



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health

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Healthcare Waste : How Safe is it?

Healthcare activities protect and restore health and save lives. But what about the waste and by-products they generate? About 80% of the waste that is generated is general waste and only the remaining 20% is considered hazardous.

Types of waste

Waste and by-products cover a diverse range of materials such as:

- **Infectious waste:** waste contaminated with blood and its by-products, cultures and stocks of infectious agents, waste from patients in isolation wards, discarded diagnostic samples containing blood and body fluids, infected animals from laboratories, and contaminated materials (swabs, bandages) and equipment (such as disposable medical devices)
- **Pathological waste:** recognizable body parts and contaminated animal carcasses
- **Sharps:** syringes, needles, disposable scalpels and blades etc.
- **Chemicals:** mercury, solvents and disinfectants
- **Pharmaceuticals:** expired, unused and contaminated drugs; vaccines and sera
- **Genotoxic waste:** highly hazardous, mutagenic, teratogenic or carcinogenic, such as cytotoxic drugs used in cancer treatment and their metabolites
- **Radioactive waste:** glassware contaminated with radioactive diagnostic material or radiotherapeutic materials
- **Heavy metals waste:** broken mercury thermometers

Up to 15% of total waste from healthcare activities are hazardous waste and majority of them comprise of infectious and anatomic waste. Sharps represent about 1% of the total waste but they are a major source of disease transmission if not properly managed. Chemicals and pharmaceuticals account for about 3% of waste from healthcare activities while genotoxic waste, radioactive matter and heavy metal content account for around 1% of the total healthcare waste.

The major sources of healthcare waste are:

- Hospitals and other healthcare establishments
- Laboratories and research centres
- Mortuary and autopsy centres

Key facts

- * Of the total amount of waste generated by health-care activities, about 80% is general waste.
- * The remaining 20% is considered hazardous material that may be infectious, toxic or radioactive.
- * Every year an estimated 16 000 million injections are administered worldwide, but not all of the needles and syringes are properly disposed of afterwards.
- * Health-care waste contains potentially harmful microorganisms which can infect hospital patients, health-care workers and the general public.

- Animal research and testing laboratories
- Blood banks and collection services
- Nursing homes for the elderly.

Health impact

Healthcare waste contains potentially harmful microorganisms which can infect hospital patients, health-care workers and the general public. Other potential infectious risks may include the spread of drug-resistant micro-organisms from healthcare establishments into the environment.

Waste and by-products can also cause injuries. For example:

- Radiation burns
- Sharps-inflicted injuries
- Poisoning and pollution through the release of pharmaceutical products, in particular, antibiotics and cytotoxic drugs
- Poisoning and pollution through waste water
- Poisoning and pollution by toxic elements or compounds, such as mercury or dioxins that are released during incineration.

Sharps

Throughout the world an estimated 16 000 million injections are administered every year. Not all needles and syringes are properly disposed of, creating a risk of injury and infection and opportunities for re-use. WHO estimates that injections with contaminated syringes caused 21 million hepatitis B virus (HBV) infec-

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tions, two million hepatitis C virus infections and 260 000 HIV infections worldwide in year 2000 alone. Many of these infections were avoidable if the syringes had been disposed of safely.

In developing countries, additional hazards occur from scavenging at waste disposal sites and the manual sorting of hazardous waste from healthcare establishments. These practices are common in many regions of the world. The waste handlers are at immediate risk of needle-stick injuries and exposure to toxic or infectious materials.

Vaccine waste

In June 2000, six children were diagnosed with a mild form of smallpox (vaccinia virus) after playing with glass ampoules containing expired smallpox vaccine at a garbage dump in Russia. Although the infections were not life-threatening, the vaccine ampoules should have been treated before being discarded.

Radioactive waste

Occasionally, the public is exposed to radioactive waste, which originates from material used for radiotherapy treatment which has not been disposed of properly. Serious accidents have been documented in Brazil in 1988 (where four people died and 28 had serious radiation burns), in Mexico and Morocco in 1983, in Algeria in 1978 and in Mexico in 1962. Risks associated with other types of healthcare waste, in particular blood waste and chemicals may be significant, but have not been fully assessed. More work needs to be done. In the meantime, precautionary measures should be taken.

