WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health
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

VER SRI LANKA - 2013

Vol. 40 No.27 **29th June – 05th July 2013**

Diagnosis of Measles

As mentioned in the previous article, number of measles cases has shown an increase. Following article describes different methods available for diagnosis of measles and advantages and disadvantages of each method.

Measles virus belongs to the

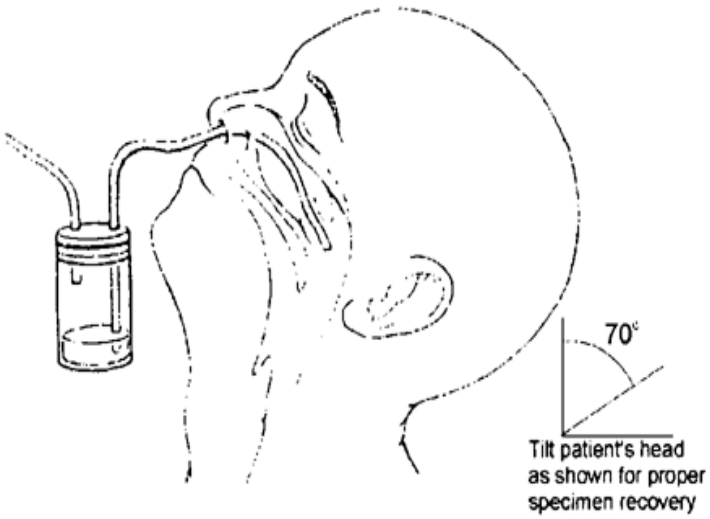
- Family – Paramyxoviridae
- Sub family - Paramyxovirinae
- Genus – Morbilivirus

Measles is a Monotypic Virus (i.e. has only a single serotype) and it has 8 classes (A to H) & 20 genotypes (e.g. A, B1-3, C1-2, D1-8, E, F, G1-2, H1-2). Some of these types are localised in specific regions (Endemic) and some are inactive.

Diagnosis

- Clinical diagnosis
- Laboratory diagnosis
  - Virus Isolation
  - Molecular assays

Figure-1



PCR
Genotypic characterization

- Serology
  Anti measles virus IgM
  IgG – Sero conversion / 4 fold rising titre

(A clinical case of measles, without laboratory evidence for another disease classified as clinical measles case)

Samples for virus isolation
Samples for virus isolation should be collected within 5 days of the onset of rash. Though virus isolation is useful for genetic information, it is not useful for diagnosis of measles. Samples should be collected at the same time as the IgM sample (Virus isolation is positive in 40% of the samples which are positive for measles IgM) and its virus isolation can be done using

- Naso-Pharyngeal Aspirate (NPA) or nasal / throat swab in VTM
- Urine:10-50 ml centrifuged & pellet reconstituted in VTM
- Peripheral Blood Lymphocytes

Naso-pharyngeal aspirates

- good specimen for rubella & measles
- Need trained medical personnel
- Need Special equipment

Urine Sediments

- Easy to obtain except from very young children
- contamination can be a problem
- Need centrifugation processing
- Not a good specimen for rubella virus

Contents **Page**

Throat Swabs / nasal swabs

- Good specimens for both measles and rubella
- Very important to collect within 0-5 days after the onset of rash / first contact with the case
- Should be collected and transported properly

Blood Lymphocytes
Difficult to isolate Peripheral Blood Mononuclear Cells (PBMCs) from blood

Not a good specimen for rubella

Virus Isolation is done using
Cell lines-

- PMK cells
- B95a cells
- Vero/hSLAM cells

CPE- giant cells with multiple nuclei, syncitia formation, Positive in 3-5 days

Confirmation

- Immuno fluorescence
- RT PCR & Sequencing

Samples for serology

Venous Blood – 3 ml of blood should be collected by venepuncture

- Skin should be cleaned with 70% alcohol
- Sample should be collected into a clean, dry, screw capped bottle without anticoagulant
- Label and leave at room temperature for 30 minutes
- Store & transport at 4^0C
- Serum should be separated if transport takes several days

Note-Haemolysed (wet containers cause haemolysis of blood) or contaminated blood is not suitable

Serological diagnosis of measles **dependent on the time of specimen collection**

- first 72 hours - 77% of 1st samples IgM positive
- 4 - 11 days - 100% 1st samples IgM positive
- 28 days - 90% of all 2nd samples IgM positive

