



Neonatal Vasoactive & Inotropic Infusion Guide

Practical protocols for Dilution, Reconstitution, and Dosing: Dobutamine, Adrenaline, and Milrinone.

TARGET_DEMOGRAPHIC: NEONATOLOGY (NICU) | PROTOCOL_VERSION: 1.0



Universal Neonatal Infusion Parameters



Mandatory Equipment

All continuous infusions must be administered strictly via continuous infusion pumps (BIC) to ensure precise, titrated dosing.



Line Access Limits

Lower concentrations may be administered peripherally. Higher maximum concentrations strictly require central venous access to prevent tissue damage.



Fluid Capacity Restrictions

Neonatal dilutions are highly variable. Final volumes must be meticulously calculated based on the strict fluid volume limits (capacidade hídrica) of the individual patient.

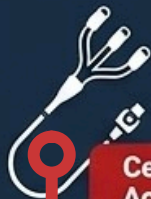
DOBUTAMINE | Preparation & Dilution

A Recommended Neonatal Concentration

1 mg/mL

B Absolute Maximum Neonatal Concentration

2 mg/mL



Central Access Mandatory



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Continuous medication



Dobutamine



IV - central access

IV - peripheral access

12.5mg/mL



Weight (kg)

2



Desired dose (mcg/kg/min)

5

Suggested dose: 2 to 25 mcg/kg/min



Intended drip (mL/h)

0.1

Minimum drip of 0.3 mL/h for 5mcg/kg/min for an adequate concentration of up to 2mg/mL

Additional information

Bibliographical references



Please note: the information presented in this application is taken from bibliographical references and is for information purposes only. The doctor is solely responsible for prescribing, administering and making the necessary adjustments. This app does not replace medical guidelines or clinical judgment.



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Continuous medication



Dobutamine



IV - central access

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12.5mg/mL



Weight (kg)

2



Desired dose (mcg/kg/min)

5

Suggested dose: 2 to 25 mcg/kg/min



Intended drip (mL/h)

0.1

Minimum drip of 0.6 mL/h for 5mcg/kg/min for an adequate concentration of up to 1mg/mL

DOBUTAMINE | Administration & Monitoring

CARDIAC MONITORING

Continuously monitor HR and rhythm. Watch closely for pathological elevation in HR or ventricular ectopic activity.

HEMODYNAMIC MONITORING

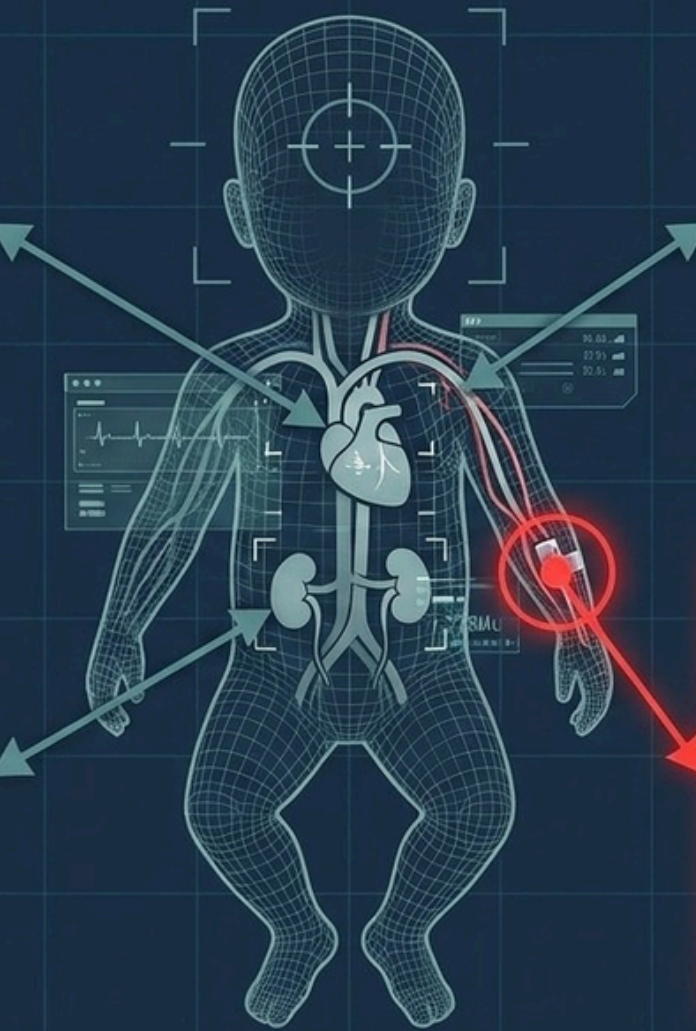
Strict continuous monitoring of Blood Pressure (PA) required during titration.

