ALL INDIA INSTITUTE OF MEDICAL SCIENCES, NEW DELHI

MANUAL FOR BIO MEDICAL WASTE MANAGEMENT
AIIMS Bio-medical Waste Management Manual

Dedication:
For sure, to AIIMS we dedicate this document, but to those as well, who serve and breath life into the monument:

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  Department of Hospital Administration
Director’s Message

It is indeed a matter of great collective pride for the staff at All India Institute of Medical Sciences, New Delhi that we are the first tertiary Hospital to be provided the authorization under the Bio-medical Waste Management Rules 2016 as well as Consent to Operate under Air and Water Act. The rules describe the Director as the Occupier; for an Institution as large as AIIMS, the role brings with it the responsibility and accountability to implement the mandatory rules effectively.

I find this manual, timely and essential. Though rules define practices, their implementation is always a challenge and institutional adaptability and adjustment needs a ready guide. The Department of Hospital Administration has effectively and efficiently implemented all the aspects of the rules, the authorization being the validation. The AIIMS manual for Bio Medical Waste management completes the picture.

I am aware of challenges that Bio-medical Waste Management entails; need for constant reiteration, turnover of staff, to a few, a fringe element in clinical care, covert ill effects of poor practices and a large hospital with varied cadre of staff are all a reality. Thus, against such a backdrop, I am confident that this manual will be very handy. I am delighted by the ready-reckoner-like feel of the manual, with illustrations, diagrams and fact bubbles. I am also happy to observe that all cadre of staff have been addressed since segregation involves all the staff at AIIMS.

AIIMS through its Clean & Green AIIMS campaign and guideline booklet has always been a torch bearer of Sanitation. The awards and accolades have helped it to strive for even greater heights. Bio medical waste management is an important key result area of the campaign and I am sure that this manual is another feather in its already crowded cap.
From the Desk of the Medical Superintendent:

A Foreword on an afterthought:

The Bio-medical Waste Management Rules 2016 has been a long-awaited updated version of the 1998 rules; the mushrooming of health care industry within the milieu of the country coinciding with the drift towards greater environmental consciousness and greater accountability. The new rules bring in several significant changes, primarily at reducing errors (by decreasing the number of categories from 10 to 4), increasing the accountability of both the occupier and the common Bio Medical Waste treatment facility operator and bringing the concept of reduce, recycle & reuse to the fore. Some of the significant changes include phasing out of chlorinated material, training, immunization, bar-coding of waste, pre-treatment of laboratory waste and stricter norms for treatment and disposal.

Occupational safety finds its rightful place in these rules as also accountability through bar-coding systems, web-site based reporting and a well-defined section of Occupier & CBTFW operators’ responsibilities. A much-needed thrust to environmental protection has been provided through a section that elucidate such standards in disposal through incinerators and autoclaves to be followed by the common Bio Medical Waste treatment and disposal facility operators.

In a significant development, the consent to operate has been linked to the Bio Medical Waste Rules thereby viewing the healthcare organization as a single entity from the prospective of the pollution control board. However, this makes procedures such as authorization, renewals and consent to operate a bit more challenging with Bio Medical Waste linked to functioning of the sewage treatment plant, effluent treatment facilities as well as the operation of equipment such as diesel generator and boilers. Due importance has been given laboratory waste by mandating onsite treatment. Cytotoxic waste, an important issue in the content versus container debate, has also been addressed.

This is what makes this manual a contemporary requirement to a hospital as vast as AIIMS. It is with a certain sense of pride that I wish to state that AIIMS is the first public hospital in India to have obtained its consent to operate and the renewal of Bio-medical Waste authorization under the new rules.

The paradigm shift brought about by the new rules makes this manual an important ready reckoner for all the health care workers of the hospital. Indeed, this manual is designed in a format to help all cadre of Healthcare workers at AIIMS.
The manual thus progresses from a topical view of AIIMS from the perspective of BMW mgmt to the salient features of the rules and its implication to AIIMS. The next chapter deals with the subtler processes and procedures unique to Bio medical waste management AIIMS. An illustrative guide is an easy way for a lay reader to understand the most important part of the rules-segregation. The section for sanitation staff is drafted appropriately, in Hindi. Finally, the last chapter delineates clearly the roles and responsibilities of each cadre of healthcare worker, including sanitation staff, infection control nurses and Hospital Administrators.

Bio Medical Waste is often considered as an afterthought, an overlooked by product of healthcare, physically and metaphorically relegated to the sidelines. However, I am confident that this manual will significantly contribute to the greater visibility brought about by the new rules by assigning bio medical waste management its rightful place, as an important facet of effective patient care management with far reaching healthcare and legal implications.

As the Medical Superintendent of a premier healthcare organisation, I am aware that appropriate Bio Medical Waste management practice need constant reiteration to move it from the realm of practice to the zone of a habit. I am confident that this Bio Medical Waste manual would be an effective tool to that end.

Dr. D.K. Sharma
Medical Superintendent
Drafting the acknowledgement section of any document is often a risky proposition, fraught with the danger of excluding the names of people whose contribution has been significant and deserves a mention. Thus a disclaimer is an order.

However, a manual of this nature would remain incomplete without a note of gratitude. The authors are indebted to the Director, AIIMS for lending his guiding hand in implementation of the rules. We are indeed delighted that this manual is being released by the Director, AIIMS in the capacity of the occupier, and we hope the manual has shaped up to his expectations.

The Medical Superintendent as a key stakeholder in implementation of the Bio-medical Waste Management Rules 2016 had first conceived the idea of a manual as a handbook for all AIIMS staff. Thus we are grateful to him for not only sowing the seeds of the idea in our minds, but also helping us nurture it. Personifying an ideal boss, he has allowed ideas to be generated and empowered his subordinates to implement the rules and positively influencing its outcome, this manual.

The faculty and residents of Department of Hospital Administration have always been at the forefront of effective implementation of practices. Needless to say, this manual is a culmination of their efforts in implementation of the rules. To that end, this manual, is a documented testimony to the correct practices that are already in place. These practice are thus a reflection of the efforts of the department.

Thus, Bio Medical Waste management practices have been honed, corrected, reiterated, improved and implemented over several years of hard work. Therefore, gratitude should also be expressed to the Officer In-Charges of Bio-medical Waste Management in the past for passing on a better and more refined baton to their successors. We would like to express our gratitude to Officers – in-charge Bio-medical Waste Management in the years gone by, Prof. Sidhartha Satpathy, Prof. Sanjay Arya and Dr. Amit Lathwal for having handled Bio Medical Waste management adroitly at some of the crucial stages of implementation resulting in the current status of Bio Medical Waste management culminating in this manual.

We thank the infection control committee and in particular, the infection control nurses who are an important stakeholder of the implementation structure and have made valuable contribution to this manual. Finally, we also like to express our gratitude to all the healthcare workers at AIIMS who have made this manual a reality and to whom this manual is dedicated as an intended reading and handy companion.
FIRST AMONG EQUALS!!
AllIMS, New Delhi is the first public hospital in India to be authorized under the Bio-medical Waste Management Rules-2016!
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Chapter I:

The Bio-medical Waste Management manual: A sneak preview

“A sneak preview should be like a good book review, generating enough curiosity to read the book without giving the plot away!”

