

Clinical Waste

Policy

Clinical waste is defined as hazardous or offensive waste arising from:

- any dental, medical, nursing or veterinary practice, or any other practice or establishment providing medical care and services for the sick, injured, infirm or those who require medical treatment;
- any dental, medical, nursing, veterinary, pathological or pharmaceutical research; or
- any dental, medical, veterinary or pathological laboratory practice

and which consists wholly or partly of any of the materials specified in one or more of the Groups listed in the Guidance.

New legislation, Cap. 354O, introduced under the Waste Disposal Ordinance controls the disposal of clinical wastes. The guidance that follows is a brief summary of the procedures recommended by the Environmental Protection Department (EPD) and the arrangements of the University.

Responsibilities

The Department Head must:

- ensure the laboratories are provided with sufficient sharps boxes and heavy duty plastic disposal bags.
- ensure that all waste is packaged and labeled with source identified.
- ensure clinical waste is placed in a dedicated refuse bin.

The Safety Office will:

- apply for and maintain all clinical waste disposal permits.
- appoint a registered clinical waste collector.
- co-ordinate the clinical waste disposal of HKU.

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Guidance

1. Introduction

On August 1st 2011 new regulations governing the production and disposal of clinical waste came into force.

The key points of the legislation are:-

- A licensing system for all clinical waste collectors and disposal facility operators.
- Clinical waste producers are required to manage their clinical waste by consigning it to licensed collectors for delivery to a licensed disposal facility.
- A consignment note (trip ticket) system tracks the movement of clinical waste from source to disposal facility. Copies must be kept for at least a year and if required they must be shown to the relevant authorities.
- The Chemical Waste Treatment Centre (Tsing Yi) is designated as the facility for treatment of clinical waste. A disposal charge for use of the facility is levied.
- A Code of Practice to provide guidance for waste producers and collectors is promoted.

2. Duty of Care

As a waste producer the University has a duty of care to manage the clinical waste produced and is required to:-

- Segregate clinical waste from other waste streams.

- Package and label clinical waste properly for easy identification.
- Provide safe and secure temporary storage areas.
- Ensure staff take necessary safety measures and receive sufficient training.

3. Definition of Clinical Waste

Clinical waste is defined as any substance matter or thing generated in connection with:

- any dental, medical, nursing or veterinary practice, or any other practice or establishment providing medical care and services for the sick, injured, infirm or those who require medical treatment;
- any dental, medical, nursing, veterinary, pathological or pharmaceutical research; or
- any dental, medical, veterinary or pathological laboratory practice

and which consists wholly or partly of any of the materials specified in one or more of the groups of clinical waste listed in the EPD guidance.

Types of Clinical Waste

Group 1 - Used or Contaminated Sharps

This includes syringes, needles (including acupuncture needles), cartridges, ampoules and other sharp instruments which have been used or which have been contaminated with any other group of clinical waste.

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Group 2 - Laboratory Wastes

Unsterilized laboratory stocks, cultures of infectious agents and potentially infectious waste with significant health risk from dental, medical, veterinary or pathology laboratories.

Group 3 - Human and Animal Tissue

All human tissues and animal tissues, organs and body parts as well as dead animals, but excluding those dead animals, animal tissues, organs and body parts arising from veterinary or Chinese medicine sources or practices.

Group 4 - Infectious Materials

This group is comprised of infectious material from patients under strict isolation with any one of a list of serious infections.

Group 5 - Soiled Dressings

Group 5 materials include surgical dressings, swabs and all other waste dribbling with blood, caked with blood or containing free-flowing blood.

Group 6 - Other Wastes

Other wastes likely to be contaminated with infectious materials or clinical wastes and may pose a significant health risk.

What Isn't Clinical Waste?

(1) Radioactive waste, whether arising from medical sources or not, as defined under the Radiation (Control of Radioactive Substances) Regulations (Cap. 303A);

(2) Chemical waste as defined under the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C) including cytotoxic drugs;

(3) Dead animals and animal tissues, organs and body parts arising from veterinary practices, abattoirs, pet shops, farms, wholesale and retail markets, Chinese medicine practices, or domestic sources; and Human corpses;

(4) Pharmaceutical wastes and chemical wastes which are potentially contaminated with infectious materials or clinical wastes are classified as a special type of chemical waste and should be disposed of in accordance with the guidelines on management of chemical waste.

These groups of waste shall be identified and segregated at source from general refuse and placed in an approved one trip container capable of holding the category of waste in a safe and hygienic manner.

4. Packaging

All clinical waste must be placed in labelled bags or a sharps box. Containers may only be used once and under no circumstances are they to be reused or recycled. Table 1 shows the type of container and colour of bag that must be used for the different groups of clinical waste.

