Challenging Cases in Neonatology

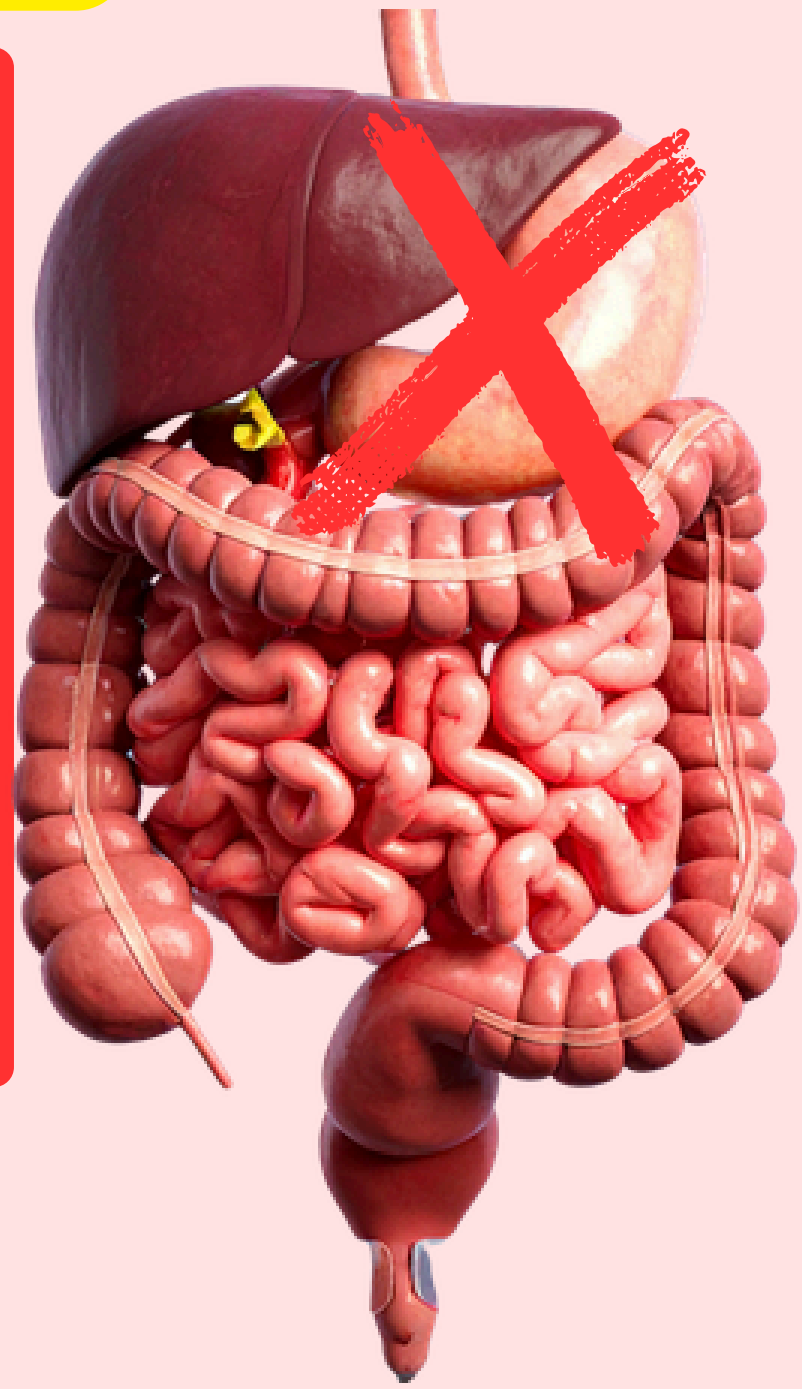
Inconsolable Crying While Feeding.

Patient Profile

Age: 5 weeks
Weight: 2 kg
History: Ex-preemie (29 weeks gestation)

Initial Erroneous Diagnosis

Irritability and inconsolable crying while feeding mistakenly attributed to Gastroesophageal Reflux (GERD) or Infantile Colic.

