Dose & Vial Optimizer — Logic Summary (1-Pager)

Overview

The Dose & Vial Optimizer helps healthcare professionals determine the optimal combination of 70 mg and 100 mg vials to meet a patient's dosing requirement while minimizing waste.

Inputs

Inputs:

- Weight (kg)
- Dose regimen (mg/kg): 2.5 or 1.9
- Fixed vial strengths: 70 mg and 100 mg
- Max vial limit: Default 10

Step-by-Step Logic

1 Calculate required dose:

R = ceil(W × d)
Round up to ensure no underdosing.

2 Generate combinations:

For x = 0..max, y = 0..max, where x+y ≤ maxVials:

total = 70x + 100y

Keep only if total ≥ R (no underdosing).

3 Calculate waste:

waste = total – R

waste% = (waste / total) × 100

4 Rank combinations:

1. Least waste
2. Fewest total vials (tie-breaker)
3. Lowest total amount (final tie-breaker)

5 Display results:

- Best (least waste) combination
- 70 mg only option
- 100 mg only option
- Next best mixed option

Mathematical Equations

Required dose: $R = \text{ceil}(W \times d)$

Total (mg): $T = 70x + 100y$

Waste: $Wt = T - R$

Waste %: $(Wt / T) \times 100$

Key Principles

✓ No underdosing

✓ Single-patient use only

✓ Ranking: Least waste → Fewest vials → Lowest total