

transudate from injuries • Hemorrhage Iatrogenic: • Overzealous use of diuretics • Improper perioperative fluid replacement • Use of radiant warmer or phototherapy	• Variable serum electrolytes • Low serum bicarbonate (HCO_3) • Variable urine volume • Increased BUN • Increased serum osmolality	
Water Excess		
Water intake in excess of output: • Excessive oral intake • Hypotonic fluid overload • Plain water enemas Failure to excrete water in presence of normal intake: • Kidney disease • Syndrome of inappropriate anti-diuretic hormone • Heart failure • Malnutrition	Edema: • Generalized • Pulmonary (moist rales or crackles) • Intracutaneous (noted especially in loose areolar tissue) Elevated central venous pressure Hepatomegaly Slow, bounding pulse Weight gain Lethargy Increased spinal fluid pressure CNS manifestations (seizures, coma) Laboratory findings: • Low urine specific gravity • Decreased serum electrolytes • Decreased hematocrit • Variable urine volume	Limit fluid intake. Administer diuretics. Monitor vital signs. Monitor neurologic signs as necessary. Determine and treat cause of water excess. Analyze serum electrolyte measurements. Implement seizure precautions.
Sodium Depletion (Hyponatremia)		
Prolonged low-sodium diet Decreased sodium intake Fever Excess sweating Increased water intake without electrolytes Tachypnea (infants) Cystic fibrosis Burns and wounds Vomiting, diarrhea, NG suction, fistulas Adrenal insufficiency Renal disease DKA Malnutrition	Associated with water loss: • Same as with water loss—dehydration, weakness, dizziness, nausea, abdominal cramps, apprehension • Mild—apathy, weakness, nausea, weak pulse • Moderate—decreased blood pressure, lethargy Laboratory findings: • Sodium concentration <130 mEq/L (may be normal if volume loss) • Urine specific gravity depends on water deficit or excess	Determine and treat cause of sodium deficit. Administer IV fluids with appropriate saline concentration. Monitor fluid intake and output.
Sodium Excess (Hypernatremia)		
High salt intake—enteral or IV Renal disease Fever Insufficient breast milk intake in neonate (dehydration hypernatremia) High IWL:	Intense thirst Dry, sticky mucous membranes Flushed skin Temperature possibly increased Hoarseness	Determine and treat cause of sodium excess. Administer IV fluids as prescribed. Measure fluid intake and output. Monitor laboratory data.