Dengue Case Management

ASSESSMENT

Presumptive Diagnosis

Live in / travel to endemic area plus fever and two of the following:

- Nausea and vomiting
- Rash
- Aches and pains (headache, eye pain, muscle ache or joint pain)
- Warning signs
- Tourniquet test positive
- Leukopenia

Warning Signs

- Severe abdominal pain or tenderness
- Persistent vomiting
- Mucosal bleed
- Liver enlargement >2cm
- Clinical fluid accumulation
- Lethargy; restlessness
- Increase in HCT concurrent with rapid decrease in platelet count

No warning signs

→ **Group A**
Outpatient management

For patients with warning signs of severe dengue OR co-existing conditions

- Pregnancy
- Infancy
- Diabetes mellitus
- Poor social situation
- Old age
- Renal failure

→ **Group B**
Inpatient management

For patients with any of

- Severe plasma leakage with shock and/or fluid accumulation with respiratory distress
- Severe bleeding
- Severe organ impairment

→ **Group C**
Inpatient management

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Dengue Management DO's and DON'Ts

✗ **DON'T use corticosteroids.** They are not indicated and can increase the risk of GI bleeding, hyperglycemia, and immunosuppression.

✗ **DON'T give platelet transfusions for a low platelet count.** Platelet transfusions do not decrease the risk of severe bleeding and may instead lead to fluid overload and prolonged hospitalization.

✗ **DON'T give half normal (0.45%) saline.** Half normal saline should not be given, even as a maintenance fluid, because it leaks into third spaces and may lead to worsening of ascites and pleural effusions.

✗ **DON'T assume that IV fluids are necessary.** First check if the patient can take fluids orally. Use only the minimum amount of IV fluid to keep the patient well-perfused. Decrease IV fluid rate as hemodynamic status improves or urine output increases.

✓ **DO tell outpatients when to return.** Teach them about warning signs and their timing, and the critical period that follows defervescence.

✓ **DO recognize the critical period.** The critical period begins with defervescence and lasts for 24–48 hours. During this period, some patients may rapidly deteriorate.

✓ **DO closely monitor fluid intake and output, vital signs, and hematocrit levels.** Ins and outs should be measured at least every shift and vitals at least every 4 hours. Hematocrits should be measured every 6–12 hours at minimum during the critical period.

✓ **DO recognize and treat early shock.** Early shock (also known as compensated or normotensive shock) is characterized by narrowing pulse pressure (systolic minus diastolic BP approaching 20 mmHg), increasing heart rate, and delayed capillary refill or cool extremities.

✓ **DO administer colloids (such as albumin) for refractory shock.** Patients who do not respond to 2–3 boluses of isotonic saline should be given colloids instead of more saline.

✓ **DO give PRBCs or whole blood for clinically significant bleeding.** If hematocrit is dropping with unstable vital signs or significant bleeding is apparent, immediately transfuse blood.

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Group A

Outpatient Management

During the febrile phase (may last 2–7 days) and subsequent critical phase (1–2 days), your clinic should

- Follow CBCs
- Watch for dehydration
- Watch for warning signs, including decreasing platelet count and increasing hematocrit
- Watch for defervescence (indicating beginning of critical phase)

Advise patient or their family to do the following

Control the fever

- Give acetaminophen every 6 hours (maximum 4 doses per day). Do not give ibuprofen, aspirin, or aspirin-containing drugs.
- Sponge patient's skin with tepid water when temperature is high.

Prevent dehydration which occurs when a person loses too much fluid (from high fever, vomiting, or poor oral intake). Give plenty of fluids (not only water) and watch for signs of dehydration. Bring patient to clinic or emergency room if any of the following signs develop:

- Decrease in urination (check number of wet diapers or trips to the bathroom)
- Few or no tears when child cries
- Dry mouth, tongue or lips
- Sunken eyes
- Listlessness, agitation, or confusion
- Fast heartbeat (>100/min)
- Cold or clammy fingers and toes
- Sunken fontanel in an infant

Prevent spread of dengue within your house

- Place patient under bed net or have patient use insect repellent while febrile to avoid infecting mosquitoes that can infect others within 2 weeks.
- KILL all mosquitoes in house.
- Empty containers that carry water on patio.
- Put screens on windows and doors to prevent mosquitoes from coming into house.