RENAL OUTPUT

Track strict urine output to assess organ perfusion efficacy.

EXTRAVASATION RISK

High risk of phlebitis and severe tissue necrosis. Avoid extravasation at all costs. Utilize large-caliber veins or central access only.



Chemical & Visual Alerts

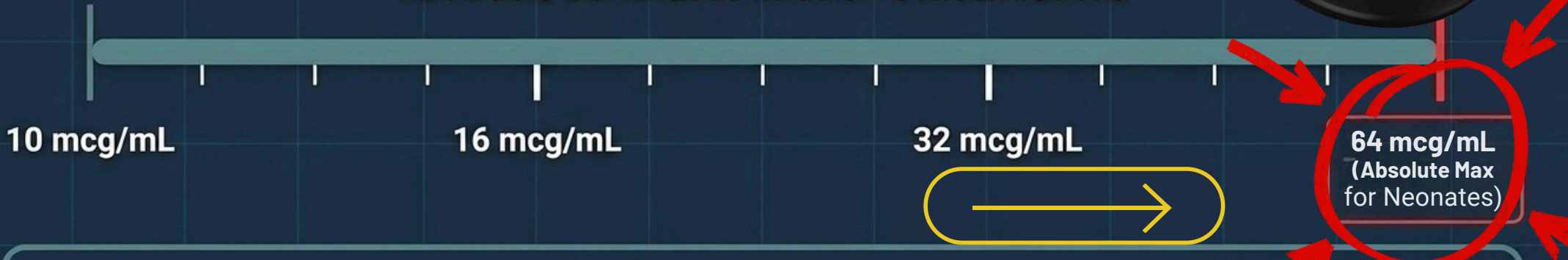
- **Alkaline Incompatibility:** Do NOT infuse Dobutamine with sodium bicarbonate or other strongly alkaline solutions.
- **Oxidation Note:** Solutions may develop a pink discoloration due to oxidation. This is harmless and causes no significant loss of potency within 24 hours.

