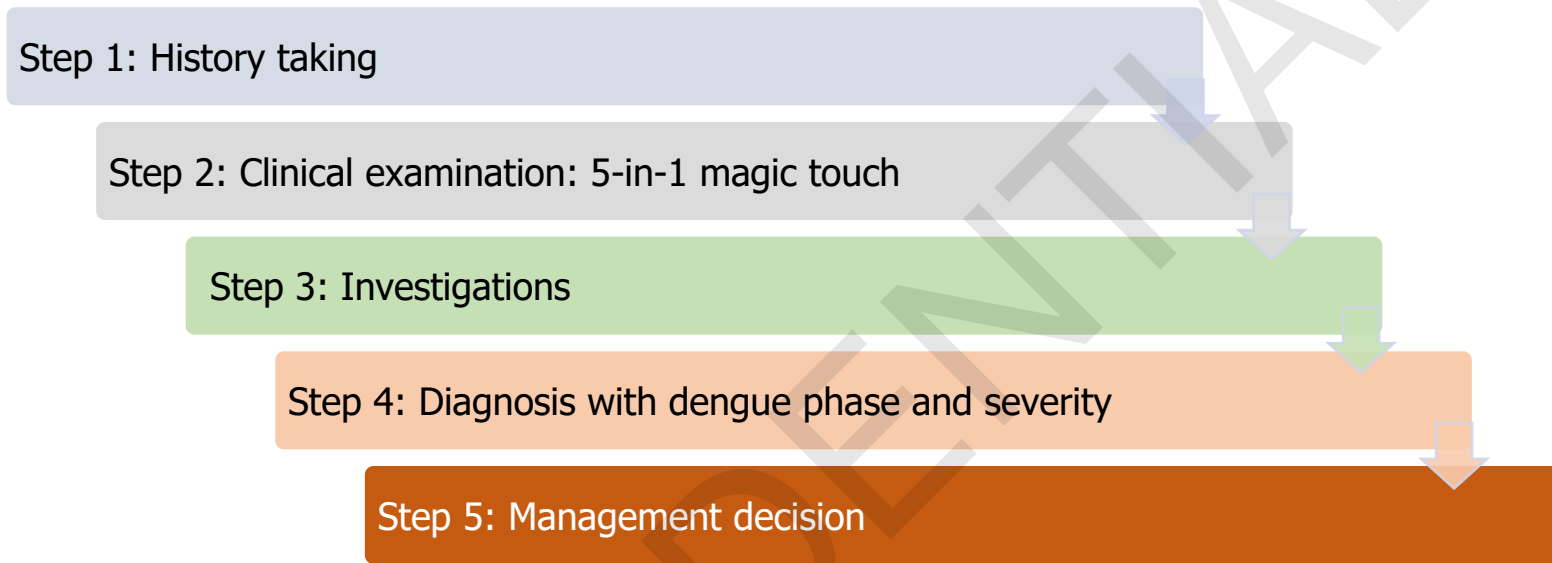


Out-patient Management – Case Studies

Management of dengue



Group A

- Out-patient management

Group B

- Refer for in-hospital management

Group C

- Require emergency treatment and urgent referral

Step 4: Diagnosis, phase of disease and severity

1. Does the patient have dengue or other illnesses?
2. Which phase of dengue (febrile/critical/recovery)?
3. What is the hydration state?
4. Are dengue warning signs present?
5. What is the haemodynamic state?
6. What is the best medical plan for the patient?

History of Fluid
intake & Urine
output more
reliable than
physical signs

9
parameters

Case Study – 1

- A 6-year-old boy presented to the hospital with the chief complaints of fever and abdominal pain for 2 days.

History of Presenting Illness

- Fever for 2 days
- On and off fever
- Had Paracetamol after visiting Klinik ██████████
 - Documented temperature: 38.5°C
 - Refer to Hospital AA from Klinik Kesihatan AP

Abdominal pain for 2 days

- Started 2 days ago
- Generalized abdominal pain
- Dull and sudden onset
- On and off pain
- 5 episodes per day
 - 10 minutes each episode
- No exacerbation/relieving factor
- No radiation

- Vomiting
 - 1 episode on the day of presentation
 - Vomitus: food and fluid, no blood or bile
 - Non-projectile
- Generalized body ache
- Lethargic
 - Patient was less active than usual
- Otherwise,
 - Patient is still able to tolerate orally – 2 cups of water daily and small amount of porridge
 - No diarrhea
 - No bleeding tendencies
 - No respiratory symptoms
 - No altered urinary habit

- Fogging around the house area 2 days ago

Physical Exam:

- Temperature: **37.8 °C (Febrile)**
- Blood pressure: 96/60 mmHg (Normal)
- Pulse rate: **140 bpm (Tachycardic)**
- Respiratory rate: **34 breaths/min (Tachypneic)**
- SpO₂: 99% under room air (Normal)
- Alert and obeying commands
- Lethargic looking
 - **Cool peripheries**
 - **Capillary refill time 3-4 seconds**
- Good pulse volume
 - **Dry lips and coated tongue**
- No recession
- No rash or active bleeding noted
- No pedal edema or facial puffiness

Systemic Examination

Abdomen

- Soft, not tender
- Liver was 1 cm palpated
- Spleen not palpated
- Kidney not balloted
- Normal bowel sound

- Cardiac
 - Tachycardic
 - Normal heart sound
 - No additional heart sound or murmur
- Respiratory
 - Tachypneic
 - No abnormal breathing sound

Summary

- 6-year-old boy, recent fogging at the housing area; chief complaints of fever and abdominal pain for 2 days.
- 1 episode of vomiting, lethargic and body ache.
- Physical examination, lethargic, febrile, tachycardic, tachypneic and dehydrated.

Provisional Diagnosis:

Day 2 Dengue Fever in febrile phase with warning sign of abdominal pain and lethargic in compensated shock

Full Blood Count & Rapid Diagnostic Test

- NS1 Antigen: Positive
- Dengue IgM: Negative
- Dengue IgG: Negative

Hemoglobin	g/dL	13.5	10.5-14.0	Normal
Hematocrit	%	38.7	33-42	Normal
MCV	fL	73.1	70-74	Normal
MCH	pg	26.2	25-31	Normal
MCHC	g/dL	34.9	32-36	Normal
RDW	%	13.3	12.0-14.8	Normal
Platelet	K/uL	225	150-400	Normal
White Blood Cell count	K/uL	11.8	6-15	Normal
Absolute Neutrophil	K/uL	6.8	3.9-7.1	Normal
Absolute Lymphocyte	K/uL	3.0	1.8-4.8	Normal
Absolute Monocyte	K/uL	0.7	0.4-1.1	Normal
Absolute Eosinophil	K/uL	0.2	0.0-0.8	Normal
Absolute Basophil	K/uL	0.0	0.0-0.1	Normal

