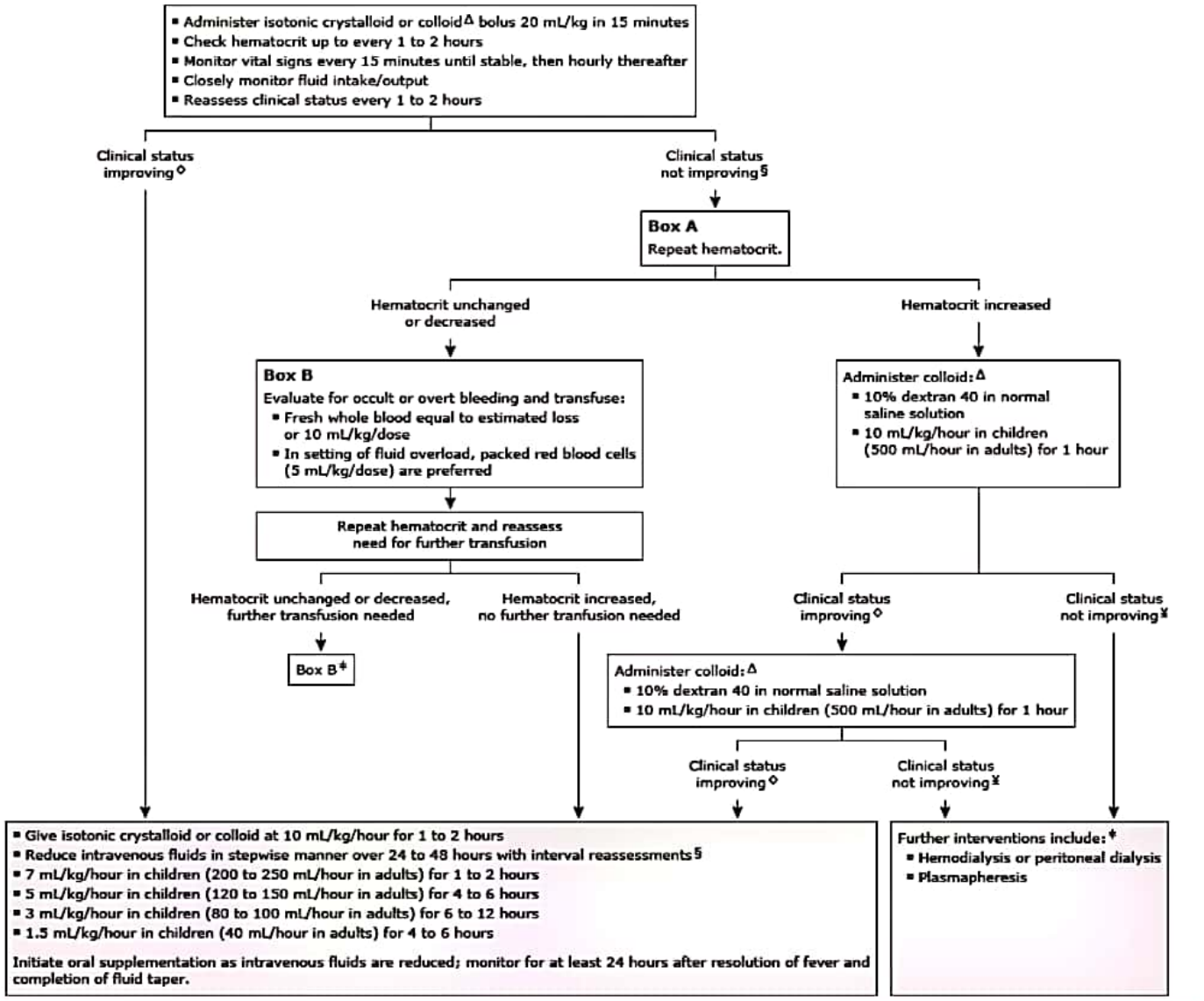
An approach to management of dengue infection in the setting of profound or prolonged shock (WHO DHF Grade IV)* ¶



WHO: World Health Organization; DHF: dengue hemorrhagic fever.

* The WHO has established a grading for severity of dengue hemorrhagic fever
- DHF Grade I – Fever, hemorrhagic manifestation (positive tourniquet test), and evidence of plasma leakage.
- DHF Grade II – DHF Grade I plus spontaneous bleeding.
- DHF Grade III – DHF Grade I or DHF Grade II plus circulatory failure.
- DHF Grade IV – DHF Grade III plus profound shock with undetectable blood pressure and pulse.

