



# 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@slt.net.lk  
 Epidemiologist: +94 11 2681548, E mail: chepid@slt.net.lk  
 Web: <http://www.epid.gov.lk>

Vol. 38 No.06

05<sup>th</sup> – 11<sup>th</sup> February 2011

## Cold Chain Management- Part 1

All vaccines are sensitive biological substances that progressively lose their potency. This loss of potency is much faster when the vaccine is exposed to temperatures outside the recommended storage range. Once vaccine potency has been lost, returning the vaccine to correct storage condition cannot restore it. Any loss of potency is permanent and irreversible. It will affect the efficacy and effectiveness of the vaccine. Thus, storage of vaccines at the correct recommended temperature conditions is vitally important in order that full vaccine potency is retained up to the moment of administration.

The "cold chain" is the name given to a system of people and equipment which ensures that the correct quantity of potent vaccine reaches the recipients who need it from the point of production.

The cold chain system comprises three major elements:

- **Personnel**, who use and maintain the equipment and provide the health service;
- **Equipment** for safe storage and transportation of vaccines; and
- **Procedures** to manage the program and control distribution and use of the vaccines.

Even the most expensive and sophisticated equipment will not ensure an effective cold chain if not correctly used and managed by trained health personnel.

### The Basic cold chain equipments are

- For vaccine storage : Refrigerators, Freezers and Cold-rooms
- For vaccine transport: Cold boxes, Vaccine carriers, Day carriers and thermos flasks
- For cold chain monitoring : Thermometers, Cold chain Monitors, Vaccine vial Monitors and Freeze watch monitors, Electronic temperature monitoring devices.
- Vehicles

Vaccine handling occurs mainly at National, District and institutional levels and at each level

Level	Institution	Team Members
Central level	Epidemiological unit	Epidemiologist and supporting staff
District Level	Regional Medical supplies Division (RMSD)	RDHS,OIC/ RMSD, RE, MO (MCH)
Divisional Level	Office of the MOH	MOH, PHNS, SPHM
Health Facility Level	Immunization Clinic	MOH, PHNS, SPHM, PHM, Nursing Officers and pharmacists in hospitals

different members of the health team are responsible for the maintenance of cold chain.

### Vaccine Stock Management

Having too much vaccine for too long in one level of the cold chain increases the risk of some vaccine reaching its expiration date and having to be wasted. In contrast, when too little vaccine is available, not all the recipients in the target population can be vaccinated.

To be sure that the appropriate amount of vaccine is available, vaccine stocks must be checked continuously, and records kept of all movements of stocks in and out of storage. Accurate vaccine forecasting and ordering depends on knowing the quantity of vaccines in stock at all times. Whenever vaccines and diluents enter or leave a storage, they should be counted. Ordering should be based on a physical count of vaccine stocks rather than on stock records alone. Medical Officer of Health and institutions should send their Monthly Stock Return of Vaccine to the RMSD before the 5<sup>th</sup> of the month. In general the amount of Vaccine to be used during the following month, should be based on what was used during the previous month. At the MOH/ Institutions the "Maximum stock" is equal to the amount of average vaccine used for two months. After receiving the vaccine to ensure that no vaccine remains too long in storage, stocks should be arranged in order of "earliest expiration date — first out" (EEFO) at every level. This

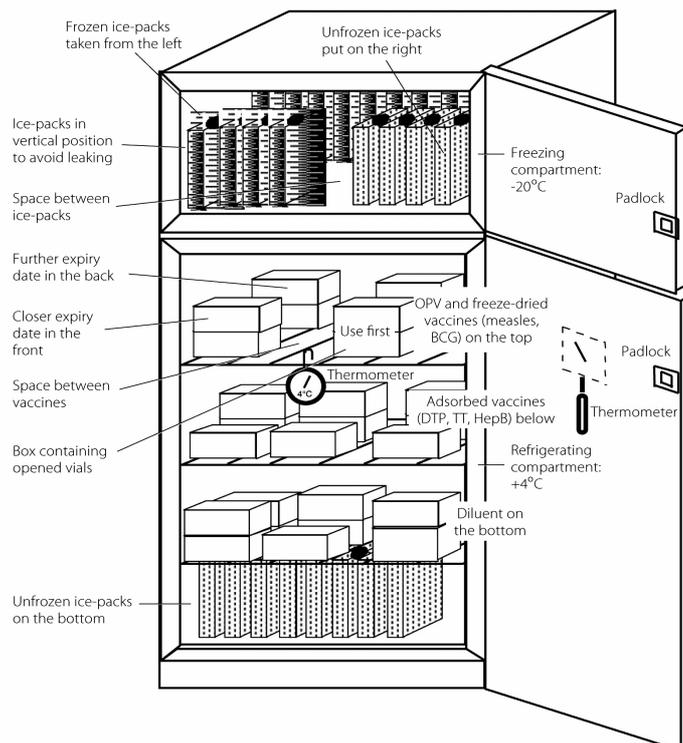
Contents	Page
1. Leading Article - Cold Chain Management (part 1)	1
2. Surveillance of vaccine preventable diseases & AFP (29 <sup>th</sup> January– 04 <sup>th</sup> February 2011)	3
3. Summary of newly introduced notifiable diseases (29 <sup>th</sup> January– 04 <sup>th</sup> February 2011)	3
4. Summary of selected notifiable diseases reported (29 <sup>th</sup> January– 04 <sup>th</sup> February 2011)	4

helps to ensure that old vaccine stocks are distributed before newer ones and limits wastage caused by expiration.