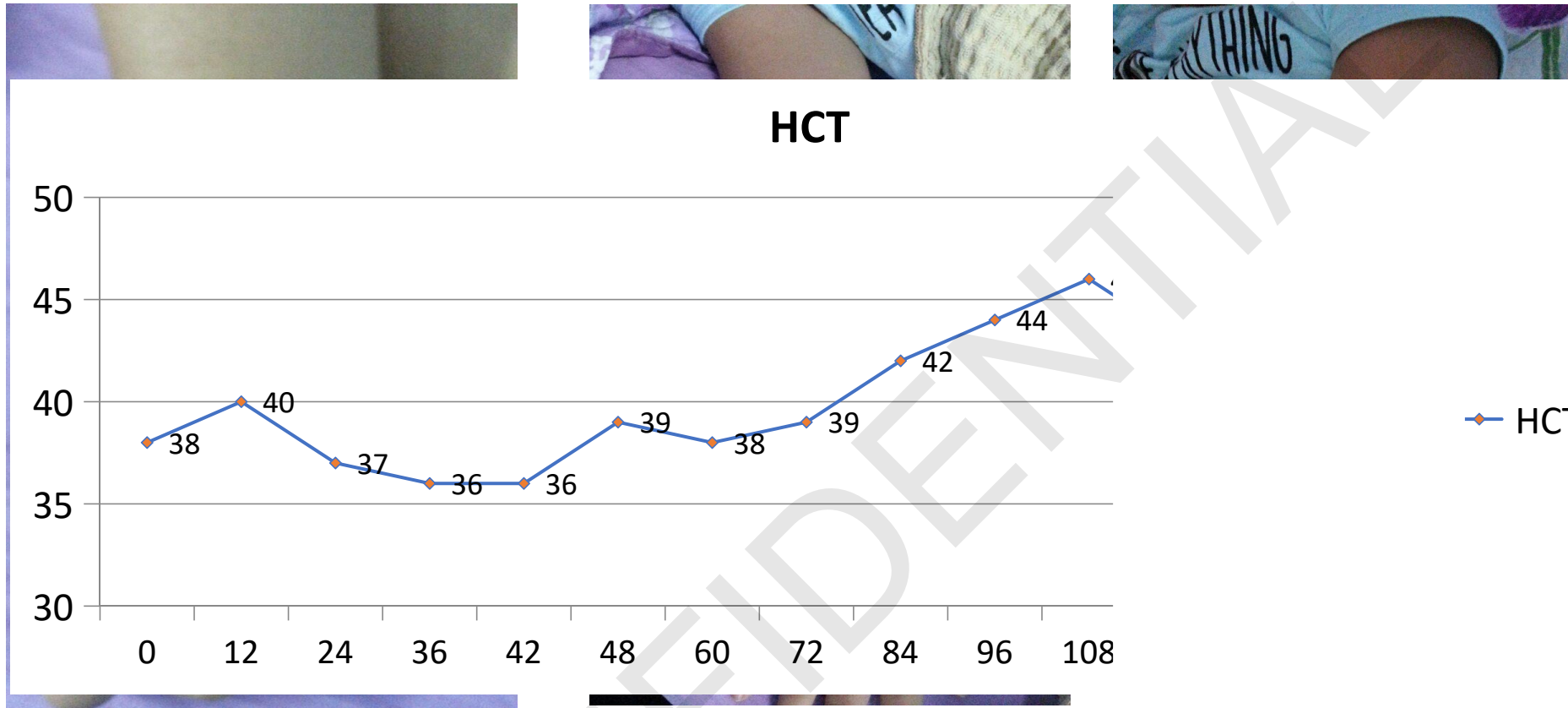
Full Blood Count & Rapid Diagnostic Test

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Absolute Monocyte	K/uL	0.7	0.4-1.1	Normal
Absolute Eosinophil	K/uL	0.2	0.0-0.8	Normal
Absolute Basophil	K/uL	0.0	0.0-0.1	Normal

Case Study 2

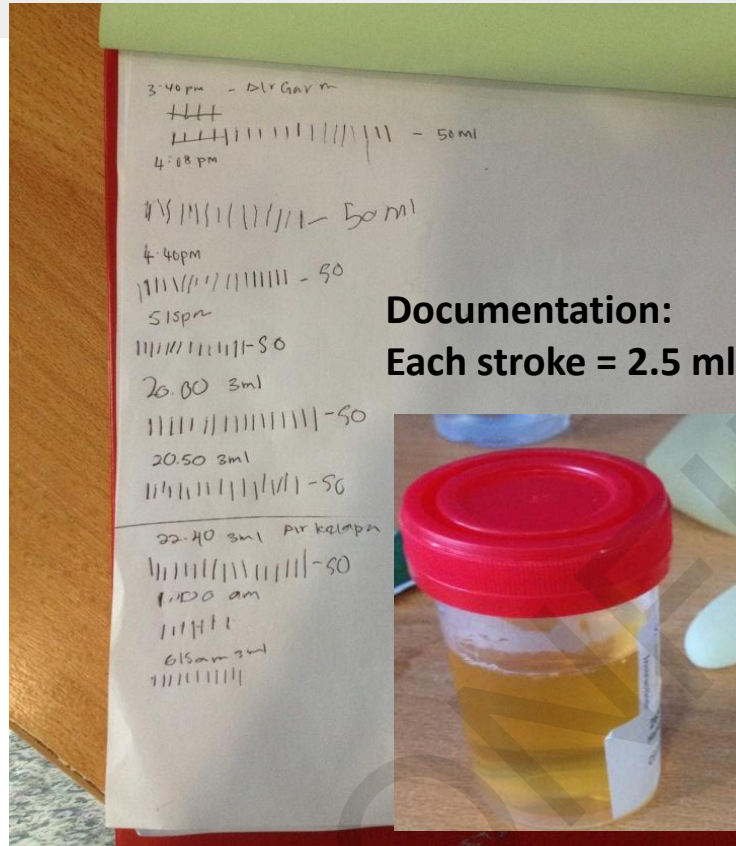
- A 6-year-old girl, admitted on Day 1 of fever because of high fever, vomiting and not able to tolerate any fluids.
- Day 1, Hct 37%, NS1 Ag positive; started on IV fluid therapy, at maintenance rate (25 kg).
- IVF therapy reduced on Day 2 and Day 3 of fever.
- On Day 4, IV line tissued!