A manual on Bio-medical Waste Management must tread the fine path of not becoming a text book while imparting knowledge in a ready-to-use customized manner and manage to keep the reader engaged. Thus, not all portions are relevant for all cadre of staff, though staff such as residents of Deptt. of Hospital Admn., and Infections control nurses must be aware of all the aspects on the manual. A brief preview will aid the reader:-

Chapter II: Introduction

The first Chapter provides a brief introduction to AIIMS and gives global perspective on Bio-medical Waste and its burden. An organogram from the perspective of BMW mgmt. provides a visual understanding the reporting channel under the Occupier—the AIIMS Director. The important aspect of Environmental impact and legal implications of Bio medical waste is briefly touched upon to lay emphasis on these important aspects.

Chapter III: Bio-medical Waste Management rules 2016, salient features and its implication on AIIMS

As the Bio-medical Waste Management rules 2016 are bedrock of correct practices, this chapter enumerates the salient features of rules 2016 and its implication on AIIMS. Thus, clauses such as change in colour, cardboard boxes of glassware, hub cutter, bar coding, lab waste mgmt, and linking of Consent to Operate & Bio-medical Management have a far reaching impact as well as are a challenge in implementation.

Chapter IV: BMW management at AIIMS

This chapter elucidates the Institutional machinery. A illustrative flow diagram of generation to disposal schema intends to provide a snapshot of the system. Laboratory waste management needing onsite treatment is described. The Sewage Treatment Plant is related to both Consent to Operate as well as liquid waste management and the features of STP at AIIMS is briefly described.

Chapter V: Segregation: An illustrative guide

Possibly the most important component in the manual, this entirely illustrative chapter deals exclusively with the biggest challenge of effective Bio medical waste management – segregation, in a simple what—goes—where format.
Chapter VI: जैव चिकित्सा अपशिष्ट प्रबंधन

Bio-medical Waste Management in Hindi, directly addresses an important cadre of staff, the sanitation workers and supervisors.

Chapter VII: Roles and Responsibilities of Stake holders

Though essentially the most important role of most stakeholders including doctors, nurses and technicians is restricted to effective segregation, specific roles a needed to be enumerated. For examples Heads of Department have an important leadership and administrative role, while nurses need to maintain records of quantum of waste collection & needle stick injury, supervision, procurement etc.. They are of course responsible for overall correct practices. Similarly, hospital administrators, Infection Control nurses and Karamcharies have specific roles that need to be elucidated. The section for Karamcharis is in Hindi for their convenience.
Reduce, recycle, reuse; for, one man’s trash is another’s treasure….

Did you know?

- As per the new rules no hospital can establish on-site treatment and disposal facility, if a service of common Bio-medical Waste treatment facility is available within at a distance of 75 kilometer. Thus bio medical waste management at AIIMS is outsourced!

- Using modern technology only 5% of incinerable waste is converted to ash that goes to landfills!

- Infected plastic waste is sterilized and nearly 50% is brought back into circulation after treatment. These are first converted to plastic granule and transformed to newer plastics such as bags!!

- About 60% of sharp waste are melted in furnaces and reused as part of stainless steel products!

- Nearly all glass waste are recycled after treatment and melting in foundries!
Introduction:

AIIMS:- An edifice with a reputation to uphold, its lanes replete stories new and old, a brighter future beckoning post-haste, and not a moment there is to waste

What you can expect to learn from this chapter

- AIIMS, its mission and challenges in Bio-medical Waste Management.
- Hospital Waste mgmt. viewed from a global perspective as a single connected monolith
- The legal angle of Bio-medical Waste Management
- Implications of non compliance
- The institutional organogram from the perspective of Bio-medical Waste Management.

AIIMS: A brief overview

The All India Institute of Medical Sciences, New Delhi established through an act of parliament in 1956 is a premiere medical institution of National importance with a trinity of mission of teaching, research and patient care; the last component initially envisaged to support to the first two. However, over the past half a century of rendering equitable, accessible and affordable healthcare, the unintended brand building has resulted in a substantial tilt towards patient care component.

The Centres with various super-specialities at AIIMS are another adaptive response to the specialization and sub specialisation in medicine and is under the functional and administrative control of the Chief with the Director being the overall Head of the Institute. Likewise, the administrative, functional and operational authority of the AIIMS (main) hospital is vested upon the Medical Superintendent. The various hospital/centers presently in AIIMS are:

1. AIIMS Main Hospital
2. Cardio Thoracic Center
3. Neuro Sciences Center
4. Dr. B.R.Ambedkar Institute Rotary Cancer Hospital
5. Jai Prakash Narayan Apex Trauma Center
6. National Drug De-addiction &Treatment Centre, Ghaziabad
7. Dr. Rajendra Prasad Center for Ophthalmic Sciences
8. Center for Dental Education and Research
AIIMS continues to take rapid strides to cater to a growing and diverse demography. Several specialty blocks, National Cancer Institute, Trauma II projects are on the anvil and are a major step in bridging the gap. There is an essential duality in the nature of AIIMS; at one level, a general hospital for many patients from Delhi and at another, a tertiary care referral hospital for a large section of Indian population. An adaptive change has been a rise in the number of beds from 750 in early 1970s to a total bed capacity of 2412 beds in 2017. The bed occupancy is nearly 90% and about 10,000 patients visit the Out-Patient Department daily. The Emergency wards have around 650 patients visiting it per day. The hospital has nearly 14,000 staff including many outsourced workers. An even larger patient and their attendant clientele thronging its premises raises the footfall to about 50,000 a day. It is evident that such a ‘city unto itself’ is bound to generate enormous hospital waste and effective handling of this bio medical waste is a major challenge to the Hospital administration of the institute.

Hospital/Bio-medical Waste Management: A global perspective

The proper management of Hospital/Healthcare/Biomedical waste has become a topic of enormous concern having global implications and attention. It is of course well known and documented that Hospital waste is a potential health hazard to the health care workers, public, flora and fauna of the area. A 1990 report by the U.S. Agency for Toxic Substances and Disease Registry concluded that biomedical waste from health care settings may pose an injury and exposure risks via occupational contact with medical waste for doctors, nurses, and janitorial, laundry and refuse workers.

Hence, Biomedical waste must be properly managed and disposed off to protect the environment, general public and workers, especially healthcare and sanitation workers who are at risk of exposure to biomedical waste as an occupational hazard. Steps in the management of biomedical waste include generation, accumulation, handling, storage, treatment, transport and disposal.