**Vaccine storage**

Cold Chain equipment designed for vaccine storage has to meet two major requirements:

- It must ensure optimum temperature conditions for vaccine storage at all the time.
- It must be large enough to hold the maximum vaccine stock to be stored at the level of the cold chain where it will be used.
- Refrigerators and deep-freezers are used for storage of vaccines in MOH offices. These refrigerators and deep freezers should be identified only for vaccine storage.
- A refrigerator in a MOH office should be able to hold
  - ☑ A one month supply of vaccines and diluents
  - ☑ A one month stock of vaccines and diluents as buffer stocks
  - ☑ Diluents next to the vaccines with which they were supplied
  - ☑ Frozen ice packs in the deep freezers or bottles of water in the bottom of the refrigerator to keep it cool during power failures.
- Nothing in half the total space available to allow air to circulate around the vaccines and diluents as to keep them cool
- Keep open and unopened vials that have been taken out of the refrigerator in a special two boxes in the main section labeled 'returned unopened vials' and 'returned opened vials'. Use these vials in the next session.
- Oral polio vaccines could be placed in the freezer. However



OPV can be kept in the refrigerator up to six months at institutional level. Small quantities brought back from clinics could be kept in the coldest part of the main compartment for a short period of time and used as early as possible.

- Rubella, Measles, Measles and Rubella (MR), MMR, JE (Live) vaccine should be kept in the coldest part of the refrigerator.
- Hepatitis B, DPT, DT,TT and IPV should be stored in the warmest part of the refrigerator where the temperature will most consistently stay between +2 °C to 8 °C. None of the killed vaccines should be exposed to sub zero temperatures, or not stored in the door or the vegetable compartment of the refrigerator.
- The arrangement of the stocks should be such that those with a short expiry date are easily accessible for use before those with longer expiry dates. This will ensure that the newly received vaccines will be used after those received earlier.

**Vaccine transport**

Transport of vaccines is done under cold chain conditions using cold boxes and vaccine carriers. Cold boxes are normally used to transport vaccine from the central level to districts, and sometimes from districts to the MOH level. Vaccine carriers, which are more portable, are commonly used to transport vaccine from MOH to smaller health facilities and to outreach immunization clinics. Vaccine carriers also can be used to carry vaccine from institutional vaccine refrigerator to the institutional immunization clinics and wards.

The vaccines should be loaded to the carriers and cold boxes more cautiously. It should be done as follows.

Quickly take all the frozen ice packs you need from the freezer and close the door. When ice packs are taken out of the freezer keep them at least 10 minutes until the outer layer of ice in ice packs get melted. Put ice packs against each of the four sides of the cold box or vaccine carrier. Take all live vaccines and diluents necessary from the refrigerator and close the door. Put the vaccines and diluents in the middle of the cold box or carrier. Vials may be kept in their boxes or packed without them, depending on how many vials are needed. Do not let DPT, DT, aTd, TT and Hepatitis B vaccines vials touch the ice packs. Pack these vaccine vials first in the plastic container and then place container in the vaccine carrier. Pack ice cubes in a waterproof plastic/ Polythene bag before placing them inside the vaccine carrier. Close the carrier lid tightly.

At the immunization session a foam pad which is a piece of soft foam that fits on top of the ice-packs in a vaccine carrier is used to keep the vaccine vials. There are some incisions on it to allow vaccines to be inserted in the foam. During immunization sessions, the foam pad serves as a temporary lid to keep unopened vaccines inside the carrier cool while providing a surface to hold, protect and keep cool opened vaccine vials.

Temperature of the carriers and cold boxes should be maintained below +8 °C the lid of the vaccine carrier should be tight in transit. Vaccines should be kept inside the carrier while providing a place to hold and protect the vaccines in use. After each use, vials shouldn't be put into the carrier.

Carriers and cold boxes should be kept in a shady place. When the ice packs inside the carrier are not splashing by shaking vaccines are safe. If the ice packs are splashing that means vaccine are too warm.