For unvaccinated persons - 94%

Transport of specimens

Specimens should always be sent with a request form and the form should contain

- Patient details
- Relevant history

Labelling of specimens

- Proper labelling is important and the label should contain
- Identification details (Name, age, sex, BHT, ward, hospital etc)
- Test required

Transport in a safe container

When transporting specimen to distant laboratories

- Specimen container should be packed in a box with absorbent cotton wool (enough to absorb contents)
- Pack in a 2nd container
- Transport in vaccine carrier or box with ice packs around it.
- Special details (e.g. sample from a HIV or HBsAg positive patient) should be indicated in request form and on the outside container

Oral fluid

- Easy to collect
- Good patient (and guardian) acceptance
- Non Invasive

Stability of oral fluid

- Stable for IgM - 7 days 37°C and 42°C (IgM capture assay, HPA)
- Stable for PCR - 7 days 37°C and 42°C
- Oral Fluid Samples have been successfully used for surveillance of measles (and Rubella and Mumps) in the UK for > 12 years

Oral Fluid sampling: Challenges

- Easy to use but training for collection and testing needed
- Supplies of Oral fluid collection devices usually need to be supplied to health centres
- No easy mechanism for determining adequacy of samples collected
- Must use MicroImmune assay
- Quality Assurance programme is yet to be fully established
  Can use confirmatory testing as for serum PT yet to be developed

Filter paper samples

- Vortex serum for 10s
- Spot 30ul of serum in the middle of each circle (Add 4x 30ul of serum from the same patient on one card)
- Label the filtercard with serum ID
- Dry samples for at least 1 h in a Filter card holder
- After minimum 1h: Put the filter cards in a zip-lock bag preferably with Silica gel desiccant
- Once the samples are dry, the samples can be stored at 4^0C
- Put all filter cards (in zip-lock bags) in an envelope and send to RRL by conventional mail service (Samples can be shipped at room temperature)

The assay recommended by WHO for serum is ELISA for IgM (Sri Lanka is currently using this method for diagnosing measles)

- One serum sample collected between 3-28 days - collected at first contact
- Highly sensitive & specific
- High positive predictive value
- Easy to perform
- Quick accurate results
- Good commercial kits are available

Compiled by Dr. Geethani Galagoda (Consultant Virologist) of the Medical Research Institute

Table 4: Selected notifiable diseases reported by Medical Officers of Health 22nd – 28th June 2013 (26th Week)