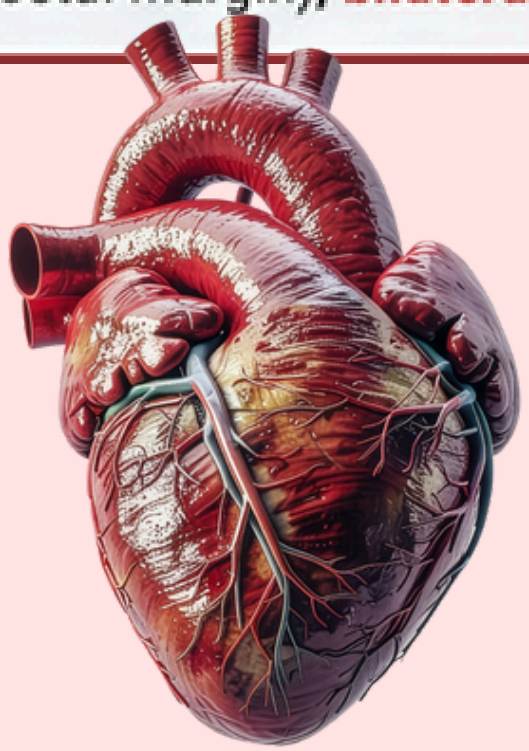


Source: Brodsky D, Neu J (eds). Challenging Cases in Neonatology, American Academy of Pediatrics, 2018.

ALCAPA-Induced Dilated Cardiomyopathy: Pathophysiological Discussion and NICU Management

Case Report of Congestive Heart Failure and Cardiogenic Shock

Actual Clinical Reality (Cardiogenic Shock)
Vitals HR 178 bpm | RR 76 breaths/min | BP 56/28 mm Hg
Perfusion Capillary refill 5 seconds, feeble pulses, cool extremities.
Cardiac/Pulmonary Gallop rhythm, 4/6 holosystolic murmur, hepatomegaly (5 cm below costal margin), bilateral rales.

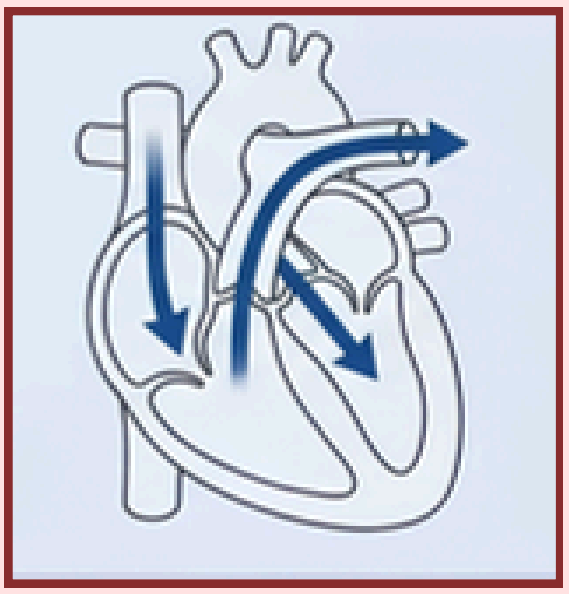


Pathophysiology of ALCAPA (Bland-White-Garland Syndrome)

Hemodynamic Timeline

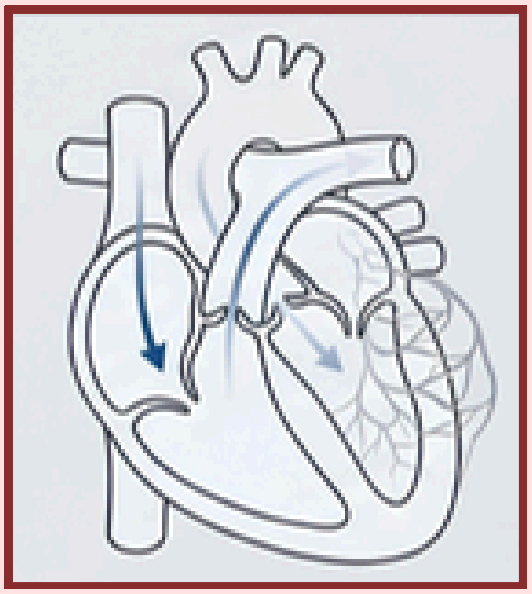
Step 1: Neonatal Phase

High Pulmonary Vascular Resistance (PVR) maintains antegrade blood flow from the Pulmonary Artery (PA) to the Left Coronary Artery (LCA). No ischemia is present.



