



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Healthcare and Nutrition

231, de Saram Place, Colombo 01000, Sri Lanka

Tele: + 94 11 2695112, Fax: +94 11 2696583, E mail: epidunit@sltnet.lk

Epidemiologist: +94 11 2681548, E mail: chepid@sltnet.lk

Web: <http://www.epid.gov.lk>

Vol. 37 No.23

05th – 11th June 2010

Wastes from Healthcare Activities

Healthcare activities for instance, immunizations, diagnostic tests, medical treatments, and laboratory examinations protect and restore health and save lives. But what about the wastes and by products they generate?

From the total of wastes generated by health care activities, almost 80% are general waste comparable to domestic waste. The remaining approximate 20% of wastes are considered hazardous materials that may be infectious, toxic or radioactive. The wastes and by products cover a diverse range of materials, as the following list illustrates (percentages are approximate values):

- *Infectious wastes: cultures and stocks of infectious agents, wastes from infected patients, wastes contaminated with blood and its derivatives, discarded diagnostic samples, infected animals from laboratories, and contaminated materials (swabs, bandages) and equipment (disposable medical devices etc.)*

- *Anatomic: recognizable body parts and animal carcasses*

Infectious and anatomic wastes together represent the majority of the hazardous waste, up to 15% of the total waste from health care activities.

- *Sharps: syringes, disposable scalpels and blades etc.*

Sharps represent about 1% of the total waste from healthcare activities.

- *Chemicals: for example solvents and disinfectants*
- *Pharmaceuticals: expired, unused, and contaminated; whether the drugs themselves (sometimes toxic and powerful chemicals) or their metabolites, vaccines and sera*

Chemicals and pharmaceuticals amount to about 3% of waste from health care activities.

- *Genotoxic waste: highly hazardous, mutagenic, teratogenic or carcinogenic, such as cytotoxic drugs used in cancer treatment and their metabolites*
- *Radioactive matter, such as glassware contaminated with radioactive diagnostic material or radio therapeutic materials*

- *Wastes with high heavy metal content, such as broken mercury thermometers.*

Genotoxic waste, radioactive matter and heavy metal content represent about 1% of the total waste from health care activities.

The major sources of health care waste are hospitals and other health care establishments, laboratories and research centres, mortuary and autopsy centres, animal research and testing laboratories, blood banks and collection services, and nursing homes for the elderly.

High income countries can generate up to 6 kg of hazardous waste per person per year. In the majority of low-income countries, health care waste is usually not separated into hazardous or non hazardous waste. In these countries, the total health care waste per person per year is anywhere from 0.5 to 3 kg.

Health impacts

Healthcare waste is a reservoir of potentially harmful microorganisms which can infect hospital patients, healthcare workers and the general public. Other potential infectious risks include the spread of, sometimes resistant, microorganisms from healthcare establishments into the environment. These risks have so far been only poorly investigated. Wastes and by products can also cause injuries, for example radiation burns or sharps inflicted injuries; poisoning and pollution, whether through the release of pharmaceutical products, in particular, antibiotics and cytotoxic drugs, through the waste water or by toxic elements or compounds such as mercury or dioxins.

Sharps

Throughout the world every year an estimated 12 000 million injections are administered. And not all needles and syringes are properly disposed of, generating a considerable risk for injury and infection and opportunities for re use.

- *Worldwide, 8-16 million hepatitis B, 2.3 to 4.7 million hepatitis C and 80 000 to 160 000 HIV infections are estimated to occur yearly from re use of syringe needles without sterilization. Many of these infections could be avoided if syringes were disposed of safely. The re use of disposable syringes and needles for injections is particularly*

Contents	Page
1. Article : Waste from Healthcare Activities	1
2. Surveillance of vaccine preventable diseases & AFP (29 th May – 04 th June 2010)	3
3. Summary of newly introduced notifiable diseases (29 th May – 04 th June 2010)	3
4. Summary of selected notifiable diseases reported (29 th May – 04 th June 2010)	4

common in certain African, Asian and Central and Eastern European countries.

- *Regarding injection practices, public health authorities in West Bengal, India, have recommended a shift to re usable glass syringes, as the disposal requirements for disposable syringes could not be enforced.*
- *In developing countries, additional hazards occur from scavenging on waste disposal sites and manual sorting of the waste recuperated at the back doors of health care establishments. These practices are common in many regions of the world. The waste handlers are at immediate risk of needle stick injuries and other exposures to toxic or infectious materials.*

Vaccine waste

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

Radioactive wastes

The use of radiation sources in medical and other applications is widespread throughout the world. Occasionally, the public is exposed to radioactive waste, usually originating from radiotherapy a treatment that has not been properly disposed of. Serious accidents have been documented in Goiânia, Brazil in 1988 in which four people died from acute radiation syndrome and 28 suffered serious radiation burns. Similar accidents happened in Mexico City in 1962, Algeria in 1978, Morocco in 1983 and Ciudad Juárez in Mexico in 1983.