Bio-medical Waste Management: A Legal Requirement:

The Environment Protection Act 1986, the Bio Medical Waste (Management and Handling) Rules in July 1998, subsequently revised in 2011 and now the “Bio-medical Waste Management Rules, 2016” are an attestation to the commitment of the Govt of India. The law works on a simple “the polluter pays principle”

The responsibility of hospital administrator as regards to proper handling and disposal of Biomedical waste had become a statutory requirement with the promulgation of Government of India (Min of Environment, Forests& climate change) gazette notification no. 460 dated 27 Jul 1998 & notification of the Bio-medical Waste (Management and Handling) Rules in July 1998 & subsequently revised in 2011.”Bio-medical Waste Management Rules, 2016” came into force in supersession of the 1998 rules with gazette notification no. G.S.R. 343(E) dated 28thMarch 2016. The Central Pollution Control Board and the State Pollution Control Committees have the authority to cancel the Consent to Operate and the Authorization of Healthcare Institutions and under the Bio-medical Waste Management Rules 2016 for non-compliant Hospitals. Indeed there have been such instances in India.
It is therefore essential that all officials concerned with the administration of hospitals and other health care echelons take all steps to adhere to the laid down directives to ensure that waste generated is handled without any adverse effect to human health and environment. It is equally important that all medical, dental, nursing officers, other paramedical staff and waste handlers such as safakarmacharis, Hospital attendants & Sanitation attendants be well oriented to the basic requirements of handling and management of biomedical waste. It is with this objective of providing such basic information that this manual is envisaged.

From the ethical perspective, needle stick injury endured by a Healthcare workers due to incorrect Bio medical waste management practices are liable for legal suits besides being ethically incorrect.

Failure to comply with the provisions of the Rules, will attract penal action as per the provisions of the Environment (Protection) Act, 1986, which includes imprisonment for a period of 5 years or a fine of Rs.1 lakh or both.
AIIMS ORGANOGRAM: BIO-MEDICAL WASTE (BMW) MANAGEMENT PERSPECTIVE

- Director
- Chiefs of Centres
- Dy.Dir (Admn.)
- Medical Superintendent
- S.E.
- Infection Control committee
- Addl. M.S.
- Offr. i/C BMW Management
- Sr. Sanitation Officer
- Sanitation Officer
- Infection Control nurses
Did you know?

- According to WHO, nearly 85% of all waste generated by hospitals is general waste

- About 10% is Bio-medical Waste

- And only 5% is other wastes such as radioactive and chemical wastes

- In a large tertiary care hospital such as AIIMS, the Bio medical waste generated is about 1.5kg/bed/day as against 2.8kg/bed/day from a similar sized hospital in USA
Chapter III:

BIO-MEDICAL WASTE MANAGEMENT RULES 2016: Salient features and its implication on AIIMS

“Rules are not necessarily sacred, principles are.”

What you can expect to learn from this chapter

- What is Bio-medical Waste?
- What types of waste do not constitute Bio-medical Waste?
- Features of BMW management Rules 2016 everyone should know
- What are the duties of AIIMS as per BMW management Rules 2016?
- What are the duties of the vendor collecting Bio-medical Waste from AIIMS?
- What records need to be maintained?
- What happens if there is an accident?
- What are the categories of Bio-medical Waste and what goes into what?
- How is liquid waste handled-Sewage Treatment Plants

Definition of Bio-medical Waste: “Bio-medical waste" means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

The Bio-medical Waste Management rules are applicable to all persons who generate, collect, receive, store, transport, treat, dispose, or handle bio medical waste in any form.

Bio-Medical Waste rules 2016 doesn’t apply to the following types of wastes as they are covered under different acts enumerated below:

- Radioactive wastes
- Hazardous chemicals
- Lead acid batteries
- Hazardous wastes
- E-Waste

- Municipal Solid Wastes
- Hazardous microorganisms, genetically engineered microorganisms and cells
The major salient features of BMW Management Rules, 2016 include the following:

(a) The scope of the rules has been expanded to include vaccination camps, blood donation camps, surgical camps or any other healthcare activity;

(b) Phase-out the use of chlorinated plastic bags, gloves and blood bags within two years

(c) Pre-treatment of the laboratory waste, microbiological waste, blood samples and blood bags through disinfection sterilization on-site in the manner as prescribed by WHO or NACO

(d) Provide training to all its health care workers and immunize all health workers regularly;

(e) Establish a Bar-Code System for bags or containers containing bio-medical waste for disposal;
(f) Report major accidents;

(g) Existing incinerators to achieve the standards for retention time in secondary chamber and Dioxin and Furans within two years;

(h) Bio-medical waste has been classified into 4 categories instead of 10 to improve the segregation of waste at source;

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Type of Bag/Container used</th>
<th>Type of Waste</th>
<th>Treatment/Disposal options</th>
</tr>
</thead>
</table>
| Yellow | non-chlorinated plastic bags | a) Human Anatomical Waste  
b) Animal Anatomical Waste  
c) Soiled Waste  
d) Expired or Discarded Medicines  
e) Chemical Waste  
f) Micro, Bio-t and other clinical lab waste  
g) Chemical Liquid Waste | Incineration or Plasma pyrolysis or deep burial* |
| Red | non-chlorinated plastic bags or containers | Contaminated Waste (Recyclable) tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles) and gloves | Autoclaving/microwaving/hydroclaving and then sent for recycling not be sent to landfill |
| White | (Translucent) Puncture, Leak, tamper proof containers | Waste sharps including Metals | Auto or Dry Heat Sterilization followed by shredding or mutiation or encapsulation |
| Blue | Cardboard boxes with blue colored marking | Glassware | Disinfection or autoclaving, microwaving, hydroclaving and then sent for recycling |
(i) Procedure to get authorization simplified. The validity of authorization synchronized with validity of consent orders for Bedded HCFs.

(j) The new rules prescribe more stringent standards for incinerator to reduce the emission of pollutants in environment;

(k) Inclusion of emissions limits for Dioxin and furans;

(l) No occupier shall establish on-site treatment and disposal facility, if a service of common bio-medical waste treatment facility is available at seventy-five kilometers.

(n) Operator of a common bio-medical waste treatment and disposal facility to ensure the timely collection of bio-medical waste from the Health Care Facility and assist the Health Care Facility in conduct of training.

DUTIES OF OCCUPIER:

1. To provide a safe, ventilated and secured location for storage of segregated BMW within premises.

2. Phase out use of chlorinated plastic bags, gloves and blood bags within two years from the date of notification of these rules.

3. Provide training to all its health care workers and others involved in handling of bio medical waste.
4. Immunization against Hepatitis B and tetanus for workers.

5. Establish a Bar-Code System for bags or containers containing bio-medical waste to be sent out of the premises.

**DUTIES OF OPERATOR:**

1. Report major accidents and remedial measures to SPCB

2. Ensure timely collection of BMW from healthcare facilities

3. Handing over of recyclable waste to after treatment by autoclaving and incineration

4. Establish bar coding and GPS for handling within one year
5. Assist health care facilities in training of workers

6. Upgradation of existing incinerators and achievement of standards for secondary chamber

**TREATMENT AND DISPOSAL:**

1. No healthcare facility shall setup onsite BMW treatment facilities if a CBMWTF exists within 75 kms of distance.

**SEGREGATION, PACKING STORAGE AND TRANSPORT:**

1. Bio-medical waste classified into 4 categories based on treatment options.

2. No untreated bio-medical waste shall be kept stored beyond a period of 48 hours

3. If required to store beyond 48 hours, the occupier shall ensure that it affect human health and inform the SPCB with reason.

