

Updated Guidelines for the Management of Non-hazardous/Non-infectious Hospital Plastic and Polythene Waste

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Updated Guidelines for the Management of Non-hazardous/Non-infectious Hospital Plastic and Polythene Waste

(Prepared in discussion with the Ministry of Health, the Ministry of Environment and the Central Environmental Authority. Comments received at the stakeholder workshop held on 6th November 2023 incorporated as appropriate.)

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Abbreviations

CEA	- Central Environmental Authority
EPL	- Environmental Protection License
HCW	- Health Care Waste
HCWM Plan	- Health Care Waste Management Plan
NEA	- National Environmental Act
PET	- Polyethylene Terephthalate
PHIs	- Public Health Inspectors
PVC	- Polyvinyl chloride
WMC	- Waste Management Committee

Introduction

Health Care Waste (HCW) includes all waste generated / produced by a medical institution (public or private), a medical research facility or a laboratory generally referred to in these guidelines as health care institutions. This waste can be categorized as (a) non-risk health care waste, and (b) hazardous health care waste.

The failure to properly manage HCW can adversely impact those who generate the waste, persons generally associated with the health care institutions irrespective of whether they contribute to the HCW or not, waste handlers as well as the general public. HCW management is considered an important priority in risk minimization and improvement of health and well-being of the people. Within the HCW framework hazardous waste is considered the priority.

The management of plastic and polythene waste takes significance in the National context as evidenced by the fact that several policy instruments, guidelines and legislation on the subject have been formulated and approved. Several Orders and Regulations pertaining to plastic and polythene have been formulated in terms of the National Environmental Act (NEA). The items addressed in these Orders and Regulations include the following:

- I. Polythene or polythene products of 20 microns or below in thickness.
- II. Food Wrappers (i.e., Lunch Sheets) from polythene.
- III. Bags (including Grocery Bags referred to as *Sili-sili bags*) of high-density polyethylene.
- IV. Decorations out of Polyethylene, Polypropylene or its products.
- V. Food containers, plates, cups, and spoons from expanded Polystyrene.
- VI. Single use drinking straws and stirrers; single use food containers, plates, cups, spoons, forks and knives; garlands; and string hopper trays.
- VII. Polyethylene terephthalate (PET) or polyvinyl chloride (PVC) material to package agrochemicals.
- VIII. Plastic Sachets having less than or equal to a net volume of content 20ml/ net weight of 20g.
- IX. Plastic inflatable toys other than balloons, balls, water floating/pool toys and water sports gear.
- X. Cotton buds with plastic stems.
- XI. Open burning of plastic.

It is noted that the above Orders contain several exemptions for certain uses including medical and pharmaceutical use.

Certain prescribed activities in terms of the NEA require an environmental protection license (EPL). Such activities include industries involved in manufacturing or extracting or formulating of pharmaceuticals or cosmetic products including intermediates and Medical Laboratories or hospitals or medical research centers.

Persons involved in the handling of Scheduled Waste including pharmaceutical waste and biomedical and health care waste from health care institutions including medical laboratories and research centers require a license from the Central Environmental Authority (CEA).

The National Action Plan on Plastic Waste Management 2021 – 2030¹ recognizes that the issue of plastic waste arises from multiple sources including various items of manufacture utilizing virgin plastic raw material imports (300,000 MT/annum) as well as unaccounted packaging.

Specialized approaches are required to manage hazardous waste from health care institutions. Accordingly, these guidelines only address the plastic waste coming within the definition of non-risk waste from health care institutions. This is waste that has not been contaminated with potential infectious agents or toxic products. It is similar to domestic waste and can be managed with municipal waste.

Plastic waste amongst the health care waste stream has been addressed separately in these guidelines due to multiple factors. These include the fact that significant amounts of plastic waste is generated within the institutions generating health care waste as a single source, thus enabling the implementation of better management practices due to economies of scale thus making a noticeable impact on reduction and better management of waste. Further, since hazardous waste from health care institutions in any event require effective management approaches, the non-risk sector too can be addressed within a larger management plan for the overall waste.