- **18** Unsuccessful venipuncture attempts:
- Hct increased from **37% to 46%**
- Cool extremities
- Thready pulses



Oral Rehydration



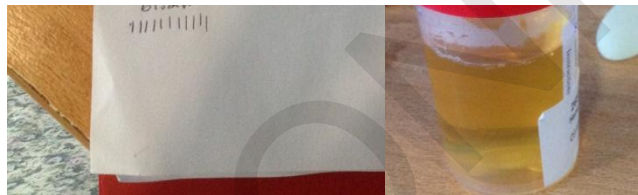
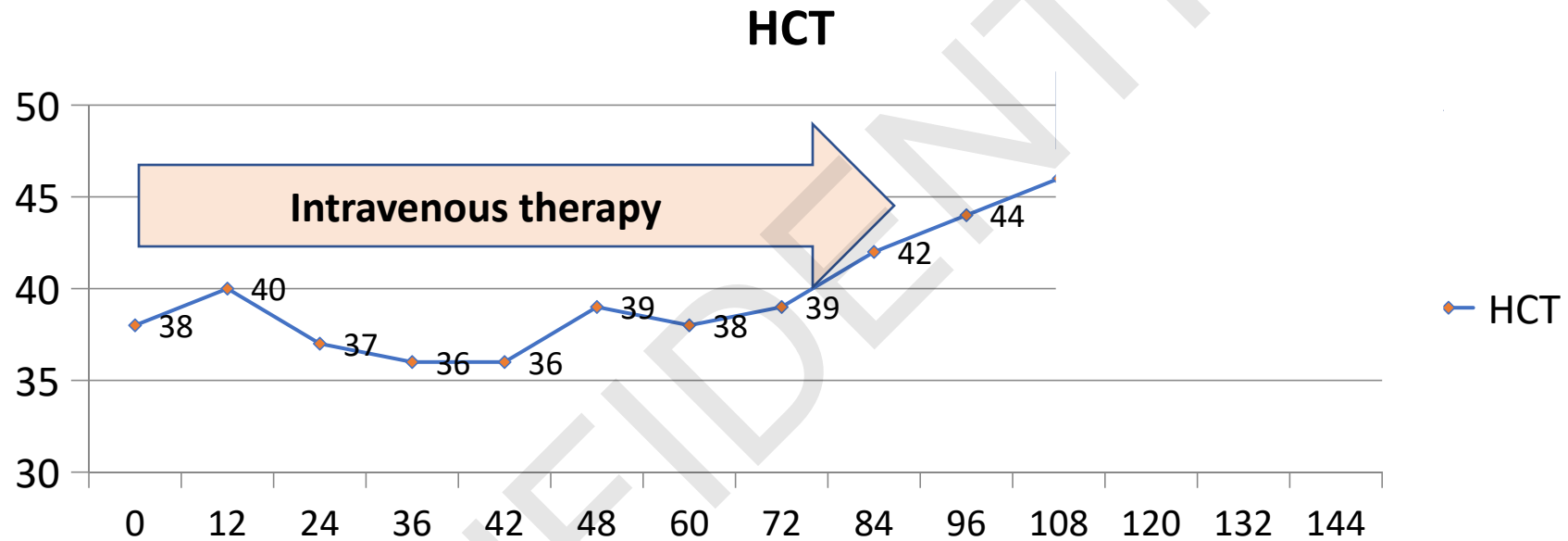
Documentation:
Each stroke = 2.5 ml

Maintenance 65 ml/hr
Resuscitation – 150 ml/hr = 2.5 ml/min

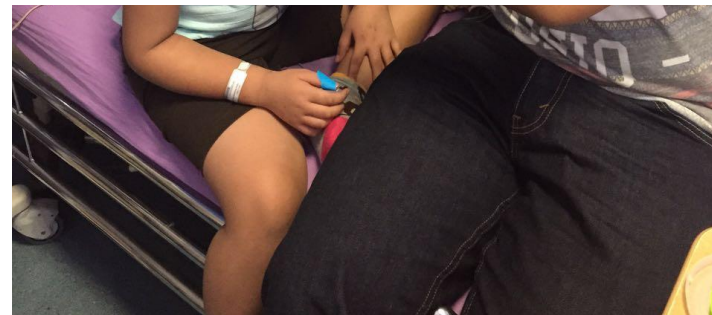
Oral drip with 2.5 ml syringe, ORS



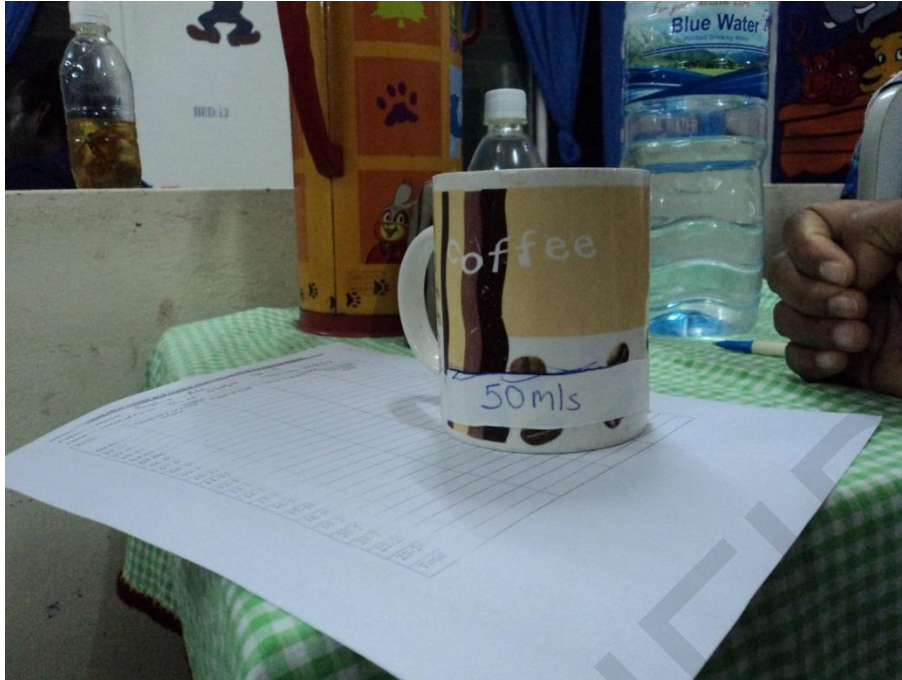
Oral Rehydration



Maintenance 65 ml/hr
Resuscitation – 150 ml/hr = 2.5 ml/min



Increasing awareness of oral hydration



Encourage drinking:
aliquots of 50 ml or less
in patients with nausea



Empowering parents to document intake & output chart

Date: Onset of Fever: 24/11/2013 Today's date: 24/11/2013

Time	Intake		Output	
	Quantity of Fluid (intake)	Type of fluid	Urine quantity	Other losses: Diarrhoea or vomit
12-1	50mls	Juicy orange		
1-2	50mls	water	1	
2-3	50mls	water		
3-4	50mls	Juicy orange		
4-5	50mls	water		
5-6	50mls	Juicy orange		
6-7	50mls	Juicy orange	1	
7-8	50mls			
8-9	50mls			
9-10	50mls			
10-11	250mls	SWEPPES	1	
11-12				
12-1pm				
1-2pm				
2-3pm				
3-4pm				
4-5pm				
5-6pm				
7-8pm	50mls	Juicy orange		
8-9	50mls	Coconut water		
9-10	50mls	water		
10-11	50mls		1	
11-12	50mls	Juicy orange	1	
Total				

Mother's documentation of her child's oral intake, Volume Type of drinks, Urine frequency

Coconut – natural rehydrating fluid



Case management

- 6-year-old boy, recent fogging at the housing area; chief complaints of fever and abdominal pain for 2 days.
- 1 episode of vomiting, lethargic and body ache.
- Physical examination, lethargic, febrile, tachycardic, tachypneic and dehydrated.