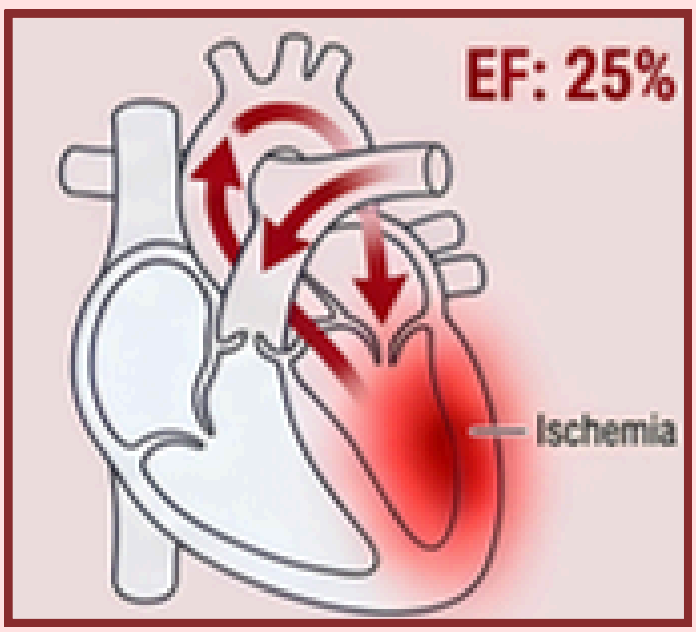
Step 2: Transition (6-8 weeks)

Normal physiological drop in PVR occurs. Flow to the LCA becomes severely compromised, prompting collateral anastomoses to form.



Step 3: Crisis (Coronary Steal)

Blood flow completely reverses, draining from the LCA into the PA. This steal phenomenon results in lateral wall myocardial ischemia, papillary muscle infarction, and severe left ventricular dysfunction (Ejection Fraction: 25%).