As per the Rapid Assessment on Health Care Waste Management in Sri Lanka - March 2021², the estimated quantities of daily non-risk³ waste generation from state sector hospitals include the following:

Health Care Facility (HCF) Category	Plastic (kg/day)
National Hospitals	403
Teaching hospitals	654
Provincial GH	208
District GH	1,213
Special Units	402
Base Hospital Type A	2,198
Base Hospital Type B	373
Small-scale State Hospitals	4,451
Total	9,902

¹ National Action Plan on Plastic Waste Management 2021 – 2030 UNEP Website. https://ccet.jp/sites/default/files/2021-08/srilanka_report_web_fin_pw.pdf

² Rapid Assessment on Health Care Waste Management in Sri Lanka; (Prepared by GS Associates Pvt Ltd for UNDP and Ministry of Health, (2021) <https://www.undp.org/srilanka/publications/rapid-assessment-health-care-waste-management-sri-lanka>.

³ The Rapid Assessment uses the term non-hazardous. For the purpose of these guidelines the term non-risk is considered synonymous with non-hazardous.

The Fieldwork Study carried out by and on behalf of the present project identifies the following principal stakeholder groups in relation to the management of non-risk plastic waste generation and management:

- i. patients (resident, OPD and clinics),
- ii. healthcare related staff (doctors, nurses, paramedics, PHIs, attendants, and minor staff)
- iii. administrative staff (directors, medical superintendents, secretaries, and other office staff members),
- iv. third-party contracted security persons,
- v. sanitary supervisors and workers, and
- vi. visitors of patients.

External service providers including vendors etc., could be a further category in this regard.

The types of non-risk plastic waste from health care institutions include the following categories. This is an indicative list and may be added to, depending on the individual health care institution.

- i. Intravenous fluid bottles
- ii. Distilled water containers
- iii. Sanitizer bottles
- iv. ECG gel bottles
- v. Plastic water bottles
- vi. Packed dry food wrappers (ex- Biscuit wrappers)
- vii. Plastic lids of intravenous antibiotic containers
- viii. Caps of syringes
- ix. Caps of cannulas
- x. Leuco- plaster rolls
- xi. Discarded stationery - files, empty pens etc.
- xii. Discarded domestic type plastic items - Basins, cups, plates, bowls, baskets

Having a good understanding of the types of plastic waste generated helps in devising efficient and updated management strategies.

Objectives of the Guidelines

The objective of these guidelines is to provide the minimum standards to guide improved management of plastic and polythene waste. They only address non-risk plastic and polythene generated by and within health care institutions and if a plan and management/disposal strategy is developed by an institution generally for all health care waste, these guidelines could form part of such overall strategy. These guidelines intend to guide the process for the entire cycle of waste management from generation to disposal.

They address guidelines at the institution level. However, it is recognized that national level preparedness and facilities can significantly enhance the implementation of these guidelines.

The formulation of these guidelines was preceded by a literature survey and meetings with the authorities in the Ministry of Health. It draws upon the findings of the field studies carried out by the project, policies and other guideline documents from Sri Lanka in enacted and draft form, and best practices. After formulation they were subject to validation through multiple workshops with select stakeholders.

These Guidelines address audit, planning, minimization, segregation, collection, transportation within the premises, storage, disposal.

Management Duties and Responsibilities

Duty of Care

The draft National Policy recognizes that every medical institution has a duty of care and is fully responsible for the potential harmful effects that the public and the environment may suffer from any mismanagement of the HCW generated in and outside the institution.

