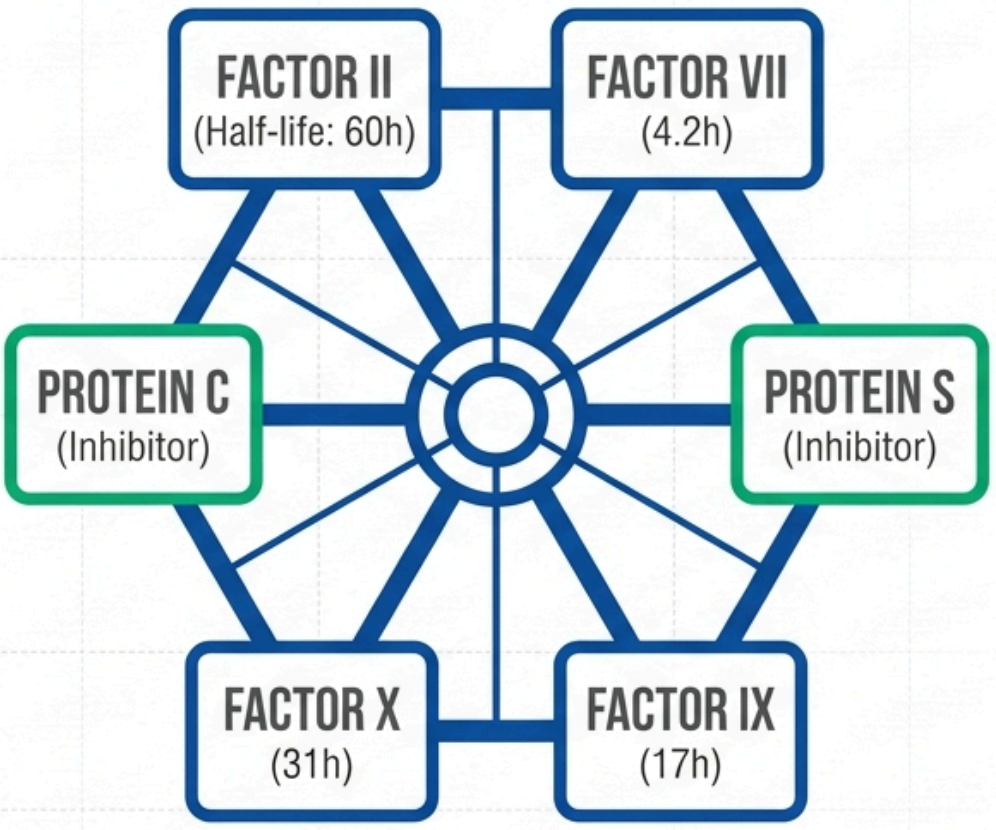
Beriplex® Administration in Neonatal & Pediatric Emergencies

A Clinical Reference Guide & Protocol Toolkit

Source: The Royal Children's Hospital Melbourne - Beriplex® (Human prothrombin complex) guideline for neonatal and paediatric patients | Augmented with NeoFast Clinical Decision Support tool.

The Royal Children's Hospital Melbourne

THE COAGULATION CLUSTER



5 MINUTES

Peak plasma concentrations occur within five minutes of infusion.

Prepared from human plasma. Blood transfusion consent should be sought where possible.

CLINICAL INDICATIONS: STANDARD VS. PEDIATRIC PROTOCOL

Standard CSL Indications

- ✓ Treatment of bleeding due to acquired prothrombin complex deficiency.
- ✓ Reversal of vitamin K antagonists (e.g., warfarin) in perioperative or bleeding contexts.
- ✓ Treatment of VKA overdose.

RCH Specific Indications

- ★ Emergency DOAC reversal (Direct-Acting Oral Anticoagulants).
- ★ Vitamin K Deficiency Bleeding (VKDB) of the newborn.
- ★ Cardiopulmonary bypass bleeding.
- ★ Patient/family refusal of whole blood products.