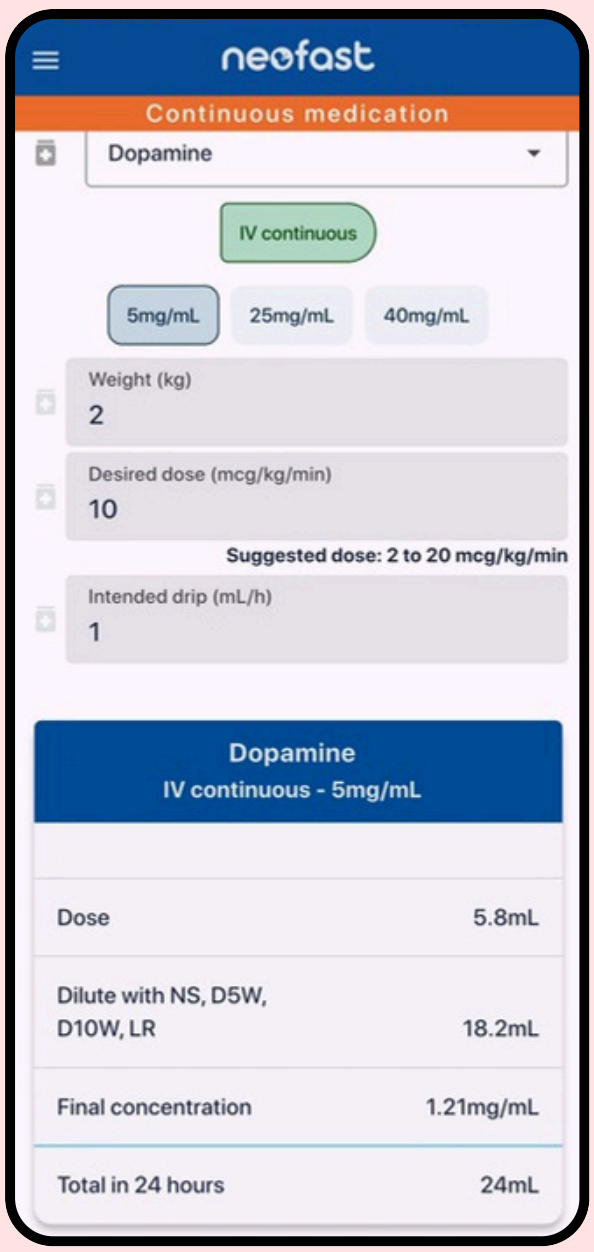


Acute Clinical Management: Bedside NeoFast Continuous Infusion Matrix

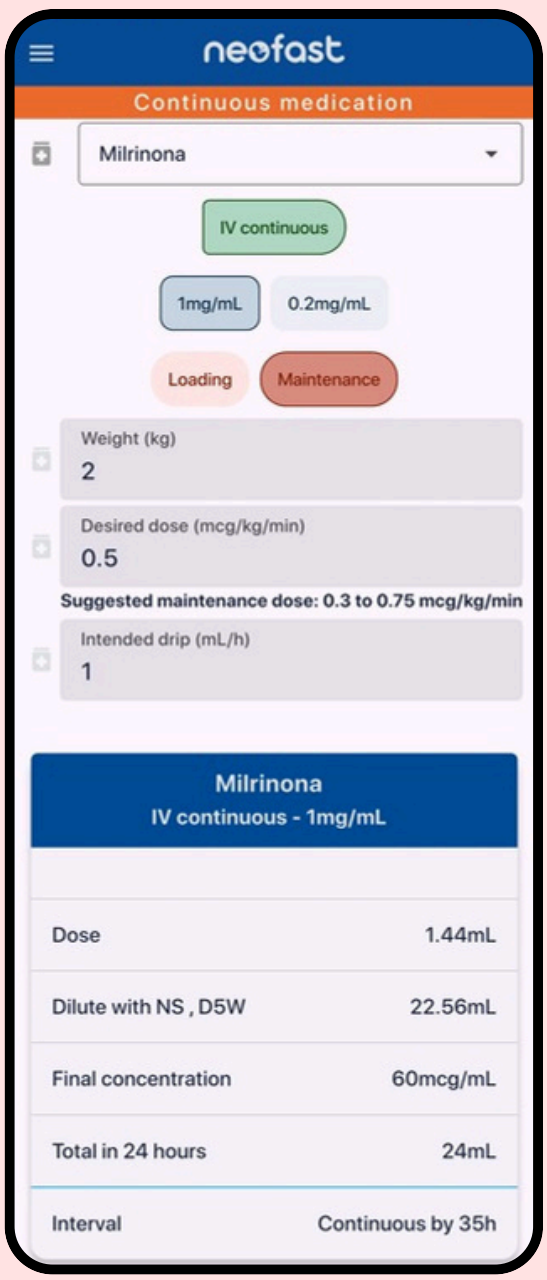
Standardized Output: 24h syringe running at a continuous rate of 1 mL/h.

