in the recent past due to increase in population, number and size of health care facilities as well as use of disposable medical product.

The BMW (Management and handling) Rules, was declared on 27th July 1998 under provision of Environment Act 1986 which apply to all persons who generate, collect, receive, store, transport, treat, dispose or handle BMW in any form.

According to WHO, Classification of the BMW mainly in to two parts: first non-hazardous (75-90 per cent) and second is hazardous (10-25 per cent) which is one of major concern. Hazardous again is subdivided in to two parts, first is infectious (15-18 per cent) which includes plastic disposal, liquid waste, non-sharp and sharp and the second is other hazardous (5-7 per cent) which includes radioactive waste, discarded glass, pressurized container, chemical waste, cytotoxic waste and incinerated ash.

The greatest risk of BMW comes from the infectious and sharp components of the waste because HCW and people associated with handling waste are often get needle prick injuries and are at risk of various infections given in table no.1. Furthermore, improper BMW can lead to environmental pollution (water, air, soil and etc), unpleasant smells, can foster the growth and multiplication of insects, rodents, and worms, and may lead to transmission of diseases (Abdulla et al., 2008).

The present study tries to assess the current status of the knowledge, attitude and practice of the health care personnel at different public health facilities (i.e. DH, CHCs, PHCs & SCs) in Bharuch district of Gujarat. In BMW treatment in the public health

facilities of Bharuch district is done by Globe Bio-care Limited, in collaboration with district health society.

LITERATURE REVIEW

BMW is the forming approximately 1 to 2 percent of the total municipal solid waste stream. Some of these wastes are potential threat to the human health and environment. The content of infectious waste in the total waste generated in a hospital may be about 20 percent only, but it has potential to infect whole of hospital waste if not segregated or transported in a prescribed manner. An inappropriate treatment and disposal can spread infectious diseases. Any effective BMW plan should give careful attention to waste generation, segregation, storage and collection, transportation and treatment and final disposal of BMW [1]. At the global level, 18 to 64 percent of healthcare institution are reported to have unsatisfactory BMW facilities, predictors include lack of awareness, insufficient resources and poor disposal mechanisms [2].

It has been emphasized that for the proper disposal of BMW only introduction of laws is not sufficient. The awareness of these laws among the general public as well as development of these policies and enforcement that respect those laws is essential [3]. In the process of giving health care to the community lots of BMW is generated which can be proven hazardous to who so ever comes in contact [4]. Health care workers have an important opportunity to manage the environmental effects of their practice. Their efforts may seem small, but each step builds a base of sound behavior and thinking that are necessary for the success of the whole [5].

The management of biomedical waste is still in its infancy all over the world. There is a lot of confusion among the generators, operators, decision makers and the general community about the safe management of biomedical waste. Biomedical waste management is a special case wherein the hazards and risks exist not just for the generators and operators but also for the general community[6]

TABLE: 2 COLOUR CODING BIO-MEDICAL WASTE (MANAGEMENT & HANDLING) RULES, 1998

Color coding	Type of container	Waste categories	Treatment option
Yellow 	Plastic bags	Cat.1 Human Anatomical waste, Cat.2 Animal waste, Cat.3 Microbiological waste, Cat.6 solid waste	Incineration/ deep burial
Red 	Plastic bags/disinfected container	Cat.3 Microbiological waste, Cat.6 Solid waste, Cat.7 solid waste (waste IV tube, catheter, etc)	Autoclaving/ microwaving/ chemical treatment & destruction.
Blue/white 	Plastic bag/ puncture proof container	Cat.4 waste sharp, Cat.7 plastic disposable tubing	Autoclaving/ microwaving/ chemical treatment & destruction
Black 	Plastic bag/ puncture proof container	Cat.5 Discarded medicine, Cat.9 Incinerated ash, Cat.10 Chemical waste	Disposable in secured land filled.

(Source- Guideline for Biomedical waste management by Government of Gujarat)

Quantum of hospital waste generated is 1-2kgs/bed/day in developing countries and 5-6kgs/bed/day in developed countries [7].

Problem statement: -

What is the current situation of Biomedical Waste management in public health facilities in Bharuch district in Gujarat?