In this regard, the standard duty of care requires a person to take precautions against the acts of such person causing injury to others if the likelihood of such harm is such as would be realized by a reasonably prudent person.⁴

Nuisance

Nuisance is a thing that causes offence, annoyance, trouble or injury⁵ and is regarded as public or private. A public nuisance is remedied by proceedings in the Magistrate's Court while private nuisances may be the subject of an action in the District Court. Improper disposal of waste or even the keeping of waste may result in a nuisance public or private.

Precautionary Principle

The precautionary principle may be used by decision makers where there is the possibility of harm resulting from making a certain decision or from following a particular course of action and conclusive evidence is not yet available in this regard.⁶

Polluter Pays Principle

This principle recognizes that a person who is responsible for the pollution bears the cost of remedying and managing the impact of such pollution.

Extended Producer Responsibility

Also known as EPR, extended producer responsibility seeks to extend the producer's responsibility to the post-consumer stage of the life cycle of the product. The **National Action Plan on Plastic Waste Management 2021 to 2030** of the Ministry of Environment defines EPR as follows:

“Responsibility of a producer for the environmentally sound management of the product until the end of its life”

It also defines producer as follows:

“Persons engaged in manufacture or import of carry bags or multi-layered packaging or plastic sheets or like, and includes industries or individuals using plastic sheets or like or covers made of plastic sheets or multi-layered packaging for packaging or wrapping the commodity.”

⁴ A Modern Treatise on The Law of Delict (Tort) by U.L. Abdul Majeed (2017).

⁵ <https://en.wikipedia.org/wiki/Nuisance>

⁶ https://en.wikipedia.org/wiki/Precautionary_principle

Guiding Principles for Management of non-risk waste from health care institutions

Whenever possible, non-risk recyclable plastic and polythene waste shall be directed towards recycling.

At all times care shall be taken that non-risk waste does not get mixed with other types of waste.

Measures shall to taken for safe storage of collected waste so that mixing of waste is avoided.

Best practices shall be adopted for the management of non-risk waste from health care institutions. Some examples are:

- i. Implement a program to control the bringing in of plastic and polythene to the health care institution at the points of entry. This could regulate the introduction of these items to the health care institution premises by staff, patients, visitors, and others.
- ii. The use of audio visual and visual means for the purpose of communicating and reinforcing the message related to limiting the use and introduction of superfluous plastic and polythene.
- iii. The use of efficient communication means such as dedicated WhatsApp groups for waste management communication.

The possibility of engaging the service providers, suppliers etc., in the waste management effort shall be examined.

Strategies shall be developed for private and other non-State sector engagement in the management of non-risk plastic and polythene waste.

The involvement of suitable personnel from the relevant local authorities in the planning process could contribute towards building confidence of the local authorities in managing the non-risk plastic and polythene waste from health care institutions.

Systematic Waste Audit

Auditing waste from health care institutions seeks to supplement paucity of data and information for systematic planning. An audit can result in developing strategies for waste minimization, enhancing sorting and segregation approaches, developing disposal methodology and identification of options, identification of financial flows, risk identification and management, regulatory compliance and enhanced planning. Following are some of the subject areas that can be the focus of the audit:

- a) Types of plastic waste – the categorisation should be developed with an understanding of the final use to which the data would be put. i.e., minimization would require knowing what types of waste is generated by which sector of the community. Some stakeholder groups and some waste categories are set out in the introduction hereto.
- b) Points of waste generation within the institution – what types of waste is generated at what point would be addressed herein. This could include food related plastic waste from canteens and dining areas, food related plastic waste as well as carry bags and wrappers, sanitary products etc., from wards, personal protective equipment from wards, surgeries etc. A considerable volume of plastic and polythene waste would consist of packaging and wrappers.
- c) Quantities of waste – the overall quantities in order to develop disposal strategies based on economies of scale.
- d) Transport within the institutions and temporary storage.
- e) Accessible sources of disposal.
- f) Identification of resource requirements – this would include staffing, financial resources, training needs, protocols, equipment and space, access and permissions for persons engaged to remove waste from the premises etc.
- g) Identification of roles and responsibilities of personnel.

