WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Healthcare and Nutrition

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WER SRI LANKA - 2009

Guidelines on Clinical Management of Dengue – part 2

New 2009 edition of the dengue guidelines, published by World Health Organization (WHO) provides updated practical information on the clinical management and delivery of clinical services; laboratory diagnosis and diagnostic tests; and surveillance, emergency preparedness and response.

In Sri Lanka National Experts Committee on Dengue Management is now reviewing the proposed clinical guidelines in order to further strengthen the national guidelines.

The WHO clinical guidelines recommends a Stepwise approach to the management decisions of Dengue.

Step I. Overall assessment

- History, including information on symptoms, past medical and family history
- Physical examination, including full physical and mental assessment
- Investigation, including routine laboratory and dengue-specific laboratory

Step II. Diagnosis, assessment of disease phase and severity

Step III. Management

- Disease notification
- Management decisions - depend on the clinical manifestations and other circumstances, patients may:

  ☑ be sent home (Group A);
  ☑ be referred for in-hospital management (Group B);
  ☑ require emergency treatment and urgent referral (Group C).

Triage and management decisions at the primary and secondary care levels (where patients are first seen and evaluated) are critical in determining the clinical outcome of dengue.

Triage is the process of rapidly screening patients soon after their arrival in the hospital in order to identify **those with severe dengue** (who require immediate emergency treatment to avert death), **those with warning signs** (who should be given priority while waiting in the queue so that they can be assessed and treated without delay), **and non-urgent cases** (who have neither severe dengue nor warning signs).

Activities at the primary health care level should focus on:

- Recognizing that the febrile patient could have dengue;
- Notifying early to the public health authorities ;
- Managing patients in the early febrile phase;
- Recognizing the early stage of plasma leakage or critical phase and initiating fluid therapy;
- Recognizing patients with warning signs who need to be referred for admission and/or intravenous fluid therapy to a secondary health care facility;
- Recognizing and managing severe plasma leakage and shock, severe bleeding and severe organ impairment promptly and adequately.

Management decisions

Group A

- **may be sent home with following advice:**
- Adequate bed rest
- Adequate fluid intake

(>5 glasses for average-sized adults or accordingly in children) isotonic electrolyte solution (ORS), fruit juice, Milk, and barley/rice water.

- **Plain water alone may cause electrolyte imbalance.**
- Give Paracetamol (correct dosage important) and Tepid sponging for high fever
- Look for mosquito breeding places in and around the home and eliminate them

What should be avoided?

- Acetylsalicylic acid (Aspirin), Mefenemic acid , Ibuprofen or other NSAIDs

Instruct the care-givers that the patient should be brought to hospital immediately if

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any of the following occur:

• Bleeding:
  – red spots or patches on the skin
  – bleeding from nose or gums
  – vomiting blood
  – black-coloured stools
  – heavy menstruation/vaginal bleeding

• Frequent vomiting
• Severe abdominal pain
• Drowsiness, mental confusion or seizures
• Pale, cold or clammy hands and feet
• Difficulty in breathing

Group B

Patients who should be referred for in-hospital management and close observation

Admission criteria

1	Warning signs	Any of the warning signs • Abdominal pain or tenderness • Persistent vomiting • Clinical fluid accumulation • Mucosal bleeding • Lethargy, restlessness • Liver enlargement >2 cm • Laboratory: increase in haematocrit concurrent with rapid decrease in platelet count
2	Signs and symptoms related to hypotension (possible plasma leakage)	• Dehydrated patient, unable to tolerate oral fluids • Giddiness or postural hypotension • Profuse perspiration, fainting, prostration during defervescence • Hypotension or cold extremities
3	Bleeding	• Spontaneous bleeding, independent of the platelet count
4	Organ impairment	• Renal, hepatic, neurological or cardiac –enlarged, tender liver, although not yet in shock –chest pain or respiratory distress, cyanosis
5	Findings through further investigations	• Rising haematocrit • Pleural effusion, ascites or asymptomatic gall-bladder thickening
6	Co-existing conditions	• Pregnancy • Co-morbid conditions, such as diabetes mellitus, hypertension, peptic ulcer, haemolitic anemias and others • Overweight or obese (rapid venous access is difficult in emergency) • Infancy or old age
7	Social circumstances	• Living alone • Living far from health facility • Without reliable means of transport