❖ CHAPTER:2

METHODOLOGY

2.1 Objective: -

- ✓ To assess current status of knowledge, attitude and practice of public health care professional towards BMW M in Bharuch district, Gujarat.
- ✓ To identify the existing lacunae and problems in BMW and sustainability.

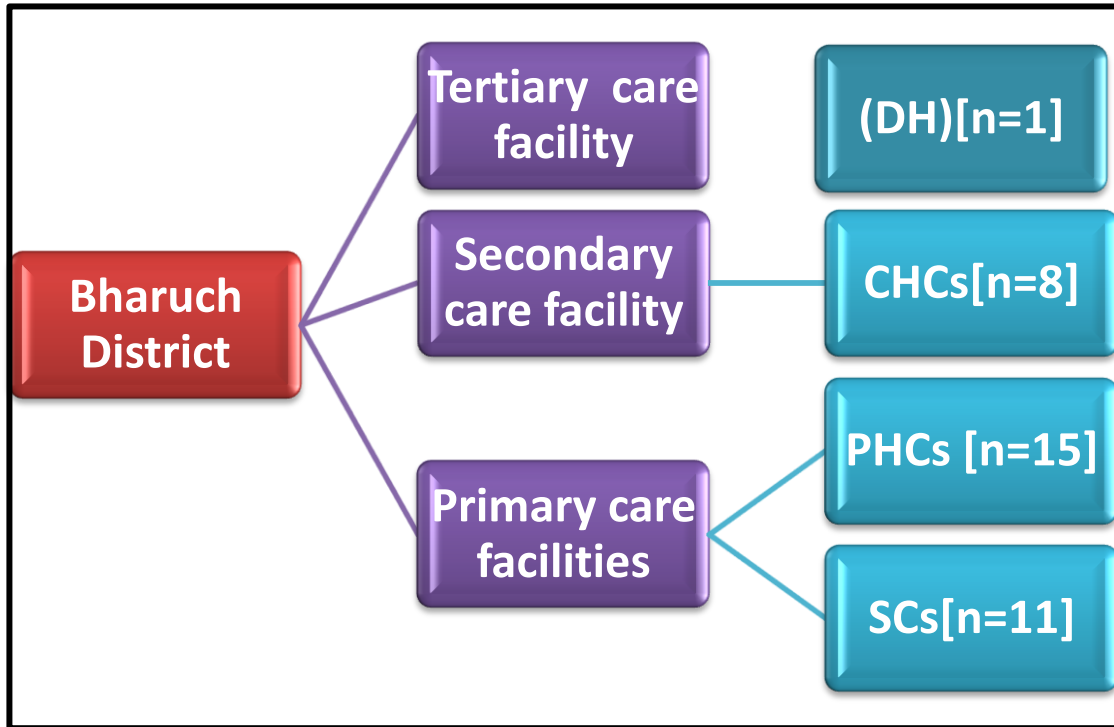
2.2 Research Planning:-

Research method: cross sectional descriptive method with direct observation of BMW system in different public health facilities in Bharuch district, Gujarat. Sample size: Included DH, all CHC, 2 PHC from each taluka and 2SC from each taluka. A purposive/feasible, non-probability sampling technique.

A questionnaire was prepared that included questions regarding number of inpatient day, outpatient day, number of beds(total), awareness about BMW (management and handling) rule, 1998, categories of BMW produced, waste segregation, collection,, labeling, transport and disposal and personal resources. The view and suggestions of working personal over existing conditions/methods of BMW in public health facilities in Bharuch district, Gujarat. Reference for preparation of assessment tool taken from WHO BMW assessment tool, NABL's BMW assessment tool and guidance from Additional District Health Officer madam (Dr. Shalini Bhatia) Quality medical officer sir (Dr. Amar Minz) of Bharuch district. Questionnaire will be filled by taking interview individually from each individual personnel.

