



## OBJECTIVES FOR COMMON CLINICAL PROBLEMS

### Hypertension

A. KNOWLEDGE: Students should be able to define, describe and discuss:

1. The etiologies and relative prevalence of primary and secondary hypertension.
2. The definition of hypertensive urgency and emergency, citing examples of both
3. The difference between essential (primary) and secondary hypertension
4. Symptoms and signs of the following disorders associated with secondary hypertension:
  - Renovascular hypertension
  - Parenchymal renal disease
  - Cushing's disease or syndrome
  - Hyperaldosteronism
  - Hyperthyroidism
  - Hypercalcemia
  - Medication, alcohol, and illicit drug use
  - Coarctation of the aorta
  - Sleep apnea
5. The manifestations of target-organ disease due to hypertension
6. The JNC-V Classification of blood pressure disorders
7. Basic approaches to the pharmacological management of acute and chronic hypertension, including the physiologic basis and scientific evidence supporting these approaches, and causes for lack of responsiveness to therapy

8. Prevention strategies for reducing hypertension (including lifestyle factors, such as dietary intake of sodium, weight, and exercise level), and explain the physiologic basis and/or scientific evidence supporting each strategy
9. Steps in management of patients with a hypertensive emergency
10. Factors that contribute to non-adherence with antihypertensive medications.

B. SKILLS: Students should demonstrate specific skills including:

1. History-taking skills: Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
  - Duration and levels of elevated blood pressure
  - History of symptoms of cardiovascular, cerebrovascular, peripheral vascular or renal disease; diabetes
  - History of symptoms suggesting secondary hypertension
  - History of weight gain, leisure-time physical activities, and smoking or other tobacco use
  - Family history of high blood pressure, premature CHD, stroke, CVD, diabetes mellitus and dyslipidemia
  - Psychosocial and environmental factors that may elevate blood pressure (family situation, employment status, working conditions, education level)
  - Dietary assessment, including sodium intake and intake of saturated fat and cholesterol
  - Results and side effects of previous antihypertensive therapy
  - Use of commonly prescribed, over-the-counter, and illicit medications that may raise blood pressure or interfere with the effectiveness of antihypertensive medications
  - Alcohol intake
2. Physical exam skills: Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
  - Blood pressure measurements to detect and confirm the presence of high blood pressure
  - Examination of the fundus for arteriolar narrowing, arteriovenous nicking, hemorrhages, exudates, or papilledema
  - Neck for carotid bruits, elevated JVP or an enlarged thyroid gland
  - Heart for increased rate, increased size, precordial heave, murmurs, arrhythmias, and third (S3) and fourth (S4) sounds
  - Abdomen for bruits, enlarged kidneys, masses, and abnormal aortic pulsation
  - Extremities for diminished, delayed, or absent peripheral arterial pulsations, bruits, and edema
  - Peripheral pulses specifically femoral arterial pulses

- Body habitus, looking for changes associated with secondary hypertension
  - Peripheral and central nervous system for ischemic changes
3. Differential diagnosis: Students should be able to generate a differential diagnosis recognizing specific history, physical exam, and laboratory findings that suggest a specific etiology of hypertension
  4. Laboratory interpretation: Order and interpret diagnostic and laboratory tests based on the differential diagnosis. These may include:
    - Urinalysis
    - CBC
    - Blood Electrolytes, Urea, Cr
    - Fasting lipid profile
    - ECG
  5. Management skills: Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
    - Treating acute and chronic hypertension
    - Treating primary (essential) hypertension versus secondary hypertension
    - Prescribing preventative strategies to diminish hypertension, including:
      - Weight reduction
      - Moderation of alcohol intake
      - Regular physical activity
      - Reduction of sodium intake
      - Increase in potassium intake
      - Smoking cessation