CRITICAL CAUTIONS & CONTRAINDICATIONS

✕ ABSOLUTE CONTRAINDICATIONS

History of Heparin Induced Thrombocytopenia (HIT)
(Beriplex contains Heparin)

Active Disseminated Intravascular Coagulation (DIC)
(Only consider after resolution of the consumptive state)

Hypersensitivity to product components

⚠ CAUTIONS (RISK BALANCING)

⚠ Neonates (specifically noted as a caution group)

⚠ Patients with a history of thrombosis or prothrombotic state

⚠ Presence of a Central Venous Access Device (CVAD)

⚠ Patients with liver disease

FOCUS ON NEONATES: VITAMIN K DEFICIENCY BLEEDING (VKDB)

CLINICAL CONDITION

Vitamin K Deficiency Bleeding (VKDB) in infants.

Specifically: major bleeding or refractory to standard treatment.

*In severe cases and very-low-birth-weight infants, delivered vitamin K utilisation may be insufficient due to immature liver function.

CLINICAL THRESHOLD

Any INR ≥ 1.5

REQUIRED ACTION

✓ **Beriplex® 50 IU/kg**

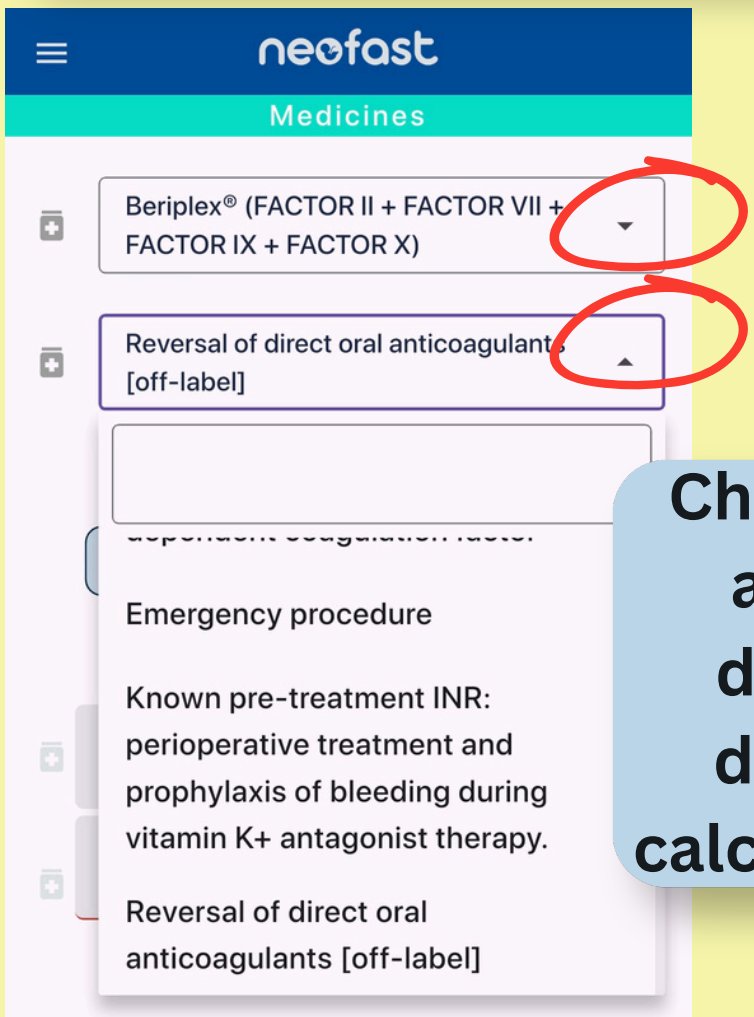
✓ Vitamin K 1mg (IV or PO)

Put on the desired weight and dose to get the results in seconds.