Total 198 persons will be taken which included [20+63+72+18+7=180+18(10% non-response) = 198 persons]. **District hospital**= 20 persons [includes Civil surgeon (1), Medical officer (4), Pathologist (1), Laboratory technician (3), Sanitary inspector (1), Staff nurses (5) of different wards like OT, labor room, surgical wards, general ward and emergency ward., Waste handlers (class 4) (4), Gynecologist (1)]. **Each**

CHC = 7 persons * 9 = 63 persons [includes Superintendent (1), MO (1), Staff nurse (2), Lab tech (1), Waste handler (2)]. **Each PHC** = 4 persons* 18 = 72 persons [includes MO (1), Staff nurse (1), Lab tech (1), Waste handler (1)]. From **each SC** a single person(ANM) = 18 cases. THO from different Taluka also included that is 7



in number.

Scheme of health facility identification for assessment for BMWM in Bharuch district, Gujarat.

2.3 Limitations of the study-

It was not possible to collect 198 cases in the above data collection plan due to vacant post of employees, employees on leave, employees in a camp which assign to them or other reason. As there was limited time for study it was difficult for me to visit the same facility twice except district hospital, Bharuch. So, lack of man power is considered as main limitation at government facility.

CHAPTER: 3

RESULTS AND DISCUSSION

3.1 Data Analysis-

The data gathered from the survey was checked for consistency & completeness, then complied with a computer and statistical analysis was carried out using Microsoft Excel 2007 software. Percentage, average and frequencies were used and presented.

3.2 Result and discussion-

The present study has covered total 121 persons which includes 17 from district hospital (large facility), 42 from CHC (medium facility), 47 from PHC (small facility), 11 from SC (very small facility), 4 block office.

In each strata selection of health care facilities was done by non-random sampling technique.

Average non-response to the each question was about 2.5 per cent.

The study involved different categories of health workers at public healthcare facilities in Bharuch district who were supposed to deal with BMW directly, as 24 per cent respondent were doctors, 40 per cent nursing staff, 21 per cent cleaners and others 15 per cent of respondents were distributed among laboratory technician, THO and dresser who comes in the contact with BMW in one way or other.

Table 3 : Patient care areas & departments for observation during Bio- medical waste management assessment.

Type of health facilities	Patient care area observed	Department
Tertiary care facilities (DH)	• General ward, • Injection room, • Dressing room, • Labor room, • Laboratory	• surgery, medicine, gynecology. • Pediatric • Pathology
Secondary care facilities (CHCs)	• General ward, • Injection room, • Dressing room, • Labor room, • Laboratory	• surgery, medicine, gynecology. • Pediatric • Pathology
Primary care facilities include	• General ward • Injection room • Labor room • Laboratory	General medicine
PHCs		
SCs	Outdoor patient department	_____

BMW storage & treatment facilities were visited at each facility, wherever these exist.

In apex/ large government hospital (DH), out of total 17 persons who responded to the questionnaire, only 3 (18 per cent) employee were aware of BMW (management & handling) Rules, 1998, no one attended special training program for BMW.

Table 4: Analysis of Knowledge among health care personnel of large government hospital (DH)

Domain for knowledge	Health care personnel with responses			
	Doctor(%) (n=5)	Nursing staff(%) (n=8)	Laboratory staff (n=6)	Cleaning staff(%) (n=4)
BMW regulation Act, 1998	40	0		0
PPEs	75	63		25
Different name of PPEs	25	67		NR-25
Specific color system in facility	75	75		75
Max. bag filling according to Rule	50	25		10

In medium government facility (CHC) as all CHC covered in Bharuch district, out of total 42 persons who responded to the questionnaire, only 7 (17 per cent) employees were aware of biomedical waste (management & handling) Rules, 1998, only 10 (24 per cent) employees attended special training program for BMW.

Table 5 : analysis of Knowledge among health care personnel of medium government facilities (CHCs)

Domain for knowledge	Health care personnel with responses			
	Doctor(%) (n=11)	Nursing staff(%) (n=14)	Laboratory staff(%) (n=6)	Cleaning staff(%) (n=11)

BMW regulation Act, 1998	27	13 NR-7	20	9
PPEs	91	85	80	18
Different name of PPEs	45 NR-18	13 NR-7	40 NR-20	50
Specific color system in facility	91	100	100	73 NR-18
Max. bag filling according to Rule	50	33 NR-7	20	9

In small government facility (PHC) as 15 PHCs covered, out of total 47 persons who responded to the questionnaire, only 12 (26 per cent) employees were aware of Biomedical Waste (management & handling) Rules, 1998, only 8 (17 per cent) employees attended special training program for BMW.

