WEEKLY EPIDEMIOLOGICAL REPORT

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Ministry of Health

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Effective Vaccine Management (Part I)

This series of articles is based on World Health Organization's training module on immunization for mid-level managers and aimed at refreshing the knowledge of health workers on immunization.

An effective vaccine management system is essential for the smooth functioning of the National Immunization Programme (NIP). The effective vaccine management will be discussed under the following main topics

- Storage of vaccines and safe injection equipments
- Transport of vaccines and safe injection equipments
- Estimating vaccine and safe injection needs

Part I & II of this series are mainly focused on the storage of vaccines and safe injection equipments and Part III & IV will mainly discuss Transport of vaccines and safe injection equipments and Estimating vaccine and safe injection needs respectively

Storage of vaccines and safe injection equipments

Vaccine storage conditions

Temperature sensitivity of vaccines

WHO recommends the temperature ranges for storing and transporting vaccine on the basis of data supplied by manufacturers. Each vaccine has its own specific storage requirements, so it is extremely important to know how long and at what temperatures each vaccine can be stored.

Damage can occur if a vaccine is exposed to temperatures outside its correct storage range.

The physical appearance of the vaccine may not tell you if it has been damaged as it can remain visibly unchanged even after loss of efficacy. Once a vaccine has been damaged, it is not possible to recover its potency.

All vaccines can be stored at positive temperatures (between +2 °C and +8 °C) at MOH offices. However some vaccines can be stored at negative temperatures (between -15 °C and -25 °C). **The vaccines that can be stored at negative temperatures are OPV, BCG, Measles, MR and MMR. But vaccines such as DTP-HepB-Hib liquid (Penta), DTP, DT, TT, aTd** ("T-series" of vaccines) **and Live JE vaccine should never be stored at negative temperatures and must be kept strictly between +2 °C and +8 °C. Therefore, these vaccines should be kept on the second shelf in an upright (front-opening) refrigerator and they should be kept in the baskets that are in the middle in an ice lined refrigerator** (Table 1 & 2).

Loss of potency due to heat

Vaccines that have been exposed to temperatures above +8 °C may lose their potency over time. The vaccine vial monitor (VVM) must always be used to guide decisions on the use of vaccine (Figure.3 & 4).

Table 1: Heat sensitivity

Range	Vaccine
most sensitive	OPV
	Measles, MR, MMR
	DTP, DTP-HepB, DTP-Hib, DTP-HepB+Hib, YF
	BCG
	Hib, DT
least sensitive	Td, TT, HepB, JE

Table.2: Freeze sensitivity

Range	Vaccine
most sensitive	HepB
	Hib (liquid)
	DTP, DTP-HepB, DTP-Hib, DTP-HepB+Hib,
	DT
	Td
least sensitive	TT, Hib lyophilised

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Using the VVM to monitor the quality of vaccines

a) Under circumstances where vaccines could have been exposed to excessive heat during shipment or storage, the VVM will always indicate whether or not the vaccine is safe to use.

b) The VVM will only apply to the vaccine in the vial on which it appears. It cannot be used as a proxy for other vaccines; they may have different temperature sensitivities and storage history.

c) The VVM is a useful indicator when conducting outreach activities. Vaccines can be used according to the VVM status, even under intermittent cold-chain conditions . **A VVM will not, however, indicate whether a freeze-sensitive vaccine has been frozen.**

There are currently four types of VVM in use – types 2, 7, 14 and 30. Each number refers to the number of days the VVM takes to reach the discard point if it is kept at +37 ° C. The various types of VVMs are assigned to different vaccines according to their heat sensitivity – for example, a VVM type 2 is assigned to OPV which is a very heat-sensitive vaccine, while VVM type 14 is assigned to DTP-Hep B which is much less heat sensitive.