Risks associated with waste disposal

Although treatment and disposal of healthcare waste reduces risks, indirect health risks may occur through the release of toxic pollutants into the environment through treatment or disposal.

- Landfills can contaminate drinking-water if they are not properly constructed. Occupational risks exist at disposal facilities that are not well designed, run or maintained.
- Incineration of waste has been widely practiced but inadequate incineration or the incineration of unsuitable materials results in the release of pollutants and ash residue into the air. Incinerated materials containing chlorine can generate dioxins and furans which are human carcinogens and have been associated with a range of adverse health effects. Incineration of heavy metals or materials with high metal content (in particular lead, mercury and cadmium) can lead to the spread of toxic metals in the environment. Dioxins, furans and metals are persistent and bio-accumulate in the environment. Therefore, materials containing chlorine or metal should not be incinerated.

Only modern incinerators operating at 850-1100 °C and fitted with special gas-cleaning equipment are able to comply with the international emission standards for dioxins and furans.

Alternatives to incineration are now available, such as autoclaving, microwaving, steam treatment integrated with internal mixing and chemical treatment.

Improving healthcare waste management

Lack of awareness about the health hazards related to healthcare waste, inadequate training in proper waste management, absence of waste management and disposal systems, insufficient financial and human resources and the low priority given to the topic are the most common problems connected with healthcare waste. Many countries either do not have appropriate regulations or do not enforce them. An essential issue is the clear attribution of responsibility for the handling and disposal of waste. According to the 'polluter pays' principle, the responsibility lies with the waste producer, usually the healthcare provider, or the establishment involved in related activities. To achieve safe and sustainable management of healthcare waste, financial analysis should include all the costs of disposal.

Improvements in healthcare waste management rely on the following key elements:

- Building a comprehensive system addressing responsibilities, resource allocation, handling and disposal. This is a long-term process, sustained by gradual improvements

- Raising awareness of the risks related to healthcare waste and of safe and sound practices
- Selecting safe and environment-friendly management options to protect people from hazards when collecting, handling, storing, transporting, treating or disposing of waste.

Government commitment and support is needed for universal, long-term improvement, although immediate action can be taken locally.

Source

Waste from health-care activities, available from <http://www.who.int/mediacentre/factsheets/fs253/en/>

**Table 3 : Water Quality Surveillance
Number of microbiological water samples - October / 2011**

District	MOH areas	No: Expected *	No: Received
Colombo	12	72	47
Gampaha	15	90	29
Kalutara	12	72	15
NHIS	2	12	NR
Kandy	23	138	NR
Matale	12	72	NR
Nuwara Eliya	13	78	55
Galle	19	114	NR
Matara	17	102	0
Hambantota	12	72	13
Jaffna	11	66	37
Kilinochchi	4	24	02
Manner	5	30	16
Vavuniya	4	24	NR
Mullatvu	4	24	NR
Batticaloa	14	84	NR
Ampara	7	42	38
Trincomalee	11	66	15
Kurunegala	23	138	10
Puttalam	9	84	NR
Anuradhapura	19	114	NR
Polonnaruwa	7	42	26
Badulla	15	90	03
Moneragala	11	66	26
Rathnapura	18	108	NR
Kegalle	11	66	27
Kalmunai	13	78	NR

* No of samples expected (6 / MOH area / Month)
NR = Return not received

Compiled by Dr. Madhava Gunasekera of the Epidemiology Unit

Table 1: Vaccine-preventable Diseases & AFP

12th – 19th November 2011 (46th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2011	Number of cases during same week in 2010	Total number of cases to date in 2011	Total number of cases to date in 2010	Difference between the number of cases to date in 2011 & 2010
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	02	00	00	00	00	00	00	02	02	78	76	+ 02.6 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Measles	00	00	06	00	00	00	00	00	00	06	00	122	88	+ 38.6 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	24	21	+ 14.3 %
Whooping Cough	00	00	00	00	00	00	01	00	00	01	00	50	30	+ 66.7 %
Tuberculosis	123	14	42	00	09	01	00	00	04	193	164	8515	9041	- 05.7 %