Table 6: Analysis of Knowledge among health care personnel of small government facilities (PHCs)

Domain for knowledge	Health care personnel with responses			
	Doctor (%) (n=13)	Nursing staff (%) (n=17)	Laboratory staff (%) (n=5)	Cleaning staff (%) (n=11)
BMW regulation Act, 1998	69	13	0	0
PPEs	100	69	60	10

			NR-20	NR-10
Different name of PPEs	23	27	33	0
Specific color system in facility	92	88	80	50 NR-20
Max. bag filling according to Rule	50	38 NR-13	40	10

In very small government facility (SC) as 11SCs covered, out of total 11 persons who responded to the questionnaire, only 1 (9.09%) employee was aware of Biomedical Waste (management & handling) Rules, 1998, only 2 (18 per cent) employees attended special training program for BMWM.

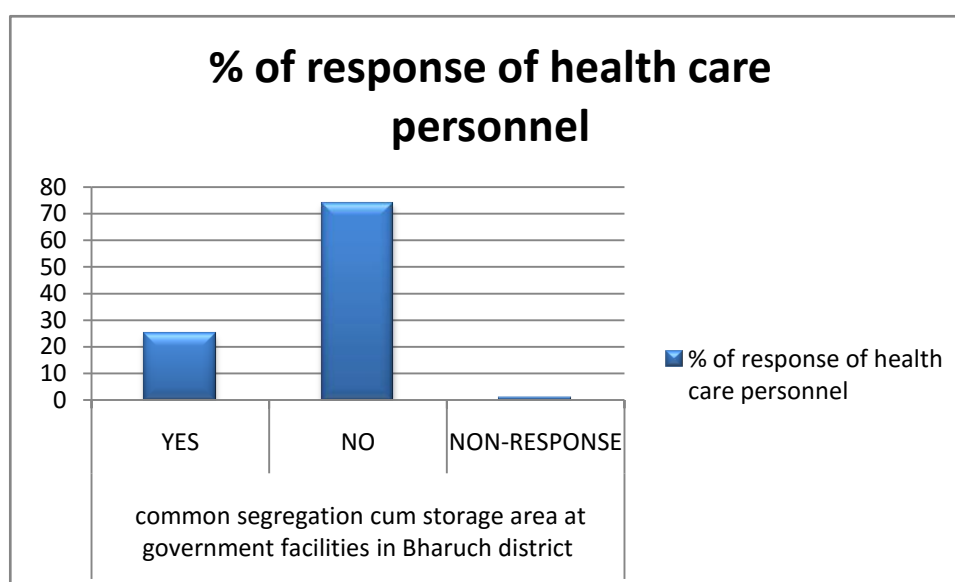
Table 7: Analysis of Knowledge among health care personnel of very small government facilities (SCs)

Domain for knowledge	Health care personnel with responses			
	Doctor (%)	Nursing staff (%) (n=11)	Laboratory staff (%)	Cleaning staff (%)
BMW regulation Act, 1998	NA	9	NA	NA
PPEs	NA	45	NA	NA
Different name of PPEs	NA	0	NA	NA

Specific color system in facility	NA	91	NA	NA
Max. bag filling according to Rule	NA	9	NA	NA

As in all facilities who said had training for BMW out of 21 persons only 3 (14 per cent) employees had got training more than once.

There were 35 facilities covered from that all facilities out of 121 persons only 39 (32 per cent) employees said that they having a BMW management committee in their facility which did waste audit and regular monitoring of BMW management on regular basis.



In an above graph showing the per cent of responses in facilities for common segregation cum storage area.

Table 8: Training of Waste Handlers and Particulars Regarding Risk Involved in BMW Waste Handling.