If the patient has dengue with warning signs

- **Treatment**
  - Obtain reference Haematocrit before fluid therapy.
  - Give isotonic solutions -0.9% saline, Ringer's Lactate according to clinical response and Haematocrit:

Reduce intravenous fluids gradually when the rate of plasma leakage decreases towards the end of the critical phase.

- **Monitor**
  - vital signs and peripheral perfusion (1–4 hourly until patient is out of critical phase
  - Urine output (4–6 hourly)
  - Haematocrit (before and after fluid replacement, then 6–12 hourly)
  - Blood glucose
  - Other organ functions

If the patient has dengue without warning signs,

- **Treatment**

Encourage oral fluids. If not tolerated, start intravenous fluid therapy 0.9% saline or Ringer's Lactate at maintenance rate.

- **Monitor**
  - Temperature pattern
  - Volume of fluid intake and losses
  - Urine output (volume and frequency)
  - Warning signs
  - Haematocrit, WBC and platelet count

Group C

Patients in the critical phase of disease with severe dengue, require emergency treatment and urgent referral , i.e. when they have**:**

- severe plasma leakage leading to shock and/or fluid accumulation with respiratory distress;
- severe haemorrhages;
- severe organ impairment

- **Treatment**

• Patients with severe dengue should be admitted for inward management to a unit **with access to blood transfusion facilities**.

Judicious intravenous fluid resuscitation is the essential and usually sole intervention required. Fluid resuscitation must be clearly separated from simple fluid administration. This is a strategy in which larger volumes of fluids are administered for a limited period of time under **close monitoring** to evaluate the patient's response and to avoid the development of pulmonary oedema.

- **Monitor**

Patients with sever dengue should be frequently monitored until the danger period is over. A detailed fluid balance of all input and output should be maintained

Parameters that should be monitored include vital signs and peripheral perfusion (every 15–30 minutes until the patient is out of shock, then 1–2 hourly). In general, the higher the fluid infusion rate, the more frequently the patient should be monitored and reviewed in order to avoid fluid overload while ensuring adequate volume replacement.

- **Complications**
  - Hepatitis– may lead to liver failure
  - Encephalitis
  - Encephalopathy: metabolic, hepatic etc
  - Disseminated intravascular coagulation
  - Myocarditis and Cardiomyopathy
  - Acute renal failure
  - Haemolytic uraemic syndrome

"For a disease that is complex in its manifestations, management is relatively simple, inexpensive and very effective in saving lives so long as correct and timely interventions are instituted"

Source: ***http://apps.who.int/tdr/svc/publications/training-guideline-publications/dengue-diagnosis-treatment***

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Table 1: Vaccine-preventable Diseases & AFP

19th – 25th December - 2009(52nd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2009	Number of cases during same week in 2008	Total number of cases to date in 2009	Total number of cases to date in 2008	Difference between the number of cases to date in 2009 & 2008
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	00	00	0	00	00	00	00	00	04	76	103	-26.2 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	-
Measles	00	00	00	00	00	00	00	00	01	01	00	177	108	+63.9 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	29	36	-19.4 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	01	65	57	+14.0 %
Tuberculosis	18	09	48	00	10	10	00	06	10	110	234	10179	8181	24.4 %

