

Fluids

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Approach to IV Fluids

1) Types of fluids

- **Crystalloids:**

- Saline or LR – *small particles equilibrate with interstitium*
- 250 mL of 1 liter stays in the plasma

- **Colloids:**

- Albumin, Dextran, or HES – *large particles stay in plasma*
- 1 liter of 1 liter stays in the plasma

2) Bolus vs maintenance

- **Bolus = many liters per hour!** Use in situations like DKA, sepsis, severe dehydration
- **Maintenance = 75-150 mL/hr!** Use in situations that require gentle rehydration or for patients that are not able to drink for a long time (NPO)
 - Small, frail, elderly = start at 50-75 mL/hr
 - Young, robust, athlete = start at 125-150 mL/hr

3) Fluids can be dangerous to give

- **High risk for fluid volume overload:** heart failure, kidney disease, cirrhosis
- First **assess fluid status:** peripheral edema, JVD, lung crackles
- Proceed with caution! Start with a **small bolus**, like 250 mL, and then **reassess**.

4) Normal saline is slightly hypertonic (300 mOsm/L) and has lots of chloride

Quick Facts

- Extracellular fluid is $\frac{1}{4}$ plasma and $\frac{3}{4}$ interstitial
- Rapid high volume NS can cause **hyperchloremic metabolic acidosis**
- Colloids increase plasma volume 4x as effectively than crystalloids.