Output:
Total Vol **24 mL** at
at **1 mL/h**

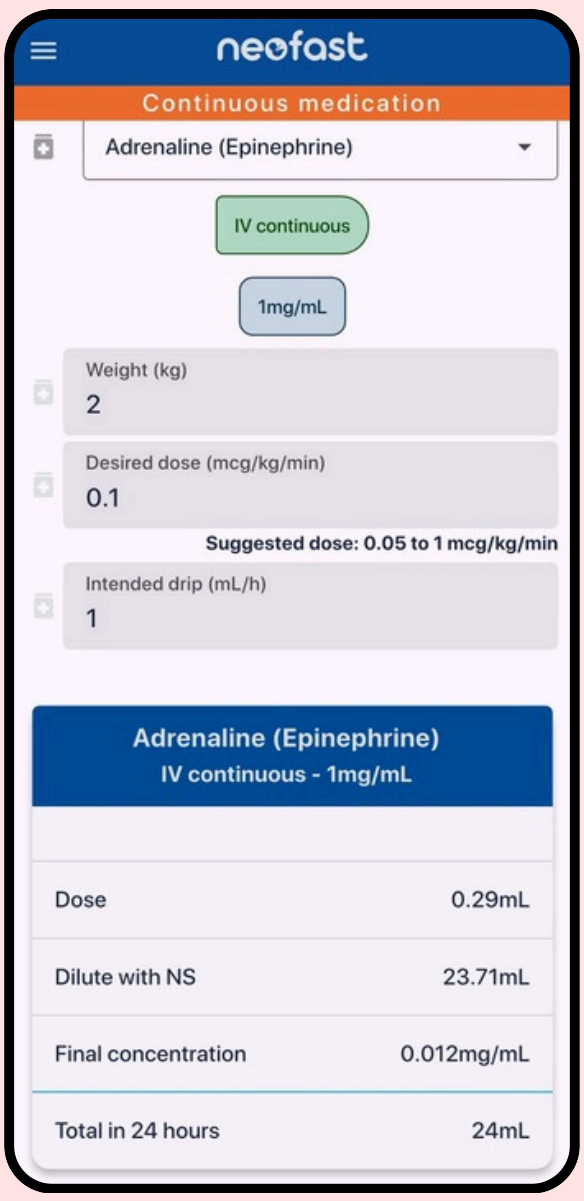
Dopamine
(Dose: 10 mcg/kg/min)



Milrinone
(Dose: 0.5 mcg/kg/min)



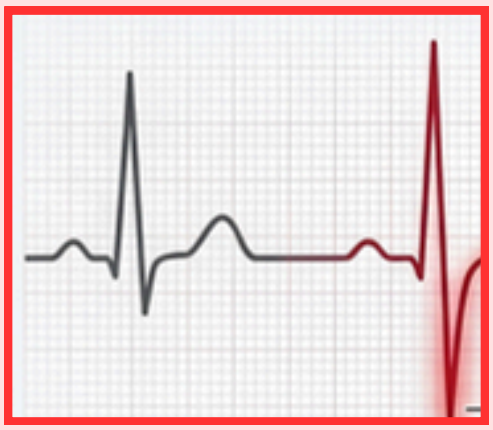
Epinephrine
(Dose: 0.1 mcg/kg/min)



The drip rate can be safely adjusted in seconds to ensure sufficient water restriction.

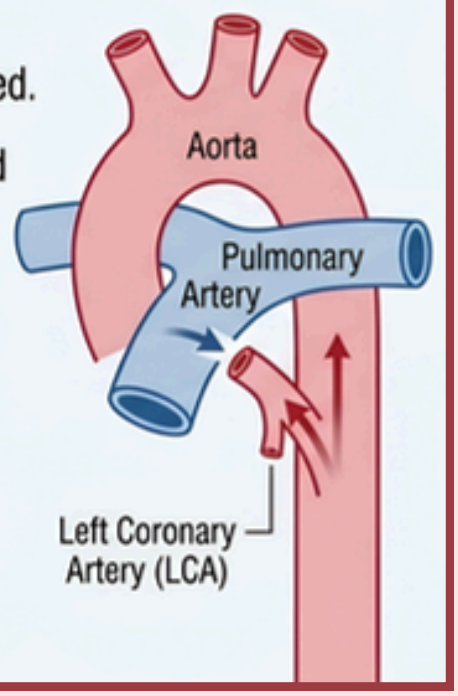
Diagnostic Confirmation (ECG)

- Evidence of lateral wall myocardial ischemia.
- Key Findings: Deep Q waves present in Leads I, aVL, and V4–V6.



Definitive Surgical Resolution

- Urgent surgical revascularization required.
- Procedure: Excision and transposition of the anomalous Left Coronary Artery (LCA) from the Pulmonary Artery.
- Resolution: Direct reimplantation of the LCA into the aorta to restore oxygenated systemic flow.



NICU Complexity and the Imperative for Systemic Safety

The High-Stress Manual Environment

- Cardiogenic shock creates cognitive overload.
- Complex, multi-step dilution math (e.g., 1:10 epinephrine double dilutions) is highly susceptible to fatal human error when calculated manually under pressure.