Watch for warning signs as temperature declines 3 to 8 days after symptoms began. Return IMMEDIATELY to clinic or emergency department if any of the following warning signs appear:

- Severe abdominal pain or persistent vomiting
- Red spots/patches on skin
- Bleeding from nose or gums
- Vomiting blood
- Black, tarry stools
- Drowsiness or irritability
- Pale, cold, or clammy skin
- Difficulty breathing

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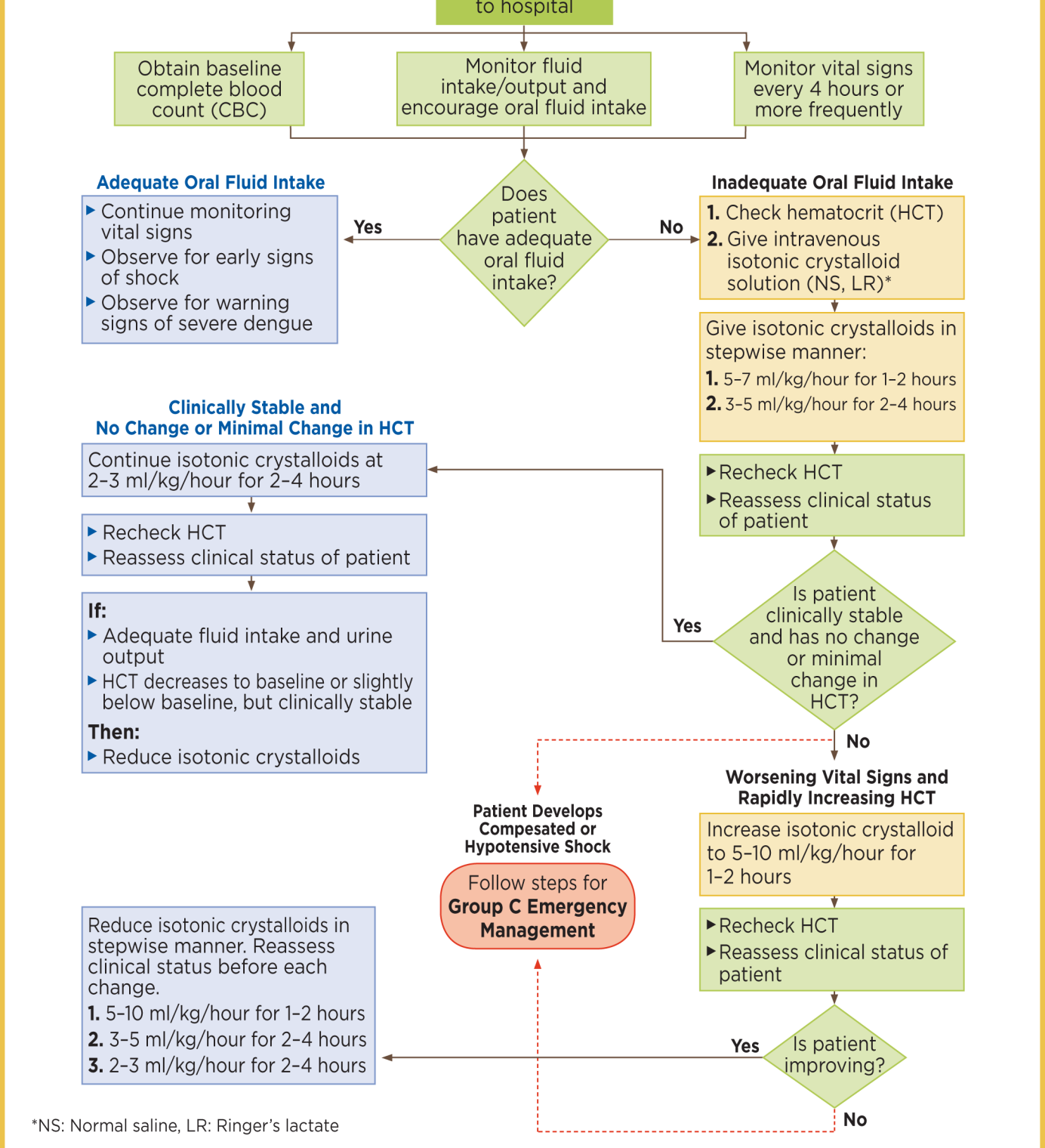
Group B — Inpatient Management for Dengue Patients with Warning Signs



