

# White blood cells, abnormalities of (February 2017)

---

## Rationale

White blood cell (neutrophil and lymphocyte) abnormalities include abnormalities of number (leukocytosis or leukopenia) and of function. Leukocytosis and leukopenia may occasionally indicate serious and potentially urgent medical problems. Congenital white cell dysfunction is rare, but acquired dysfunction is associated with common medical problems.

## Causal Conditions

(list not exhaustive)

- Leukocytosis
  - a. Reactive (e.g., bacterial infection, infectious mononucleosis)
  - b. Neoplastic (e.g., leukemias)
- Leukopenia
  - a. Increased destruction (e.g., bacterial infection, human immunodeficiency virus)
  - b. Decreased/ineffective production (e.g., marrow suppression)
- Leukocyte dysfunction (e.g., HIV, chronic granulomatous disease)

## Key Objectives

Given a patient with a white blood cell abnormality, the candidate will diagnose the cause, severity and complications, and will initiate an appropriate management plan. In particular, attention should be paid to distinguishing those conditions which are life threatening (overwhelming sepsis, acute leukemia, febrile neutropenia) and require immediate treatment from those that are non-urgent.

## Enabling Objectives

Given a patient with abnormalities of white blood cells, the candidate will

- list and interpret the critical clinical findings, including those derived from
  - a. a relevant history and an appropriate physical examination;
  - b. an assessment of urgent, life-threatening situations requiring immediate intervention;
- list and interpret the critical investigations, including
  - a. the context of the clinical presentation (e.g., monospot, bacterial cultures);
- construct an effective initial management plan, including
  - a. referring the patient for further specific investigation or specialized care (e.g., bone marrow biopsy, neutrophil function test), if necessary;
  - b. initiating treatment of underlying conditions.