**AUTHORIZATION:**

1. One time Authorization for Non-bedded HCFs.

2. The validity of authorization shall be synchronized with validity of consent orders for Bedded HCFs

**MONITORING OF IMPLEMENTATION OF THE RULES: ANNUAL REPORT:**

1. Every occupier shall submit an annual report to the prescribed authority by 30th of June every year

2. The prescribed authority shall compile, review, analyze and report to the Central Pollution Control Board (CPCB) by 31st July every year

3. The CPCB shall submit a report on the same to the Ministry of Environment, Forest & climate change by 31st August every year

4. The Annual reports shall be available on the websites of the occupier, State Pollution Control Board (SPCB) and the CPCB
MAINTENANCE OF RECORDS:
1. Records in relation to generation, collection, reception, storage, transportation, treatment and disposal shall be maintained as per rules For 5 years
2. Biomedical waste management website

ACCIDENT REPORTING:
1. In case of major accident-intimate immediately and submit a report within 24 hours

SCHEDULES:
There are 4 schedules (or parts) in the Bio-Medical Waste rules 2016:

Schedule 1: Categorization and Management
Schedule 2: Standards for treatment and disposal of BMW
Schedule 3: Prescribed Authority and duties
Schedule 4: Label of containers, bags and transportation of Bio-Medical waste

**Manual for Bio Medical Waste Management**

**BIOHAZARD**

- **MANAGEMENT OF BIO MEDICAL WASTE**
  - Human & Animal Anatomical Waste (Tissues, Organs, Body Parts, Fetus etc.)
  - Soiled Waste (Dressings, Plaster Casts, Cotton Swabs, Residual/Discarded Blood Bags)
  - Expired or Discarded Medicine (Antibiotics etc.)
  - Chemical Waste (Discarded Reagents, Disinfectants)
  - Discarded Linen, Mattresses & Beddings
  - Pre-Treated Microbiology, Biotechnology & Clinical Lab Waste (Blood Bags, Cultures, Residual Toxins, Dishes & Devices, Microorganism specimen)

- **Cytotoxic Waste**
  (All items Contaminated with Cytotoxic drugs along with glass or plastic ampoules, vials etc.)

- **RECYCLABLE WASTE**
  (Tubings, Plastic Bottles, Intravenous tubes & sets, Catheters, Urine Bags, Syringes without needle, Vaccumainers and Gloves)

- **Waste Sharps Including Metals**
  (Needles, Syringes with fixed Needles, Needles from needle tip cutter or Burner, Scalpels, Blades, Contaminated Sharp objects)

- **GLASSWARE**
  (Contaminated Broken/Discarded Glass, Vials, Ampoules)

- **METALLIC BODY IMPLANTS**

**DESIGNED BY DEPARTMENT OF HOSPITAL ADMINISTRATION, AIIMS AND BIOTIC WASTE SOLUTIONS PVT. LTD.**
## BMW Rules 2016

### SEGREGATION, PACKING STORAGE AND TRANSPORT

<table>
<thead>
<tr>
<th>Description</th>
<th>Implication</th>
</tr>
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<tbody>
<tr>
<td>Bio-medical waste classified into 4 categories based on treatment options</td>
<td>Will improve the segregation of waste at source and channelize proper treatment and disposal.</td>
</tr>
<tr>
<td>instead of 10 categories based on type of waste as per previous rules.</td>
<td></td>
</tr>
<tr>
<td>No untreated bio-medical waste shall be kept stored beyond a period of 48</td>
<td>Reiteration of older rules to ensure HAI is prevented.</td>
</tr>
<tr>
<td>hours</td>
<td></td>
</tr>
<tr>
<td>If required to store beyond 48 hours, the occupier shall ensure that it</td>
<td>Difficulty of obtaining permission within 48 hours is eliminated.</td>
</tr>
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<td>affect human health and inform the SPCB with reason.</td>
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### TREATMENT AND DISPOSAL

<table>
<thead>
<tr>
<th>Description</th>
<th>Implication</th>
</tr>
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<tbody>
<tr>
<td>Pre-treatment of laboratory waste, microbiological waste, blood samples</td>
<td>This is to prevent the possible microbial contamination. Logistical and administrative issues</td>
</tr>
<tr>
<td>and blood bags through disinfection or sterilization on-site in the manner</td>
<td>abound especially if biomedical waste mgmt. is outsourced.</td>
</tr>
<tr>
<td>as prescribed by WHO or NACO</td>
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### AUTHORIZATION

<table>
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<tbody>
<tr>
<td>One-time Authorization for Non-bedded HCFs.</td>
<td>Application and consent can be given together</td>
</tr>
<tr>
<td>The validity of authorization shall be synchronized with validity of</td>
<td>SPCB can make single inspection</td>
</tr>
<tr>
<td>consent orders for Bedded HCFs</td>
<td></td>
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### AUTHORIZATION

<table>
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<tr>
<td>provide training to all its health care workers and others involved in</td>
<td>Will improve the management of BMW including collection, segregation</td>
</tr>
<tr>
<td>handling of bio medical waste</td>
<td></td>
</tr>
<tr>
<td>Immunization against Hepatitis B and tetanus for workers</td>
<td>Will ensure protection of workers handling BMW</td>
</tr>
<tr>
<td>Establish a Bar-Code System for bags or containers containing bio-medical</td>
<td>Improve segregation/transport Prevent pilferage</td>
</tr>
<tr>
<td>waste to be sent out of the premises</td>
<td></td>
</tr>
<tr>
<td>Report major accidents and remedial measures to SPCB</td>
<td>Help monitor and improve management</td>
</tr>
<tr>
<td>BMW Rules 2016</td>
<td>Implication</td>
</tr>
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<tr>
<td>MONITORING OF IMPLEMENTATION OF THE RULES: ANNUAL REPORT</td>
<td></td>
</tr>
<tr>
<td>Every occupier shall submit an annual report to the prescribed authority by 30th of June every year</td>
<td>The Institutions are now compelled to retain documents in a different format.</td>
</tr>
<tr>
<td>The prescribed authority shall compile, review, analyze and report to the CPCB by 31st July every year</td>
<td>-</td>
</tr>
<tr>
<td>The CPCB shall submit a report on the same to the MoEFCC by 31st August every year</td>
<td>-</td>
</tr>
<tr>
<td>The Annual reports shall be available on the websites of the occupier, SPCB and the CPCB</td>
<td>HCF become more transparent and accountable</td>
</tr>
<tr>
<td>MAINTENANCE OF RECORDS</td>
<td></td>
</tr>
<tr>
<td>Records in relation to generation, collection, reception, storage, transportation, treatment and disposal shall be maintained as per rules For 5 years</td>
<td>Improve accountability</td>
</tr>
<tr>
<td>Generate data on the amount and type of biomedical waste generated.</td>
<td></td>
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<tr>
<td>ACCIDENT REPORTING</td>
<td></td>
</tr>
<tr>
<td>Any major accident-intimate immediately and submit a report within 24 hours</td>
<td>Risk analysis and mitigation improved</td>
</tr>
</tbody>
</table>

**Implementation:**
Efficient implementation of the bio-medical waste management pivots on orientation, training and involvement of all the staff in the facility. Ensuring proper disposal and segregation at source is the most important step as this is the limiting factor for most organizations. Continuous training and committees to monitor the implementation can be of help.
Remember:

**YELLOW** has blood and tissues dead,

*Infected plastics and rubber go in RED,*

*Sharps in Containers lockable & white,*

*Blue Card boards for Glassware, that’s right,*

*The colour Black for general waste*

*Don’t forget this in your haste !!!*
Chapter IV:

Bio-medical Waste Management at AIIMS:

There are parallel stories running everywhere,
And here’s one to share..
Patients whom we treat and manage
Generate waste for others to treat and manage..