*NS: Normal saline, LR: Ringer's lactate

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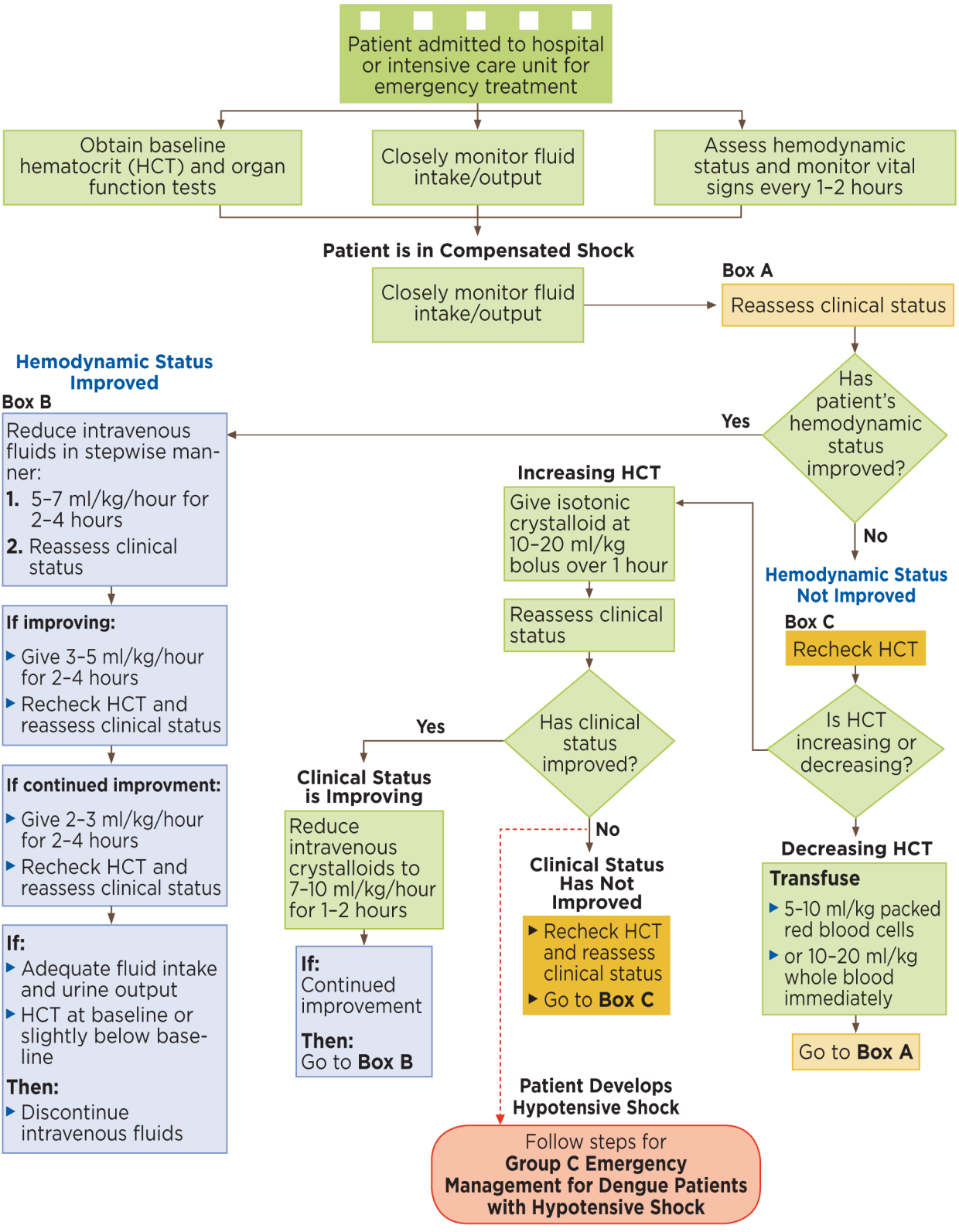
Group C — Emergency Management for Dengue Patients with Compensated Shock



