

# Fever and hyperthermia

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## Rationale

Fever is an elevation of body temperature above the normal variation, which is induced by cytokine activation. Fever is often due to infection but can be associated with malignancy, inflammatory disease or other causes. In contrast, hyperthermia is an elevation in core body temperature due to thermoregulation failure.

Elevated body temperature is a common presentation which can be due to a mild, self-limited illness or to a life-threatening medical emergency.

## Causal Conditions

(list not exhaustive)

- Infectious causes
  - a. Bacteria (e.g., group A Streptococcus, Escherichia coli)
  - b. Viruses (e.g., influenza, measles)
  - c. Parasites (e.g., malaria)
  - d. Fungi (e.g., cryptococcus)
- Inflammatory and malignant conditions (e.g., systemic lupus erythematosus, lymphoma)
- Drugs (e.g., bleomycin, interferon)
- Increased heat load (e.g., heat stroke)
- Diminished heat dissipation (e.g., medications and illicit drugs)
- Factitious

## Key Objectives

Given a patient with elevated body temperature, the candidate will diagnose the cause, severity and complications, and will initiate appropriate management. In particular, the candidate will rule out life-threatening conditions (e.g., meningococcal meningitis).

## Enabling Objectives

Given a patient with fever, the candidate will

- list and interpret critical clinical findings, including those derived from
  - a. a relevant history;
    - infectious symptoms (e.g., productive cough, dysuria, diarrhea);
    - travel history (e.g., geographic location and timing of trip, use of chemoprophylaxis);
    - host factors (e.g., immunocompromised state due to HIV, previous splenectomy);
    - non-infectious symptoms (e.g., weight loss, night sweats, arthralgias);
    - environmental factors (e.g., heat exposure, exertion);
    - drug therapy (e.g., corticosteroids);
  - b. a relevant physical examination aiming at determining the cause;
- list and interpret critical investigations, including
  - a. targeted initial investigations, if required, to determine the cause (e.g., chest radiograph, urinalysis, blood cultures);
  - b. additional investigations for fever of unknown origin (e.g., bone marrow biopsy, echocardiogram);
- construct an effective initial management plan, including
  - a. initiating measures to reduce body temperature (e.g., acetaminophen, evaporative cooling);
  - b. treating the underlying cause (e.g., antimicrobials);
  - c. determining whether specialized care is required;
  - d. determining whether further preventative measures such as immunizations are necessary.