ADRENALINE | Preparation & Dilution



Standard Ampule:
1 mL (1 mg/mL) = 1:1,000 Concentration

Allowable Continuous Infusion Concentrations



Stability Timeline



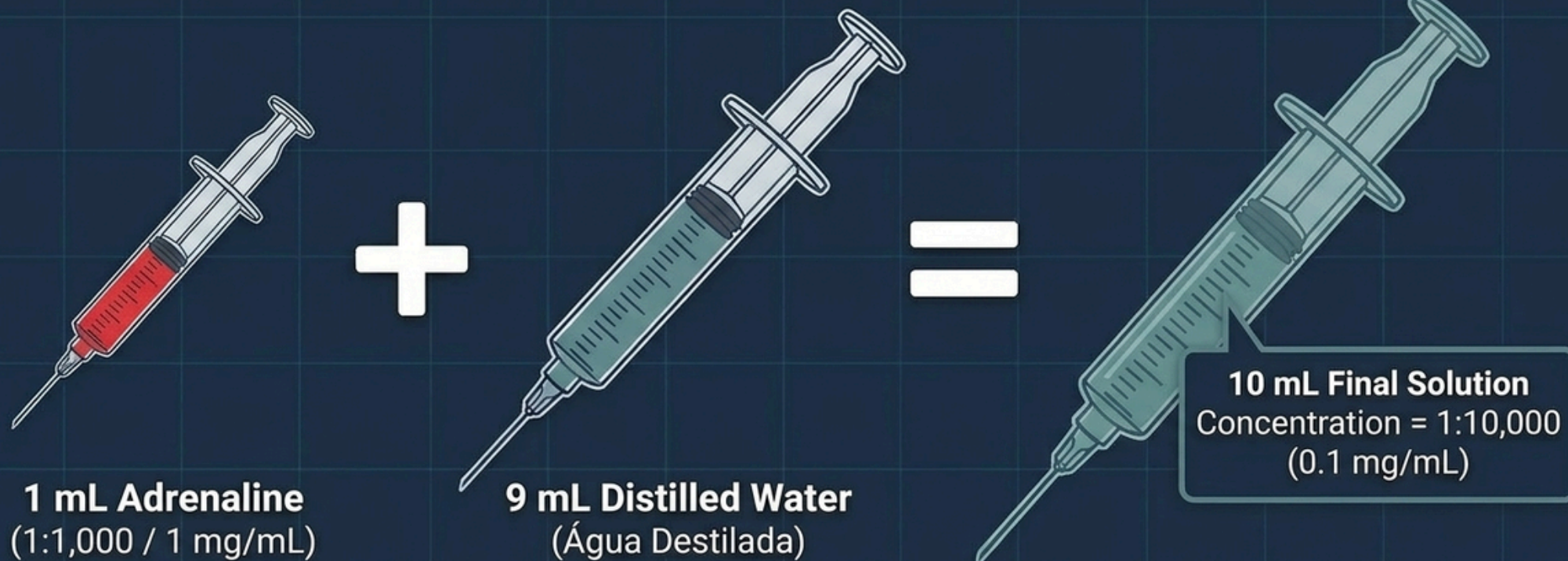
Unopened Ampules:
Immediate Use

1 Hour Limit: Diluted solutions
must have infusion initiated within
1 hour of preparation.



Warning: Do NOT
refrigerate after
dilution.

ADRENALINE | The 1:10,000 Conversion



CRITICAL PROTOCOL: This specific 1:10,000 dilution is mandatory for all Neonatal Cardiac Arrest (PCR) emergency protocols to prevent fatal overdose.

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Continuous medication

Adrenaline (Epinephrine)

IV continuous

1mg/mL

Weight (kg)

2

Desired dose (mcg/kg/min)

0.3

Suggested dose: 0.05 to 1 mcg/kg/min

Intended drip (mL/h)

0.1

Minimum drip of 0.56 mL/h for 0.3mcg/kg/min for an adequate concentration of up to 64mcg/mL

Additional information

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Minimum drip of 0.56 mL/h for 0.3mcg/kg/min for an adequate concentration of up to 64mcg/mL

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Continuous medication

Adrenaline (Epinephrine)

IV continuous

1mg/mL

Weight (kg)

2

Desired dose (mcg/kg/min)

0.3

Suggested dose: 0.05 to 1 mcg/kg/min

Intended drip (mL/h)

0.6

Adrenaline (Epinephrine)

IV continuous - 1mg/mL

Dose	0.86mL
Dilute with NS	13.54mL
Final concentration	0.06mg/mL
Total in 24 hours	14.4mL

Safety in concentration avoids adverse effects.

ADRENALINE | Neonatal Dosage Protocols

Neonatal Adrenaline Protocol

Path A: Shock / Hypotension

Route: Continuous IV

Dose: 0.05 – 0.3 mcg/kg/min

Note: Titrate to hemodynamic response via pump.

Path B: Cardiac Arrest (PCR)

Primary: IV / Intraosseous

Dose: 0.01 – 0.03 mg/kg

Volume: 0.1 – 0.3 mL/kg
of 1:10,000 solution

Frequency: Every 3-5 mins
(Max 1 mg/dose)

Secondary: Endotracheal

Dose: 0.05 – 1 mg/kg

Volume: 0.5 – 1 mL/kg
of 1:10,000 solution

Requirement: Must be
followed by 1-5mL saline
flush.



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Continuous medication

Adrenaline (Epinephrine)

IV continuous

1mg/mL

Weight (kg)
2

Desired dose (mcg/kg/min)
0.3

Suggested dose: 0.05 to 1 mcg/kg/min

MILRINONE | Preparation & Dilution

Ampule Presentation: 10 mL (1 mg/mL)

Peripheral Line Access



$\leq 200 \text{ mcg/mL}$

Standard maintenance continuous dose limit (e.g., 10 mg / 50 mL).

Central Line Access



Max 800 mcg/mL

Absolute maximum concentration (0.8 mg/mL). Strictly limited to central lines in pediatric/neonatal centers.