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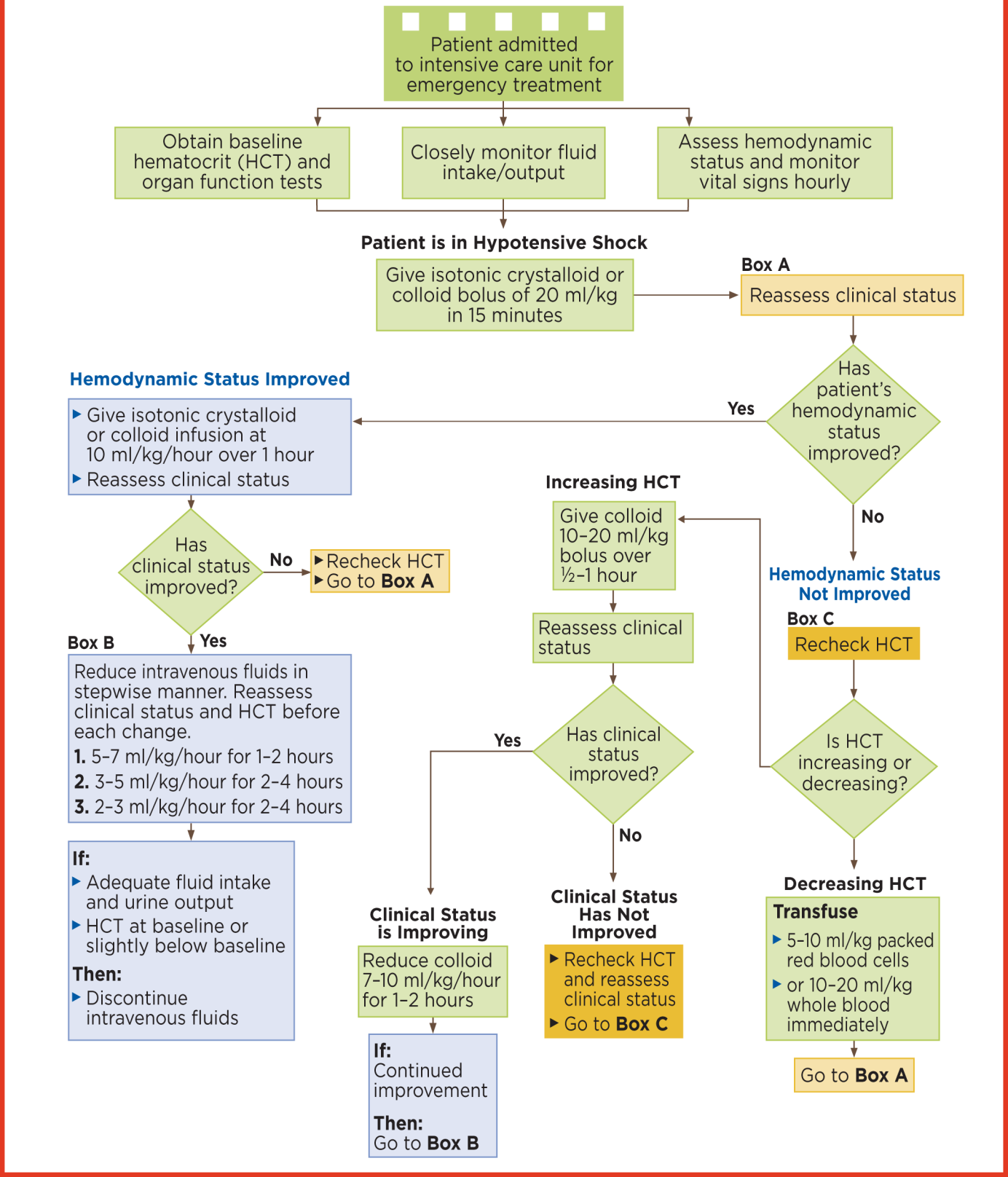
Group C — Emergency Management for Dengue Patients with Hypotensive Shock