What you can expect to learn from this chapter

- How is Bio-medical Waste Management at AIIMS coordinated?
- The life cycle of a Bio-medical Waste up to the point of disposal
- On site treatment of laboratory waste
- What happens at the Common Bio-medical Waste treatment facility?
- A brief on the AIIMS Sewage Treatment Plant

For practical purposes, the whole system of Bio-Medical Waste and General waste Management in the hospital is be divided into the following segments

<table>
<thead>
<tr>
<th>First Segment</th>
<th>Middle Segment</th>
<th>Last Segment</th>
</tr>
</thead>
</table>
| Segregation and Collection of waste at the site of generation (ward / lab /Blood bank / user areas etc.) and transportation to the Collection points i.e sluice room/common corridor etc). This service is carried out by outsourced sanitation firms. | 1. Collection and transportation of biomedical waste from the collection points to Central temporary collection and storage facility
2. Collection and transportation of biomedical waste from the collection points at laboratories and blood banks and microwaving of these wastes. Subsequently these wastes are transported to Central temporary collection and storage facility
3. Transportation of general wastes from Collection points to NDMC central collection facility. These services are also carried out by outsourced sanitation firms | Transportation of Bio-medical waste from the Central temporary collection and storage area/ center, treatment and final disposal. This segment of service is being rendered by the DPCC authorized CBWTF operator M/S Biotic Pvt. Limited |
Generation to Disposal Process – An illustrative journey!

**Step -1**
BMW is collected from various sites in appropriate location

**Step -2**
waste is collected from colour coded bins and the bags are loaded on to trolleys

**Step -3**
Trolleys from all over the hospital transport the waste and is storage in the Temporary Storage facility (for less than 48hrs)
Step -4
Bags are weighed and bar coded

Step -5
All Collected Bags are loaded on to special Bio Medical Waste Trucks and are transported to common BMW Treatment facility
(Outsourced vendor approved by DPCC)
SPECIAL HANDLING OF LAB WASTE- PRE- TREATMENT ON SITE BEFORE DISPOSAL

1. BIO-MEDICAL WASTE GENERATED FROM THE VARIOUS LABORATORIES

2. THE BAGS ARE LOADED IN A MICROWAVE AND ARE PRE- TREATED AS PER SPECIFIED GUIDELINES

3. THE BAGS CONTAINING LAB WASTE ARE THEN TRANSPORTED TO THE TEMPORARY STORAGE FACILITY TO BE DISPOSED OFF ALONG WITH OTHER BIO MEDICAL WASTE FROM OTHER AREAS OF THE HOSPITAL
FLOW CHART SHOWING PROCESS FOR DISPOSAL OF BIO-MEDICAL WASTE AT COMMON TREATMENT SITE
(Courtesy – Biotic Waste Solutions Pvt. Ltd, New Delhi)

TREATMENT PROCEDURE

Collection of Bio-medical Waste in Leak Proof closed Vehicles

CBWTF

TSDF/LANDFILL FACILITY

Final Disposal

INCINERATION ASH

INCINERATION

Flue Gases

AIR POLLUTION CONTROL DEVICE

STACK

TSDF/LANDFILL FACILITY

VEHICLE WASHING CLEANING ETC.

GLASS

CHEMICAL DISINFECTION

AUTHORISED RECYCLER

E.T.P

TREATED WATER REUSED IN SCRUBBING & GREEN BELT, ETC.

SHREDDING

AUTHORISED RECYCLER

Final Disposal

VEHICLE WASHING CLEANING ETC.

GLASS

CHEMICAL DISINFECTION

AUTHORISED RECYCLER

E.T.P

TREATED WATER REUSED IN SCRUBBING & GREEN BELT, ETC.

VEHICLE WASHING CLEANING ETC.

GLASS

CHEMICAL DISINFECTION

AUTHORISED RECYCLER

E.T.P

TREATED WATER REUSED IN SCRUBBING & GREEN BELT, ETC.

INCINERABLE WASTE

AUTOCLAVING

FINAL DISPOSAL

AUTHORISED RECYCLER

E.T.P

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VEHICLE WASHING CLEANING ETC.

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CHEMICAL DISINFECTION

AUTHORISED RECYCLER

E.T.P

TREATED WATER REUSED IN SCRUBBING & GREEN BELT, ETC.
Common Bio-medical Waste Treatment Facility (CBWTF)

Collection of Bio Medical Waste from hospital at common treatment facility of Biotic Waste Solution (outside the hospital)

The yellow colour bags are put into the ROTARY KILN INCINERATOR for disposal by burning

The contents from the RED bags are put into autoclave for sterilisation and then they are shredded before reuse.
SEWAGE TREATMENT PLANT OF AIIMS, NEW DELHI

a. Sewage Treatment Plant

b. Chemical Liquid waste: Separate Collection system to STP

c. STP being inspected by Kaya Kalp Inspection team: AIIMS, New Delhi was adjudicated first among all central govt.hospitals
Did you know?

That as of 2018, in a month,

- AllIMS produces 24000 kgs of yellow waste,

- 23,500 kgs of plastic and rubber waste

- 500 kgs of sharps and 26,200 kgs of glass waste!

- That is a colossal 74,500kgs a month or nearly 2500 kgs of Bio-medical waste a day!!!

- Imagine if it doesn’t get segregated, transported, treated and disposed off correctly!!!
Chapter V:

Segregation: An Illustrative Guide:

“Segregation is knowing what goes where, and is as important as patient care!”

RED BIN
BIO MEDICAL WASTE

ALL INFECTED PLASTIC AND RUBBER WASTE

Red Bin: All infected plastic recyclable waste

- Waste generated from tubings
- Plastic I/V bottles (Normal Saline, DNS, RL, etc)
- IV Tubes / BT sets, central line, PICC line
- Gloves
- Urine Bags
- Catheters
- Drains
- Syringes without needles

Designed Under Guidance by: Department of Hospital Administration - AIIMS, New Delhi
YELLOW BIN
BIO MEDICAL WASTE

HUMAN / ANIMAL ANATOMICAL & SOILED WASTE

Yellow Bin:

- Human anatomical waste:
  A. Tissues  B. Organ  C. Body Parts
- Animal anatomical waste
- Soiled waste: items contaminated with blood and body fluid
  A. Dressings  B. Plaster casts  C. Cotton swabs
  D. Discarded linen  E. Mattresses  F. Beddings
  G. Blood bags  H. Discarded and expired medicine

Designed Under Guidance by:
Department of Hospital Administration - AIIMS, New Delhi
BLUE BIN
BIO MEDICAL WASTE