Table 2: Newly Introduced Notifiable Disease

12th – 19th November 2011 (46th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2011	Number of cases during same week in 2010	Total number of cases to date in 2011	Total number of cases to date in 2010	Difference between the number of cases to date in 2011 & 2010
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	15	03	07	01	04	02	06	02	08	48	40	3784	3059	+ 23.7 %
Meningitis	01 GM=1	01 ML=1	00	00	00	02 KG=2	00	02 BD=1 MO=1	00	06	15	774	1437	- 46.1 %
Mumps	05	03	02	03	17	02	07	07	11	57	15	2923	1077	+ 171 %
Leishmaniasis	01 KL=1	01 ML=1	04 HB=2 MT=2	00	00	02 KN=2	09 AP=9	00	01 RP=1	18	03	730	358	+ 103.9 %

Key to Table 1 & 2

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.
DPDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

Leishmaniasis is notifiable only after the General Circular No: 02/102/2008 issued on 23 September 2008. .

Dengue Prevention and Control Health Messages

Thoroughly clean the water collecting tanks bird baths, vases and other utensils once a week to prevent dengue mosquito breeding.

Table 4: Selected notifiable diseases reported by Medical Officers of Health
12th - 19th November 2011 (46th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
Colombo	91	8453	1	172	0	6	5	297	0	60	7	443	0	8	1	67	0	2	85
Gampaha	36	3525	0	121	0	19	1	91	0	83	3	487	0	24	0	355	0	6	47
Kalutara	16	1192	0	150	0	9	1	79	0	26	6	362	0	4	2	16	0	1	67
Kandy	34	1238	7	369	0	7	0	38	0	40	5	164	1	102	1	53	0	0	74
Matale	8	303	4	192	0	4	0	35	0	27	0	155	0	15	0	12	0	0	67
Nuwara	0	217	0	317	0	4	0	58	0	154	0	50	0	65	0	31	0	1	69
Galle	0	753	1	103	0	6	0	30	0	28	1	208	2	42	0	11	0	5	32
Hambantota	2	365	0	61	0	4	0	5	0	29	1	489	0	61	0	15	0	1	42
Matara	17	538	0	88	0	3	1	20	0	32	11	358	1	82	1	24	0	1	82
Jaffna	8	314	8	341	0	3	2	267	0	92	0	2	3	202	2	32	0	1	45
Kilinochchi	0	57	0	37	0	3	1	12	1	14	0	2	0	12	0	3	0	0	25
Mannar	0	48	0	23	0	1	0	32	0	83	0	13	0	33	0	2	0	0	80
Vavuniya	0	72	2	38	0	14	0	10	0	58	0	45	0	2	0	2	0	0	25
Mullaitivu	0	16	5	67	0	1	0	7	0	9	0	5	0	2	0	2	0	0	25
Batticaloa	73	969	1	547	0	5	0	7	0	31	1	28	0	3	0	2	0	7	71
Ampara	6	155	14	226	0	1	0	11	0	52	1	59	1	2	0	10	0	0	71
Trincomalee	4	153	5	650	0	2	0	10	0	12	0	95	1	8	0	8	0	1	50
Kurunegala	8	877	2	337	0	12	0	95	1	88	9	1525	0	77	1	67	0	4	48
Puttalam	2	446	0	177	0	2	0	32	3	51	0	121	0	18	1	9	0	2	33
Anuradhapu	1	257	5	140	0	2	0	5	0	34	2	242	0	17	0	25	0	1	47
Polonnaruw	0	268	3	121	0	1	0	14	0	22	0	84	0	1	0	17	0	0	71
Badulla	9	566	10	363	0	6	1	56	0	24	0	77	0	83	2	67	0	0	94
Monaragala	18	270	8	140	0	4	5	43	0	13	1	181	3	76	3	92	0	0	91
Ratnapura	9	935	4	472	1	8	3	55	0	28	8	562	0	30	1	68	0	2	61
Kegalle	15	900	1	110	0	12	1	76	0	24	2	330	0	33	20	279	0	0	64
Kalmune	3	39	4	561	0	0	2	5	0	106	0	6	0	2	0	3	0	1	77
SRI LANKA	360	22926	85	5950	01	139	23	1390	05	1220	58	6093	12	1004	35	1272	00	36	61

Source: Weekly Returns of Communicable Diseases WRCD).

*Dengue Fever / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

**Timely refers to returns received on or before 18th November, 2011 Total number of reporting units =329. Number of reporting units data provided for the current week: 201

A = Cases reported during the current week. B = Cumulative cases for the year.

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