Waste Management Committee

A Waste Management Committee (WMC) shall be appointed for the implementation, monitoring and improvement of the process of plastic waste management. The Waste Management Committees, acting under the overall supervision of the Head of the Institution will be responsible for monitoring and ensuring proper enforcement of these guidelines. The Head of the Institution or a member of the Senior Management shall be designated the Plastic Waste Management Focal Point.

The Waste Management Committee should include representation of the necessary divisions of the institutions as decided based upon the needs of each institution. This could include the Director/Medical Superintendent, Hospital Secretary/Administrative Officer, Medical Officer (Planning, Quality Assurance & Control), Medical Officer/Nursing Officer of the Health Education Unit, Chief Infectious Control Nursing Officer (ICNO), Public Health Inspector (PHI), Account Clerk, Procurement Officer, Head of Security and Supervisor - Cleaning Services.

The WMC will take the lead in planning and implementation of the non-risk plastic and polythene waste management and in monitoring of the implementation.

Planning

The WMC shall develop a Health Care Waste Management Plan (HCWM Plan) in consultation with the other relevant stakeholders. The Plan shall take into account the findings of the Systematic Waste Audit. The contents of the plan can include the following:

Waste Minimization: - Well thought out and implemented minimization strategies can reduce the burden of waste management considerably. This can include strategies to minimize plastic and polythene waste introduced to wards through patients and visitors as well as unnecessary packaging and containers in institutions. The Central Environmental Authority has already enacted Orders and Regulation in terms of the National Environmental Act aimed towards the minimization of plastic and polythene waste (see Introduction hereto).

The circular 01-27 2016 dated 31.05.2016 titled “Minimizing Plastic and Polythene Use in Healthcare Institutions”⁷ sets out certain minimization strategies in this regard. Some of these strategies are:

1. Advising health care personnel attached to the institution to bring their meals in lunch boxes (stainless steel/ Food Grade Plastic).
2. Advising patients, visitors and clients of healthcare service points to minimize use of plastic and polythene within the healthcare premises.
3. Establishing a collection centre at the entrance of the hospitals during visiting hours to collect shopping bags including unnecessary polythene & plastic containers from visitors and disposing/selling/recycling.
4. Discouraging the bringing of plastic bottled water.
5. Healthcare institutions providing drinking water to the patients.
6. At meetings and functions organized by the institutions encouraging filters / clay dispensers for storage of water and glasses/ceramic mugs to dispense water.
7. Encouraging buffet style meals at meetings and functions organized by the institutions.
8. Encouraging health care personnel attached to the institutions to use environmentally friendly bags such as cloth bags instead of disposable polythene bags.
9. Banning polythene, plastics and Rigi foam from official functions.
10. Discouraging the selling of plastic cups, plates, mugs etc. in the cafeteria.
11. Identifying plastic recycling centres registered under the Central Environment Authority and making arrangements to recycle plastic waste (non-infected) collected in the institution.
12. Stopping the burning of plastic & polythene in open air.⁸

Segregation: - Segregation is key to efficient management and reducing the risk of infection. Efficient segregation strategies well documented and implemented will go

⁷ <http://www.health.gov.lk/CMS/cmsmoh1/viewcircular.php?cno=01-27/2016&med=english>

⁸ Such open burning has been prohibited by ... in terms of the NEA.

a long way towards enhancing confidence amongst the external waste handlers in receiving non-risk waste from health care institutions.

Segregation should take place as proximate to the point of generation as possible. They should follow the protocol established for colour coded boxes or bags and should adopt a single protocol for the entire institution. Attention is drawn to the General Circular dated 21 March 2006 by the Director General of Health Services titled National Colour Code for the Segregation of Hospital Waste. The relevant portion of the colour code is as follows:

1. General waste – Colour to be used for bins and bags – Black

General waste can be defined as wastes that are non-infectious. These could be considered as general or municipal waste.

