

Class 2 Notes for PHE

Structure and sequence of clinical encounter

1. Stage 1: Initiating the encounter
2. Stage 2: Gathering information
3. Stage 3: Performing physical examination
4. Stage 4: Explaining and plan
5. Stage 5: Closing the encounter

Medical history

1. CC
2. HPI
3. PMH
4. FH
5. SH
6. ROS

Scope of physical examination

Comprehensive adult physical examination - Before you begin the adult physical examination, take time to prepare for the tasks ahead. Think through your approach to the patient, your professional demeanor, and how to make the patient feel comfortable and relaxed. Review the measures that promote the patient's physical comfort and make any adjustments needed in the environment.

Preparing for exam

1. Reflect on approach to the patient
 - a. As you greet the patient, identify yourself as a student. Appear calm and organized even when you feel inexperienced. It is common to forget part of the examination, especially at first. Simply examine that area out of sequence. It is not unusual to go back to the patient later and ask to check one or two items that you might have overlooked.
 - b. Beginners need to spend more time than seasoned clinicians on selected portions of the examination, such as the funduscopic examination or cardiac auscultation. To avoid alarming the patient, warn the patient

- ahead of time by saying, for example, “I would like to spend extra time listening to your heart and the heart sounds, but this doesn’t mean I hear anything wrong.”
- c. Many patients view the physical examination with some anxiety. They feel vulnerable, physically exposed, apprehensive about possible pain, and uneasy about what the clinician may find. At the same time, they appreciate your concern about their health and respond to your attention.
 - d. As a beginner, avoid interpreting your findings. You do not have the final responsibility for the patient, and your views may be premature or wrong. As you grow in experience and responsibility, sharing findings will become more appropriate. If the patient has specific concerns, discuss them with your teachers. At times, you may discover abnormalities such as an ominous mass or a deep ulceration. Always avoid showing distaste, alarm, or other reactions that may be negatively perceived by the patient.
2. Adjust for lighting and environment
- a. For the best results, it is important to “set the stage” so that both you and the patient are comfortable. Awkward positioning makes assessing physical findings more difficult for both you and the patient. Take the time to adjust the bed to a convenient height (but be sure to lower it when finished), and ask the patient to move toward you, turn over, or shift position whenever this makes the examination of selected areas of the body easier.
 - b. Good lighting and a quiet environment are keys for successful patient encounters but may be hard to arrange. Do the best you can. Make sure that the patient can adequately see you and that you can see the patient during the interview
3. Check equipment
- a. Stethoscope
 - b. Sphygmomanometer
 - c. Ophthalmoscope
 - d. Visual acuity card or chart
 - e. Otoscope
 - f. Tuning forks, 128 Hz and 256 Hz

- g. Thermometer
 - h. Neurologic reflex or percussion hammer
 - i. Vaginal speculum
 - j. Dermoscope
 - k. Sampling equipment for cytologic and bacteriologic studies
 - l. Cotton swabs, safety pins, or other disposable objects for testing light touch sensation and two-point discrimination
 - m. Tongue depressor
 - n. Ruler or a flexible tape measure, preferably marked in centimeters
 - o. Disposable face mask
 - p. Disposable gown
 - q. Gloves and lubricant for oral, vaginal, and rectal examinations
 - r. Light source
 - s. A timepiece with second hand (timer)
 - t. Hand sanitizer
 - u. Paper and pen or pencil
 - v. Handheld ultrasound
 - w. Access via desktop or laptop computer to the electronic health record
4. Make the patient comfortable
- a. Ensure patient privacy and comfort
 - b. Proper positioning and draping - Properly positioning your patient will aid greatly in examining each region of the body and assist your physical comfort as examiner
 - Standing
 - Sitting
 - Supine
 - Prone
 - Lithotomy
 - Dorsal recumbent
 - Lateral recumbent
 - Trendelenburg
 - Reverse Trendelenburg
 - Semi-fowlers
 - Standard fowlers
 - High fowlers