Provisional Diagnosis:

Day 2 Dengue Fever in febrile phase with ~~warning sign of abdominal pain and lethargic in compensated shock~~ **Dehydration**

- **How would you manage him?**

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



- 1. Laboratory confirmation** of Dengue
- Baseline Full blood count: HCT/Hb
- 3. Give anticipatory guidance** before sending home
- 4. Educate on Defervescence and warning signs**

Monitor daily for **progression to severe disease**
5. Do serial CBCs

Keys to good home care

1. Bed rest

2. Encourage oral intake

What is **adequate** oral intake?

6 to 8 glasses of fluid for adults and accordingly in children

How to achieve adequate fluid intake?

What types of fluid?

3. Manage fever

Keys to good home care

2. Encourage oral intake

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.



MERAH MUDA		
Maklumat Kandungan Khasiat / Nutrition Information		
Hidangan Satu Pek: 4 / Servings Per Pack: 4	Saiz Hidangan: 250ml / Serving Size: 250ml	
	Setiap Hidangan Per Serving	Setiap 100ml Per 100ml
Tenaga / Energy	125kcal (525kJ)	50kcal (210kJ)
Protein	0g	0g
Jumlah Lemak / Total Fat	0g	0g
Kolesterol / Cholesterol	0mg	0mg
Karbohidrat / Carbohydrate	30.3g	12.1g
- Jumlah Gula / Total Sugar	24.8g	9.9g
Serat Pemakanan / Dietary Fibre	2.0g	0.8g
Natrium / Sodium	73mg	29mg
Vitamin A	500mcg	200mcg
Vitamin C	38mg	15mg
Vitamin E	8mg	3mg

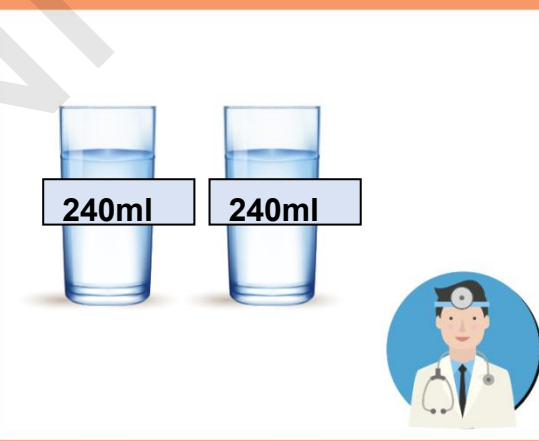
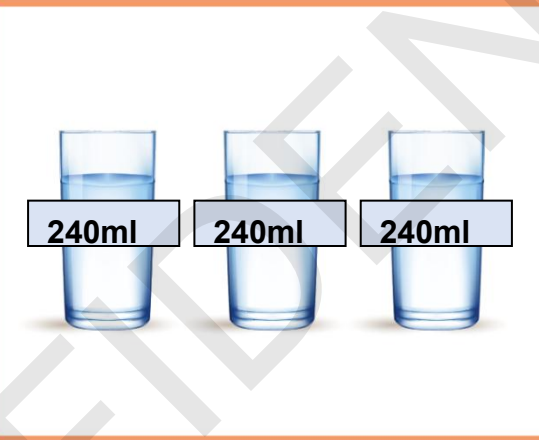
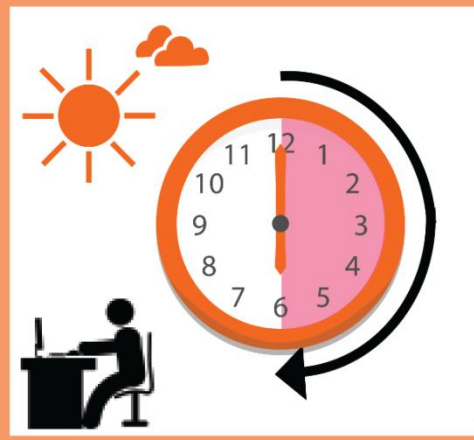
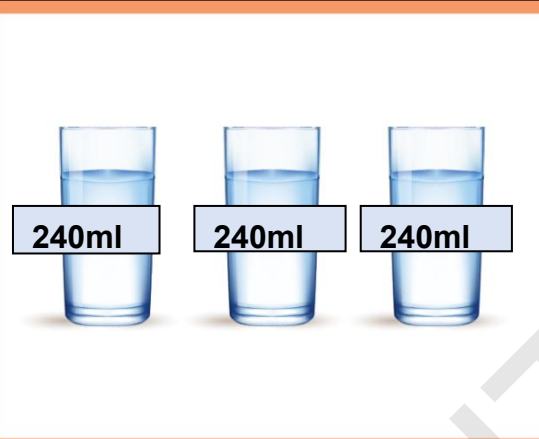
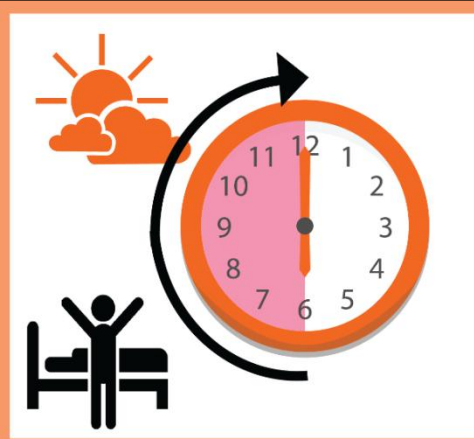
Sugars
9.9 g/100 ml

Oral rehydration therapy in dengue

Randomized controlled study: Primary care setting

- 138 patients >12 years of age, randomized **to fluid chart and cup** (intervention) and usual treatment (control)
- Reduced hospitalizations:- 10% vs 17%
- Reduced Need for IV fluid requirement 13% vs 22%
- Increased amount of fluid intake
- However, differences were not significant