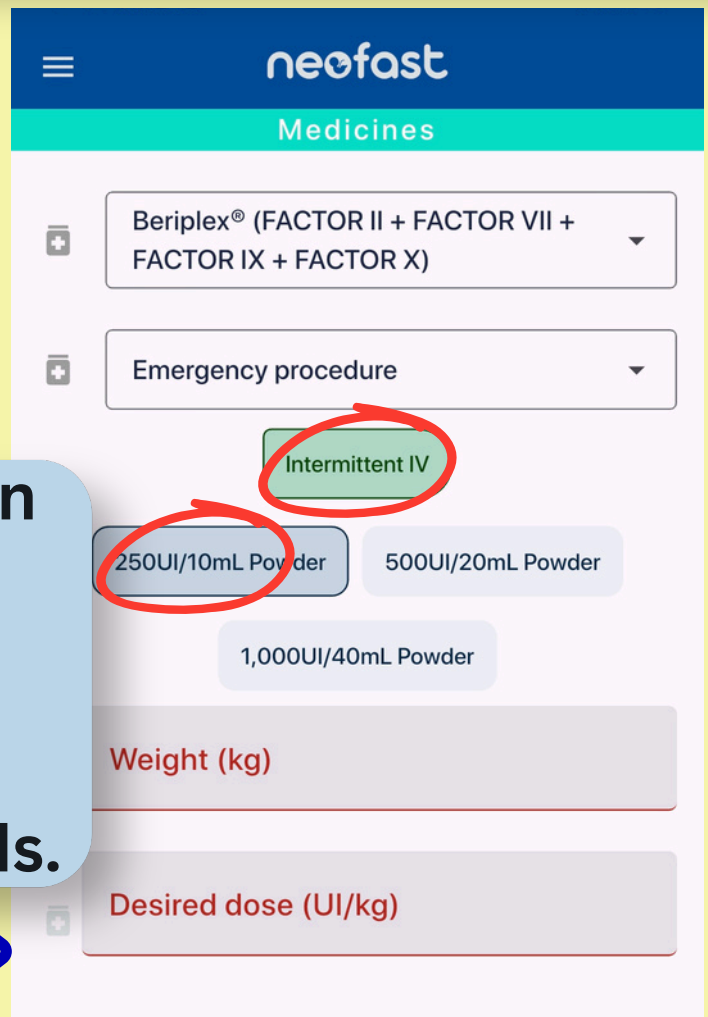
Dosing Algorithm: Anticoagulant Reversal

CLINICAL CONDITION/SEVERITY	CLINICAL PARAMETERS	RECOMMENDED DOSE
Critical/Major Bleeding (Critical organ/life-threatening on Warfarin OR Major DOAC bleeding)	Any INR ≥ 1.5	**50 IU/kg** (Max 5000 IU)
Urgent Peri-operative OR Major Bleeding on Warfarin	Pre-treatment INR 2.0 – 3.9	**25 IU/kg** (Max 2500 IU)
Urgent Peri-operative OR Major Bleeding on Warfarin	Pre-treatment INR 4.0 – 6.0	**35 IU/kg** (Max 3500 IU)
Urgent Peri-operative OR Major Bleeding on Warfarin	Pre-treatment INR ≥ 6.0	**50 IU/kg** (Max 5000 IU)

Rules: Based on weight up to 100kg. If >15kg, round to nearest vial size. If ≤15kg, round to nearest 25 IU or 50 IU.



Choose the indication and fill in with the desired weight and dose to obtain safe calculations in seconds.



Preparation & Reconstitution Protocol

1. Presentation

500 IU vials paired with 20 mL water for injection.

2. Reconstitution

Reconstitute using provided diluent and the Mix2Vial™ system. No antimicrobial preservatives—use immediately.

(Multiple vials may be pooled into a single infusion)

3. Critical Constraint

DO NOT further dilute Beriplex®.

