Proper Handling of

Clinical Waste & Chemical Waste



Territorial Control Office Environmental Compliance Division EPD, HKSAR Government

1. Clinical Waste

Clinical Waste Control Scheme

Before the Control Scheme

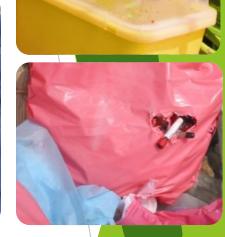
- Code of practice on the management of clinical waste drawn by HA in 1993 implemented in all public hospitals
- Disposal mostly in landfills (permit required but not easy to control); others in hospital incinerators; no centralized incineration



Why Introduce Clinical Waste Control Scheme?

- Infectious and bio-hazardous nature of the waste, disposing of clinical waste with general refuse may give rise to health and safety risks
- No uniform practice adopted by the medical profession in both private and public sectors
- Practice was not subject to legislative control
- Hospital incinerators were substandard







Clinical Waste Control Scheme

Waste Disposal Ordinance (Cap 354)

Definition of clinical waste

Waste Disposal (Clinical Waste) (General) Regulation (Cap 3540)

How to handle clinical waste



Definition of Clinical Waste

Fulfilling 2 criteria:

- Waste arising from healthcare or medicalrelated research/laboratory practice
- Waste consisting of any substance, matter or thing belonging to the 6 groups specified in Schedule 8 of WDO

Group of Clinical Waste



Group 1 - Used or Contaminated Sharps



Group 2 - Laboratory Waste



Group 3 - Human & Animal Tissues

Group 4 - Infectious Materials



Group 6 - Other Wastes

What are **NOT** Clinical Wastes?

- Broken glassware (not a sharp instrument)
- ► Faeces or urine samples
- Vomitus from patients
- Teeth from dental practice
- Dressings with small amount of blood
- Medicine → chemical waste



Waste from self care such as insulin injection at home

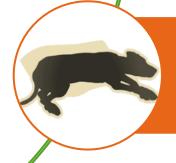
Are they Clinical Wastes?



Needleless syringe



Dressings with small amount of blood



Animal tissues, organs and body parts from veterinary and Chinese medicine practice

Clinical Waste Control Scheme

Codes of Practice (CoPs)

To provide guidance for clinical waste producers and waste collectors)



Waste Producers

Producers of Clinical Waste



Summary - Responsibilities of Waste Producers

Safe waste handling

- Segregation
- Packaging, sealing & labeling
- Storage



Waste Producers

Apply for Premises Code



Arrange disposal

- By licensed clinical waste collector OR
- Self-delivery by healthcare professional

Packaging

Clinical Waste		Container		Colour	Sealing
Group 1	Used or contaminated sharps	Sharps box	BING HATTE LINE NO. OF THE PARTY HATTE LINE AND THE PARTY HATTE LINE AN		Proprietary closure
Group 3	Human and animal tissues	Heavy duty plastic bag			Plastic tie
Group 2 Group 4 Group 5 Group 6	Laboratory Waste Infectious materials Dressings Other wastes	Heavy duty plastic bag			Plastic tie

Labelling



A sticker or tag with the name and address of the waste producer and date of closure

Affixed or pre-print Clinical Waste label at a prominent position

Waste Storage

- Lockable
- Display warning sign (Yellow background, words in black)
- Prolonged storage not recommended
- Exclusive for clinical waste



Premises Code

- A unique number for each premises
 - Separate code for different unit/ floor
 - ▶ New venue, new code
 - Not sharable amongst different premises (even operated by same person or company)
- Regional Offices (RO) to be responsible for handling application and issue of Premises Code
- Free of charge

ABC Medical Clinic/ABC 診所 12A, ABC Building, 123 Street, Mongkok, Kowloon



PC01/RE/00001234

No. of P-code Holders

Type of Clinical Waste Producer	Approx. No. of P-code in 2017	
Public Hospital, Private Hospital, Public Clinic, Government Laboratory, Mortuary, Public Dental Clinic and other Gov. Dept.	610	
Nursing Home	1,180	
Pharmacological/Medical Research Laboratory and Private Medical Laboratory	320	
Veterinary Clinic, Private Clinic, Private Dental Clinic, Medical Beauty, Chinese Medicine Practitioner, Property Management Company and Other	7,340	
Total	9,450	