Nazir NH *et al*, 2017 PLoS

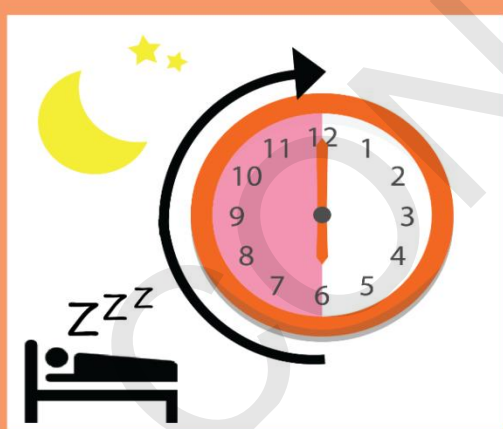
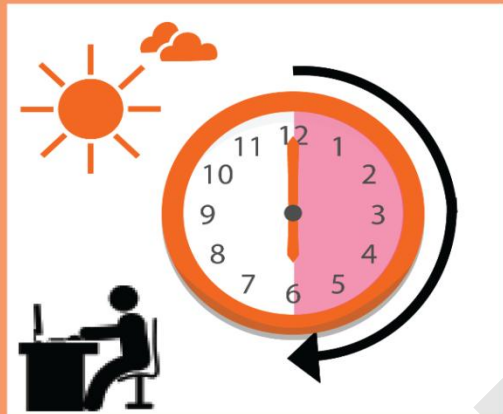
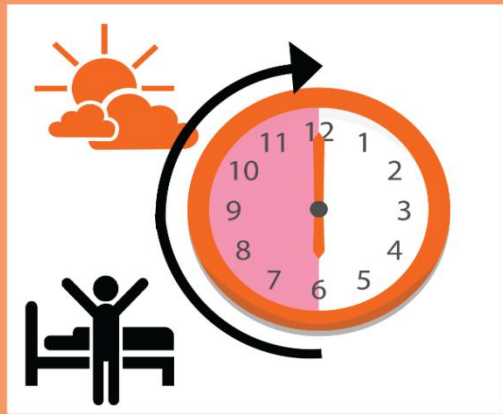


240 ml, 1 cup every 2 hours

120 ml , ½ cup every hour

60 ml, ¼ cup every ½ hour

= 2 ml per minute



1 cup every 2 hours

$\frac{1}{2}$ cup every hour

$\frac{1}{4}$ cup every $\frac{1}{2}$ hour

= 1.5 ml per minute

Keys to good home care

1. Bed rest

2. Encourage oral intake

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.

3. Manage fever

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)

Effect of standard dose paracetamol versus antipyretic therapy on liver injury in adults with dengue fever: a multicentre randomised controlled trial

Vasin Vasin, Thanawith Rojduromrattana, Worayon Chueboonchai, Thanawhan Siritiwattana, Suchada Niyasom, Nawarat Lertlietrakool, Sitawee Jitsiri, Dhitiwat Changpradub

Summary

Background Dengue is a common cause of acute liver failure in tropical countries. antipyretic for dengue. Related observational studies in dengue have suggested that antipyretic therapy is related to hepatic injury. We aimed to evaluate whether standard dose paracetamol in dengue infection caused transaminase elevation, and to evaluate the efficacy of paracetamol

Methods In this randomised, double-blind, placebo-controlled trial, adult participants as confirmed by either positive NS1 antigen, positive dengue IgM antigen with the test, were enrolled at three Royal Thai Army hospitals in Thailand. Key exclusion criteria were concentrations of more than 3 times the upper limit of normal, cirrhosis, indication for dengue infection, concurrent diagnosis of other causes of fever, or pregnancy. Patients were randomised by computer-generated block randomisation procedure (block size of six), to receive either paracetamol (500 mg) every 4 h when body temperature exceeded 38°C during the trial, or placebo. Investigators were masked to treatment assignment. The primary outcome was the rate of transaminase elevation, defined as serum aspartate transaminase (AST) and alanine aminotransferase (ALT) concentrations of more than 3 times the upper limit of normal on recovery day, in the intention-to-treat population. Prespecified interim analyses for safety and efficacy were performed with group sequential design. The trial is registered with ClinicalTrials.gov, number NCT02833584.

Findings Between Sept 1, 2016, and Dec 12, 2017, 125 participants were randomised to paracetamol (n=63) or placebo (n=62). 123 participants were included in the primary analysis. The median daily dose of study medication was 1.5 g (IQR 0.8–2.0). The study was terminated because of a higher rate of transaminase elevation in the paracetamol group than in the placebo group (incidence rate ratio 3.77, 95% CI 1.36–10.46, p=0.011). The change of AST and ALT concentration was higher than in the placebo group (mean difference 12.43 U/L per day, 7.16–17.71, p=0.0001 for AST; mean difference 11.13 U/L per day, 3.68–11.13, p=0.0001 for ALT). Three participants in the paracetamol group had upper gastric haemorrhage and one had acute kidney injury. No patients died.

Interpretation Use of standard dose paracetamol in dengue infection increased the incidence of transaminase elevation and also overall transaminase concentrations in the absence of a counterbalancing reduction in fever.

Funding Phramongkutklao College of Medicine.

www.thelancet.com/lancetgh Vol 7 |

Paracetamol 500 mg every 4 hourly

Temp >38°C

123 patients (63/62)

Median daily dose – 1.5 g Mean 2.5 g

ALT/AST >3x upper limit:

22% in paracetamol group vs

10% in placebo group

Fever duration, pain score – no difference

3 patients in the paracetamol group had severe dengue with upper GI bleed and 1 patient AKI

Paracetamol for dengue fever: no benefit and potential harm?

Jacqueline Deen, *Lorenz von Seidlein

(22% vs 10%: incidence rate vvasin@gmail.com)

NO antipyretic and NO analgesic benefit in adults with dengue fever. Paracetamol useless in dengue fever, Also unsafe.



**A 43-year-old with dengue,
Voltaren three times daily for 3 days,
Presented with hematochezia (fresh
bleed). This is not melena.
Transfused 42 units of fresh blood,
but still passed away.**

CASE STUDY 3: 16-year-old girl, Day 3 of fever

Presented to Primary Care with high fever, 39°C.
Headache, myalgia for 2½ days.
Poor appetite and reduced fluid intake
Drank ½ glass of milk that morning
Passed scanty urine
This morning started to have epigastric pain.

Is the epigastric pain a **warning sign**?

- Yes
- No
- Not sure

The day before, had poor appetite and reduced oral intake.
Drank less than 3 glasses of water

Saw a GP, who suspected she might have dengue, because neighborhood fogging last week, asked to return for blood test next day.

What other questions would you ask?

Medications cause “warning signs”

Erythromycin, Mefenemic acid



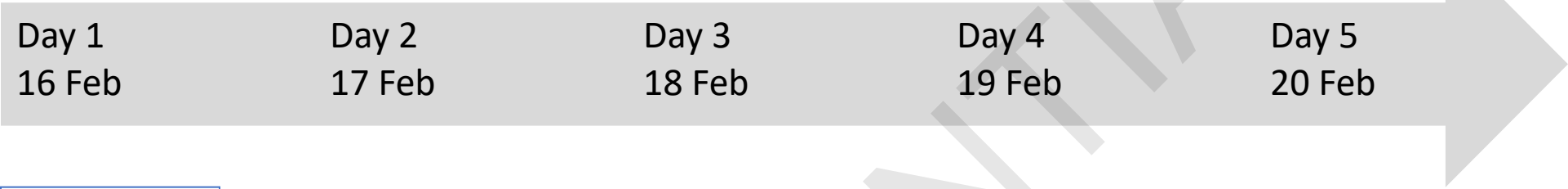
Erythromycin, Sodium Diclofenac



Time-line

Day 1 16 Feb	Day 2 17 Feb	Day 3 18 Feb	Day 4 19 Feb
Fever onset	Fever, Myalgia Headache Decr oral intake NO D,V,AP,WS	Dizziness, Headache Decr oral intake. NO D,V,AP, WS	Less oral intake, nausea NO D, V, AP, WS
	Temp 39.2°C	Temp 37.9°C	Temp 36.5°C
	Good perfusion	Good perfusion	Good perfusion
		WBC 3.1, HCT 39.6	WBC 2.9, HCT 39.8
		Hb 13.7, Platelet 132	Hb 13.2, Platelet 88
	Encourage oral fluid	Encourage oral fluid	Encourage oral fluid

