

Solution	Type	Fluid Shift	Purpose	Used In	Contraindications
D <sub>5</sub> W 	Isotonic (solution remains in vessel)	Expand ECF volume	Supplies H <sub>2</sub> O/Glucose	Hypertremia, fluid loss, dehydration	Head injury, do not use in excess volume in early post-op period, use can lead to hyperglycemia. Use with caution in renal or cardiac disease. Monitor closely for fluid overload
0.9% NS	Isotonic	Expand ECF volume	Supplies Na <sup>+</sup>	Hypovolemia, resuscitation, shock, DKA, met. alkalosis, hypercalcemia, mild Na <sup>+</sup> deficit	Monitor Na <sup>+</sup> & Cl <sup>-</sup> as overuse can cause fluid volume excess and hyperchloremic acidosis. Not desirable as routine maintenance solution. Use with caution in renal disease, heart failure or edema. Monitor closely for fluid overload
LR	Isotonic	Expand ECF volume	Supplies K <sup>+</sup> , CA, Na <sup>+</sup>	Hypovolemia, burns, fluid lost as bile or diarrhea, acute blood loss replacement	Lactate rapidly metabolized into HCO <sub>3</sub> <sup>-</sup> . Do not give if pH > 7.5 b/c bicarb is formed leading to alkalosis. Do not use in renal disease b/c ↑ risk of hyperkalemia. Monitor closely for fluid overload
0.45% NS 	Hypotonic (Fluid shifts INTO cell)	Provide Cl <sup>-</sup> , Na <sup>+</sup> , free H <sub>2</sub> O	Rehydrate cells. Can be combined with isotonic solution	Hypertonic dehydration, Na <sup>+</sup> and Cl <sup>-</sup> depletion, gastric fluid loss, DKA	Use with caution: can cause cardiovascular collapse and ICP. Do not use for 3 <sup>rd</sup> sp fluid shifts (burns, trauma), ICP, or CVA
0.33% NS	Hypotonic	" "	" "	" "	" "
0.225% NS	Hypotonic	" "	" "	" "	" "
D <sub>5</sub> NS 	Hypertonic (fluid shifts OUT OF cell)	↑ ECF volume ↓ cellular edema	Expand extra cellular volume	Hyponatremia. Post-op fluid of choice b/c ↓ risk of edema, stabilizes blood press, regulates urine output	Use with caution – can cause intravascular volume overload and pulmonary edema. Do not use with DKA, impaired heart or kidney function
D <sub>5</sub> 1/2NS	Hypertonic	" "	" "		" "
D <sub>5</sub> 1/4NS	Hypertonic	" "	" "		" "
D <sub>5</sub> LR	Hypertonic	" "	" "		" "
D <sub>10</sub> W	Hypertonic	" "		Replacement therapy if out of TPN	In the absence of TPN, infuse D <sub>10</sub> W at same rate as TPN. Monitor glucose levels closely