STANDARD OPERATING PROCEDURE

Diagnosis and Management of Dengue Fever

Special Region (1)

Union of Myanmar

Version: **1.0**

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Approved by: **Internal Medicine**

1. Purpose

To provide a standardized, safe, and evidence-based approach for the diagnosis and management of dengue fever, ensuring early recognition of warning signs, timely fluid management, and prevention of complications.

2. Definition

Dengue is an acute viral infection caused by dengue virus (DENV 1-4), transmitted by *Aedes* mosquitoes.

3. Classification (WHO 2009)

3.1 Groups

1. Dengue without warning signs
2. Dengue with warning signs
3. Severe Dengue

3.2 Dengue without Warning Signs

Fever + ≥2 of the following criteria:

- Headache
- Retro-orbital pain
- Myalgia / arthralgia
- Rash
- Mild bleeding (e.g., gum bleeding)
- Leukopenia

3.3 Dengue with Warning Signs

- Abdominal pain/tenderness
- Persistent vomiting

- Clinical fluid accumulation (ascites/pleural effusion)
- Mucosal bleeding
- Lethargy/restlessness
- Hepatomegaly (>2 cm)
- Rising haematocrit with falling platelets

3.4 Severe Dengue

- Severe plasma leakage → shock (Dengue Shock Syndrome)
- Severe bleeding
- Severe organ involvement:
  - Liver (AST/ALT >1000)
  - CNS (encephalopathy)
  - Heart (myocarditis)

4. Clinical Phases

Febrile phase (Day 1-3), Critical phase (Day 3-7), Recovery phase (Day 7+).

5. Diagnosis

5.1 Clinical Diagnosis

- Fever + epidemiological exposure
- Warning signs assessment

5.2 Laboratory

Test	Interpretation
CBC	↓ Platelets, ↑ haematocrit
NS1 antigen	Early (Day 1-5)
IgM/IgG	After Day 5
LFT	Mild-moderate elevation

6. Management

6.1 Group A - Outpatient Management

- Oral fluids: **2-3 L/day (ORS, water, soup)**
- Paracetamol for fever
- Do NOT transfuse platelets in dengue unless there is bleeding or a clear procedural indication.
- Avoid: NSAIDs, Aspirin
- Daily follow-up: Platelet, Haematocrit, Warning signs

6.2 Group B: Inpatient Care with IV Fluids and Monitoring

Fluid Therapy (Key Principle)

- Start: 0.9% Normal Saline
- Rate: 5-7 mL/kg/hr (initial)

Monitoring

- Vitals: every 2-4 hrs
- Urine output: ≥0.5 mL/kg/hr
- Haematocrit: 6-12 hourly

Adjustment

- ↑ Haematocrit → increase fluids

- ↓ Haematocrit + unstable → suspect bleeding

Platelet transfusion: Do NOT transfuse platelets in dengue unless there is bleeding or a clear procedural indication.

6.3 Group C: Emergency Management with Fluid Resuscitation and ICU Care

Immediate Management

Fluid Bolus: 10-20 mL/kg crystalloid over 15-30 min

Reassessment

- Pulse pressure
- Capillary refill
- Urine output

If Not Improved

- Repeat bolus
- Consider colloid

Note: FLUID MANAGEMENT PRINCIPLES - Avoid overhydration, monitor urine output and hematocrit. Do NOT transfuse platelets in dengue unless there is bleeding or a clear procedural indication.

7. Recovery Phase and Discharge Criteria

7.1 Clinical Improvement

- General well-being improves
- Appetite returns
- Gastrointestinal symptoms resolve
- Hemodynamic status stabilizes
- Diuresis begins

7.2 Skin Findings

- Confluent erythematous or petechial rash
- Characteristic: "Isles of white in a sea of red" appearance

- Generalized pruritus (in some patients)

7.3 Cardiovascular Changes

- Bradycardia is common
- ECG changes may be present

7.4 Haematological Changes

- Haematocrit: Stabilizes or decreases (haemodilution from reabsorbed fluid)
- White blood cells: Rise soon after defervescence
- Platelets: Recover later than WBC count

7.5 Potential Complications

May occur if excessive IV fluids were given:

- Massive pleural effusion
- Ascites
- Pulmonary oedema
- Congestive heart failure

7.6 Discharge Criteria (all should be met)

- Afebrile for 24-48 hours
- Clinically stable with adequate oral intake and urine output
- No warning signs
- Stable or decreasing hematocrit
- A rising platelet trend

8. Prevention

Mosquito control and personal protection.

9. References

1. World Health Organization. *Dengue: Guidelines for Diagnosis, Treatment, Prevention and Control*. Geneva: WHO; 2009.
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4. Simmons CP, Farrar JJ, Nguyen VV, Wills B. Dengue. *N Engl J Med*. 2012;366:1423-32.
5. Guzman MG, Harris E. Dengue. *Lancet*. 2015;385:453-65.