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Continuous medication

Milrinona

IV continuous

1mg/mL 0.2mg/mL

Loading Maintenance

Weight (kg)
2

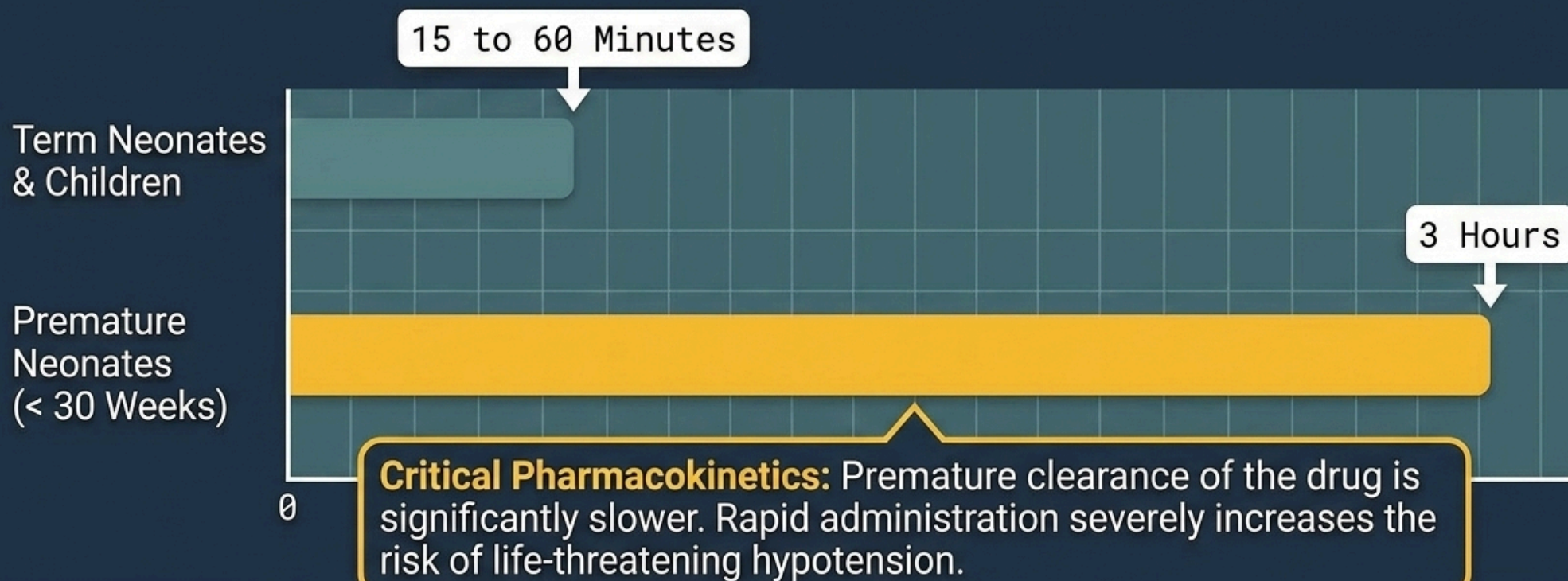
Desired dose (mcg/kg)
50

Suggested Loading dose: 50 to 75 mcg/kg/dose

Milrinona IV continuous - 1mg/mL	
Dose	0.1mL
Dilute with NS , D5W	0.4mL
Final concentration	200mcg/mL
Interval	Now
Infusion rate	15-60 min