Dengue shock syndrome consists of DHF Grade III and DHF Grade IV.

¶ Shock refers to normal systolic pressure but rising diastolic pressure with narrowing pulse pressure. Profound shock refers to hypotension and narrow pulse pressure (systolic minus diastolic pressure ≤20 mmHg).

Δ Intravenous crystalloid solutions include normal saline or Ringer's lactate. Colloid solution includes blood products or 10% dextran 40 in normal saline; no other colloid formulations (such as albumin) should be used for management of dengue, and dextran should not be used for initial resuscitation. If 10% dextran 40 in normal saline is not available, crystalloid should be used.

◊ Criteria for clinical improvement include blood pressure rising or normalized, heart rate decreasing, pulse pressure widening, respiratory rate decreasing, skin warm with turgor intact, or sensorium clear.

§ The patient's clinical status (including vital signs, urine output, and hematocrit) should be evaluated prior to each infusion rate adjustment.

¥ Criteria for lack of clinical improvement include blood pressure decreasing, heart rate increasing, pulse pressure narrowing, respiratory rate increasing, skin cool and clammy with diminished turgor, mental confusion, or restlessness.

‡ Additional interventions include dialysis or plasmapheresis; the clinical approach depends on locally available resources and clinical expertise.

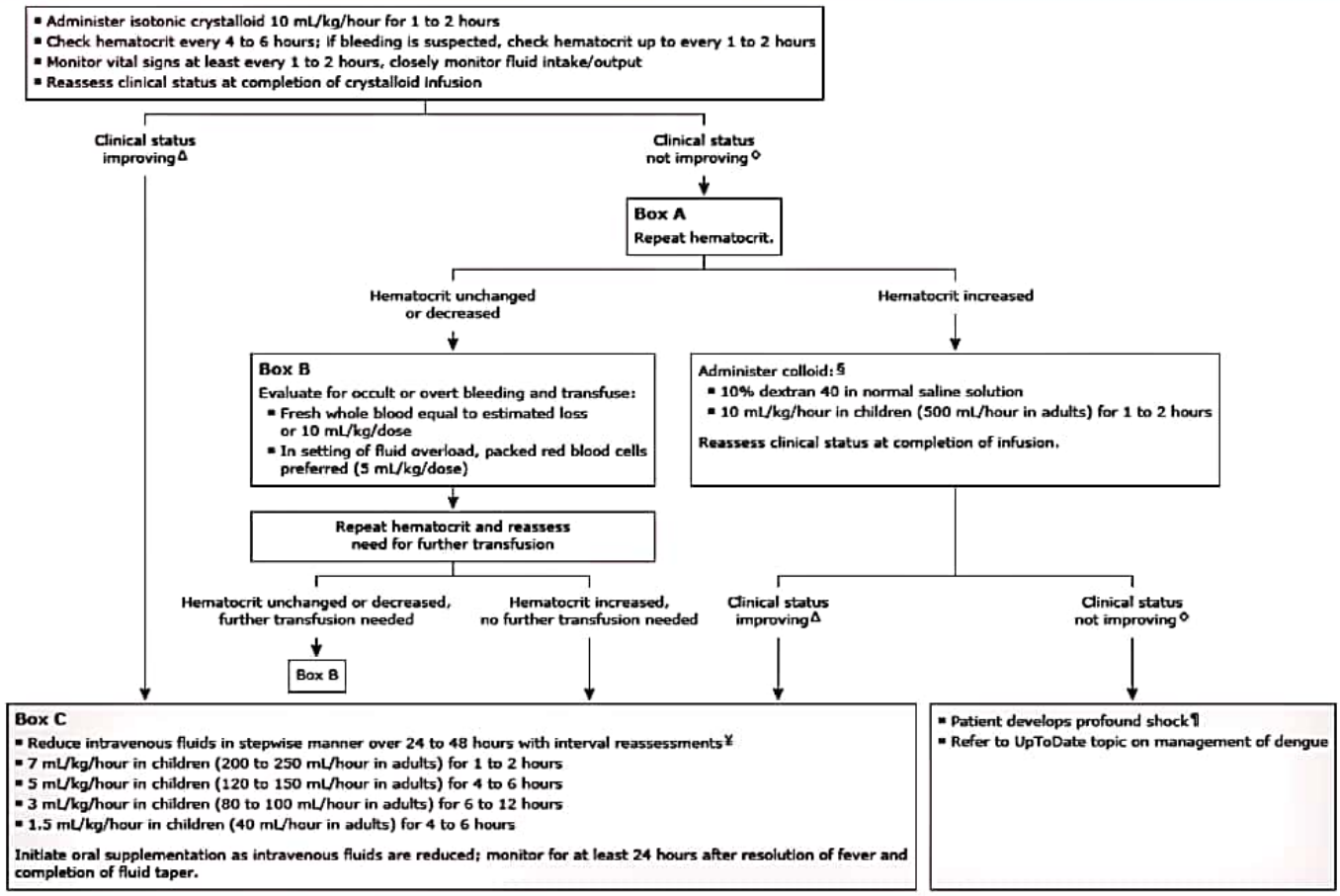
Data from:

1. *World Health Organization. Comprehensive Guidelines for Prevention and Control of Dengue and Dengue Haemorrhagic Fever. WHO, New Delhi 2011.*
2. *World Health Organization. Dengue: Guidelines for diagnosis, treatment, prevention and control. WHO, Geneva 2009.*

Graphic 109850 Version 1.0

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An approach to management of dengue infection in the setting of shock, narrowed pulse pressure, or hypotension (WHO DHF Grade III)* ¶



WHO: World Health Organization; DHF: dengue hemorrhagic fever.

* The WHO has established a grading for severity of dengue hemorrhagic fever:
- DHF Grade I – Fever, hemorrhagic manifestation (positive tourniquet test), and evidence of plasma leakage.
- DHF Grade II – DHF Grade I plus spontaneous bleeding.
- DHF Grade III – DHF Grade I or DHF Grade II plus circulatory failure.
- DHF Grade IV – DHF Grade III plus profound shock with undetectable blood pressure and pulse.

Dengue shock syndrome consists of DHF Grade III and DHF Grade IV.

¶ Shock refers to normal systolic pressure but rising diastolic pressure with narrowing pulse pressure. Profound shock refers to hypotension and narrow pulse pressure (systolic minus diastolic pressure ≤20 mmHg).

Δ Criteria for clinical improvement include blood pressure rising or normalized, heart rate decreasing, pulse pressure widening, respiratory rate decreasing, skin warm with turgor intact, or sensorium clear.

◊ Criteria for lack of clinical improvement include blood pressure decreasing, heart rate increasing, pulse pressure narrowing, respiratory rate increasing, skin cool and clammy with diminished turgor, mental confusion, or restlessness.

§ No other colloid formulations (such as albumin) should be used for management of dengue. If 10% dextran 40 in normal saline is not available, crystalloid should be used.

¥ The patient's clinical status (including vital signs, urine output, and hematocrit) should be evaluated prior to each infusion rate adjustment.