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Groups of Clinical Waste	Type(s) of Container	Colour	Sealing
Group 1 - Used or contaminated sharps	Sharps box	YELLOW or combination of YELLOW and WHITE sharps box ^{*1}	Proprietary closure
Group 3 - Human and animal tissues	Heavy duty plastic bag	YELLOW ^{*2}	Plastic tie
Group 2 - Laboratory waste Group 4 - Infectious materials Group 5 - Dressings Group 6 - Other wastes	Heavy duty plastic bag	RED	Plastic tie

Table 1: Packaging requirements for different types of clinical waste. ^{*1} sharps boxes may be put directly into red 660L storage bins at the storage point or alternatively placed in a red clinical waste bag before placing in the storage bin. ^{*2} Small amounts of human or animal tissues may also be placed in red bags as long as they do not generate a nuisance such as a foul odor.



Figure 1: Typical Bags and a Sharps Box (photograph taken from the EPD website)

The EPD are quite specific about the requirements for both bags and sharps box's. They must be made of heavy duty plastic with a capacity of 0.1 m³. They must be 150 microns if made from low density polyethylene, or 75 microns if made from high density polyethylene or polypropylene. They must be legibly marked

with a specified size of biohazard sign depending on the container and bear a horizontal line to indicate when the bag is filled to between 70% and 80% of its maximum volume together with the words "WARNING - DO NOT FILL ABOVE THE LINE". Bags must also be capable

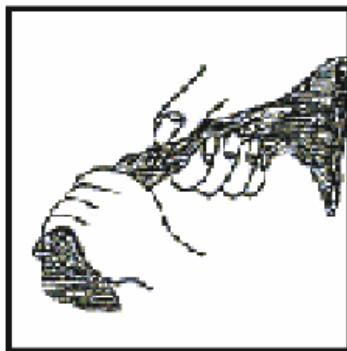
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of being marked with indelible ink and having labels attached securely.

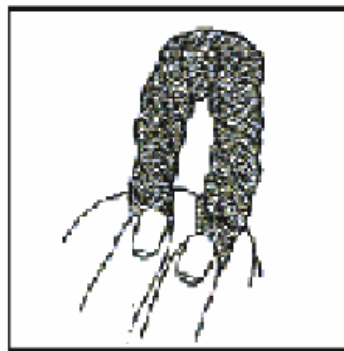
A sharps box must conform with British Standard BS 7320:1990 or a similar standard in respect of resistance to penetration and to leakage after vertical dropping. They must be yellow or yellow and white and marked as for waste bags (for full details see Annex B of the EPD code of practice). As a small waste producer the University is permitted to use other containers as sharps boxes provided that they are rigid, non-fragile, puncture resistant, shatter proof and leak proof. The Safety Office does not

recommend this option as a validated box that conforms to a standard is preferable.

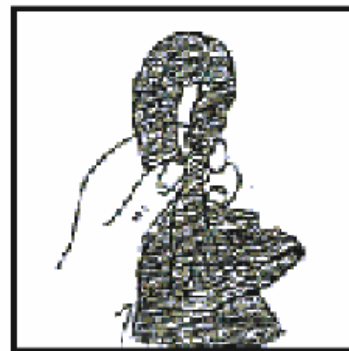
Bags should be sealed by a swan neck tie, tied at the neck with a seal or adhesive tape, as shown in figure one. All bags must be marked with which department; institute, centre or facility has generated the waste along with the waste producer bar code. Yellow tags available from the Safety Office, have been used to identify the source of the bag and it may be possible to attach the bar code to the reverse side of the tag.



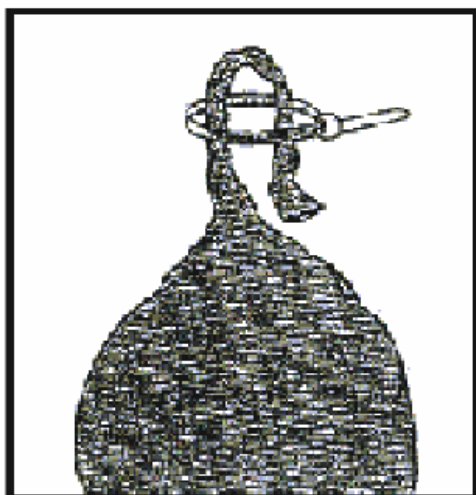
Seal plastic bag when no more than 75% full.