Administration Parameters

Absolute Maximums

Maximum Rate:
210 IU/minute

Volume Equivalent:
Approx 8 mL/minute

Strict Infusion Speed Limit

Checklist

- ☐ **Method:** Slow IV push.
- ☐ **Line Requirement:** Must administer via a separate IV line. Do not mix with other medicinal products.
- ☐ **Post-Admin:** Check INR within 30 minutes post-warfarin reversal.

The High-Stakes Calculation Gap

$$\frac{\text{Patient Weight (kg)} \times \text{Target Dose (IU/kg)}}{\text{Reconstituted Concentration (mg/mL)}} = \text{Output Volume}$$

ERROR RISK

The Variables

Calculating exact IU/kg doses while converting to mL based on reconstitution concentration.

The Constraints

Must round to nearest 25/50 IU for neonates.

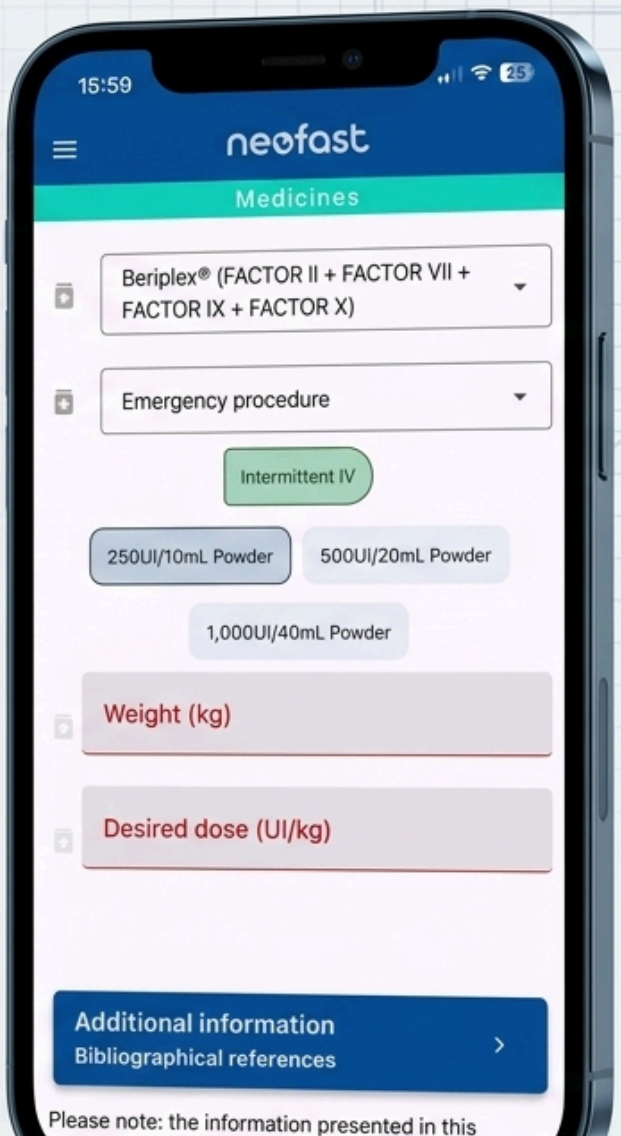
Must calculate maximum safe infusion rate (3 IU/kg/min).