- c. Providing courteous clear instructions
 - d. Keeping the patient informed
 - e. Concluding the examination
5. Observe standard and universal precautions
- a. Standard precautions are based on the principle that all blood, body fluids, secretions, excretions (except sweat), nonintact skin, and mucous membranes may contain transmissible infectious agents. Standard precautions apply to all patients in any setting. They include hand hygiene; use of personal protective equipment (gloves; gowns; and mouth, nose, and eye protection); safe injection practices; safe handling of contaminated equipment or surfaces; respiratory hygiene and cough etiquette; patient isolation criteria; and precautions relating to equipment, toys, solid surfaces, and laundry handling. White coats, scrub suits, and stethoscopes also harbor bacteria and should be cleaned frequently. Because hand hygiene practices have been shown to reduce the transmission of multidrug-resistant organisms, especially MRSA and vancomycin-resistant enterococcus (VRE)
 - b. In the very simplest terms, Standard Precautions involve washing hands before and after patient contact, whether gloves are worn or not. They involve wearing clean gloves when touching blood, body fluids, and contaminated items, as well as a clean, non-sterile gown and a mask, eye protection or face shield in the likely event of splashes or sprays. Soiled equipment and linen are carefully handled to prevent injuries from used equipment.
 - c. Use an Alcohol-Based Hand Sanitizer
 - Immediately before touching a patient
 - Before performing an aseptic task (e.g., placing an indwelling device) or handling invasive medical devices
 - Before moving from work on a soiled body site to a clean body site on the same patient
 - After touching a patient or the patient's immediate environment
 - After contact with blood, body fluids, or contaminated surfaces
 - Immediately after glove removal
 - d. Wash with soap and water

- When hands are visibly soiled
- After caring for a person with known or suspected infectious diarrhea
- After known or suspected exposure to spores (e.g., *Bacillus anthracis*, *Clostridioides difficile* outbreaks)

6. Universal precautions are a set of guidelines designed to prevent parenteral, mucous membrane, and noncontact exposures of health care workers to bloodborne pathogens, including HIV and Hepatitis B virus (HBV). Immunization with the HBV vaccine for health care workers with exposure to blood is an important adjunct to universal precautions. The following fluids are considered potentially infectious: all blood and other body fluids containing visible blood, semen, and vaginal secretions and cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluids. Protective barriers include gloves, gowns, aprons, masks, and protective eyewear. All health care workers should follow the precautions for safe injections and prevention of injury from needlesticks, scalpels, and other sharp instruments and devices. Report to your health service immediately if such injury occurs.

A. The extension of precautions to all patients was referred to as “Universal Precautions.” Under these guidelines, blood and body fluids of all patients were considered potentially infectious. Universal Precautions specified the use of gloves and face shields and avoiding exposure with needles and other instruments after use when the potential for contact with blood and bodily fluids was anticipated. The importance of frequent handwashing was at the core of these recommendations. By 1987, a set of rules known as Body Substance Isolation (BSI) was added. It expanded the concept of personal protective equipment to include plastic aprons and covers for hair and shoes to keep all moist body substances off hair, skin, clothes, and mucous membranes. BSI went beyond simply discarding needles in puncture-resistant containers to placing them in puncture-proof containers. Hands were to be thoroughly washed before as well as after patient care and wearing gloves. Body Substance Isolation utilized hospital gowns, medical gloves, shoe covers, safety goggles, and surgical masks or N95 respirators. However, there was not a consistent interpretation or use in either BSI or universal precautions.

B. Choose the sequence of examination

- a. The physical examination relies on four classic techniques: inspection (Observation) , palpation, percussion, and auscultation . You will learn in later chapters about additional maneuvers that are important in amplifying physical diagnosis, such as having the patient lean forward to better detect the murmur of aortic regurgitation or balloting the patella to check for joint effusion.
- Inspection (Observation) - Close observation of the details of the patient's appearance, behavior, and movement such as facial expression, mood, body habitus and conditioning, skin conditions such as petechiae or ecchymoses, eye movements, pharyngeal color, symmetry of thorax, height of jugular venous pulsations, abdominal contour, lower extremity edema, and gait.
 - Palpation - Tactile pressure from the palmar fingers or fingerpads to assess areas of skin elevation, depression, warmth, or tenderness, lymph nodes, pulses, contours and sizes of organs and masses, and crepitus in the joints.
 - Percussion - Use of the striking or plexor finger, usually the third, to deliver a rapid tap or blow against the distal pleximeter finger, usually the distal third finger of the left hand laid against the surface of the chest or abdomen, to evoke a sound wave such as resonance or dullness from the underlying tissue or organs. This sound wave also generates a tactile vibration against the pleximeter finger.
 - Auscultation - Use of the diaphragm and bell of the stethoscope to detect the characteristics of heart, lung, and bowel sounds, including location, timing, duration, pitch, and intensity. For the heart, this involves sounds from closure of the four valves, extra sounds from blood flow into the atria and ventricles, and murmurs. Auscultation also permits detection of bruits or turbulence over arterial vessels.
- b. The key to a thorough and accurate physical examination is developing a systematic sequence of examination. Organize your comprehensive or focused examination around three general goals:

- Maximize the patient's comfort.
 - Avoid unnecessary changes in position.
 - Enhance clinical efficiency.
- c. Head to toe examination
 - **General survey**, vital signs, skin, HEENT, Neck, back, posterior thorax and lungs, breast and axillae, anterior thorax and lungs, CVS, abdomen, lower extremities, nervous system (mental status, cranial nerves, motor system, sensory system, reflexes) , additional exam (rectal, vaginal)
 - d. Examine the patient from the patient's right side, moving to the opposite side or foot of the bed or examining table as necessary. This is the standard position for the physical examination and has several advantages compared with the left side: Estimates of jugular venous pressure are more reliable, the palpating hand rests more comfortably on the apical impulse, the right kidney is more frequently palpable than the left, and examining tables are frequently positioned to accommodate a right-handed approach.
 - e. General survey – sitting
 - Observe the patient's general state of health, build, and sexual development. Obtain the patient's height and weight. Note posture, motor activity, and gait; dress, grooming, and personal hygiene; and any odors of the body or breath. Watch the patient's facial expressions and note manner, affect, and reactions to people and the environment. Listen to the patient's speech and note the state of awareness or level of consciousness.
 - Close observation begins at the outset of the patient encounter and continues throughout the history and physical examination.
 - f. Vital signs – sitting
 - g. Skin: upper torso, anterior and posterior – sitting
 - h. Head, neck, thyroid, and lymph nodes – sitting
 - i. Nervous system – mental status, cranial nerves, upper extremity motor strength, cerebellar function – sitting
 - j. Thorax and lungs (anterior and posterior/back)– sitting
 - k. Breasts – sitting
 - l. Musculoskeletal – upper extremities. Sitting

- m. CVS: IVP, carotid upstrokes, bruits, PMI, S1, S2, murmurs, extra sounds. Patient in supine with head of bed raised 30 degrees
- n. CVS: S3 and murmur of mitral stenosis. Patient in supine with head of bed raised 30 degrees and turned partly to left side
- o. (CVS: murmurs of aortic insufficiency. Patient sitting position)
- p. Thorax and lung. Patient in supine lying position
- q. Breast and axilla. Patient in supine lying position
- r. Abdomen. Patient in supine lying position
- s. Peripheral vascular. Patient in supine lying position
- t. Lower torso and extremities. Patient in supine lying position
- u. Nervous system. Patient in supine lying position
- v. MS – Sitting/standing
- w. Women pelvic and rectal exam
- x. Men prostate and rectal exam
- C. Adapting the physical examination
 - a. Patient on bedrest
 - b. Patient using wheelchair
 - c. Patient who is postprocedural
 - d. Patient who is obese
 - e. Patient in pain
 - f. Patient on special precautions
- D. Recording your findings

Clinical Reasoning, Assessment and Plan

After completing the history and physical examination, you reach the critical step of formulating a differential diagnosis. Using sound clinical reasoning, you must analyze your findings and identify a list of potential causes for the patient's problems. The length of the list will reflect your uncertainty about the possible explanation for a given problem. It will start with the most likely explanation but will also include other plausible diagnoses, particularly those that have serious consequences if undiagnosed and untreated. You will assign probabilities to the various diagnoses that correspond to how likely you consider them to be as explanations for your patient's problem.

Basic structure of clinical reasoning process

1. Gathering initial patient information (health history and physical examination)
2. Organizing and interpreting information to synthesize the problem (problem representation)
 - a. Organizing by anatomical location
 - b. Age – older more diseases, younger less
 - c. Timing of symptoms
 - d. Involvement of different body systems
 - e. Multisystem conditions
3. Synthesizing clinical information and developing the problem representation
 - a. Problem representative – a clinician's evolving sense of the clinical picture. It is called summary statement.
 - b. Guides clinician to generate hypothesis and differential diagnosis
4. Generating hypotheses (differential diagnosis) for patient's problem
 - a. For each identified problem or cluster of problems you will generate a clinical hypothesis.
 - b. Generate an exhaustive list
 - c. Tom G Prince MD Psychiatrist, General Hospital
 - d. Select the most specific and critical findings to support your hypotheses
 - e. Match findings against all causative conditions (illness scripts)
 - f. Eliminate diagnostic possibilities that fail to explain the findings
 - g. Weigh competing possibilities and select the most likely diagnosis
5. Testing hypotheses until a working diagnosis is selected
 - a. Include the worse case scenario in your differential diagnosis
6. Planning the diagnostic and treatment strategy