**Table 1: Vaccine-preventable Diseases & AFP**

29<sup>th</sup> January -04<sup>th</sup> February 2011(05<sup>th</sup> 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	01	01	0	00	00	00	00	02	03	10	07	+ 42.8 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	-
Measles	0	00	00	00	00	00	00	00	00	00	09	04	08	- 50.0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	02	03	- 33.3 %
Whooping Cough	00	00	00	00	01	00	00	00	00	01	01	05	02	+150.0 %
Tuberculosis	44	06	07	18	11	34	08	00	17	145	190	832	888	- 06.3 %

**Table 2: Newly Introduced Notifiable Disease**

29<sup>th</sup> January -04<sup>th</sup> February 2011(05<sup>th</sup> 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	22	05	26	03	01	16	02	02	11	88	61	414	301	+ 37.5 %
Meningitis	04 CB=1 KL=1 GM=2	02 KN=2	01 HB=1	02 MN=1 VA=1	00	03 KR=2 PU=1	01 AP=1	01 BD=1	00	14	27	98	204	- 51.9 %
Mumps	04	0	05	00	00	07	00	01	01	18	19	184	86	+ 113.9 %
Leishmaniasis	00	00	00	00	00	00	11 AP=3 PO=8	00	00	11	12	44	39	+ 12.8 %

**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**

**Reduce, Reuse or Recycle the plastic and polythene collected in your home and help to minimize dengue mosquito breeding.**

**Table 4: Selected notifiable diseases reported by Medical Officers of Health**  
29<sup>th</sup> January -04<sup>th</sup> February 2011(05<sup>th</sup> 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	77	383	5	25	0	2	5	25	0	1	2	34	0	1	0	5	0	1	85
Gampaha	16	134	1	13	0	1	0	13	0	0	6	19	1	4	2	11	0	0	80
Kalutara	13	60	2	16	0	1	1	16	0	2	3	12	0	0	0	1	0	0	83
Kandy	7	31	22	53	0	0	1	53	0	2	2	8	4	10	2	5	0	0	87
Matale	2	12	1	14	0	0	0	14	0	3	1	13	0	1	0	0	0	0	92
Nuwara	4	7	2	18	1	1	0	18	12	12	2	4	8	10	0	1	0	0	62
Galle	4	11	1	8	0	0	0	8	3	4	1	11	1	6	1	4	0	0	89
Hambantota	2	18	0	6	0	2	0	6	0	0	0	6	1	10	0	0	0	0	100
Matara	3	17	0	7	0	0	1	7	0	0	5	12	0	7	0	1	0	0	94
Jaffna	10	68	1	11	1	1	9	11	0	10	0	0	10	42	0	8	0	1	100
Kilinochchi	0	2	0	1	0	0	0	1	0	0	0	0	0	3	0	1	0	0	50
Mannar	1	8	0	0	0	0	0	0	0	0	0	3	0	12	0	0	0	0	60
Vavuniya	1	14	1	4	0	2	3	4	0	0	1	8	0	1	0	0	0	0	100
Mullaitivu	0	2	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	25
Batticaloa	5	34	8	59	0	1	0	59	0	0	0	0	0	0	0	0	0	0	57
Ampara	0	11	1	17	0	0	0	17	0	13	3	10	0	0	0	1	0	0	86
Trincomalee	1	7	0	29	0	0	1	29	0	1	0	11	0	1	0	2	0	0	45
Kurunegala	14	43	2	49	0	2	5	49	11	12	8	24	4	14	0	4	0	0	91
Puttalam	31	103	4	28	0	0	1	28	1	1	0	8	1	2	0	1	0	1	100
Anuradhapu	1	22	2	19	0	1	0	19	0	1	0	25	0	3	0	3	0	0	63
Polonnaruw	1	06	1	17	0	1	0	17	0	8	1	10	0	0	0	0	0	0	57
Badulla	6	28	4	18	0	0	1	18	0	0	1	3	1	3	0	2	0	0	73
Monaragala	3	20	3	8	0	0	0	8	0	0	2	10	0	7	0	3	0	0	55
Ratnapura	5	41	7	41	0	0	2	41	0	1	1	23	0	6	1	8	0	0	78
Kegalle	5	20	2	9	0	1	0	9	1	3	1	13	0	0	3	10	0	0	73
Kalmunai	0	3	1	42	0	0	0	42	0	0	0	1	0	0	0	0	0	0	46
<b>SRI LANKA</b>	<b>212</b>	<b>1105</b>	<b>72</b>	<b>514</b>	<b>02</b>	<b>16</b>	<b>30</b>	<b>514</b>	<b>28</b>	<b>65</b>	<b>40</b>	<b>268</b>	<b>31</b>	<b>143</b>	<b>09</b>	<b>71</b>	<b>00</b>	<b>03</b>	<b>77</b>

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 04<sup>th</sup> February, 2011 Total number of reporting units =320. Number of reporting units data provided for the current week: 246

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@slt.net.lk](mailto:chepid@slt.net.lk).

**ON STATE SERVICE**

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