Eg; Mixed waste types which are uncontaminated, that could be handed over to the municipal council.

2. Plastic waste – Colour to be used for bins and bags – Orange

Plastic waste could be recycled if collected separately.

Eg: Uncontaminated plastic medicine bottles, saline bottles without IV sets, plastic drink bottles, plastic bags.

Collection and Transport: - Waste should not be allowed to accumulate at the point of collection. Therefore, a routine should be established whereby they are transported at regular intervals (daily where possible) to the point of storage from the point of collection. Upon collection, the bags or bins should immediately be replaced with others consistent with the colour code and other requirements.

Transport within the institution from the point of collection to the point of storage should be addressed in the plan. This should also look at suitable equipment for such transport, responsibility for transport as well as transport in a manner in keeping with proper health and sanitation requirements.

Storage: - Storage should be at a designated secure location suitable for such storage. Sufficient storage space should be determined based on the systematic waste audit and be in a location that provides access to the external waste handlers and their vehicles. No waste picking should be allowed at the premises of the institutions. Multiple locations for storage may be designated if required.

Disposal: - Disposal strategies for the non-risk plastic waste from health care institutions should also be set out in the HCWM Plan. These disposal strategies can include arrangements with external waste handlers, recyclers, and waste collectors. Attention is drawn to the letter dated 25.03.2022 from the Director General of Health Services titled '*Formalization of waste management in healthcare institutions in accordance with the National Policy on Waste Management*' indicating the non-risk recyclable healthcare waste (clean plastic, clean paper and clean glass etc.) is to be

handed over only to registered waste collectors under the CEA or to recycling entities in possession of a valid Environmental Protection License (EPL). The CEA website provides resources in terms of a listing and easy reference map relating to waste collectors and solid waste management centers in Sri Lanka.⁹

Possibilities for safe reuse could be an aspect to be addressed in the plan as appropriate.

In this regard notice should be taken of the regulations prohibiting open burning of refuse and other combustible matter that includes plastic published in Gazette Extraordinary 2034/36 of 1st September 2017 i.e., National Environmental (Prohibition of open burning of refuse and other combustible matters inclusive of plastics) Regulations No. 1 of 2017.

Training & Awareness Strategies: - Awareness is an important aspect of minimization and efficient handling. Training can include some level of specialized training as well as familiarization with the institution's protocols for waste handling. In the event of outsourcing, the cost of such training and awareness for the staff of the outsourced entity could be borne by such entity together with a commitment to maintain such trained staff for the period of the contract unless they are no longer in service at such entity in which event the new staff would need to be similarly trained.

Instructions for segregation and handling should be displayed prominently where it can be seen by those engaged in waste management. Similarly, plastic and polythene waste minimization strategies applicable to patients and visitors should be displayed in common areas.

The awareness strategy can also target the vendors and service providers so that suitable products could be made available for purchase.

Documenting and Reporting: - Documenting and reporting is an important component of the monitoring strategy and also ensuring regulatory compliance.

Regulatory compliance:- The WMC should be familiar with the regulatory requirements for the particular waste type. Maintaining contacts with the regulatory authorities of the relevant area would enable the institutions to keep itself updated in relation to such requirements. The WCM could invite the presentations from such authorities as and when required.

*Updating:-*The time-line for the plan including updating strategies should also be set-out.

Contingency: There shall also be a contingency plan for emergencies such as an unexpected surge in waste or sudden non-availability of suitable disposal options.