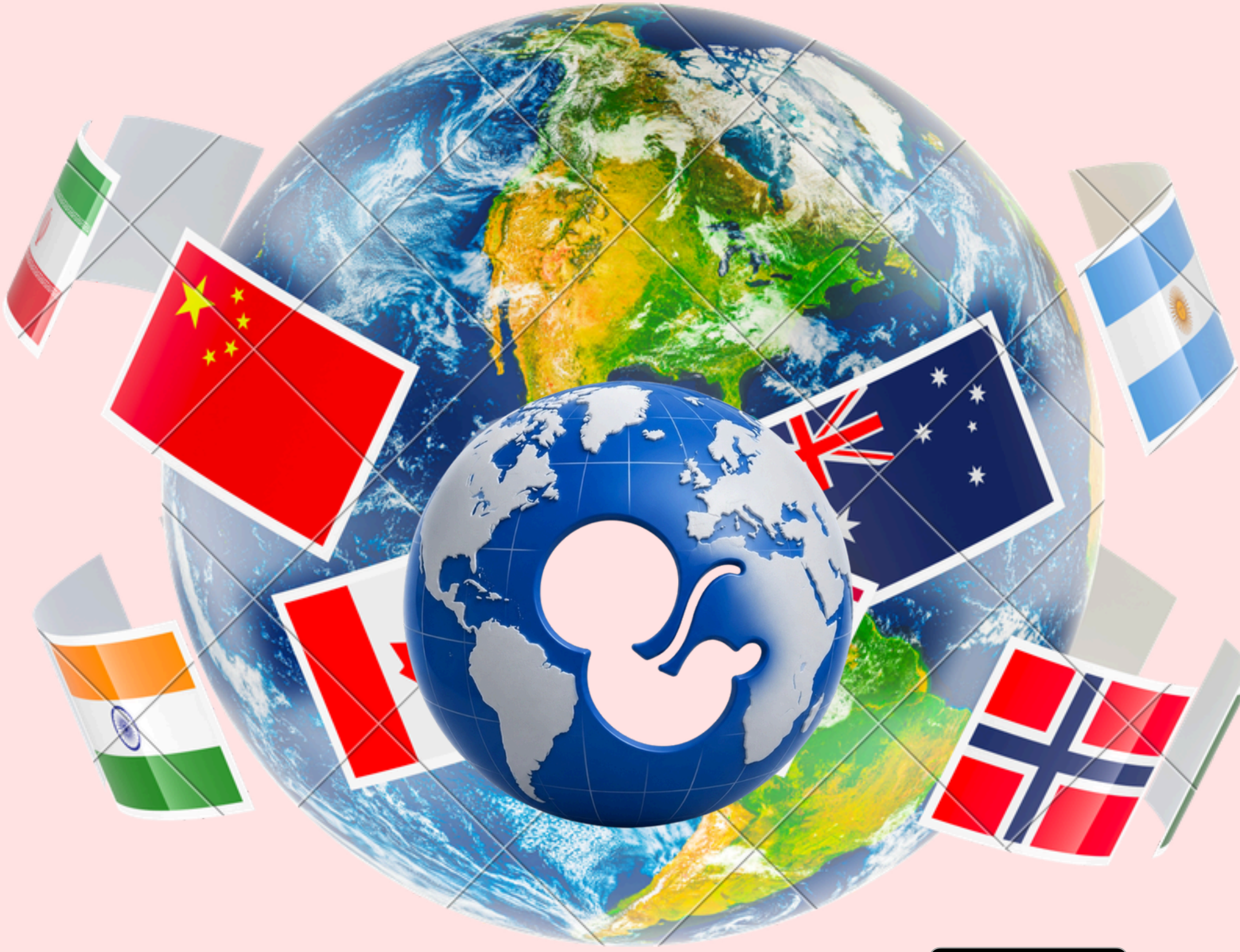
The Standardized NeoFast Environment

- Instant, precise volumetric calculations.

- Adjustable drip rate, facilitating water restriction down to the maximum permitted concentration..

– Elevates the bedside safety margin, allowing neonatologists to focus on patient hemodynamics rather than infusion math.

- Eliminates medication concentration errors.



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