

# Intravascular Fluid Therapy (Adults)

- Signs of shock appear very late during pregnancy and hypotension is an extremely late sign.
- Clinicians should take frequent clinical observations and be vigilant for subtle changes that may indicate the onset of shock.
- Fluid replacement should aim to maintain a systolic blood pressure of 90 mmHg in obstetric patients who are bleeding.

## 4. Non-Haemorrhagic Emergencies [771, 772, 962–967, 970–980]

### 4.1 Trauma

- The loss of bodily fluids other than blood, as a result of trauma, is rare. Burns injuries are notable exceptions (see exceptions and special circumstances below).

### 4.2 Medical conditions

- Patients suffering medical emergencies may experience fluid loss as a result of dehydration (e.g. heat related illness, vomiting or diarrhoea) and/or redistribution of fluid from the vascular compartment (e.g. as a result of anaphylaxis).
- The volume of fluids lost to such processes can easily be underestimated.
- Such patients may be significantly dehydrated resulting in reduced fluid volumes in both the vascular and tissue compartments which has usually taken time to develop and will take time to correct.
- Rapid fluid replacement into the vascular compartment can compromise the cardiovascular system particularly where there is pre-existing cardiovascular disease and in the elderly.
- In cases of dehydration, fluid replacement should be aimed at gradual re-hydration over many hours rather than minutes. Oral electrolyte solutions may be an appropriate consideration in some patients e.g. heat illness.

### 4.3 Fluid therapy

- **DO NOT** delay at scene to obtain vascular access or to provide fluid replacement; wherever possible obtain vascular access and administer fluid **EN-ROUTE TO HOSPITAL**.
- If the clinician determines that there is a definite need for fluid therapy, they should obtain vascular access.
- Clinicians should attempt to gain intravenous access in the first instance; however they may consider intra-osseous access where intravenous access fails or is unlikely to be successful.
- Vascular access devices should be flushed with 5 ml of 0.9% sodium chloride for injection to confirm patency prior to administering large volumes of fluid.
- Once patent vascular access is confirmed, administer a single bolus of 250 ml of crystalloid (Table 6.10).
- Where the need for intravascular fluid therapy is less certain, clinicians should still obtain vascular access and flush to confirm patency.
- **Do not connect any fluids to the cannula unless intravascular fluid therapy is indicated.**

NB The slow administration of fluids to keep a vein open (TKO/TKVO) should not be practised to avoid inadvertent excess fluid administration.

**Table 6.10 – DOSAGES FOR FLUID THERAPY**

INITIAL DOSE	REPEAT DOSE	REPEAT INTERVAL	MAXIMUM DOSE
250 ml	250 ml	PRN	2 litres

- Monitor the physiological response, re-assess perfusion, pulse, respiratory rate and blood pressure wherever possible.
- If these observations improve, suspend any further administration.
- If there is no improvement, administer further 250 ml boluses, reassessing for improvement after each fluid bolus (Table 6.10).
- The maximum cumulative fluid dose is usually 2 litres (Table 6.10).
- If the patient remains hypotensive despite repeated 250 ml boluses OR the patient is likely to remain on scene for a considerable time (e.g. due to extrication difficulties), request senior clinical support (according to local procedures).

### 4.4 Exceptions and special circumstances

#### 4.4.1 Burns

Where burn surface area is:

- <15% do not administer fluid.
  - ≥15 – <25% and time to hospital is greater than 30 minutes then administer 1 litre sodium chloride 0.9% (Table 6.11).
  - ≥25% administer 1 litre sodium chloride 0.9% (Table 6.11).
- NB If fluid therapy is indicated **DO NOT** delay transfer to further care but continue fluid therapy en-route – stopping if practicable to insert the cannula.
- Care must be taken to ensure that elderly or heart failure patients are not over-infused.
  - In order to minimise the risk of hypothermia, the use of cold fluids should be avoided if possible.

**Table 6.11 – DOSAGES FOR FLUID THERAPY – BURNS**

INITIAL DOSE	REPEAT DOSE	REPEAT INTERVAL	MAXIMUM DOSE
1 litre over 1 hour	NONE <sup>a</sup>	N/A	1 litre

<sup>a</sup>Seek senior clinical input for prolonged delays

#### 4.4.2 Sepsis

- Sepsis should be suspected in patients who have a history of infection, a systolic blood pressure below 90 mmHg and tachypnoea.
- Patients with sepsis will benefit from early fluid therapy and an appropriate hospital alert/information call.