MODULE 7: Outpatient Management

Dengue Clinical Management

Acknowledgements

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Dengue deaths by age groups

Dengue deaths by age group, n=80, 2009

- <15 yrs: 10
- 15 - <35: 32
- 35 - <50: 24
- >50 yrs: 14

Ministry of Health, Malaysia, 2009
30% seek treatment on the day 1 of disease onset
67% seek treatment within 3 days of disease onset

* Health seeking behaviour will differ by country and by patient demographics such as sex, socioeconomic status, and ethnicity.
Dengue deaths: duration between onset of disease and admission *

49% of dengue deaths admitted within 3 days of illness onset

* Admission time varies by country and within countries by year, season, system capacity, e.g. limited hospital beds during an epidemic.
38% of dengue deaths occurred within 24 hours of admission
57% within 48 hours
Reality check #1

Dengue patients seek medical attention early in the febrile phase.

Why do patients die if they seek treatment early?
Reality checks #2 and #3

In the early febrile phase, it is difficult to recognize dengue and impossible to predict the course of illness.

- Daily ambulatory assessment in the febrile stage is essential to avoid unnecessary admissions and detect patients developing severe dengue.

Comprehensive outpatient management, early detection and management of shock save lives.
General facts of management

The Bad News:

- No curative treatment or vaccine currently available
- Disease could be fatal (as high as 20% for severe dengue)

The Good News:

- Several good candidate vaccines are in Phase 1, 2 & 3 clinical trials
- Proper treatment could reduce CFR of severe dengue to <1%*
- Treatment is simple, inexpensive and very effective in saving lives so long as correct and timely interventions are instituted.

Certain things are common: Recognize that a febrile patient could have dengue especially during outbreaks.

Disease notification of suspected cases is essential to assist vector control efforts.

How to save lives

What are the keys to a good clinical outcome?

1. Early recognition of dengue and differential diagnosis

2. Identification of clinical problems during the different phases of dengue
   - Early recognition of shock

3. A rational approach to case management
   - Outpatient and home management of dengue
   - Inpatient management of dengue
   - Early management of shock
Management of dengue

Step 1: History taking

Step 2: Clinical examination: 5-in-1 magic touch

Step 3: Investigations

Step 4: Diagnosis with dengue phase and severity

Step 5: Management decision

Group A
- Send home

Group B
- Refer for in-hospital management

Group C
- Require emergency treatment and urgent referral
# Outpatient management: Group A

Patients who are able to “drink enough to pee enough”

## Group A – Send home if patient meets all of the following

- **Intake:** Getting adequate volume of oral fluids
- **Output:** Passing urine at least once every 4 to 6 hours
- Does not have any warning signs
- Has stable haematocrit and hemodynamic status
- Does not have co-existing conditions

### Follow-up procedures

1. Give anticipatory guidance before sending home (see patient handout)
2. Follow up daily
3. Do serial CBCs
4. Identify warning signs early
What is adequate oral intake?
6 to 8 glasses of fluid for adults and accordingly in children

What types of fluid?
Milk, coconut water, fruit juice (caution with diabetes patient), oral rehydration solution, barley water, rice water, clear soup
Water alone may cause electrolyte imbalance.

Give paracetamol if fever is higher than 38°C
Adult - not more than 4 g per day
Child - 10 mg/kg/dose, not more than 4 times a day
Tepid (lukewarm water) sponging
Do not give ibuprofen or aspirin (or other non-steroidal anti-inflammatory drugs)
4. Reduce breeding habitats around the home and kill adult mosquitoes

5. Return to hospital IMMEDIATELY if no improvement or warning signs appear

- Frequent vomiting, unable to drink or scanty urine
- Severe abdominal pain
- Severe tiredness, drowsiness, mental confusion or seizures