Risks associated with other fractions of health care wastes, in particular blood waste and chemicals, have been relatively poorly assessed, and need to be strengthened. In the meantime, precautionary measures need to be taken.

Risks associated with waste disposal

Although treatment and disposal of health care wastes aim at reducing risks, indirect health risks may occur through the release of toxic pollutants into the environment through treatment or disposal.

- *Land filling can potentially result in contamination of drinking water. Occupational risks may be associated with the operation of certain disposal facilities. Inadequate incineration or incineration of materials unsuitable for incineration can result in the release of pollutants into the air. The incineration of materials containing chlorine can generate dioxins and furans, which are classified as possible human carcinogens and have been associated with a range of adverse effects. Incineration of heavy metals or materials with high metal contents (in particular lead, mercury and cadmium) can lead to the spread of heavy metals in the environment. Dioxins, furans and metals are persistent and accumulate in the environment. Materials containing chlorine or metal should therefore not be incinerated.*
- *Only modern incinerators are able to work at 800 - 1000 °C, with special emission-cleaning equipment, can ensure that no dioxins and furans (or only insignificant amounts) are produced. Smaller devices built with local materials and capable of operating at these high temperatures are currently being field tested and implemented in a number of countries.*
- *At present, there are practically no environmentally friendly, low-cost options for safe disposal of infectious wastes. Incineration of wastes has been widely practiced, but alternatives are becoming available, such as autoclaving, chemical treatment and microwaving, and may be preferable under certain circumstances. Land filling may also be a viable solution for parts of the waste stream if practiced safely. However, action is necessary to prevent the important disease burden currently created by these wastes.*

In addition, perceived risks related to health care waste management may be significant. In most cultures, disposal of health care wastes is a sensitive issue and also has ethical dimensions.

Waste management reasons for failure

The absence of waste management, lack of awareness about the health hazards, insufficient financial and human resources and poor control of waste disposal are the most common problems connected with healthcare wastes. Many countries do not have appropriate regulations, or do not enforce them. An essential issue is the clear attribution of responsibility of appropriate handling and disposal of waste. According to the 'polluter pays' principle, this responsibility lies with the waste producer, usually being the health care provider, or the establishment involved in related activities.

Steps towards improvement

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

- *The build up of a comprehensive system, addressing responsibilities, resource allocation, handling and disposal. This is a long term process, sustained by gradual improvements;*
- *Awareness raising and training about risks related to health care waste, and safe and sound practices;*
- *Selection of safe and environmentally friendly management options, to protect people from hazards when collecting, handling, storing, transporting, treating or disposing of waste.*

Government commitment and support is needed to reach an overall and long-term improvement of the situation, although immediate action can be taken locally.

Healthcare waste management is an integral part of healthcare, and creating harm through inadequate waste management reduces the overall benefits of healthcare.

WHO's response

The first global and comprehensive guidance document, Safe Management of Wastes from Health care Activities, released by WHO in 1999, addresses aspects such as regulatory framework, planning issues, waste minimization and recycling, handling, storage and transportation, treatment and disposal options, and training.

The Interagency Guidelines for the Safe Disposal of Unwanted Pharmaceuticals in and after Emergencies provide practical guidance on the disposal of drugs in difficult situations in or after emergencies are also available.

Planned WHO products and activities include:

- *The publication of a decision-makers guide for health care waste management in primary health care centers*
- *The implementation of health care waste systems at country level*
- *The development of a database on practical options for health care waste management, mainly targeted at developing country situations*
- *Testing of low-cost options for health care waste management*
- *The development of guidance for the disposal of blood and blood bags*
- *An approach for promoting the use of products in health care activities leading to reduced production of wastes or less harmful wastes*

Resource: <http://www.who.int/mediacentre/factsheets/fs253/en/>

Table 1: Vaccine-preventable Diseases & AFP

29th May - 04th June 2010 (22nd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2010	Number of cases during same week in 2009	Total number of cases to date in 2010	Total number of cases to date in 2009	Difference between the number of cases to date in 2010 & 2009
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	03	01	00	00	00	00	00	00	04	10	38	34	+ 05.8 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	-
Measles	00	00	00	00	00	02	00	00	00	02	03	42	62	- 32.3 %
Tetanus	00	00	00	00	00	00	00	00	00	00	01	12	13	- 07.7 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	01	10	26	- 61.5 %
Tuberculosis	107	09	162	18	01	06	02	02	18	406	467	3952	4075	- 03.0 %