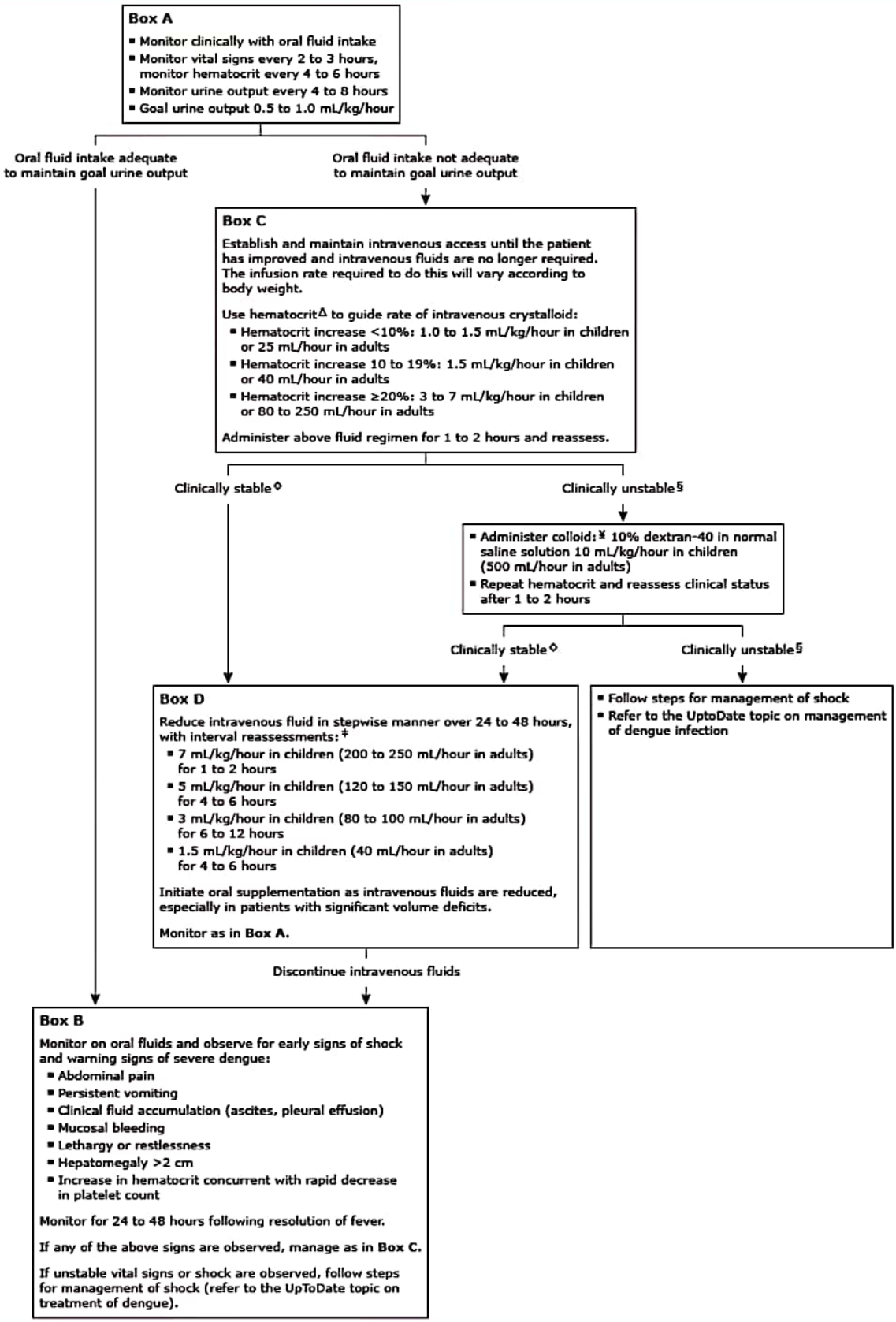
Data from:

1. *World Health Organization. Comprehensive Guidelines for Prevention and Control of Dengue and Dengue Haemorrhagic Fever. WHO, New Delhi 2011.*
2. *World Health Organization. Dengue: Guidelines for diagnosis, treatment, prevention and control. WHO, Geneva 2009.*

Graphic 109851 Version 1.0

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An approach to inpatient management of dengue infection with plasma leakage in the absence of shock (WHO DHF Grades I and II)* ¶



WHO: World Health Organization; DHF: dengue hemorrhagic fever; DSS: dengue shock syndrome.

* Inpatient management is warranted for patients high-risk patients (infants, pregnant women, elderly, obese, diabetes, renal failure, neurologic signs), patients with significant bleeding, patients with leukopenia (white blood cell count ≤5,000 cells/mcL), patients with thrombocytopenia (platelet count ≤100,00 cells/mcL), and patients with warning signs of severe dengue (as defined in Box B above).

¶ The WHO has established a grading for severity of DHF. DHF Grade I refers to fever and hemorrhagic manifestation (positive tourniquet test) and evidence of plasma leakage. DHF Grade II refers to Grade I plus spontaneous bleeding. DHF Grade III refers to Grade I or Grade II plus circulatory failure, and DHF Grade IV refers to Grade III plus profound shock with undetectable blood pressure and pulse. DSS consists of DHF Grade III and DHF Grade IV. Shock refers to normal systolic pressure but rising diastolic pressure with narrowing pulse pressure.

Δ The baseline hematocrit may be the patient's hematocrit obtained prior to acute illness, the initial hematocrit obtained in the absence of evidence of plasma leakage, shock, severe dehydration, or hemorrhage, or age and sex matched normal values. In the