RDHS	Dengue Fever		Dysentery		Encephaliti		E Fever		F Poisoning		Leptospiros		T Fever		V Hepatitis		H Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD %	
	A	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**T***	**C****
Colombo	231	4456	7	103	0	13	4	71	1	22	4	129	0	5	0	40	0	0	1	248	0	29	0	0	**85**	**15**
Gampaha	79	1842	6	85	0	11	1	24	0	22	5	200	0	11	0	115	0	0	4	99	0	56	0	5	**100**	**0**
Kalutara	28	886	3	82	0	14	1	46	1	13	5	228	0	1	1	13	0	0	7	165	1	40	0	0	**69**	**31**
Kandy	33	964	2	73	0	6	1	13	0	7	2	43	0	74	0	57	0	0	0	83	0	6	0	2	**87**	**13**
Matale	7	240	0	48	0	2	0	8	0	0	0	40	0	2	0	25	0	0	2	32	0	17	0	3	**62**	**38**
NuwaraEliya	2	125	2	91	0	2	0	6	0	3	1	19	0	42	0	13	0	0	0	47	0	3	0	0	**85**	**15**
Galle	12	459	2	48	0	12	0	2	0	74	3	129	0	25	0	6	0	1	2	155	1	28	0	0	**89**	**11**
Hambantota	7	176	2	25	0	2	0	7	0	11	2	136	1	39	1	65	0	0	1	63	0	15	3	152	**75**	**25**
Matara	10	281	1	42	0	9	1	16	0	27	0	107	0	39	4	116	0	2	1	172	1	36	1	53	**94**	**6**
Jaffna	6	475	2	115	0	5	4	257	0	76	0	6	1	319	2	12	0	0	3	116	3	37	0	0	**92**	**8**
Kilinochchi	3	32	0	13	0	0	0	7	1	3	0	9	0	15	0	0	0	0	0	2	0	7	0	5	**50**	**50**
Mannar	1	56	0	27	0	1	1	53	3	14	0	11	1	17	0	2	0	0	0	11	0	4	0	1	**100**	**0**
Vavuniya	0	47	0	25	0	10	0	7	0	8	0	46	0	2	0	1	0	2	1	19	0	21	0	4	**50**	**50**
Mullaitivu	1	83	0	6	0	1	0	6	1	6	2	28	0	6	0	0	0	2	0	4	0	3	0	9	**40**	**60**
Batticaloa	7	409	3	158	0	3	0	0	0	14	0	23	0	2	0	9	1	1	0	22	0	2	0	0	**79**	**21**
Ampara	0	77	0	46	0	0	0	4	0	2	0	19	0	0	0	2	0	0	0	51	0	7	0	1	**29**	**71**
Trincomalee	0	149	1	38	0	3	0	4	0	1	0	49	0	7	0	3	0	1	0	25	0	2	0	15	**50**	**50**
Kurunegala	47	1992	3	104	0	25	1	27	0	8	4	184	1	19	1	32	0	1	2	219	1	76	1	27	**78**	**22**
Puttalam	15	611	3	36	0	4	0	12	0	35	0	16	0	10	0	2	0	0	3	52	0	15	2	5	**62**	**38**
Anuradhapura	6	344	1	52	1	13	0	3	0	4	1	267	0	15	0	13	0	0	2	97	0	64	7	200	**58**	**42**
Polonnaruwa	1	205	0	39	0	1	0	12	0	53	0	135	0	2	0	19	0	1	2	88	0	10	1	79	**57**	**43**
Badulla	10	251	3	90	0	3	0	10	0	7	2	26	0	45	1	31	0	0	2	78	5	35	0	4	**71**	**29**
Monaragala	6	137	3	62	0	3	0	12	0	18	2	178	0	26	1	50	0	1	1	35	0	10	1	7	**100**	**0**
Ratnapura	23	1137	1	227	0	80	0	30	0	16	6	225	3	22	7	155	0	1	3	94	0	46	0	8	**72**	**28**
Kegalle	14	640	1	49	0	10	1	11	0	5	4	111	0	53	4	141	0	0	3	197	2	63	0	0	**82**	**18**
Kalmune	2	470	1	83	0	1	0	3	0	66	0	4	0	2	0	4	0	0	0	54	0	6	0	1	**38**	**62**
SRI LANKA	**551**	**16544**	**47**	**1767**	**01**	**234**	**15**	**651**	**07**	**514**	**43**	**2368**	**07**	**800**	**22**	**926**	**01**	**13**	**40**	**2228**	**14**	**638**	**16**	**581**	**74**	**26**

Source: Weekly Returns of Communicable Diseases (WRCD).

***T=**Timeliness refers to returns received on or before 28st June , 2013 Total number of reporting units 339. Number of reporting units data provided for the current week:251 C** Completeness

A = Cases reported during the current week. **B** = Cumulative cases for the year.**H Rabies***= Human Rabies, **E Fever***=Enteric Fever, **F Poison*** =Food Poisoning, **T Fever***=Typhus Fever, **V Hepatitis***=Viral Hepatitis

Table 1: Vaccine-Preventable Diseases & AFP

22nd – 28th June 2013 (26th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2013	Number of cases during same week in 2012	Total number of cases to date in 2013	Total number of cases to date in 2012	Difference between the number of cases to date in 2013 & 2012
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	01	00	00	00	00	01	02	43	44	- 02.3 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Mumps	02	02	01	00	01	03	01	01	01	12	14	815	2148	- 62.1 %
Measles	57	07	14	00	04	07	01	04	10	104	00	925	23	+ 3921.7 %
Rubella	01	00	00	00	00	00	00	00	00	01	-	14	-	-
CRS**	00	00	00	00	00	00	00	00	00	00	-	06	-	-
Tetanus	00	00	00	00	00	00	00	01	00	01	00	11	12	- 08.3 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	-	00	-	-
Whooping Cough	00	00	00	01	00	00	01	00	03	04	00	45	19	+ 152.6 %
Tuberculosis	37	24	13	26	33	01	14	51	02	201	130	4110	4353	- 05.6 %
Japanese Encephalitis	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.

RDHS 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, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS =**Congenital Rubella Syndrome

AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

Dengue Prevention and Control Health Messages

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

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. Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

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