

# Hypernatremia

(January 2017)

---

## Rationale

Increased serum sodium concentration is encountered more frequently in the elderly and in infants. Both hypernatremia and treatment of hypernatremia may be associated with neurological complications.

## Causal Conditions

(list not exhaustive)

- Water depletion (dehydration)
  - a. Decreased intake of water (e.g., impaired thirst)
  - b. Increased loss
    - Renal loss (e.g., osmotic diuresis)
    - Gastrointestinal loss (e.g., diarrhea)
    - Increased insensible loss (e.g., prolonged exercise)
- Sodium gain (e.g., hypertonic fluid replacement)

## Key Objectives

Given a patient with hypernatremia, the candidate will diagnose the cause, severity and complications, and initiate an appropriate management plan. In particular, the candidate will recognize that most cases occur in the frail elderly population due to conditions associated with water depletion.

## Enabling Objectives

Given a patient with hypernatremia, the candidate will

- list and interpret critical clinical findings, including
  - a. history aimed at identifying the common triggers and the clinical consequences of hypernatremia;
  - b. physical examination with careful assessment of volume status and the neurological effects of hypernatremia;
- list and interpret critical investigations, including
  - a. estimation of water deficit;
  - b. specific laboratory and other investigations for underlying medical conditions (e.g., blood glucose, brain imaging);
- construct an effective initial management plan, including
  - a. establishing a short-term and long-term plan for correcting the sodium concentration, with recognition of the neurological consequences of overly rapid correction;
  - b. correcting causes of hypernatremia.