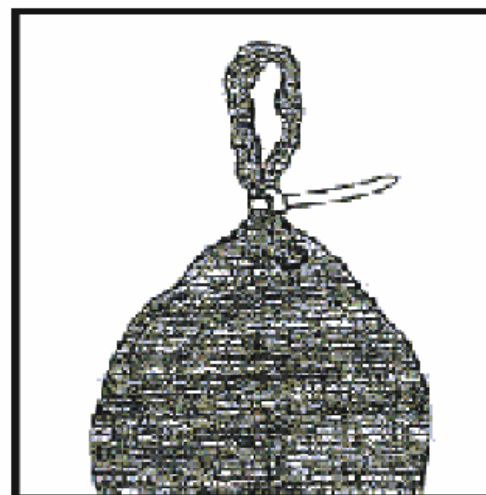
Twist firmly then double over



Hold the twist firmly



Pass the seal over the neck of the bag.



Tighten the seal manually to create an effective seal.

Figure 2: “Swan-neck” Sealing Method for Clinical Waste Bags

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If boxes and drums are used then when closed they must be further sealed with adhesive tape to ensure complete security of the aperture and cover or lid prior to placement of the container into a red clinical waste bag for storage or disposal. Sufficient space should be left in boxes or drums to ensure that they can be sealed securely.

5. Handling

All staff who may be required to handle or move bags of clinical waste by hand within a particular location should:

- (a) check that storage bags, boxes and drums are effectively sealed;
- (b) handle bags by the neck only;
- (c) handle sharps containers and plastic drums safely;
- (d) avoid damaging the packaging and not throw it, drop it, drag it along the ground or step on it;
- (e) know the procedure in the event of accidental spillage and to report accidents;
- (f) check that the seal of any storage container is unbroken when movement is complete; and
- (g) understand the special problems related to special types of clinical wastes, e.g. sharps, cytotoxic wastes etc.



Figure 3: A Typical Spill Kit (photograph from EPD website)

Bodily contact with all clinical waste should be avoided. Gloves should be worn when handling bags, sacks, boxes or drums of clinical waste. Extra care should be taken when handling sharps or their containers.

In the event of spillage of clinical waste, the clean-up operation should be conducted by staff who have some knowledge and training in cleaning up spills. In addition they should be provided with absorbent materials, disinfection chemicals, appropriate protective clothing, masks, eye protection and gloves. (please download the [Order Form](#)).

6. Storage and Collection




Clinical waste must be stored in a dedicated location that exhibits a warning sign to alert all personnel, protects the integrity of the packaging, maintains waste in a non-putrescent state, affords protection from water, wind and rain, and is kept secure from animals and unauthorised persons. Each storage location in the University has the requisite warning signs and standard 660L red containers (for red bags) and 660L yellow containers (for yellow bags i.e.

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human and animal waste). The truck collecting the waste brings empty 660L containers to replace the ones containing waste. Containers with waste are wheeled to the pickup truck, weighed, loaded on the truck and transported to Tsing Yi where the contents are incinerated. The weight is recorded on a trip ticket, the University is given one copy of this record (see Appendix 1 for an example) and is required to keep it for at least a year and provide it for inspection if required to do so.

For the schedule of collection please see Table 2.

Currently (November 2012) the University has 6 sites registered as producing clinical waste. These are:- (1) The Main Campus; (2) The Faculty of Medicine Building; (3) 8-10 Sassoon Road, including the Dexter Mann building, LAU and the Estates building; (4) The Pathology building at QMH; (5) The Hong Kong Jockey Club Interdisciplinary Research Building and (6) The Henry Fok Health and Fitness Complex. There are currently 8 pickup points which include two on the main campus, and two at 8-10 Sassoon Road.

Producer site and bar code	Pick-up Location	Collection Time
<p>THE UNIVERSITY OF HONG KONG Main Campus The University Of Hong Kong Pokfulam Road Sai Ying Pun</p>  <p>PC01/RS/00014992</p> <p>Clinical Waste Producer Premises Code</p>	<p>1. Refuse room Kadoorie Biological Sciences Building</p> <p>2. Refuse room Meng-Wah complex</p>	Every Thursday PM
<p>Li Ka Shing Faculty of Medicine Building The University Of Hong Kong Faculty Of Medicine, The University Of Hong Kong, 21 Sassoon Road, Pokfulam, HK</p>  <p>PC01/RS/00041636</p> <p>Clinical Waste Producer Premises Code</p>	Faculty of Medicine Building, Refuse room	Every Monday and Thursday PM
<p>Dexter Man Bldg. Lab Animal Unit, Pauline Chan Building 8-10 Sassoon Road, Pokfulam, Hong Kong</p>  <p>PC01/RS/00037374</p> <p>Clinical Waste Producer Premises Code</p>	<p>1. Refuse room Pauline Chan building</p> <p>2. Laboratory Animal Unit</p>	Every Monday PM