Table 2: Newly Introduced Notifiable Disease

19th – 25th December - 2009(52nd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2009	Number of cases during same week in 2008	Total number of cases to date in 2009	Total number of cases to date in 2008	Difference between the number of cases to date in 2009 & 2008
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	08	11	09	01	00	07	04	02	05	47	57	14329	5493	+160.1 %
Meningitis	03 CB=2 KT=1	08 NE=3 KN=5	04 GL=2 MT=1 HB=1	00	01 TR=1	09 KR=8 PU=1	11 PO=8 AP=3	01 MO=1	07 RP=6 KG=1	44	18	1888	1300	45.2 %
Mumps	04	00	04	00	00	00	02	01	06	17	37	1718	2909	-40.9 %
Leishmaniasis	00	00	02 MT=2	00	00	00	03 AP=3	00	00	05	Not available*	663	Not available*	-

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

19th –25th December - 2009(52nd Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	124	4597	3	246	0	13	1	227	0	120	3	1182	0	6	1	158	0	7	**77**
Gampaha	38	4408	0	170	0	23	1	53	0	38	1	481	0	10	1	268	0	6	**33**
Kalutara	13	1529	2	370	2	16	2	64	13	60	2	588	0	1	3	102	0	4	**67**
Kandy	50	4173	23	359	0	8	1	32	0	67	0	240	3	176	4	155	0	1	**72**
Matale	9	2016	3	161	0	4	0	33	0	39	1	335	0	5	2	96	0	2	**58**
Nuwara	6	290	1	416	0	2	0	198	0	803	0	47	0	81	0	102	0	0	**54**
Galle	7	636	2	263	0	10	1	6	0	111	4	260	0	15	0	37	0	6	**63**
Hambantota	5	970	3	106	0	8	0	8	1	17	0	104	4	93	0	53	0	0	**73**
Matara	6	1149	2	272	0	9	1	112	0	27	2	247	1	155	1	71	0	1	**94**
Jaffna	23	227	1	145	0	3	3	361	0	30	0	1	10	142	0	205	00	5	**38**
Kilinochchi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Mannar	4	14	3	137	0	1	0	125	0	23	0	0	0	1	0	77	0	0	**100**
Vavuniya	192	902	3	1660	0	25	0	705	0	5	0	8	0	6	0	3780	0	0	**50**
Mullaitivu	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	**0**
Batticaloa	22	607	4	353	0	15	1	28	0	56	0	13	0	6	0	24	0	6	**36**
Ampara	1	260	2	145	0	1	0	12	0	8	2	16	0	3	0	103	0	1	**14**
Trincomalee	10	361	7	239	0	4	0	25	0	9	0	23	0	19	0	61	0	1	**40**
Kurunegala	47	2902	9	311	0	13	1	88	1	16	6	184	3	102	1	173	0	4	**75**
Puttalam	85	767	8	195	0	7	0	80	0	11	1	98	0	31	0	44	0	1	**67**
Anuradhapu	28	628	6	186	0	8	0	9	0	55	1	98	0	31	0	206	0	4	**53**
Polonnaruw	1	205	2	146	0	4	0	21	0	15	0	76	0	10	1	98	0	0	**43**
Badulla	4	380	13	434	0	5	3	69	0	37	0	101	0	137	1	325	0	1	**67**
Monaragala	4	194	7	182	0	2	0	25	2	38	0	17	0	68	0	94	0	2	**64**
Ratnapura	2	2090	8	542	0	22	0	55	2	47	5	385	0	37	0	265	0	2	**44**
Kegalle	8	3808	2	195	0	10	1	59	0	7	2	345	0	38	1	285	0	1	**73**
Kalmunai	0	305	0	130	0	2	0	15	0	8	0	7	0	3	0	26	0	0	**0**
SRI LANKA	**689**	**33400**	**114**	**7365**	**02**	**215**	**16**	**2311**	**19**	**1647**	**30**	**4856**	**21**	**1176**	**16**	**6808**	**00**	**55**	**56**

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 25th December, 2009 Total number of reporting units =311. Number of reporting units data provided for the current week: 236
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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