ALL BROKEN & CONTAMINATED GLASSWARE

Blue Bin: All glass waste

- Infected broken Glass Bottles
- Broken or unbroken Glassware and vials
- Ampoules (except cytotoxic waste)

Designed Under Guidance by:
Department of Hospital Administration - AIIMS, New Delhi
**White Container: All infected sharps waste**

- Waste Sharps including Metals
- Needles
- Syringes with fixed Needles
- Needles from Needle Tip Cutter or Burner
- Scalpels
- Blades
- Contaminated Sharp objects

Designed Under Guidance by:
Department of Hospital Administration - AIIMS, New Delhi
Black Bin: Non-Infectious General Waste

- Food waste
- Mineral water bottles
- Paper waste

Designed Under Guidance by:
Department of Hospital Administration - AIIMS, New Delhi
CHAPTER VI:
BIO MEDICAL WASTE MANAGEMENT FOR GROUP ‘C’ STAFF:

सही waste डले सही Bin!
स्वच्छ रहेगा AIIMS प्रतिदिन

इस अध्याय में सीखने योग्य बातें
• जैव चिकित्सा अपशिष्ट प्रबंधन नियम-2016 के अंतर्गत अपशिष्ट की श्रेणियां
• एम्स में अपशिष्ट प्रबंधन की प्रणाली
• जैव चिकित्सा अपशिष्ट की प्रक्रिया : एक चित्रीय विश्लेषण

जैव चिकित्सा अपशिष्ट प्रबंधन: समूह ‘ग’ स्टाफ एवं आउटसोर्स स्टाफ का परीक्षण:-

नए जैव चिकित्सा अपशिष्ट प्रबंधन नियम-2016 के अंतर्गत जैव चिकित्सा अपशिष्ट प्रबंधन में कई बदलाव आए हैं। स्वच्छता स्टाफ जैव चिकित्सा अपशिष्ट के सही प्रबंधन एवं उनके निपटान में अहम भूमिका निभाते हैं।

1. अपशिष्ट की श्रेणियां
जैव चिकित्सा अपशिष्ट प्रबंधन नियमों में अब अपशिष्ट की 4 श्रेणियां हैं:- पीला, लाल, सफेद एवं नीला। इन्हें सरल संक्षिप्त अक्षरों द्वारा याद किया जा सकता है। काले में केवल साधारण कूटा ही डलता है।

एम्स में अपशिष्ट प्रबंधन

- पी-पीले में पद्मी
- स-सफेद में सुई और स्कैपल
- ला-लाल में लचीला प्लास्टिक
- व-व्यू में बोतल (या गले में ग्लास)

Page 40 MANUAL FOR BIO MEDICAL WASTE MANAGEMENT
जैव चिकित्सा अपशिष्ट की प्रक्रिया : एक चित्रित विश्लेषण

1. अपशिष्ट उत्पन्न होने के स्थान (वार्ड/प्रयोगशाला/ल्यूड बैंक आदि) पर अपशिष्ट का सही अलगाव तथा उपयुक्त बैंग में एकत्रित किया जाता है। ये बहुत ज़रूरी है।

2. स्त्रुसकृष्ट/सामान्य गलियारा से जैव चिकित्सा अपशिष्ट को बाधने के बाद, उसी रंग की ट्राली में इकठा करके केंद्रीय अस्थायी एकत्रीकरण तथा भंडार केन्द्र तक पहुँचाया जाता है।

3. केंद्रीय अस्थायी एकत्रीकरण तथा भंडार केन्द्र: नियमों के मुताबिक यह अनिवार्य है!
4. बैग को तौला जाता है और बार कोड लगाये जाते हैं।

5. केंद्रीय अस्थायी एकत्रीकरण एवं भंडार स्थान/केंद्र से जैव
चिकित्सा अपशिष्ट केन्द्र द्वारा द्वारा केन्द्र एवं अंतिम निपटान तक पहुँचने
की जिम्मेदारी सी.डब्ल्यू.टी.एफ. ऑपरेटर Biotic Waste
Solutions Pvt. Ltd. द्वारा प्रदान की गई है।
अलगाव के सामन की सूची:

पीला बैग:

<table>
<thead>
<tr>
<th>क्र.सं.</th>
<th>मद</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>मानव शारीरिक अपशिष्ट</td>
<td>पपिट्ट्रान्स, स्पंज, गाज</td>
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<td>2.</td>
<td>संक्रमित टिप्पणी पेपर</td>
<td>कटा हुआ प्लास्टर</td>
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<td>7.</td>
<td>डायरेर चक्को/व्यस्को के कवर</td>
<td>रक्त की बैली</td>
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<td>पशु शारीरिक अपशिष्ट</td>
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<td>ड्वेरिंग से उत्पन्न कचरा</td>
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<td>2.</td>
<td>एन.जी.ड्वूब</td>
<td>प्लास्टिक आई.वी. बोल्ड (नामूल सलाइन, दी.एन.एम., आर.एन. आदि)</td>
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<tr>
<td>3.</td>
<td>बंद सक्षम (क्वोज्ड सक्षम)</td>
<td>आई.वी.ड्वूब/वी.टी. सेट,सेटूल लाइन</td>
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<tr>
<td>4.</td>
<td>केबेर रबर</td>
<td>डस्टलेन्स</td>
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<tr>
<td>5.</td>
<td>केबेर लीलिकोन</td>
<td>मूत बैग</td>
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<td>6.</td>
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<td>7.</td>
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नीले बॉक्स (कार्डबोर्ड बॉक्स):

हूटे हुए, फेंके हुए एवं दूषित कांच के समान, स्लाइड बायलस एवं ऐम्पूल, बोतल।
सफेद डिब्बे (पंक्तचर रहित, टेम्पर रहित एवं रिसाव रहित)

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<td>बिना डक्तर की सुई</td>
<td>केनूला एवं बायोप्सी सुई स्टेटस्टस</td>
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<td>लैप बायोप्सी गन</td>
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<tr>
<td>3.</td>
<td>स्केलपल, ब्लेड</td>
<td>बायोप्सी गन नीडल और गाइड टार्जें</td>
</tr>
<tr>
<td>4.</td>
<td>सूचरसुई</td>
<td>बायोप्सी गन नीडल प्रोब</td>
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<td>2.</td>
<td>प्रयोग की गई वेसीलॉक की बोतल</td>
<td>असंक्रमित प्रयोग मास्क</td>
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<td>3.</td>
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<td>सुईयों के कबर</td>
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<tr>
<td>4.</td>
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<td>उपयोग के बाद सिंचनी आवरण (सूचर रेप्सर) (प्लास्टिक+अल्यूमिनियम, प्लास्टिक+कागज)</td>
</tr>
</tbody>
</table>

सुई के चुभने से होने वाली चोटें:-

इसके लिए व्यक्तिगत सुरक्षा उपकरण प्रदान करने वाली कम्पनी जिम्मेदार है। अंततः सुई के चुभने से होने वाली चोट के बाद में सुजना देनी चाहिए एवं एम्स में स्थित नए आपतकालीन बार्ड में इसका पूरा डलाज मिश्रण किया जाना चाहिए। नियम के कार्यन्वयन में समूह 'ग' एवं समूह 'घ' तथा स्वच्छता स्टाफ की भूमिका महत्वपूर्ण है।

टीकाकरण:-

सभी स्वस्थ लोगों के लिए विभिन्न विकल्पों के तहत भी जैविक अपशिष्ट के संरचन में आते हैं उन्हें टेक्स टीक्सोइड (T.T.) एवं हेपेटाइटिस बी (Hepatitis B) के टीकाकरण लगाने चाहिए। यह प्रत्येक कार्यकर्ता स्वास्थ्य कार्ड में दर्ज होगा।
क्या आप अपने अधिकारों से परिचित हैं?