Timeline



Day 1 16 Feb	Day 2 17 Feb	Day 3 18 Feb	Day 4 19 Feb	Day 5 20 Feb
Fever onset	Fever, Myalgia Headache Decr oral intake	Dizziness, Headache Decr oral intake	Less oral intake, nausea	Dizziness, not eaten anything for past 2 days.
	Temp 39.2°C	Temp 37.9°C	Temp 36.5°C	Temp 36.7°C
	Good perfusion	Good perfusion	Good perfusion	Poor perfusion
		WBC 3.1, HCT 39.6	WBC 2.9, HCT 39.8	WBC 2.6, HCT 46.2,
		Hb 13.7, Platelet 132	Hb 13.2, Platelet 88	Hb 15.2, Platelet 56
	Encourage oral fluid	Encourage oral fluid	Encourage oral fluid	Dengue Shock Syndrome

Case study: 6-year-old girl

Triage entry:

recorded at **1730H**, 5 Aug

Category 3

- SpO₂: 100%
- Non-invasive BP: 105/56
- Heart rate: 148 bpm
- Temp: 40°C
- Weight: 27.7kg

History of Presenting illness: 5 Aug

Patient seen at 1900H

- Fever x 4/7
 - **started on 02/08/17**
 - up to 40°C – documented in ED
 - last paracetamol suppository, 10am
- Reduced oral intake x 4/7
 - had small amount of porridge
 - last drank at 1500H that day
 - associated with nausea

History continued... 5 Aug

- Last urine 1500H that day
- No diarrhea
- Mild cough, no coryza
- No abdominal pain
- No sore throat

- Alert, GCS 15/15
- Appeared miserable
- Dry, cracked lips
- Moist mucous membranes
- Cool peripheries
- Good pulse volume
- Cap Refill Time <2s
- Throat – injected, tonsils inflamed with exudate

- Impression –
- Acute exudative tonsillitis,
- To exclude Dengue Fever
- Investigations - Urine FEME, FBC, Renal Profile
- Initial management:
 1. Paracetamol given stat
 2. Encouraged orally in ED
 3. To re-check vital signs in 1 hour

Reassessed in ED at 20:30
Temp 38.2°C, HR 135/min
Appeared tired, able to converse
Able to walk
CRT <2s, good pulse volume
Peripheral perfusion improved
Took sips of water in ED, refused food.
No vomiting
FBC & Urine results reviewed

Lab : Clinical Chemistry , Fluids And Excretion , Hematology

Test	Unit	Ref. Range	Flag	Result
RENAL FUNCTION TEST				
Sodium (Serum)	mmol/L	136 - 145	L	134
Potassium (Serum)	mmol/L	3.6 - 5.2		4
Chloride (Serum)	mmol/L	99 - 109		99
Carbon Dioxide (Serum)	mmol/L	20.0 - 31.0		21
Anion Gap (Serum)	mmol/L	10 - 20		18
Urea (Serum)	mmol/L	3.2 - 8.2		4.9
Creatinine (Serum)	umol/L	44 - 71	L	43
Comment				eGFR is not old.
Complete Blood Count				
HGB	g/L	110.0 - 140.0		111
HCT	L/L	0.34 - 0.40		0.35
RBC	10 ¹² /L	4.00 - 5.20	H	5.62
MCV	fl	75 - 87	L	62
MCH	pg	24.0 - 30.0	L	19.8
MCHC	g/L	310 - 370		319
RDW	%	11.6 - 14.0	H	14.8
WBC	10 ⁹ /L	5.0 - 15.0	L	3.4
Platelet	10 ⁹ /L	200 - 450	L	86
DC (Manual)				
Neutrophil	%			58
# Neutrophil	10 ⁹ /L	1.50 - 8.00		1.97
Lymphocyte	%			32
# Lymphocyte	10 ⁹ /L	6.00 - 9.00	L	1.09
Monocyte	%			7

How would you manage this child?

DC (Instrument)	Unit	Ref. Range	Result
Urine FEME			
Biochemistry			
Specific Gravity		1.005 - 1.030	1.026
pH		5.0 - 7.0	5
Leucocyte Esterase	/uL		0
Leucocyte Esterase I			Negative
Nitrite			Negative
Protein	g/L		0.75
Protein (I)			2+
Glucose	mmol/L		0
Glucose (I)			Negative
Ketone	mmol/L		1.5
Ketone (I)			2+
Urobilinogen	umol/L		0
Urobilinogen (I)			Negative
Bilirubin	umol/L		17
Bilirubin (I)			1+
Haemoglobin	/uL		25
Haemoglobin (I)			2+
Microscopy			
Erythrocyte	/uL		Negative
Leucocyte	/uL		Negative
Epithelial cells			Negative
Casts			Negative
Crystals			Negative
Bacteria			Negative
Others			Negative

Electrolyte disturbances and abnormal urinalysis in children with dengue infection

	DF	DHF	<i>p</i> -value
Serum electrolyte (mEq/l)			
Sodium	133.5 ± 3.52	133.5 ± 3.20	0.938
Potassium	3.89 ± 0.42	3.93 ± 0.52	0.565
Chloride	100.6 ± 3.94	99.8 ± 3.81	0.214
Bicarbonate	21.4 ± 2.71	21.4 ± 2.43	0.983
Prevalence of hyponatremia	61% (44/73)	72% (55/77)	0.149
Serum Na 130- <135 mEq/l	44% (32/73)	56% (43/77)	0.103
Serum Na 125-129 mEq/l	14% (10/73)	16% (12/77)	0.744
Serum Na 120-124 mEq/l	3% (2/73)	0% (0/77)	0.072
Prevalence of hypokalemia	14% (10/73)	17% (13/77)	0.588
Serum K 3.0-<3.5 mEq/l	14% (10/73)	14% (11/77)	0.918
Serum K 2.5-2.9 mEq/l	0% (0/73)	3% (2/77)	0.166
Serum K <2.5 mEq/l	0% (0/73)	0% (0/73)	-
Prevalence of metabolic acidosis	11% (8/73)	7% (5/77)	0.260
Urinalysis			
% Urine sp gr ≥ 1.020	63% (42/67)	60% (44/73)	0.770
% Hematuria	18% (12/67)	27% (20/73)	0.182
% Proteinuria	15% (10/67)	27% (20/73)	0.072
% Ketonuria	48% (32/67)	47% (34/73)	0.888

Calculations for normal maintenance of intravenous fluid infusion

Normal IV fluid maintenance per hour by Holliday-Segar formula:

4 mL/kg/h for first 10 kg body weight
+ 2 mL/kg/h for next 10 kg body weight
+ 1 mL/kg/h for subsequent kg body weight

For overweight/obese patients, calculations for normal maintenance of IV fluid **should be** based on ideal body weight (IBW)

The Malaysian CPG uses adjusted body weight which is:

Adjusted body weight = Ideal body weight + 0.4 (actual body weight - ideal body weight)

Either way, treat the patient clinically.