The Reality

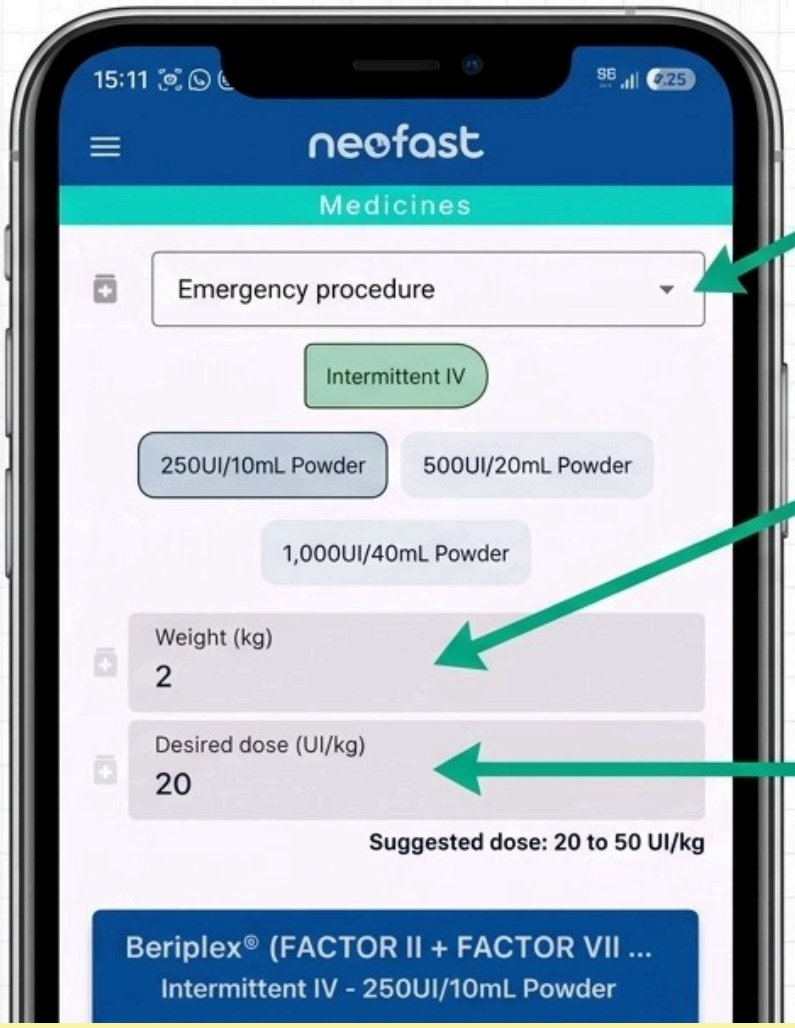
Performing multistep mathematical conversions while managing a critical neonatal bleed introduces an unacceptable risk for human error.

Introducing NeoFast: Precision at the Point of Care

- ✓ Eliminates manual dosage arithmetic.
- ✓ Automatically accounts for specific pediatric rounding rules.
- ✓ Calculates exact reconstitution volumes and safe infusion times instantly.



Step 1: Rapid Clinical Input



Field 1
Procedure Type (e.g., Emergency procedure).

Field 2
Patient Weight (e.g., 2 kg).

Field 3
Desired Dose (e.g., 20 UI/kg). The app provides a safety guardrail by displaying the suggested clinical range (20 to 50 UI/kg) right below the input.

Step 2: Instant, Error-Free Output

Total Dose: 40 UI
(Automatically calculated for rounding rules).

Reconstitution Formula:
Reconstitute with 10mL to achieve an exact 25mg/mL concentration.

Syringe Draw (Volume): Exactly 1.6 mL to administer.

Safe Infusion Rate: 20 minutes.

(Note: NeoFast adopts a highly conservative 1 UI/kg/min baseline to ensure absolute safety against the 3 UI/kg/min maximum).