जैव चिकित्सा अपशिष्ट प्रबंधन नियम-2016 के अंतर्गत:
1. जैव चिकित्सा अपशिष्ट हथालन से समबन्धित सभी सफाई कर्मचारियों के स्वस्थ के देखभाल के लिए उनकी भर्ती के समय तथा हर वर्ष प्रशिक्षण देना अनिवार्य है।

2. सभी सफाई कर्मचारियों को Hepatitis B तथा Tetanus का टीका लगवाना भी ज़रूरी है।

3. समुचित और पर्याप्त व्यवस्थित संरक्षण प्रदान कराना भी अस्पताल की ज़िम्मेदारी है।

4. अस्पताल प्रशासन द्वारा जैव चिकित्सा अपशिष्ट हथालन से समबन्धित सभी सफाई कर्मचारियों के स्वस्थ के देखभाल के लिए उनकी भर्ती के समय तथा हर वर्ष कम से कम एक स्वस्थ्य जांच आयोजित कराना देना अनिवार्य है।
Chapter VII:

Roles and Responsibilities of Stake holders:

Though the knowledge of correct segregation practices is the most facet of the practices for all stakeholders including doctors, nurses and technicians, specific roles a needed to be enumerated.

“Here’s an opportunity for all of us to play a crucial role, a responsibility to the nation and world as whole!”

1. Heads of Department:-
   a) Primary leadership role, ensuring all staff understand the importance of bio medical waste mgmt., follow correct practices, nurses feel empowered to correct erring residents and vice versa.
   b) Ensuring that all the consultants & residents are trained in adopting correct segregation practices and make regular inspections to see that they are followed by all consultants, the residents & nurses posted in their labs, wards, ICU’s & OT’s.
   c) Root cause analysis & corrective and preventive action of accident reporting as per BMW rules.
   d) Ensuring that nurses procure all the requisite items for bio medical waste management.

2. Consultants &Residents:
   a) Appropriate Segregation
   b) Vaccination
   c) Annual health check-up

3. Hospital Administrators:
   a) Compliance with all sections of the Bio medical waste management Rules -2016.
   b) Application, authorization & Renewal of Authorization.
   c) Submitting monthly & annual audit reports to statutory authority like DPCC.
   d) Procurement of all equipment/ items and ensure use across the hospital to aid in correct implementation of rules.
   e) Supervision & auditing at frequent intervals.
   f) Constitution of Bio medical waste management committee & holding regular meetings.
   g) Preparation of tenders & entering agreement regarding transportation of waste from source of generation to common waste collection area & from there to disposal.
   h) Coord. with Engineering service to ensure proper functioning of STP.
4. Staff Nurses:

a) Proper segregation
b) Supervision of house keeping
c) Senior nurses should audit the practices adopted by residents & all their subordinate staff including Hospital & sanitary attendants.
d) Incident reporting
e) Indenting & maintaining logistics required for BMW handling in ward, lab, ICU & OT’s.
f) Ensuring that SA’s take proper precautions while handling waste.
g) Post exposure prophylaxis to be ensured in case on needle stick injuries

5. Infection Control Nurses:

a. Creating SOP’s of complete BMW handling.
b. Maintaining data records & reporting.
c. Regular rounds and audits
d. Supervision of vaccination & health status of health care workers.
e. Training of all health care staff in adopting correct practices.

6. Hospital /Sanitary Attendants:

स्वच्छता स्टाफ की भूमिका:—
क) जब छोटे कूड्डेदान में बैग 2/3 तक भर जाए, तब एकत्रित अपशिष्कण बैग को बांधकर स्तूस कक्ष/सामान्यालयाचे (कॉमन कोंटेनर) में रख के बड़े कूड्डेदान में रखना।
ख) स्वच्छता स्टाफ यह भी सुनिश्चित करें कि बैग और कूड्डेदान का रंग सामान हो। अर्थात नीला बैग नीले कूड्डेदान में, लाल बैग लाल कूड्डेदान में, नीला बैग नीले कूड्डेदान में एवं काला बैग काले कूड्डेदान में रखा जाए।
ग) अगर वह अलगाव की क्रिया को गलत देखते हैं तो वह नर्स या सुपरवाइजर को सूचित करेंगे तत्पश्चात वह संबंधित अधिकारियों को यह सूचना देंगे।
घ) व्यक्तिगत सुरक्षा उपकरण (पी.पी.ई.):— स्वच्छता स्टाफ यह भी सुनिश्चित करें कि स्टाफ सही व्यक्तिगत सुरक्षा उपकरणों अर्थात दस्ताने, मास्क आदि को पहन रहें हैं।
ड) स्टाफ यह भी सुनिश्चित करें कि बैग 2/3 से ज्यादा न भरा हो एवं बंधा हो तथा बड़े कूड्डेदान तक पहुंचा गया हो।
The responsibility of what we generate,
Doesn’t end just at our gate,
Some of it must burn,
Into smoke and ash it will turn
But recycling of much of what we segregate..
Must be ensured, for that’s its exalted fate!
Annexure-I

SEGREGATION LIST OF COMMON ITEMS IN HOSPITAL AS PER BIO-MEDICAL WASTE MANAGEMENT RULES 2016:

**Yellow bin:**
1. Human anatomical waste:
   A. Tissues, organs, body parts
   B. Foetus, Umbilical stump, placenta
2. Animal anatomical waste: Tissues, organs, body parts
3. Soiled waste: items contaminated with blood and body fluids
   A. Dressings, sponges, gauze
   B. Plaster casts
   C. Cotton swabs
   D. Blood bags
   E. Infected gowns, mask, shoe covers, cap
4. Expired or discarded medicines including antibiotics (except cytotoxic)
5. All yellow waste that are generated from labs
6. Chemical waste
   A. Discarded disinfectants, Cleaning agents
   B. X-ray film developing liquid, Infected secretions
   C. Aspirated body fluids, Liquid from laboratories

**Yellow bin with cytotoxic label:**
1. Used, discarded and expired cytotoxic drugs whether in plastic vaccutainers, syringes, glass vials, ampoules, glass bottles. The container is not the determining factor in the case of segregation of cytotoxic wastes.
2. All items used during preparation and administration of cytotoxic drugs (eg: glass and plastic bottles, ampoules, vials, iv sets, gloves, syringes without needle, dressing, cotton swabs, etc.)