Do not just follow numbers.

(Adapted from WHO 1997)

How to calculate ideal body weight for overweight/obese patients

Ideal body weight (IBW) for overweight/obese adults can be estimated based on the following formula*

Female:

45.5 kg + 0.91(height – 152.4cm) or
45.5 kg + 2.3 kg for each inch over 5 ft

Male:

50.0 kg + 0.91(height – 152.4 cm) or
50 kg + 2.3 kg for each inch over 5 ft

Example:

A 90 kg man 5' 5" tall:

IBW = 50 kg + (2.3 kg x 5) = 61.5 kg

Maintenance fluid = (4 x 10) + (2 x 10) + (1 x 41.5) = 101.5 ml/hr (~2.4 litres/day)

*Gilbert DN, et al 2007

How to calculate ideal weight for overweight/obese children

There is no consensus on the best method for calculating IBW for children.¹

If a child is overweight or obese (i.e. BMI-for-age $\geq 85\%$ and $\geq 95\%$, respectively) use US growth charts²:

Calculate IBW using Body Mass Index Method:

- $[\text{BMI at the 50th percentile for that child's age} \times (\text{height in metres})^2]$

Example:

What is the IBW of a girl who is 4 years old and 105 cm tall?

(BMI at 50th percentile for age/sex is 15.3)²

$\text{IBW} = 15.3 \times 1.05 \times 1.05 = 16.9 \text{ kg.}$

¹Phillips S et al. *Nutr Clin Pract*, 2007, 22(2):240-245.

²Growth charts available at <http://www.cdc.gov/growthcharts>.

Quick reference table for ideal body weight of obese/overweight adults

Height (cm)	Female (kg)	Male (kg)
150	45.5	50
160	52	57
170	61.5	66
180	70	75

Quick calculation for normal maintenance intravenous fluid regime

For adults with IBW >50 kg:
1.5 to 2 ml/kg/hr

For IBW < 50 kg:
2 to 3 ml/kg/hr

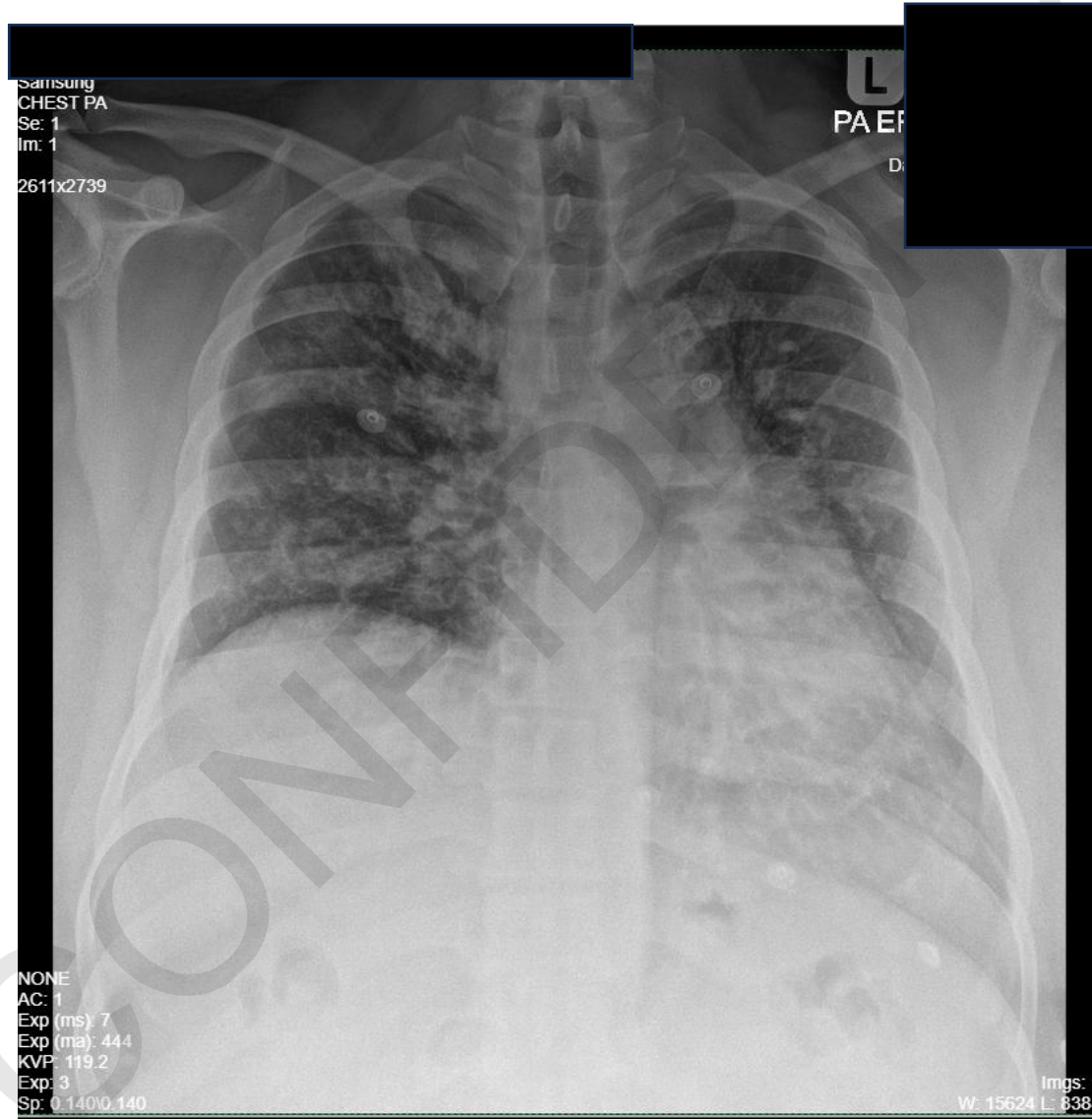
Quick reference for normal maintenance rate of intravenous fluid according to ideal body weight

Ideal body weight	Normal maintenance rate of IVF	
	ml/hour	ml/kg/hour
70 kg	110	1.6
60 kg	100	1.7
50 kg	90	1.8
40 kg	80	2
30 kg	70	2.3
20 kg	60	3
10 kg	40	4