Compiled by Dr. Sudath Peiris-Assistant Epidemiologist

Source-Cold chain, vaccines and safe-injection equipment management-

Available from whqlibdoc.who.int/hq/2008/WHO_IVB_08.01_eng.pdf

Figure.1: How to store vaccines in an upright refrigerator

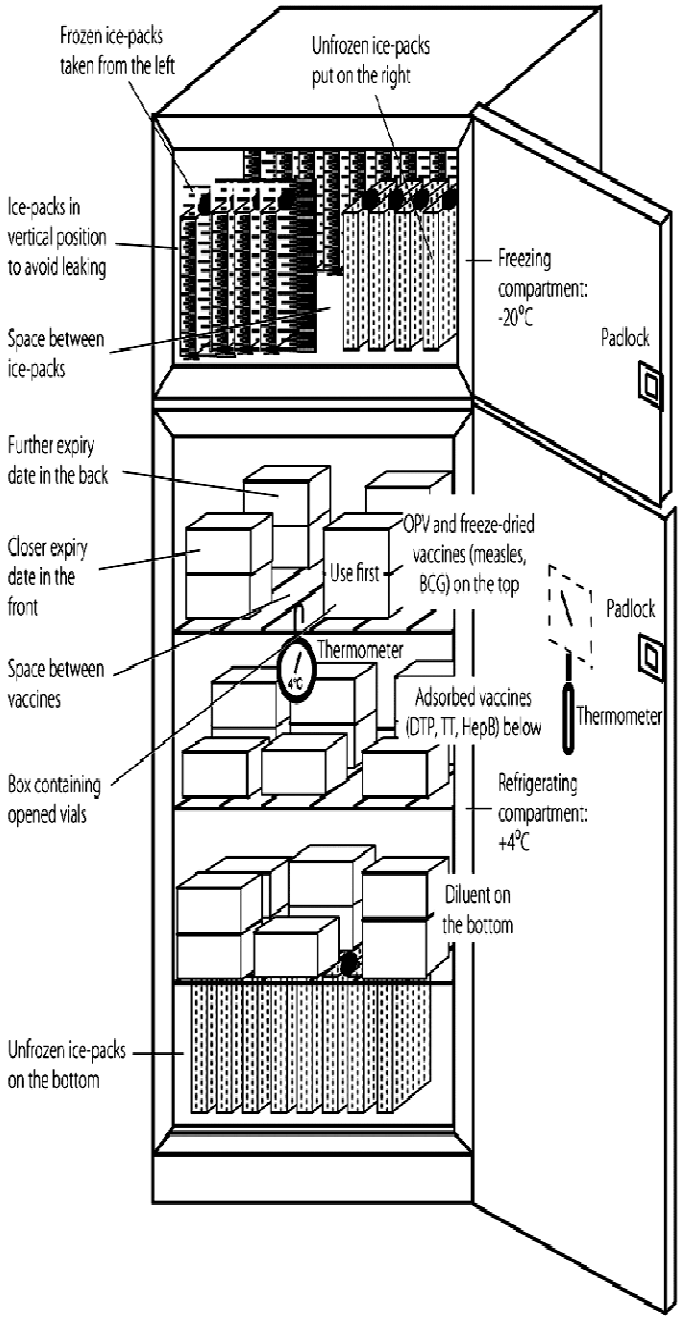


Figure 2: How to store vaccines in an Ice-lined refrigerator

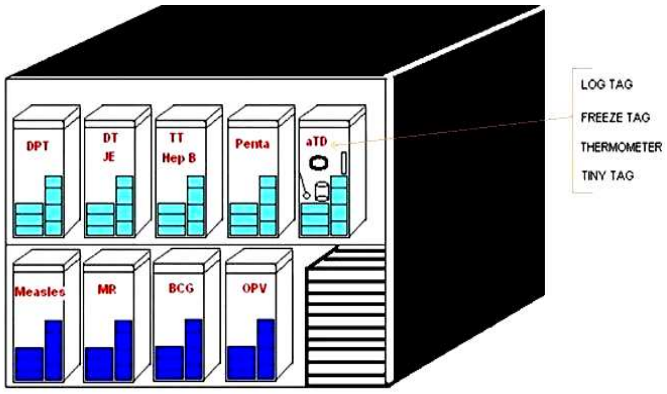


Figure 3: Position of the VVM

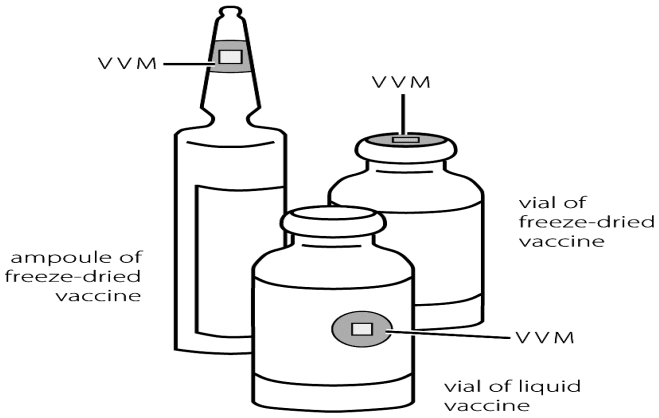
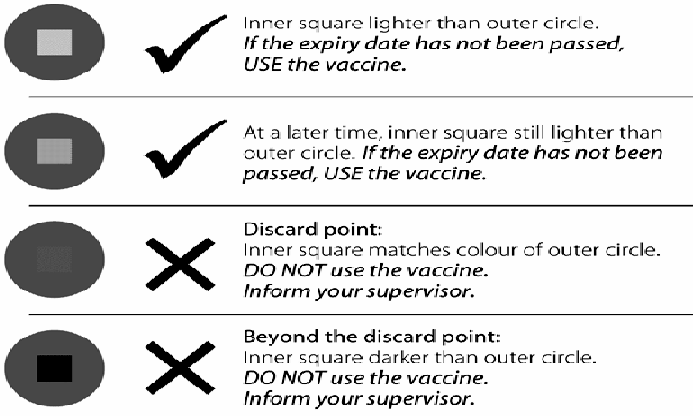


