WEEKLY EPIDEMIOLOGICAL REPORT

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Ministry of Health

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Effective Vaccine Management (Part II)

This is the second in a series of four articles on effective vaccine management. Part I & II of this series are on the Storage of vaccines and safe injection equipment and Part III & IV will mainly focus on Transport of vaccines and safe injection equipments and Estimating vaccine and safe injection needs respectively

Freezing of vaccines

The "T-series" of vaccines (DTP, DT, aTd, TT), liquid Pentavalent vaccine and live JE vaccine can be damaged by freezing as mentioned before. The most common cause of exposure to freezing temperatures is the failure to correctly condition ice packs prior to transport. In addition, freezing of vaccines should be suspected if the freeze tag, thermometer/data lodgers show evidence of exposure to freezing temperatures or if the vaccine vials are not homogeneous. Then the "shake test" (Figure I) should be performed before deciding whether to use the vaccine or not. A VVM does not indicate if a vaccine has been frozen. If the shake test procedure indicates that the test sample has been damaged by freezing, you should notify your supervisor immediately. Identify and separate all vaccines that may have been frozen and ensure that none are distributed or used.

Diluent

If the diluent is included in the vaccine packaging, store it between +2 °C and +8 °C. However, if the diluent is supplied separately, it can be stored outside the cold chain but must be cooled before use, preferably for a day or for a period of time sufficient to ensure that the vaccine and diluents are both at temperatures between +2 °C and +8 °C when they are reconstituted. Diluents should never be frozen.

Storage and expiry dates

Each vial shows an expiry date. Never use vaccines when the expiry date has passed, even if the VVM shows no heat damage. In general, always apply the earliest-expiry-first-out (EEFO) principle (i.e. vaccines that are having the closest expiry dates must be stored at the front part of the refrigerator, so that they would be used first)

Photo sensitivity

Some vaccines are very sensitive to light and their exposure to ultraviolet light causes loss of potency. BCG, measles, MR, MMR and rubella vaccines are equally light-sensitive and must always be protected from sunlight and fluorescent (neon) light. Some manufacturers provide these vaccines in vials made of a darker glass.

Storing safe injection equipment

The conditions under which safe-injection equipment (such as AD syringes, reconstitution syringes and safety boxes) can be stored are more flexible than those for vaccines; however, some general guidelines must still be followed in order to avoid contamination and wastage of materials.

Bundling

The term "bundling" has been chosen to define the concept of a theoretical bundle which must comprise each of the following items:

- Good quality vaccines
- Auto-disable syringes
- Safety boxes

The implication is that none of the component items can be considered alone; each item must be considered as part of a "bundle" which contains the other two. "Bundling" has no physical connotation and does not imply that items must be "packaged" together.

Number of available vaccines and safe injection equipment (AD syringes, Safety boxes etc) should be readily available at any given moment and number of available vaccines is usually obtainable from the Vaccine Movement Register. Available safe injection equipments must be available from the stock ledgers.