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Normal Vital Signs

Age	Estimated Weight	Normal Heart Rate Range	Average HR	Normal Respiratory Rate Range	Hypotension Level (Systolic BP)
1 month	4 kg	110-180	145	40-60	<70
6 months	8 kg	110-170	135	25-40	<70
12 months	10 kg	110-170	135	22-30	<72
2 years	12 kg	90-150	120	22-30	<74
3 years	14 kg	75-135	120	22-30	<76
4 years	16 kg	75-135	110	22-24	<78
5 years	18 kg	65-135	110	20-24	<80
6 years	20 kg	60-130	100	20-24	<82
8 years	26 kg	60-130	100	18-24	<86
10 years	32 kg	60-110	85	16-22	<90
12 years	42 kg	60-110	85	16-22	<90
14 years	50 kg	60-110	85	14-22	<90
≥15 years		60-100	80	12-18	<90

Hemodynamic Assessment

Hemodynamic Parameters	Stable Circulation	Compensated Shock	Hypotensive Shock
Conscious level	Clear and lucid	Clear and lucid	Restless, combative
Capillary refill	Brisk (≤2 sec)	Prolonged (>2 sec)	Very prolonged, mottled skin
Extremities	Warm and pink	Cool peripheries	Cold, clammy
Peripheral pulse volume	Good volume	Weak and thready	Feeble or absent
Heart rate	Normal heart rate for age	Tachycardia for age	Severe tachycardia or bradycardia in late shock
Blood pressure	▶ Normal blood pressure for age ▶ Normal pulse pressure for age	▶ Normal systolic pressure, but rising diastolic pressure ▶ Narrowing pulse pressure ▶ Postural hypotension	▶ Narrow pulse pressure (≤ 20 mmHg) ▶ Hypotension ▶ Unrecordable blood pressure
Respiratory rate	Normal respiratory rate for age	Tachypnea	Hyperpnea or Kussmaul's breathing (metabolic acidosis)
Urine output	Normal	Reducing trend	Oliguria or anuria

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Ideal Body Weight Tables*

Boys and Girls

Age (yr)	Boys (kg)	Girls (kg)
2	13	12
3	14	14
4	16	16
5	18	18
6	21	20
7	23	23
8	26	26
9	29	29
10	32	33
11	36	37
12	40	42
13	45	46
14	51	49
15	56	52
16	61	54
17	65	55
18	67	56
19	69	57

Adult Males and Females

Height	Males (kg)	Females (kg)
5’ (152 cm)	50	45
5’ 1” (155 cm)	52	48
5’ 2” (157 cm)	54	50
5’ 3” (160 cm)	57	52
5’ 4” (163 cm)	59	55
5’ 5” (165 cm)	61	57
5’ 6” (168 cm)	64	59
5’ 7” (170 cm)	66	62
5’ 8” (173 cm)	68	64
5’ 9” (175 cm)	71	66
5’ 10” (178 cm)	73	69
5’ 11” (180 cm)	75	71
6’ (183 cm)	78	73
6’ 1” (185 cm)	80	75

1 kg = 2.2 pounds

*Use Ideal Body Weight to calculate IV fluid rates in patients who weigh more than their Ideal Body Weight (i.e. in overweight patients)

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