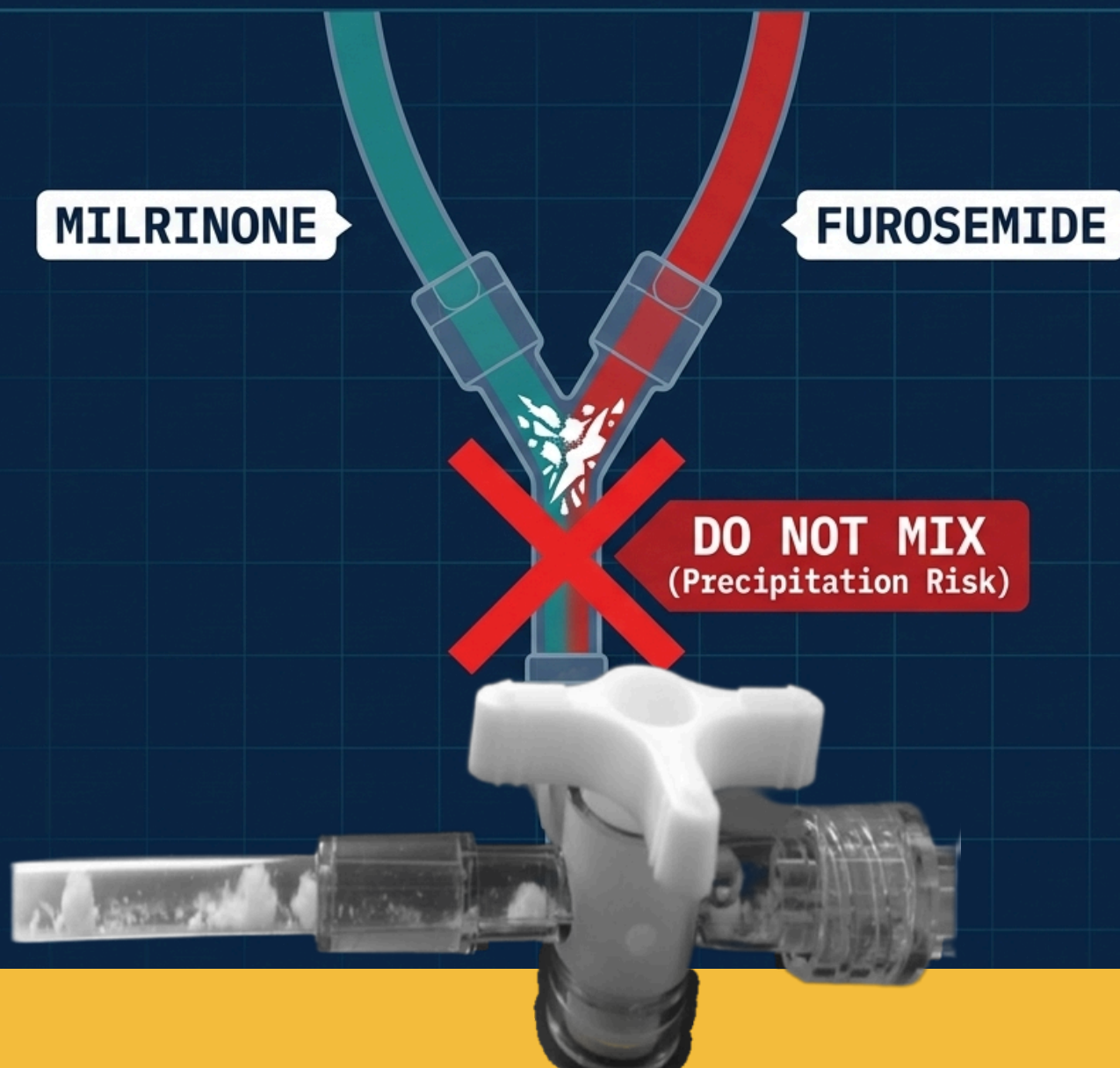
 **Chemical Stability:** Solutions diluted to 200 mcg/mL in NS or D5W remain chemically stable for 72 hours at room temperature.

MILRINONE | Neonatal Infusion Timing



Note: Maintenance continuous infusion follows this specific loading dose via pump, meticulously titrated to clinical effect.

MILRINONE | Critical Interactions & Safety



Hemodynamic Alert Box



Hypotension Risk

Continuous **blood pressure (BP) monitoring** is mandatory.

Furosemide instantly **precipitates Milrinone**. If systemic hypotension occurs, immediate **reduction of flow** or **total interruption of infusion** is required.

DOBUTAMINE	ADRENALINE	MILRINONE
Max Neo Concentration	Max Neo Concentration	Max Neo Concentration
4 mg/mL	64 mcg/mL	800 mcg/mL (Central Only)
Primary Route	Primary Route	Primary Route
Continuous IV Pump	Cont. IV (Shock) / IV-IO Bolus (Arrest)	Slow IV Load -> Cont. Maintenance
Critical Alert	Critical Alert	Critical Alert
Tissue necrosis on extravasation; alkaline incompatibility.	Must dilute to 1:10,000 for Cardiac Arrest; expires 1hr post-dilution.	3-hour loading dose for preemies; Furosemide Y-site precipitation.

General Guidelines & References

Best Practices Checklist	Institutional Baselines & Sources
✓ All vasoactive and inotropic doses must be meticulously titrated to clinical hemodynamic response. ✓ Central venous access is always preferred and strictly mandated for maximum drug concentrations. ✓ Flush IV lines meticulously when administering concurrent therapies to avoid Y-site incompatibilities.	Protocol synthesis derived from verified clinical manuals: Micromedex Clinical Knowledge Lexicomp Core Databases Pediatric & Neonatal Dosage Handbooks



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Neonatal Prescription



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