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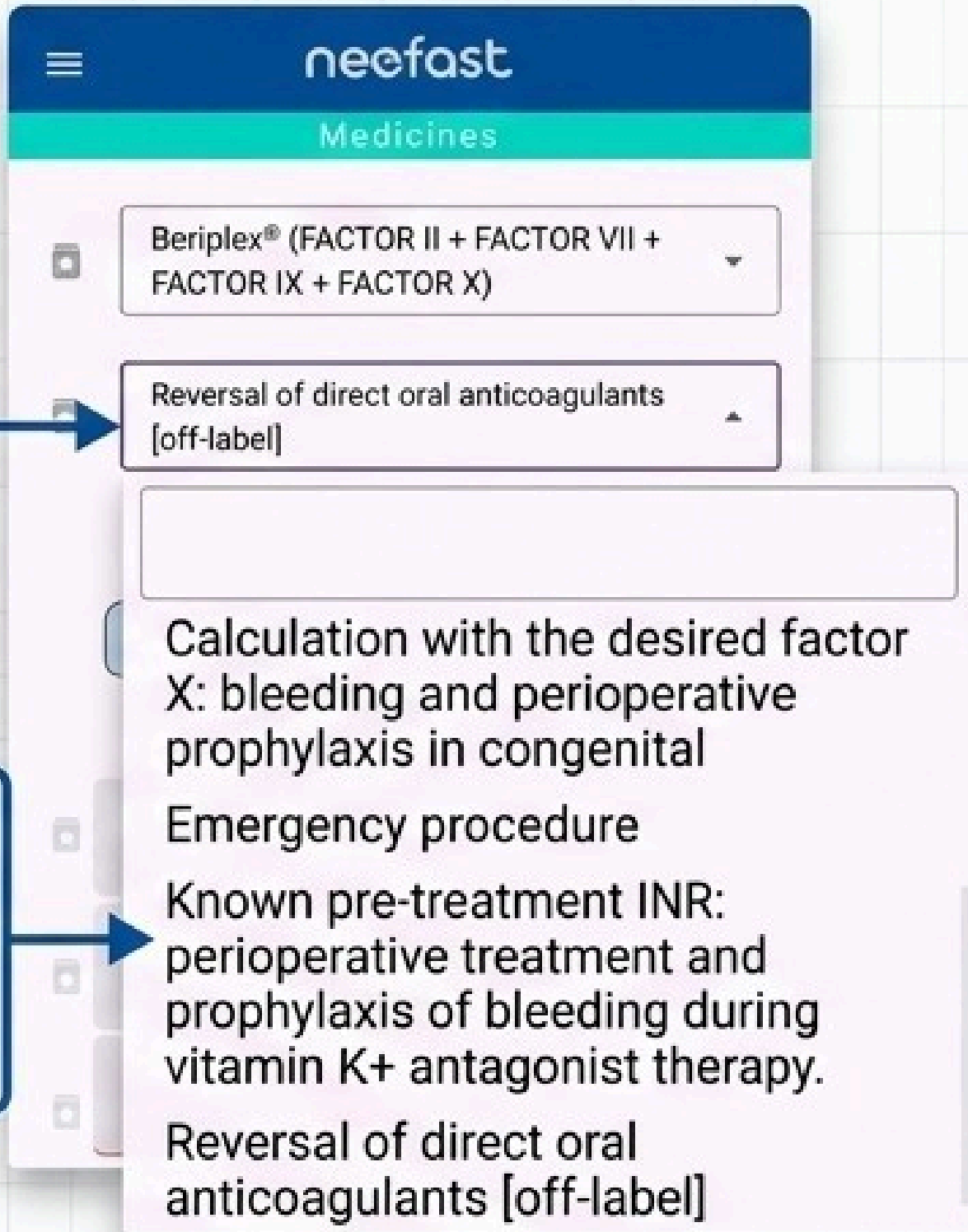
Programmed for Complexity

Reversal of direct oral anticoagulants [off-label]

Select the clinical condition and get the results



NeoFast dynamically adapts its algorithms to align with specific institutional protocols, including off-label DOAC reversal, ensuring instant compliance without flipping through manuals.

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The Clinical Summary Cheat Sheet

Neonatal VKDB Focus

INR ≥ 1.5 ⇒ **50 IU/kg Beriplex + 1mg Vit K**

(Vitamin K dependent bleeding)

Reversal Dosing

INR 2.0-3.9	25 IU/kg
INR 4.0-6.0	35 IU/kg
INR ≥6.0 or DOAC	50 IU/kg

Admin Rules

- Max rate 3 IU/kg/min.
- Do NOT further dilute.
- Separate IV line required.

The Digital Advantage

GET IT ON Google Play

Download on the App Store

Download NeoFast App

Calculate instantly and safely with NeoFast.