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Producer site and bar code	Pick-up Location	Collection Time
<p>THE UNIVERSITY OF HONG KONG The Hong Kong Jockey Club Building For Interdisciplinary Research, 5 Sassoon Road, Pokfulam, Hong Kong</p>  <p>PC01/RS/00339083 Clinical Waste Producer Premises Code</p>	<p>Hong Kong Jockey Club Building for Interdisciplinary Research</p>	<p>Every Thursday PM</p>
<p>The University of Hong Kong – Institute of Human Performance Active Health Clinic, 1/F, Henry Fok Health & Fitness Complex, Stanley Ho Sports Centre, 10 Sha Wan Drive, Sandy Bay, Hong Kong</p>  <p>PC01/RS/00343684 Clinical Waste Producer Premises Code</p>		<p>By arrangement</p>
<p>The University Of Hong Kong 8/F, Block T, Queen Mary Hospital, 122 Pok Fu Lam Road, Pokfulam, Hong Kong</p>  <p>PC01/RS/00408542 Clinical Waste Producer Premises Code</p>	<p>8/F, Block T, Queen Mary Hospital</p>	<p>Every Thursday PM</p>
<p>The University of Hong Kong 20/F and 22/F, Block T, Queen Mary Hospital, Pokfulam, Hong Kong.</p>  <p>PC01/RS/00415137 Clinical Waste Producer Premises Code</p>	<p>20/F, Block T, Queen Mary Hospital</p>	<p>First Monday PM of each month</p>

Table 2: Storage Locations, Producer Bar Codes and Collection Schedule of Clinical Waste

Note: Please be aware that the actual time of collection varies at least partly due to traffic encountered by the collection van and any delay from its morning collection schedule. To avoid hygiene problems it is advisable not to place waste, particularly human and animal waste, in the 660L containers until as late as possible in the day. To avoid missing the collection it would also be prudent to aim to get waste to the containers before mid-day.

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7. Examples of Poor Practice

(i) Poorly Packaged Materials



Figure 4: Examples of Poorly Packaged Materials

We have seen on several occasions open sharps containers (e.g. see photographs above). We assumed that on disposal the lids have been knocked off or alternatively lids were never placed on the containers. If the lids were knocked off as appears to be the case for some of the containers it suggests that these sharps boxes are sub-standard as lids on proprietary sharps boxes lock in place. Please ensure that any sharps boxes you purchase conform to one of the international standards such as BS 7320:1990, UN 3292. If boxes like those in the photograph need to be disposed of, the lids might need to be secured with tape.

(ii) Use of the Wrong Type of Bag

The second issue in the photographs above is the yellow cleaner's bag which was split and contained broken glass, including cracked beakers, electrophoresis plates and glass chemical bottles. Please note that the yellow skips are for disposal of human and animal clinical waste NOT glass or other items. Broken glass can be disposed of in normal domestic waste, preferably in a cardboard box which would protect anyone who has to handle the

waste. Yellow cleaner's bags must not be used in the place of yellow biohazard bags.



Figure 5: A Red Waste Bag in a Yellow Bin

In Figure 5 the photograph shows a red bag placed in a yellow skip. This bag started to smell, suggesting it contained animal carcasses. Ultimately the Safety Office had to re-pack it in a yellow biohazard bag (a foul smelling operation after it had been sitting around for several days in the skip). Please only use yellow bags in yellow 660L containers and ensure they conform with the specifications listed in the EPD guide (see above).

(iii) Incompletely Labeled Bags

The red bag shown in Figure 4 did not have a department label, the premises code or a biohazard sign on it. We have also noted quite a

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few red bags being used that do not contain the Biohazard symbol and some that do not contain the department name or premises code. Please ensure you are using the correct bags, labeling them appropriately and disposing of them in the appropriate skips.

(iv) Bags on the Floor or Put in Overfilled 660L Containers



Figure 6: Clinical Waste Bags on the Floor and Overfilled Bins.

Probably the most frequent example of bad practice we have noted is placing bags on the floor or overfilling containers. This generally occurs when the containers are full or difficult to access. Figure 5 shows just such an example with containers overfilled and bags on the floor despite there being an empty container in the far right hand corner of the clinical waste area. Bags must not be left like this. If there is no space available then they should be taken back to the lab and stored there until space does become available.

8. Sources of further Information

Environmental Protection Department dedicated web pages www.epd.gov.hk/epd/clinicalwaste/ (accessed September 2012) which include downloadable copies of the approved “Code of Practice for the Management of Clinical Waste” for Small Clinical Waste Producers. The University is considered a small waste producer despite generating approximately 50,000 Kg of clinical waste per year.

The legislation, Cap. 354O, can be found at:- <http://www.hklii.org/hk/legis/en/reg/354O/> (accessed September 2012).

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