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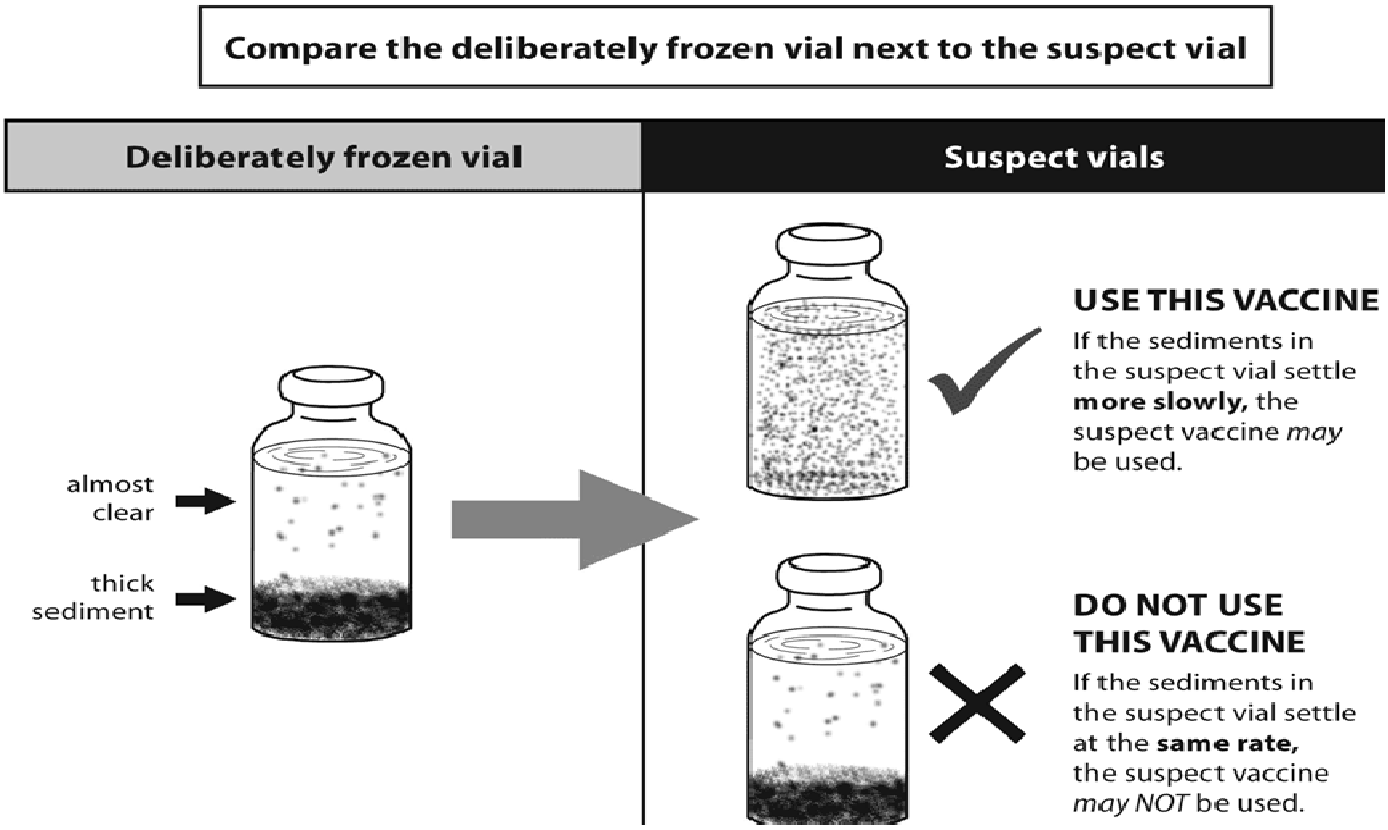
Guidelines for proper storage of health commodities

- Clean and disinfect store room regularly to discourage harmful insects and rodents from entering the storage area.
- Store injection safety commodities in a dry, well-lit, well ventilated store room.
- Protect store room from dampness.
- Store latex products away from electric motors and fluorescent lights.
- Limit access to the storage area for authorized personnel only.
- Stack cartons at least 10cm (4 inches) off the floor, 30cm (1 ft) away from the walls and other stacks and no more than 2.5 m (8ft) high.
- Arrange cartons with arrows pointing up and with identification labels, expiry dates and manufacturing dates clearly visible.
- Store health commodities to facilitate "earliest expiry, first out" (EEFO) procedures and stock management.
- Store health commodities away from chemicals, flammable products and hazardous materials
- Separate damaged and expired health commodities from usable commodities
- Store flammable products separately with appropriate precautions

Figure I-How to conduct the shake test
The shake test is based on the fact that sedimentation is faster in a vial which has been frozen than in a vial, from the same manufacturer, which has not been frozen.
Procedure:
Step 1 — *Prepare a frozen control sample:* Take a vial of vaccine of the same type and batch number as the vaccine you want to test and from the same manufacturer. Freeze the vial until the contents are solid (at least 10 hours at -10°C) and then let it thaw. This vial is the **control sample**. Mark the vial clearly so that it is easily identifiable and will not be used by mistake.
Step 2 — *Choose a test sample:* Take a vial (s) of vaccine from the batch (es) that you suspect has been frozen. This is the *test sample.*
Step 3 — *Shake the control and test samples:* Hold the control sample and the test sample together in one hand and shake vigorously for 10–15 seconds.
Step 4 — *Allow to rest:* Leave both vials to rest by placing the vials on a table and not moving them further.
Step 5 — *Compare the vials:* View both vials against the light to compare the sedimentation rate. If the test sample shows a much slower sedimentation rate than the control sample, the test sample has most probably **not been frozen** and can be used. If the sedimentation rate is similar, the vial has probably been damaged by freezing and **should not be used**.
Note that some vials have large labels which conceal the vial contents. This makes it difficult to see the sedimentation process. In such cases, turn the control and test vials upside down and observe sedimentation taking place in the neck of the vial. Frozen samples can be used for shake tests only when testing the same vaccine from the same manufacturer and the same lot number. **A new sample is needed for each manufacturer and lot**