⁹ Registered Collectors of Non-Hazardous Recyclable Waste (Last update 31st August 2022) http://cea.lk/web/images/pdf/2022/sw/List_of_Collectors_plus_Collectors_Recyclers_updated_on_02.09.2022_Latest_-_Adding_Monitoring_Data.pdf

Recommendations

1. The Health Care Institution shall initiate a Waste Care Audit directed towards minimizing and managing Waste. The Audit shall be repeated regularly at a suitable frequency. The Audit shall be so structured so as to arrive at a plastic and polythene ration per patient per time frequency i.e., kilograms per patient per month for planning purposes.
2. As part of the Audit, the Health Care Institution shall examine measures to reduce plastic and polythene packaging and wrappers associated with drugs, medicines and equipment without compromising the safety, quality and efficacy of same.
3. The Health Care Institution shall implement measures to minimize plastic and polythene brought into the institution by patients, visitors and staff and identify control points in order to regulate same.
4. The Health Care Institutions shall obtain updated information regarding regulatory provisions relevant to the management of waste and take necessary compliance measures.
5. In addition to the requirements of the law, the institution shall take all reasonable measures to implement best practices in managing waste from health care institutions.
6. The institutions shall ensure that the workers engaged in waste collection and handling adopt proper personal protection measures.
7. The Institution shall obtain an Environmental Protection License issued in terms of the National Environmental Act.
8. The Health Care Institution shall, where appropriate, enter into agreements with service providers to secure the proper and efficient disposal of plastic waste.
9. The Health Care Institution shall develop an awareness campaign to explain the impacts of plastic and polythene use and a media campaign to convey relevant information regarding the impacts as well as waste reduction and management to the various stakeholder groups including the patients and visitors, medical staff, support staff, waste management personnel etc. In addition to the staff of the institutions, the awareness campaign may also extend to vendors in and around the Institution who provide services to the hospital patients, visitors and staff.
10. The Health Care Institution shall develop a training curriculum for relevant stakeholder groups. The training may be conveyed through the classroom method, field work, online and other suitable approaches. Several institutions may come together and collaborate in devising such measures.
11. In consultation with the Private Sector, the Health Care Institution may encourage and facilitate EPR schemes to manage plastic and polythene waste.
12. The Health Care Institution may enter into Public Private Partnerships in order to efficiently manage plastic and polythene waste in keeping with applicable laws, regulations and rules.
13. Special attention shall be paid to the minimization of single use plastic use.
14. Colour coding shall be based on the Health Ministry recommendations and shall be consistent throughout, segregation and collection, transport, storage, handing over and disposal.
15. In keeping with the financial regulation of the Government, Health Care Institution shall explore possibilities of selling high value plastic and polythene waste amendable to re-use, recycle or safe disposal,

16. The Health Care Institution shall elaborate clear roles and responsibilities of the personnel involved in the management of plastic and polythene waste from health care institutions.
17. Health Care Institutions shall, to the extent possible, document its waste management plan and strategies and move towards developing a manual of procedure.
18. Where the law mandates, the Health Care Institution should obtain an Environmental Protection License in terms of the National Environmental Act.
19. Plastic and polythene waste shall not be disposed of in any manner contrary to these guidelines and in contravention of the laws and regulations prevailing. In particular plastic and polythene waste shall not in any instance be disposed of into water ways, drains, canals etc., and shall not be disposed directly to the environment. Plastic and polythene waste shall not be placed in any place or in any manner where it can enter such water ways, drains, canals etc., and / or the environment.
20. Care shall be taken at all times to ensure that non-risk plastic and polythene waste shall not be mixed with other waste and shall not get contaminated in the process of collection, handling, transport and storage as well as handing over to waste collectors.
21. Measures used for transport shall be easy to load and unload and suitably covered to prevent spillage as well as from being unsightly.
22. Plastic and Polythene waste shall not be allowed to accumulate for extended periods of time.
23. The collected waste shall be stored in designated storage areas. Adequate measures shall be taken to prevent access by animals and unauthorised persons to such storage areas.
24. The Health Care Institution may work with State, Local Authority or Private sector partners to develop suitable environmentally friendly disposal methods for plastic and polythene waste.
25. Clear and measurable approaches shall be adopted to manage plastic and polythene waste employing the 3R principles for effective waste management, i.e., reduce, reuse and recycle.