Chart 8. How to give intravenous fluids to a child in shock with severe malnutrition

Give this treatment only if the child has signs of shock (usually there will also be a *reduced level of consciousness, i.e. lethargy or loss of consciousness*):

- Insert an IV line (and draw blood for emergency laboratory investigations).
- Weigh the child (or estimate the weight) to calculate the volume of fluid to be given.
- Give IV fluid at 15 ml/kg over 1 h. Use one of the following solutions according to availability:
  - Ringer's lactate with 5% glucose (dextrose);
  - Half-strength Darrow's solution with 5% glucose (dextrose);
  - 0.45% NaCl plus 5% glucose (dextrose).

Weight	Volume of IV fluid Give over 1 h (15 ml/kg)	Weight	Volume of IV fluid Give over 1 h (15 ml/kg)
4 kg	60 ml	12 kg	180 ml
6 kg	90 ml	14 kg	210 ml
8 kg	120 ml	16 kg	240 ml
10 kg	150 ml	18 kg	270 ml

- Measure the pulse rate and volume and breathing rate at the start and every 5–10 min.

  If there are signs of improvement (pulse rate falls, pulse volume increases or respiratory rate falls) and no evidence of pulmonary oedema

  - repeat IV infusion at 15 ml/kg over 1 h; then
  - switch to oral or nasogastric rehydration with ReSoMal at 10 ml/kg per h up to 10 h (see p. 204);
  - initiate re-feeding with starter F-75 (see p. 209).

  If the child fails to improve after two IV boluses of 15 ml/kg,

  - give maintenance IV fluid (4 ml/kg per h) while waiting for blood;
  - when blood is available, transfuse fresh whole blood at 10 ml/kg slowly over 3 h (use packed cells if the child is in cardiac failure); then
  - initiate re-feeding with starter F-75 (see p. 209);
  - start IV antibiotic treatment (see p. 207).

  If the child deteriorates during IV rehydration (breathing rate increases by 5/min and pulse rate increases by 15/min, liver enlarges, fine crackles throughout lung fields, jugular venous pressure increases, galloping heart rhythm develops), stop the infusion, because IV fluid can worsen the child's condition by inducing pulmonary oedema.