Quantity of Clinical Waste

Type of Clinical Waste Producer	Approx. Quantity of Clinical Waste in 2017 (in tonnes)
Public Hospital, Private Hospital, Public Clinic, Government Laboratory, Mortuary, Public Dental Clinic and other Gov. Dept.	2,120
Nursing Home	20
Pharmacological/Medical Research Laboratory and Private Medical Laboratory	200
Veterinary Clinic, Private Clinic, Private Dental Clinic, Medical Beauty, Chinese Medicine Practitioner, Property Management Company and Other	490
Total	2,830

Negotiation of Major Producers

- Major producers accounts for 75% of clinical waste (by weight)
- ► Keep constant dialogue with Department of Health (DH) and Hospital Authority (HA) → Make sure all requirement of the Clinical Waste Regulation are fully complied especially for tricky scenarios such as:
 - Handling of clinical waste generated from DH's School Immunisation Teams, outreach Vaccination Subsidy Scheme by private doctors, etc.;
 - Granting exemption for HA's Community Nursing and Psychiatric Services with clinical waste generated at patients' homes; and
 - Joining DH's inter-departmental drills on outbreak of infectious diseases

Exemption

Waste Disposal (Clinical Waste) (General) Regulation, Section 15

- Granted to organisations which could not arrange on-site clinical waste collection, such as NGO's outreach services at patients' homes
- Small amount of clinical waste generated could be brought back to centres by trained staff for proper clinical waste collection
- Special protective gears required: special backpacks, "box-in-box", spill kits, etc.



Exemption

- ▶ A total of 35 exempted organisations, such as
 - "Integrated homecare service" by Tung Wah Group, Caritas, St. James', Salvation Army, etc.
 - ► AFCD's "Outreach Animal Management and Disease Control"; and
 - ► Fire Services Department's "Ambulance Service"

Exemption

- Tasks for processing/renewing exemptions:
 - Review their need for an exemption
 - Examine the Clinical Waste Management Plan submitted, staff qualification, training records & insurance coverage
 - Check any past incident records
 - Perform interview and site inspection
 - ▶ If everything is in order → Approved
- Perform surprise visits during exemption period
- If any terms and conditions are breached → exemption will be nullified



Publicity materials





Waste Collectors

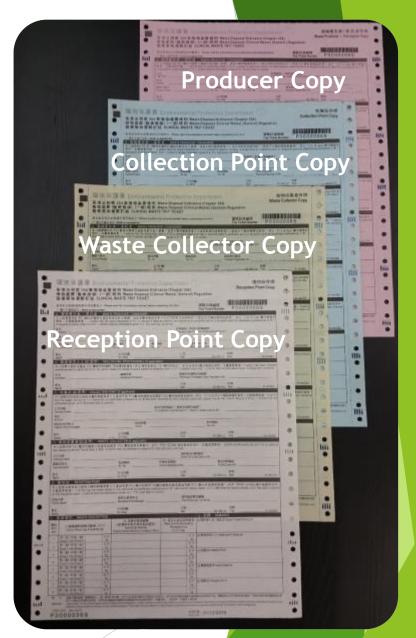
Licenced Waste Collectors

- Collection of clinical waste must operate under licence
- A total of 7 licenced collectors
- Disposal of clinical waste at CWTC



Trip Tickets

- Each waste consignment to be recorded on "clinical waste trip ticket"
- Duly signed and stamped by producer, collector and disposal site



Global Positioning System (GPS)

- Required under Clinical Waste Collection Licence
- 7-day per week x 24-hr each day
- Real-time tracking
- Record should be viewable & recordable





Operation Plan







Within 24hr

Before Collection

Waste Collection

Disposal

- Deport
- Manpower
 - Competent team
 - Organization Structure
- Safety
 - Safety equipment
 - Liability insurance
 - Emergency response plan
 - Back-up measure for failure/

- Transportation
 - Vehicles/Marine vessels
 - Containers
- Clients & waste destinations
- Procedure for waste handling and collection

Record Keeping



Surprise Check

- Check any violation of licensing requirements / conditions
- Prosecute non-compliance cases







Waste Disposal Site

Clinical Waste Disposal Facility

- Only one disposal facility -Chemical Waste Treatment Centre (CWTC) in Tsing Yi
- User Pays Principle
- Disposal fee: \$2,715/tonne



Self-Delivery to CWTC

- Healthcare professionals can send their clinical waste to CWTC direct with the following requirements:
 - By healthcare professionals only
 - Properly packed
 - Label on container
 - Not exceed 5 kg
 - Private car
 - First aid & cleaning equipment
 - Direct delivery within 24 hours



2. Chemical Waste

What is Chemical Waste

Three criteria

- It is a waste.
- 2. It contains any substance or chemical specified in Schedule 1 of the Regulation.
- 3. Such substance or chemical occurs in such form, quantity or concentration that may cause pollution or constitute a public health and/or environmental risks.



