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 ¼ plasma and ¾ interstitial
- Rapid high volume NS can cause **hyperchloremic metabolic acidosis**
- Colloids increase plasma volume 4x as effectively than crystalloids.