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

 to be continued

Table 1: Vaccine-preventable Diseases & AFP

28th April- 04th May 2012 (18th 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	00	00	00	00	00	00	00	00	00	00	00	29	28	+ 03.5 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Measles	00	00	00	01	00	00	00	00	00	00	06	20	48	- 58.3 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	04	08	- 33.3 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	02	32	15	+ 146.1 %
Tuberculosis	76	24	26	12	06	51	00	13	10	218	107	3130	2785	+ 12.4 %

Table 2: Newly Introduced Notifiable Disease

28th April- 04th May 2012 (18th 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	00	00	04	04	01	00	00	05	14	105	1908	1834	+ 04.0 %
Meningitis	00	00	00	00	01 BT=1	00	00	00	01 RP=1	02	15	226	332	- 31.9 %
Mumps	00	00	00	00	14	02	00	01	01	18	88	1804	826	+ 118.4 %
Leishmaniasis	00	00	00	00	00	00	00	00	00	00	15	233	254	+ 08.3 %

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

Check the roof gutters regularly for water collection where dengue mosquitoes could breed .

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

28th April- 04th May 2012 (18th 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	0	2752	0	42	0	5	0	80	0	24	0	58	0	2	0	22	0	1	**0**
Gampaha	0	2197	0	31	0	5	0	32	0	13	0	77	0	6	0	101	0	0	**0**
Kalutara	0	788	0	35	0	2	0	17	0	3	0	92	0	2	0	9	0	1	**0**
Kandy	5	666	0	31	0	1	0	11	0	10	0	25	0	60	0	12	0	0	**13**
Matale	1	162	1	34	0	4	0	7	0	4	0	17	0	2	0	8	0	0	**25**
Nuwara	0	124	0	54	0	1	0	17	0	1	0	12	0	29	0	8	0	0	**0**
Galle	1	448	0	36	0	3	0	6	0	10	0	59	0	21	0	1	0	0	**5**
Hambantota	0	200	0	18	0	1	0	2	0	7	0	24	0	21	0	5	0	0	**0**
Matara	0	558	0	29	0	4	0	9	0	15	0	63	0	34	0	48	0	0	**6**
Jaffna	0	196	0	80	0	6	0	168	0	18	0	2	1	231	0	2	0	0	**17**
Kilinochchi	0	17	0	6	0	1	0	18	0	39	0	3	0	25	0	4	0	1	**0**
Mannar	0	69	0	10	0	2	0	13	0	13	0	15	0	35	0	1	0	0	**40**
Vavuniya	0	25	0	6	0	17	1	3	0	3	0	14	0	0	0	1	0	0	**50**
Mullaitivu	0	5	0	8	0	1	1	4	0	1	0	2	0	5	0	0	0	0	**25**
Batticaloa	9	510	0	48	0	1	0	10	0	15	0	4	0	0	0	4	0	1	**29**
Ampara	0	35	0	38	0	0	0	3	0	5	0	15	0	0	0	1	0	0	**0**
Trincomalee	0	77	2	60	0	1	0	15	0	1	0	19	0	3	0	1	0	0	**25**
Kurunegala	2	489	0	50	0	6	0	41	0	9	0	58	0	15	0	26	0	2	**9**
Puttalam	0	325	0	22	0	4	0	5	0	1	0	18	0	8	0	1	0	0	**0**
Anuradhapu	0	136	0	24	0	1	0	3	0	1	0	45	0	18	0	29	0	1	**0**
Polonnaruw	0	80	0	11	0	0	0	1	0	0	0	17	0	2	0	26	0	1	**0**
Badulla	1	86	0	30	0	2	0	14	0	1	0	16	0	23	0	18	0	0	**6**
Monaragala	0	72	0	28	0	4	0	9	0	0	0	36	0	37	0	86	0	0	**0**
Ratnapura	10	598	0	87	0	23	0	25	0	2	0	113	0	18	0	48	0	1	**17**
Kegalle	4	529	1	25	0	6	0	12	0	5	0	48	0	20	1	199	0	0	**9**
Kalmune	1	118	0	77	0	1	0	5	2	22	0	2	0	0	0	5	0	1	**46**
SRI LANKA	**34**	**11262**	**04**	**920**	**00**	**102**	**02**	**530**	**02**	**223**	**00**	**854**	**01**	**617**	**01**	**666**	**00**	**10**	**11**

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 May, 2012 Total number of reporting units 329. Number of reporting units data provided for the current week: 295
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.**

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