Asbestos waste



Waste lubricating oil / mineral oil



Waste electroplating solution



Waste battery



Waste organic solvent



Expired pharmaceutical products

Schedule 1 of the CWR

Part A

Any substance to which the Antibiotics Ordinance (Cap. 137) applies

Asbestos

Dangerous drugs (as defined in the Dangerous

Drugs Ordinance (Cap. 134))

Dangerous Goods, category 2, NES

Dangerous Goods, category 6, NES

Dangerous Goods, category 9, NES

Dibenzofurans

Dioxins

Pesticides (as defined in the Register referred to in Section 4(b) of the Pesticides Ordinance (Cap. 133))

Poisons (Part I) (as defined in the Pharmacy and Poisons Ordinance (Cap. 138))

Polychlorinated biphenyls

Part B

Antimony and its compounds

Arsenic compounds

Barium compounds

Beryllium and its compounds

Boron compounds

Cadmium and its compounds

Chromium bearing solid tannery waste

Chromium and its compounds, NES

Cobalt and its compounds

Copper compounds/copper etchant

Cyanides

Dangerous Goods, Category 3, NES

Dangerous Goods, Category 4, NES

Dangerous Goods, Category 5, NES

Dangerous Goods, Category 7, NES

Dangerous Goods, Category 8, NES

Dangerous Goods, Category 10, NES

Halogenated organic solvents and compounds

Lead and its compounds

Manganese and its compounds

Mercury and its compounds

Mineral oils employed for engine lubrication

Mineral oils, NES

Nickel and its compounds

Non-halogenated organic solvents and compounds

Organo lead compounds

Organo mercury compounds

Organo tin compounds

Paints

as defined in the

Dangerous Goods

Ordinance

(Cap. 295)

as defined

in the

Dangerous Goods

Ordinance

(Cap. 295)

Pesticides (as defined in the Register referred to in Section 4(a) of the Pesticides Ordinance (Cap. 133))

Pharmaceutical products and medicines, NES

Phosphorus compounds excluding phosphates

Selenium compounds

Silver compounds

Sulphides

Thallium and its compounds

Tin compounds

Vanadium compounds

Zinc compounds

Acids, alkalis and corrosive compounds

Acetic acid above 10% acetic acid by weight Acids or acidic solutions, NES with acidity equivalent

to above 5% nitric acid by weight

Ammonia solution above 10% ammonia by weight

Bases or alkaline solutions, NES, with alkalinity equivalent to above 1% sodium hydroxide by weight

Chromic acid above 1% chromic acid by weight

Fluoboric acid above 5% fluoboric acid by weight

Formic acid above 10% formic acid by weight

Hydrochloric acid above 5% hydrochloric acid by weight

Hydrofluoric acid above 0.1% hydrofluoric acid by weight

Hydrogen peroxide solution above 8% hydrogen peroxide by weight

Nitric acid above 5% nitric acid by weight

Perchloric acid above 5% perchloric acid by weight

Phosphoric acid above 5% phosphoric acid by weight

Potassium hydroxide solution above 1% potassium

hydroxide by weight

Potassium hypochlorite solution above

5% active chlorine

Sodium hydroxide solution above 1% sodium

hydroxide by weight

Sodium hypochlorite solution above 5% active chlorine Sulphuric acid above 5% sulphuric acid by weight

NES = Not elsewhere specified

Duty of Waste Producers

- Register with EPD
- Pack waste in proper containers
- Label containers
- Store waste properly in a designated area
- Engage the services of licensed collectors
- Fill in trip ticket for every consignment and keep copy for EPD's inspection