Table 2: Newly Introduced Notifiable Disease

29th May - 04th June 2010(22nd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2010	Number of cases during same week in 2009	Total number of cases to date in 2010	Total number of cases to date in 2009	Difference between the number of cases to date in 2010 & 2009
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	09	01	07	04	01	03	06	07	09	47	137	1695	8594	- 80.3 %
Meningitis	15 CB=10 GM=2 KL=3	03 ML=3	06 GL=1 MT=2 HB=3	00	15 TR=2 KM=13	09 KN=7 PU=2	07 PO=2 AP=3	01 BD=1	07 KG=3 RP=4	63	22	749	441	+ 69.8 %
Mumps	01	02	07	01	00	06	02	02	03	24	33	427	820	- 47.9 %
Leishmaniasis	00	00	00	00	00	00	02 AP=2	00	00	02	15	153	414	- 63.0 %

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.

Table 4: Selected notifiable diseases reported by Medical Officers of Health
29th May - 04th June 2010(22nd 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	152	2063	14	101	0	7	2	33	3	24	24	289	1	4	3	30	0	1	92
Gampaha	99	1993	7	34	0	11	3	23	0	8	14	191	1	5	2	44	0	3	87
Kalutara	59	717	14	84	0	8	2	11	0	65	14	168	0	1	0	16	0	1	83
Kandy	28	689	10	150	0	1	0	14	0	2	4	43	2	76	2	29	0	1	78
Matale	13	376	4	202	0	2	2	14	0	66	4	55	0	4	2	26	0	0	83
Nuwara	2	76	16	166	0	0	3	61	1	82	1	15	0	37	2	25	0	0	85
Galle	30	411	9	114	0	4	0	0	0	9	2	38	0	3	0	6	0	3	89
Hambant	17	343	10	33	0	3	0	1	0	7	6	36	2	48	0	4	0	0	100
Matara	13	187	3	74	0	3	0	2	0	39	15	178	3	73	0	10	0	0	82
Jaffna	46	2117	11	95	1	2	3	336	0	5	0	1	1	102	1	37	0	2	67
Kili-	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	25
Mannar	7	95	1	20	0	0	0	29	0	9	0	0	0	0	0	12	0	0	100
Vavuniya	6	43	1	19	0	2	0	26	1	8	1	2	0	1	0	10	0	1	75
Mullaitivu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Batticaloa	15	1031	9	65	0	2	0	15	0	25	2	9	0	1	0	3	0	1	93
Ampara	0	74	0	38	0	1	1	6	0	6	0	23	0	0	0	9	0	0	29
Trincomal	6	748	4	75	0	7	0	3	0	8	1	9	1	9	1	13	0	1	90
Kurunega	42	628	6	128	2	11	0	14	2	8	12	189	1	25	5	58	0	2	95
Puttalam	33	603	11	42	0	4	2	39	0	124	3	57	0	0	1	14	1	1	100
Anuradha	7	754	2	32	0	2	0	4	1	32	5	44	0	20	0	26	0	3	84
Polonnar	10	224	9	39	0	1	0	2	0	7	6	46	0	1	0	18	0	0	100
Badulla	22	325	4	84	0	1	1	52	0	13	3	35	1	42	2	48	0	0	60
Monaraga	17	272	7	98	0	1	0	21	0	4	0	26	0	29	0	53	0	1	82
Ratnapur	82	1057	12	202	0	4	0	9	0	22	10	197	1	31	1	54	0	2	72
Kegalle	22	424	5	57	0	4	0	25	0	18	7	106	0	7	2	42	0	0	82
Kalmunai	4	467	13	112	0	1	0	5	0	0	0	0	0	0	1	8	0	1	77
SRI LANKA	732	16168	182	2065	03	82	19	746	08	591	134	1757	14	519	25	595	01	24	81

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 04th June, 2010 Total number of reporting units =311. Number of reporting units data provided for the current week: 258

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

PRINTING OF THIS PUBLICATION IS FUNDED BY THE WORLD HEALTH ORGANIZATION (WHO).

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk.

ON STATE SERVICE

Dr. P. PALIHAWADANA
CHIEF EPIDEMIOLOGIST
EPIDEMIOLOGY UNIT
231, DE SARAM PLACE
COLOMBO 10