Sr. no	Training & other particulars	DH	CHCs	PHCs	SCs
		(%)	(%)	(%)	(%)
		(n=17)	(n=42)	(n=47)	(n=11)

1	Received special training in BMW management	0	24	26	27
2	Aware of risk involved in BMW handling	41	62	58	100
3	Is there any BMW management committee in your institution?	12	48	30	27

Table 9 : Practice of BMW among health care personnel of all government facility

Practice domains	Different public Health care facilities with responses			
	DH (%) (n=17)	CHCs (%) (n=42)	PHCs (%) (n=47)	SCs (%) (n=11)
Is bins lined by proper color bags?	59	91 NR-2	75 NR-2	82
Is bag size according to bins ?	76	52 NR-2	32 NR-4	55

Have you taken any vaccination against specific infection for prevention?	36	31	17 NR-6	9
Is disposal of BMW done in specific color bag?	71	69	53	46
Recap the used needle	53	33 NR-2	47 NR-4	46
Filled bag tied & labeled at source	65	33	28	36
Blood spillage	6	5	9	0
Mercury spillage	0	5	0	0
Frequency of cleaning of bin	25	0	9	

Almost each facility having sufficient resources for BMWM but they don't have adequate knowledge to utilize it efficiently. Not even a single facility having transportation trolley for BMW transportation. For practicing the BMWM almost all facility having a gap found in between knowledge and practice. On attitude towards BMWM shows that all the staff was feel responsible for BMWM so, it can be considered as positive attitude.

CHAPTER: 4

RECOMMENDATIONS

The present study outlines the gap between BMW Rules and inadequate state of execution and awareness in practice. As per the study, regular & special training for BMW handling and management is necessary for better BMW management and sustainability. Filling of the vacant post especially for class 4 is also necessary for better BMW. Segregation cum storage area is must at every facility from large to small. A proper BMW management committee was missing at almost all facility. Monitoring of BMW & handling by BMW Management committee's member on regular basis with meeting monthly basis for discussing issue related BMW. Biomedical wastes should be transported within the hospital or other facility by means of wheeled trolleys, containers or carts that are not used for any other purpose and meet the following specifications: easy to load and unload; no sharp edges that could damage waste bags or containers during loading and unloading and easy to clean. There is an inadequate & inefficient segregation, collection, transportation, & storage of BMW. Vaccination should be given to all the staff (class one to class four) at all the facilities (from DH to SCs) like hepatitis-b, T.T mainly at the cost of government. PPEs should be used by all waste handlers while handling the BMW.

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Annexure-A

BMW Management Assessment Tool

Case No.

Introduction-

- 1) facility name-
- 2) Block name-

Q.1) Which type of health center is it?

- a) large (district hospital)
- b) medium (chc)
- c) small (phc)
- d) very small (sc)

Q.2) How many beds do you have?

Q.3) What is average bed occupancy/ average inpatients day per month?

Q.4) How many outpatients come each day on average?

Q.5) Do you know about BMW regulation Act 1998?

- a.) Yes
- b.) No

Q.6) Have you ever attended a training for BMW management?

- a) Yes
- b.) No

Q.7) If yes, how many time you attended a BMW training?

- a) Monthly
- b) Yearly
- c) Once

Q.8) Is there any BMW management committee in your institution?

- a) Yes
- b) No

Q.9) If yes, Is BMW Waste Audit done by committee?

- a) Monthly b) Yearly c) Never

Q.10) Are sufficient equipment for proper BMW management available at center?

- a) Not available
b) Partly available
c) Widely available
d) Available and properly used

Q.11) Name different equipment used for BMW management?

Q.12) Do you have a specific color coding system?

- a) Yes b) No

Q.13) Are infectious waste container covered?

- a) Yes b) No

Q.14) If yes, properly fitted to all bins?

- a) Not at all
b) Sometime proper
c) Sometime improper
d) Always proper

Q.15) Is bins lined by proper color bags?

- a) Yes b) No

Q.16) Is bag size according to bins?

- a) Yes b) No

Q.17) For what reasons are there shortages, if any?

- a) No shortage
b) Budget
c) Logistic
d) Other (specify)

Q.18) Is any legal responsibility associated with BMW mangement ?