Chemical Waste Producer Registration

Environmental Protection Department 環境保護署

Waste Disposal Ordinance (Chapter 354) 香港法例第 354 章廢物處置條例

Waste Disposal (Chemical Waste)(General)Regulation 廢物處置 (化學廢物) (一般)規例

Application for Registration as a Chemical Waste Producer 化學廢物產生者登記申請表

A. Chemical Waste Producer 化學廢物產生者	Tel. No. 0076 5422 Fax	(中 文)	
	(電話): 9870 5432 (圖5	て傅真):	
B. Location or Premises where the waste is produced 產生廢物的 地點或處所	(商業登記證編號):(如有者) Nature of Business (業務性質):	2233 世, 魯光管, 油漆, 廢潤清	予 油
	Tel. No. 2345 6789 Fax	No. 3456 654	13
	(電話): Contact Person (Full Name) 随ませ	(No. 文傳真):3456 654 (Capacity) 經程	· · · · · · · · · · · · · · · · · · ·
	Contact Person (Full Name) 陳大文 (聯絡人): (全名):	(Capacity) 經到 (職位):	埋
C. Declaration 聲 明	I hereby certify that the particulars given above and belief. 據本人所知及所信,上文所開列的資料,全屬真		pany
	Signature (簽名)	Company chop	(公司印鑑
		where appropriate	如適用者)
	陳大文	經理	1/1/2016
	Name in block letters (正楷姓名)	Capacity (職位)	Date(日期)

WARNING: Any person who knowingly or recklasely provides incorrect or misleading information or emits material particulars or information or knowingly or recklasely certifies as correct anything which is incorrect, in relation to any requirement in the regulations, commits an offence purishable with a maximum fire of \$200,000 and impresonment for 6 months.

鲁:根據樂物建型(《學療物》(一般)規模的規定。任何人士故意或因顧後單地提其不確或即導資料或查議重要事項,又成故意或因顧後單地證明任何不確非別寫正確。再願進法,最高可持利罰款清報 200,000 元 投入財 6 信月。

EPD 129 (Nov 2012)

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Trip Ticket



Chemical Waste Producer's copy

Chemical Waste Collector's copy

Yellow in colour

Pink in

colour

Triplicate



Waste Disposal Site's copy White in colour

Codes of Practice (CoP) and Guideline

- A Guide to the Chemical Waste Control Scheme
- A Guide to the Registration of Chemical Waste Producers
- Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes



A Guide to the Chemical Waste Control Scheme



A Guide to the Registration of Chemical Waste Producers



Packaging, Labelling and Storage of Chemical Wastes





How to find a licensed chemical waste collector?



How to find licensed chemical waste collector?



3. Minamata Convention on Mercury

Background

- To protect human health and environment from anthropogenic emissions and releases of mercury and its compounds
- China ratified Convention on 31 Aug 2016
- Convention entered into force on 16
 Aug 2017 and applies to the Hong
 Kong Special Administrative Region
- EPD is preparing a new piece of legislation



New Legislative Proposal

- Key requirements
 - Control import and export of mercury by a permit system
 - Control storage of mercury and mercury compounds by a permit system
 - Ban import, export or manufacture of certain mercury added products (MAP) after a phase-out date
 - Further ban sale or supply of the MAP after three years from phase-out date
- Consultation conducted on the legislative proposal
- New legislation is expected to come into effect in late 2020

Issues Related to the Medical Sector

- Phase-out mercury containing non-electronic measuring devices
 - Barometers, hygrometers, manometers, thermometers and sphygmomanometers
- Phase down use of dental amalgam
- Mercury or mercury compounds for laboratory use and not exceeding specified quantities are exempted from permit control
- Vaccines containing thiomersal as preservatives and proprietary Chinese medicines are not controlled
- Existing control regimes are being reviewed to see if mercury-containing Chinese herbal medicines could be exempted from the new legislation

Disposal of Phased-out Mercurycontaining thermometer and barometer from clinical or medical sources

- For disposal of their phased-out MAP, the clinic or hospital person-in-charge or medical professional must register with EPD as chemical waste producer (CWP)
- Download and complete EPD registration form (Form EPD 129 available at EPD website)
- After registration, the CWP should contact Ecospace Limited (Chemical Waste Treatment Centre in Tsing Yi) at 2435 7700 to arrange for collection services

Mercury-containing Chinese Herbal Medicines

Chemicals subject to storage permit control	Chinese herbal medicine in Schedule 1 to Cap. 549	
Mercury, Hg	Medicinal mercury (水銀)	
Mercury (I) chloride, Hg ₂ Cl ₂	Calomelas (輕粉) Mercurous chloride & mercuric chloride/(白降丹)	
Mercury (II) oxide, HgO	Hydrargyri Oxydum Rubrum (紅粉)	
Mercury (II) sulphate, HgSO ₄		
Mercury (II) nitrate, $Hg(NO_3)_2$		
Mercury Sulphide, HgS		
Cinnabar	Cinnabaris (朱砂)	

- Q & A -

Thank You