**Bleeding:**
- Red spots or patches on the skin
- Bleeding from nose or gums
- Vomiting blood
- Black coloured stools
- Heavy menstruation or vaginal bleeding
- Pale, cold or clammy hands and feet
- Breathing difficulty
Mosquito breeding sites around the home

Tray under dish rack

Credit: WHO
Mosquito breeding sites around the home

- Plant pots
- Roadside gutters
- Ornaments
- Discarded items

Credit: WHO
### Pearls in home care

#### What should be avoided?

- Steroids
- Non-steroidal anti-inflammatory drugs (NSAIDs), e.g. acetylsalicylic acid (aspirin), mefenamic acid (Ponstan), and diclofenac (Voltaren) tablets, injections or suppositories.
- Antibiotics unless you suspect patient may have leptospirosis or dual infection

#### Why are steroids contraindicated in dengue?

- Not recommended by the World Health Organization (WHO)
- Limited number of studies in children with dengue shock syndrome in 1970s and 1980s
- Three recent reviews find no evidence of efficacy and recommended not using steroids routinely*
- No convincing physiological rationale for use
- Multiple potential side-effects: gastrointestinal bleeding, hyperglycaemia, immunosuppression

# Outpatient Management: Group B

**Group B**

(any of following)

- Has warning signs
- Has co-existing condition: Diabetes mellitus, Renal failure, Pregnancy, Infant, Elderly
- Has social circumstances: Living alone, Living far away without a reliable means of transport

1. Admit for inpatient care
2. Monitor hemodynamic status frequently
3. Use HCT to guide interventions
4. Use isotonic IV fluids judiciously
5. Correct metabolic acidosis, electrolytes as needed
Emergency management: Group C

**Group C**
(Any of following)

- Severe plasma leakage with shock and/or fluid accumulation with respiratory distress
- Severe bleeding
- Severe organ impairment:
  
  AST or ALT ≥1000 and/or impaired consciousness

Requires emergency treatment and urgent referral
# Summary of management of dengue

<table>
<thead>
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<th>Group B (any of following)</th>
<th>Group C (any of following)</th>
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<td>Severe bleeding</td>
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<tr>
<td>No warning signs</td>
<td>Has social circumstances: Living alone or living far away without a reliable means of transport</td>
<td>Severe organ impairment: AST or ALT ≥1000 and/or impaired consciousness</td>
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<tr>
<td>Has stable haematocrit and haemodynamic status</td>
<td>Does not have co-existing conditions</td>
<td>Requires emergency treatment and urgent referral</td>
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Saving lives with simple steps

Lives can be saved with simple steps

1. Successful patient–physician clinical encounter*

Very sensitive step:
Dengue patient feels vulnerable and perhaps fearful

Outpatient department, emergency department and general practitioners have only one window of opportunity to form a solid connection with outpatients.

Clinical encounters affect trust, patient understanding and follow-up, all vital for a positive clinical outcome.

As doctors and nurses we are in control of this step

* James T. The Patient-Physician Clinical Encounter. 2007
Ensuring good patient–physician relationships

How can you form a connection with patients?

Listen to the patient’s complaints; ask open-ended questions rather than yes–no questions.

Examples of open-ended questions:

- Can you tell me about your illness?
- How does the illness affect you now?
- What are you most worried about?
- Do you have any other concerns that I should know about?

Conduct a thorough physical examination – holding the patient’s hand is crucial to making the connection, CCTV-R.

Explain the illness and provide advice in a sympathetic way.
2. Fast-track patient follow-up.

3. Monitor disease progression daily.

For every visit:

Ask the **3 golden questions**:

- How much oral fluid intake (in the last 12-24 hours)?
- How much urine output? Other fluid losses?
- What activities can the patient do?

Monitor disease progression:

- Fever or defervescence?
- Development of warning signs?

Assess hemodynamic state: **5-in-1 magic touch**

Conduct serial CBCs until patient is out of the critical phase:

- Decreasing WBC
- Rising HCT with concurrent rapid fall in platelet count