- a) Yes b) No

Q.19) Are you satisfied with present level of hygiene?

- a) Yes b) No

Q.20) Have you taken any vaccination against specific infection for prevention?

- a) Yes b) No

Q.21) If yes, name few taken by you

Q.22) Do you know the personal protective equipments for BMW handlers?

- a) Yes b) No

Q.23) If yes, name them

Q.24) Is Anatomical Infectious Waste (Placenta, body parts) and cotton disposed in which container?

- a) Blue b)Yellow c) Black

Q.25) Infected plastic, syringes, Gauze piece dressing, gloves, masks, blood bags are disposed in which container?

- a)Yellow b)Green c)Red

Q.26) Are the filled bags tied and labelled at the source?

- a) Yes b) No

Q.27) Do you recap the used needles?

- a) Yes b) No

Q.28) In which container the needles and sharps after cutting disposed off?

- a) White b) Red c) Yellow

Q.29) Is there a common segregation cum storage area for BMW?

- a) Yes b) No

Q.30) For Doctors/ THO,

A. Do you conduct any training for BMW management for staff?

- a) Yes b) No

B. If yes, how frequently is training conducted?

- a) Monthly b) Yearly c) Once

C. Are you aware of your institution's BMW management practice?

- a) Daily basis b) Monthly basis c) Sometimes d) Never

D. Is BMW management is part of your duty?

- a) Yes b) No

E. For THO, Do you visited your institution for BMW?

- a) Yes b) No

Q.31) For Nursing staff & laboratory technician,

A. Do you know the effect of improper handling of BMW?

- a) Yes b) no

B. If yes, name some common infection caused by improper handling?

C. Disposable of infected material from HIV, Hepatitis C & B patients are treated differently?

- a) Yes b) No

D. Do you know to prepare hypochloride solution of different concentration?

E. When is hypochloride solution is prepared?

- a) Daily b) Alternate day c) Weekly d) Don't know

F. Is segregation done at point of waste generation?

- a) Yes b) No

G. Do you have idea about different color coding of bags for BMW ?

- a) Partially b) Totally c) None

- H. Is there is different procedure for sharp handling ?
a) Yes b) No
- I. If yes, name some procedure
- J. How do you clean blood spillage?
- K. How do you clean mercury spillage?
- L. How much max.bag must be filled according to rule ?
a) 100% b) 50% c) 75% d) 25%
- M. Is used gloves reused?
a) Yes b) no
- Q.32) For cleaning staff,
- A. Which types of precautions do you taken while handling BMW?,
name few.
- B. Do you wear all PPE given to you for BMW handling ?
- | | Yes | No |
|----------------------|--------------------------|--------------------------|
| a) Heavy duty Gloves | ☐ | ☐ |
| b) Mask | ☐ | ☐ |
| c) Gum boot | ☐ | ☐ |
| d) Apron | ☐ | ☐ |
| e) Cap | ☐ | ☐ |
| f) goggles | ☐ | ☐ |
- C. If no, give reason for same
- D. Do you know the effect of improper handling of BMW ?
a) Yes b) no
- E. How much bag must be filled according to rule?

- a) 100% b) 50% c) 75% d) 25%

F. Does ever general waste mixed with BMW ?

- a) Frequently b) Rarely c) Never

G. How frequently you clean the bin ?

- a) Daily b) Alternate day c) Weekly d) Don't know

H. Is there any trolley you used for transportation of waste ?

- a) Yes b) No

Q.33) Do you have place of segregation area in ward ?

- a) Yes b) No

Q.34) Do you have the common segregation area of the institution?

- a) Yes b) No

Q.35) According to you, how can the better BMW managed ?

My observations list:

	Yes	No
1) Bins placed properly in proper wards	☐	☐
2) Bins covered properly in different wards	☐	☐
3) PPE used by the BMW handlers	☐	☐
4) At Common segregation weight recorded by whom ?		
5) BMW register maintained by whom?		
6) Who will be present at time of hand over of BMW to final disposal?		
7) Is BMW collector van come on time ?		
8) Is BMW collector van comes regularly?		
9) Is segregation area present at each ward?		
10) Is segregation area present at every floor?		