**Red bin:**

**All infected plastic recyclable waste:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Waste generated from tubings,</td>
</tr>
<tr>
<td>B.</td>
<td>Plastic i/v bottles, (normal saline, DNS, Ringer lactate etc, etc)</td>
</tr>
<tr>
<td>C.</td>
<td>IV tubes /BT sets, central line, PICC line</td>
</tr>
<tr>
<td>D.</td>
<td>Gloves</td>
</tr>
<tr>
<td>E.</td>
<td>Urine bags, Catheters</td>
</tr>
<tr>
<td>F.</td>
<td>Drains</td>
</tr>
<tr>
<td>G.</td>
<td>Syringes without needles</td>
</tr>
<tr>
<td>H.</td>
<td>Vaccutainers without needles</td>
</tr>
<tr>
<td>I.</td>
<td>Et/tt tubes, Ng tubes</td>
</tr>
<tr>
<td>J.</td>
<td>Transparent dressing sheet (eg: tegaderm)</td>
</tr>
<tr>
<td>K.</td>
<td>Ventilator/ nebulizer tubing’s</td>
</tr>
<tr>
<td>L.</td>
<td>Ostomy bags</td>
</tr>
<tr>
<td>M.</td>
<td>Tracheal tubes</td>
</tr>
<tr>
<td>N.</td>
<td>Suction/ oxygen tubing’s</td>
</tr>
<tr>
<td>O.</td>
<td>Diagnostic kits</td>
</tr>
<tr>
<td>P.</td>
<td>All plastic and rubber infected waste generated from laboratories*</td>
</tr>
</tbody>
</table>
Sharp containers (puncture proof, tamper proof and leak proof)

A. Needles without cap  
B. Pre-filled glass syringe with fixed needles  
C. Scalpel, blades  
D. Biopsy needles  
E. Guide wires  
F. Suture needles  
G. Cannula and biopsy needle stilette  
H. All sharps generated from laboratories*

Blue marked cardboard box

1. Broken, discarded and contaminated glassware including slides, vials and ampoules (except cytotoxic waste)  
2. Metallic body implants  
3. Disposable laparoscopic instruments  
4. All glassware generated from laboratories *  
*All laboratory waste is first treated on site by microwaving before final disposal

Black bin:  

1. General waste including food, paper waste etc  
2. Uninfected plastic wastes such a mineral water bottles  
3. Uninfected disposable towel  
4. Uninfected gowns, shoe covers, cap, masks  
5. Covers of sterile items such as syringes etc  
6. Sterillium used bottle  
7. Bacillol or any other uninfected used bottle.
Annexure-II

Authorization of AllMS under the BMW Management Rules 2016

FORM III

<table>
<thead>
<tr>
<th>BMW Authorization No. DPC/00878/S-001/BMW-06</th>
<th>16671</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 01-11-2017</td>
<td></td>
</tr>
</tbody>
</table>

(For operating a factory for generation, collection, reception, treatment, storage, transport and disposal of Bio-Medical Wastes)

1. The occupier shall comply with the provisions of the Environment (Protection) Act, 1986 and the rules made thereunder.

2. The occupier shall comply with the standards prescribed in Schedule II of Biomedical Waste Management Rules, 2016, for the discharge of the Waste Water / Effluent generated.

3. The authorization or its renewal shall be produced for inspection at the request of any officer authorized by DPC.

4. The person authorized shall not rent, lend, sell, transfer or otherwise transport the biomedical waste without obtaining prior permission of DPC.

5. It is the duty of the authorized person to take prior permission of the prescribed authority i.e. Delhi Pollution Control Committee to close down the facility and such other terms and conditions may be stipulated by the prescribed authority.

6. It shall be ensured that the Bio Medical Waste is finally treated within a period of 48 hours. If for any reason it becomes unavoidable, information should be given in writing to DPC and measures are to be ensured so that the waste does not adversely affect human health and the environment.

7. The occupier shall have a valid agreement with the operator of a facility authorized by DPC for disposal of the biomedical waste in case the occupier does not treat the waste himself.

8. The occupier shall submit the copy of fresh valid agreement to this office within 10 days of expiry of previous agreement or in case of any change.

9. The occupier shall ensure that bio-medical waste is not mixed with other wastes and is segregated into containers / bags at the point of generation in accordance with Schedule-I (part I). The Bio-Medical Waste shall be handed over to transporter / operator of a CBRNIF duly segregated, labeled, tagged and kept in proper containers for the transportation as per rules.
Annexure-III

Consent to Operate under the Air (Prevention & Control of Pollution) Act 1981 and Water (Prevention & Control of Pollution) Act 1974

<table>
<thead>
<tr>
<th>Delhi Pollution Control Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th &amp; 5th Floor, ISBT Building, Kashmere Gate, Delhi - 110006.</td>
</tr>
<tr>
<td>Website: <a href="http://dpcc.delhigovt.nic.in">http://dpcc.delhigovt.nic.in</a></td>
</tr>
</tbody>
</table>

**CONSENT ORDER**

<table>
<thead>
<tr>
<th>Des. accn No.</th>
<th>6840</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date.</td>
<td>2-11-17</td>
</tr>
<tr>
<td>Certificate No.</td>
<td>0-029036</td>
</tr>
</tbody>
</table>

**Name of the Unit:** A.I.I.M.S. HOSPITAL

**Address:** ANSARI NAGAR EAST, DELHI-110016

**Consent Order No:** DPCC/WMC/2017/40842

**Date of Issue:** 01-11-2017

**Product/Activity:** HOSPITAL FACILITIES.

This Consent to Operate is hereby granted under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 under Orange Category. This consent is subject to terms and conditions specified overleaf.

- **Min. DPCG DPCC** had done the analysis vide report dated 28-09-2017, 01-09-17:
  - Ph 3.8-6.0, Total Suspended Solids (TSS) ≤ 40, Oil and Grease ≤ 12, Bio-chemical oxygen demand (BOD) ≤ 18, COD ≤ 50, Bio assay test (percent survival of fish after 96 hours in 100 percent effluent) ≤ 50.
  - Particulate Matter (mg/l Nm3) ≤ 150.

  *All effluent parameters are in mg/l except pH & Bio assay test value*.

- **Dr. BAMS REDDY**
  - Sr. Env. Engineer (CDD)
  - Delhi Pollution Control Committee
  - 4th & 5th Floor, ISBT Building, Kashmere Gate, Delhi-110016

- **Verified by:** ENVIRONMENTAL ENGINEER
  - (Sr. Officer, CDD)
  - Delhi Pollution Control Committee
  - 4th & 5th Floor, ISBT Building, Kashmere Gate, Delhi-110016

- **Issuing Authority:** SENIOR ENVIRONMENTAL ENGINEER

For more details, visit [http://dpcc.delhigovt.nic.in](http://dpcc.delhigovt.nic.in)
PUNCTURE PROOF CONTAINERS
ON-SITE TREATMENT
TRAINING
OCCUPIER
SHREDDING
BAR-CODING
CBTFW OPERATOR
SEGREGATION
AUTOCLAVING
MICROWAVING
INFECTED WASTE
INCINERATION
IMMUNISATION
COLOUR CODED BINS
ANNUAL REPORT
AUTHORISATION