Figure 4: How to read the VVM



to be continued

Table 1: Vaccine-preventable Diseases & AFP

21th – 27th April 2012 (17th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2012	Number of cases during same week in 2011	Total number of cases to date in 2012	Total number of cases to date in 2011	Difference between the number of cases to date in 2012 & 2011
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	01	01	01	00	00	00	00	00	00	03	04	29	28	+ 03.6 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Measles	00	00	00	00	00	00	00	00	00	00	06	20	40	- 50.0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	04	08	- 50.0 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	32	13	+ 146.2 %
Tuberculosis	92	08	54	08	16	53	55	16	06	308	213	2912	2678	+ 08.7 %

Table 2: Newly Introduced Notifiable Disease

21th – 27th April 2012 (17th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2012	Number of cases during same week in 2011	Total number of cases to date in 2012	Total number of cases to date in 2011	Difference between the number of cases to date in 2012 & 2011
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	00	01	03	00	12	03	02	00	04	25	76	1980	1720	+ 15.1 %
Meningitis	00	00	01 MT=1	01 VU=1	00	00	03	00	00	05	06	224	314	- 28.7 %
Mumps	00	03	03	00	16	01	04	00	05	32	50	1779	729	+ 144.0 %
Leishmaniasis	00	00	00	00	00	00	00	00	00	00	08	232	238	- 02.5 %

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

To prevent dengue, remove mosquito breeding places in and around your home, workplace or school once a week.

Table 4: Selected notifiable diseases reported by Medical Officers of Health

21th – 27th April 2012 (17th 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	38	2752	0	42	0	5	0	80	0	24	0	58	0	2	0	22	0	1	**92**
Gampaha	0	2197	0	31	0	5	0	32	0	13	0	77	0	6	0	101	0	0	**100**
Kalutara	0	788	0	35	0	2	0	17	0	3	0	92	0	2	0	9	0	1	**100**
Kandy	0	651	0	31	0	1	1	11	0	10	0	25	0	60	0	12	0	0	**96**
Matale	1	161	0	33	0	4	0	7	0	4	0	17	0	2	1	8	0	0	**83**
Nuwara	0	124	0	54	0	1	0	17	0	1	0	12	0	29	0	8	0	0	**92**
Galle	8	447	0	36	0	3	0	6	0	10	0	59	0	21	0	1	0	0	**79**
Hambantota	0	199	0	18	0	1	0	2	0	7	0	24	0	21	0	5	0	0	**100**
Matara	7	558	0	29	0	4	0	9	0	15	1	63	0	34	0	48	0	0	**71**
Jaffna	0	196	1	80	0	6	0	168	0	18	0	2	0	230	0	2	0	0	**83**
Kilinochchi	0	17	0	6	0	1	1	18	0	39	0	3	0	25	0	4	0	1	**75**
Mannar	0	69	0	10	0	2	0	13	0	13	0	15	0	35	0	1	0	0	**100**
Vavuniya	0	25	1	6	0	17	0	2	0	3	0	14	0	0	0	1	0	0	**25**
Mullaitivu	0	5	0	8	0	1	0	3	0	1	0	2	1	5	0	0	0	0	**75**
Batticaloa	4	498	1	47	0	1	0	10	0	15	0	4	0	0	0	4	0	1	**43**
Ampara	0	35	0	38	0	0	0	3	0	5	0	15	0	0	0	1	0	0	**100**
Trincomalee	0	77	0	58	0	1	0	15	0	1	1	19	0	3	0	1	0	0	**83**
Kurunegala	7	484	2	50	0	6	1	41	0	9	1	58	0	15	0	26	0	2	**83**
Puttalam	1	325	0	22	0	4	0	5	0	1	0	18	0	8	0	1	0	0	**83**
Anuradhapu	2	135	0	24	0	1	0	3	0	1	1	44	1	18	0	28	0	0	**74**
Polonnaruw	0	80	0	11	0	0	0	1	0	0	0	17	0	2	0	26	0	1	**100**
Badulla	0	85	0	30	0	2	0	14	0	1	0	16	0	23	0	18	0	0	**82**
Monaragala	0	72	0	28	0	4	0	9	0	0	0	36	0	37	0	86	0	0	**100**
Ratnapura	14	567	0	85	1	23	1	25	0	2	0	113	0	18	0	48	1	1	**72**
Kegalle	12	525	0	24	0	6	0	12	0	5	0	48	0	20	0	198	0	0	**82**
Kalmune	4	116	0	77	0	1	0	5	0	19	0	2	0	0	0	5	0	1	**54**
SRI LANKA	**98**	**11197**	**05**	**913**	**01**	**102**	**04**	**528**	**00**	**220**	**04**	**853**	**02**	**616**	**01**	**664**	**01**	**09**	**82**

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 27th April, 2012 Total number of reporting units 329. Number of reporting units data provided for the current week: 272
A = Cases reported during the current week. **B** = Cumulative cases for the year.

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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

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