

# Hyponatremia

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## Rationale

Decreased serum sodium concentration is common with a multitude of underlying etiologies. Both hyponatremia and treatment of hyponatremia may be associated with neurological complications.

## Causal Conditions

(list not exhaustive)

- Hyponatremia with normal serum osmolality (e.g., hyperlipidemia)
- Hyponatremia with high serum osmolality (e.g., hyperglycemia)
- Hyponatremia with low serum osmolality
  - a. Total body water low, elevated antidiuretic hormone (ADH) level (e.g., gastrointestinal loss, diuretic use)
  - b. Total body water volume normal (e.g., syndrome of inappropriate ADH secretion, hypothyroidism, adrenal insufficiency)
  - c. Total body water high, elevated ADH level (e.g., congestive heart failure, nephrotic syndrome, cirrhosis)

## Key Objectives

Given a patient with hyponatremia, the candidate will diagnose the cause, severity, and complications, and will initiate an appropriate management plan, recognizing that severe hyponatremia can be life-threatening.

## Enabling Objectives

Given a patient with hyponatremia, the candidate will

- list and interpret critical clinical findings, including

- a. appropriate history and physical examination, with particular attention to assessment of volume status;
- list and interpret key investigations directed towards establishing the underlying etiology, including plasma and urine osmolality and urine electrolytes;
- construct an effective initial management plan, including
  - a. a therapeutic approach based on the underlying etiology;
  - b. understanding the risk factors for, and how to avoid central pontine myelinolysis;
  - c. correcting serum sodium at an appropriate rate and understanding the risks and indications for more rapid correction of sodium concentration.