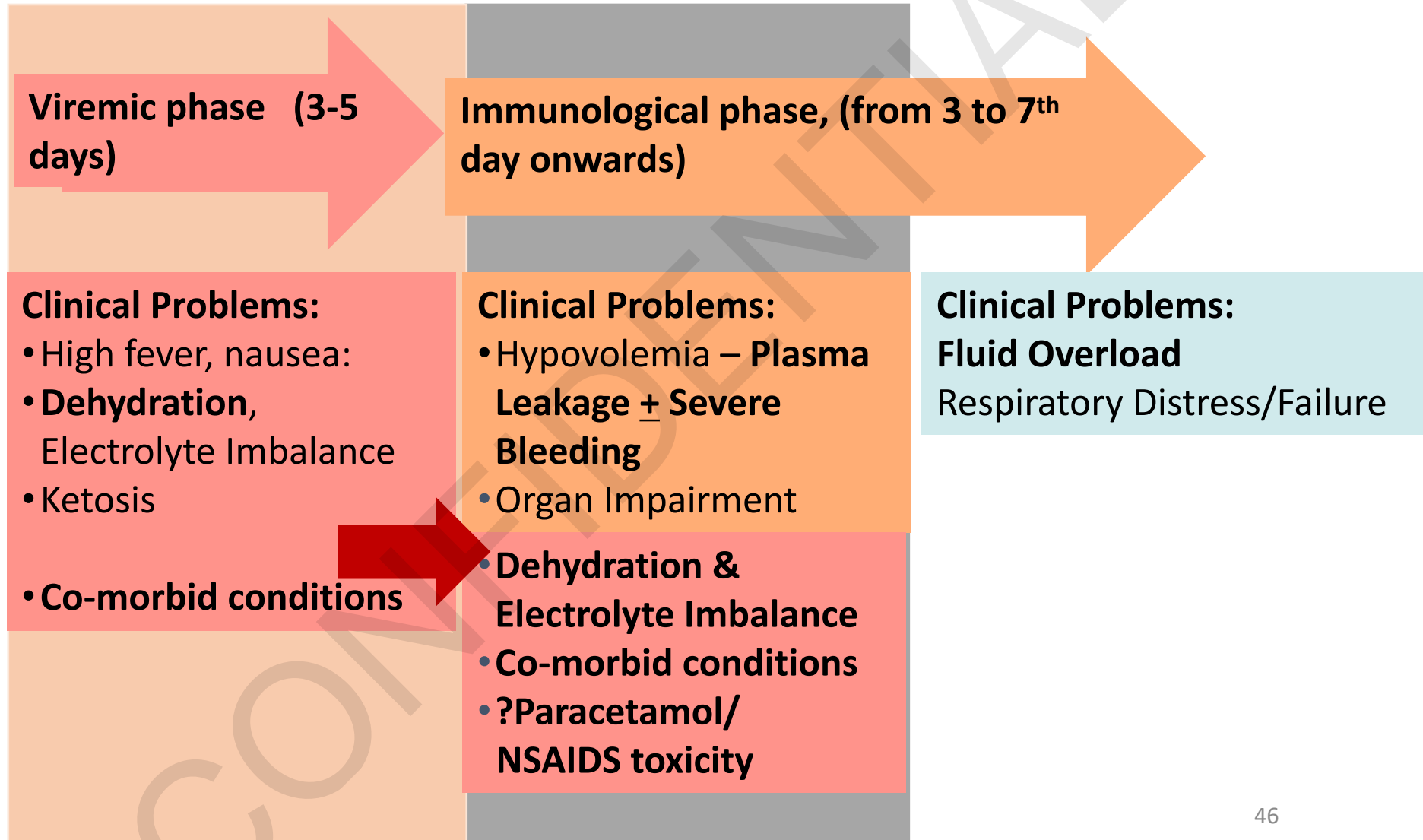
Quick reference for normal maintenance rate and bolus intravenous fluid according to ideal body weight

Ideal body weight	IV Maintenance		Bolus	
	ml/hour	ml/kg	10 ml/kg	X Maintenance
70 kg	110	1.6	700 ml	6.4x
60 kg	100	1.7	600 ml	6.0x
50 kg	90	1.8	500 ml	5.6x
40 kg	80	2	400 ml	5.0x
30 kg	70	2.3	300 ml	4.3x
20 kg	60	3	200 ml	3.3x
10 kg	40	4	100 ml	2.5x

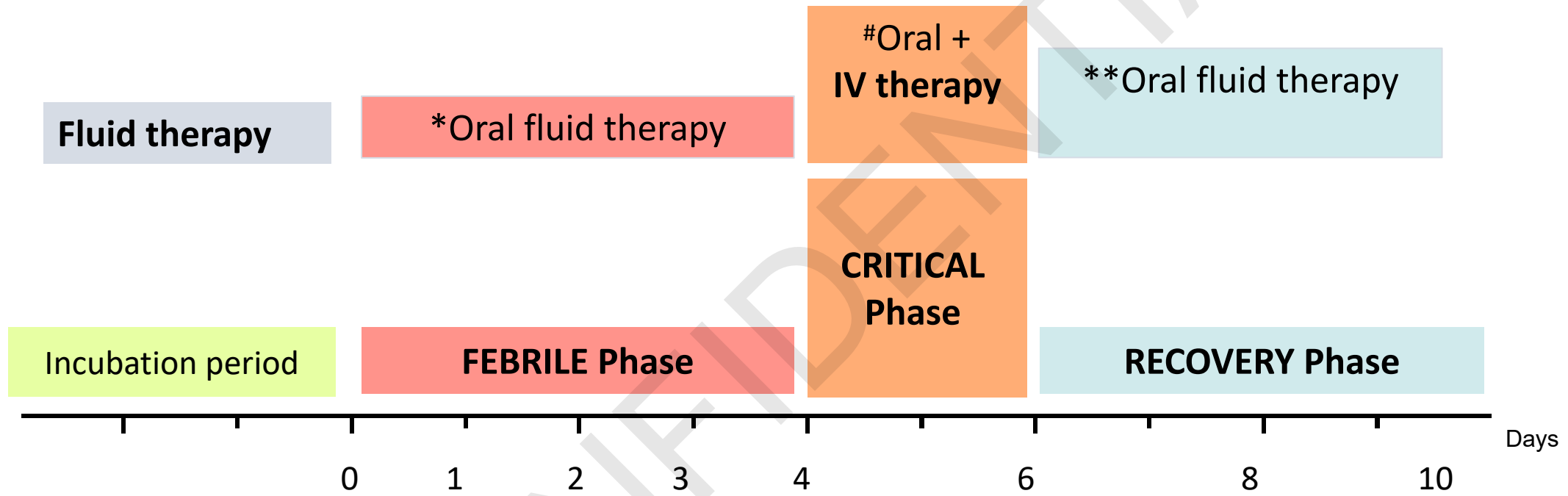
Baseline CXR – July 2022



Dynamic phases & Clinical problems of dengue



Fluid therapy and phases of dengue



*Prescribed oral fluid & electrolytes therapy

#Prescribed oral fluid & electrolytes & IV fluid resuscitation therapy + **Frequent Reviews**

**Prescribed oral fluids therapy, correct electrolytes