

Based on NICE Clinical Guideline 174: Intravenous fluid therapy in adults in hospital (July 2017)

## Before Prescribing

Is my patient **Euvolaemic? Hypovolaemic? Hypervolaemic?**  
Can my patient have fluid **enterally**?  
**Why** does my patient need IV fluids?  
**How much** fluid does my patient need?  
**What type** of fluid does my patient need?

## Fluid Status Assessment

**History:** Limited oral intake, abnormal losses, co-morbidities  
**Clinical examination:** Pulse, BP, capillary refill, JVP, oedema, postural hypotension, lung fields  
**Clinical monitoring:** NEWS, fluid balance, weight, CXR  
**Laboratory investigations:** FBC, U&Es

## Special Considerations

**Obesity:** Use **ideal body weight**. Seek senior advice if BMI > 40  
**Frail, Elderly, CCF or Renal impairment:** consider smaller volumes of maintenance fluid (20-25mL/kg/day)  
**Bleeding:** Replace with blood products if required  
**Diabetes or patient on VRII**

## Fluid Resuscitation

Patients with physiological abnormalities due to presumed hypovolaemia/abnormal distribution of fluid  
**Refer to resuscitation flow chart.**  
**ABCDE** approach. Early senior input  
**Give 500mL sodium chloride 0.9% or Hartmann's over 15 mins (250mL if CCF/IHD/elderly)**  
Re-assess  
Repeat as indicated up to 2 Litres (1 Litre if CCF/IHD)  
Seek advice from Critical Care if the patient has not responded to a maximum of 2 Litres of fluid on the ward

## Replacement & Redistribution

Patients with ongoing losses or abnormal distribution of fluids (e.g. vomiting, diarrhoea, high output stoma, sepsis)  
**Give sodium chloride 0.9% (+/- KCl) or Hartmann's in addition to routine maintenance fluids**  
Adjust rate of IV fluids for current and ongoing deficits  
Seek senior advice for complex patients

## Routine Maintenance

The fluid of choice for patients unable to take enteral fluids but with **no abnormal losses** is:  
**Sodium Chloride 0.18% + Dextrose 4% + 20-40mmol/Litre of Potassium Chloride.**  
Omit the potassium if the patient is **hyperkalaemic**.  
Sodium Chloride 0.18% + Dextrose 4% is **not suitable** for hyponatraemic patients, neurosurgical patients or patients with high GI losses. **Use Sodium Chloride 0.9% or Hartmann's for these patients.**

| Fluid (1 Litre)                       | Na  | K  | Cl  | Ca | Glucose |
|---------------------------------------|-----|----|-----|----|---------|
| NaCl 0.18% + Dextrose 4% + KCl 40mmol | 31  | 40 | 71  | 0  | 40g     |
| NaCl 0.18% + Dextrose 4%              | 31  | 0  | 31  | 0  | 40g     |
| Hartmann's                            | 131 | 5  | 111 | 2  | 0       |
| NaCl 0.9%                             | 154 | 0  | 154 | 0  | 0       |
| Dextrose 5%                           | 0   | 0  | 0   | 0  | 50g     |

## Maintenance Requirements

| Component                                            | Requirement                                                                                                                                             |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water                                                | 25-30mL/kg/day<br>20-25mL/kg/day in the elderly, frail, or those with CCF or renal impairment.<br>Round the daily requirement to the nearest 500mL bag. |
| Na <sup>+</sup> , K <sup>+</sup> and Cl <sup>-</sup> | 1mmol/kg/day of each                                                                                                                                    |
| Glucose                                              | 50-100g/day                                                                                                                                             |

Avoid more than 2500mL of **Sodium Chloride 0.18% + Dextrose 4%** per day as this may cause **hyponatraemia**.  
If the patient requires a larger volume than this, refer to **Fluid Resuscitation or Replacement & Redistribution**.  
Plan to deliver the daily routine maintenance volume over 12 to 16 hours.

## Reassessment

Reassess patients regularly and adjust the fluid prescription as required.  
**Seek senior advice if a patient is not responding to IV fluids as expected.**  
**Stop routine maintenance fluids when the enteral route is available.**