Clinical diagnostic errors

1. Anchoring bias - Tendency to perceptually lock onto salient features in the patient's initial presentation too early in the diagnostic process and failure to adjust in light of later information.
 - a. A clinician "locks onto" a patient's description of an aura that precedes her headaches as indicative of a migraine and fails to recognize red flags

of increased intracranial pressure that should prompt neuroimaging for this patient

2. Availability heuristics - Assumption that a diagnosis is more likely, or more frequently occurring, if it more readily comes to mind
 - a. A clinician who has recently seen several patients with acute appendicitis does not consider ovarian torsion in an adolescent girl presenting with acute right lower quadrant abdominal pain
3. Confirmation bias - Seeking supportive evidence for a diagnosis at the exclusion of more persuasive information refuting it
 - a. A clinician makes a presumptive diagnosis of an upper respiratory infection in a well-appearing patient presenting with cough, rhinorrhea, and fever, and does not consider pneumonia even after finding asymmetric chest wall excursion and dullness to chest percussion on examination
4. Diagnostic momentum - Prioritizing a diagnosis made by prior clinicians, discounting evidence of alternative explanations
 - a. A clinician does not consider acute myocardial infarction in a patient who was recently diagnosed with acid reflux in the setting of similar symptoms
5. Framing effect – interpretation of information is influenced heavily by the way in which information about the problem are presented (framed)
 - a. A patient is presented as having “frequent emergency room visits for asthma exacerbation in the setting of medication noncompliance.” The clinician fails to explore structural forces that drive medication adherence and fails to explore alternative causes of the current exacerbation
6. Representation error - Failure to take prevalence into account when estimating the probability of a diagnosis
 - a. Clinician who often sees older patients places diverticular bleed high on her differential diagnosis when evaluating rectal bleeding in an adolescent patient
7. Visceral bias - Visceral arousal (negative and positive feelings toward patients) lead to poor diagnostic decisions

- a. Clinician assumes that a patient who is homeless will not be able to manage a complicated treatment plan and prescribes a simpler, less optimal plan, without discussing the options with the patient

Health maintenance and screening

Reasons for screening

1. When conditions causes substantial public health burden
2. When natural history is well understood and there is early symptomatic stage
3. When screening tests are available, acceptable and accurate
4. When treatments are available, acceptable and more effective when delivered at the time of screening diagnosis
5. When screening is cost effective
6. When net benefit outweighs the harms
 - a. Benefits – mortality reduction, morbidity reduction, reassurance
 - b. Harms – false positive, overdiagnosis with overtreatment, false negative tests - false reassurance, pain, incidental finding leading to additional tests and treatments, complications from treating disease
7. Bias with studies evaluating screening
 - a. Selection – screened people are healthier then general population
 - b. Lead time – screening test finds disease at an early stage but early treatment dose not prolong life expectancy
 - c. Length time – detects asymptomatic with slower growing then patient with faster growing and clinical symptoms

Behavioral counseling

1. Transtheoretical model for behavioral change
 - a. Precontemplation
 - b. Contemplation
 - c. Preparation
 - d. Action
 - e. Maintenance
 - f. Relapse

Motivational interviewing

1. Ask
2. Listen
3. Inform

Immunizations

Screening guidelines for adults

1. Unhealthy weight and diabetes mellitus
2. Substance use disorders
3. HIV infection
4. Intimate partner violence

Counseling guidelines for adults

1. Weight loss
2. Healthy diet and physical activity

Screening and counseling for adults

1. Alcohol use
2. Tobacco use
3. STDs
4. HIV/AIDS

Immunizations guidelines adults

1. Influenza vaccine – inactivated (IIV), recombinant (RIV), live attenuated (LAIV)
 - a. Aged 6 month or older
 - b. With chronic pulmonary conditions, Cardiovascular cond except hypertension. Renal, hepatic, neurologic, hematologic, metabolic disorders. Immunocompromised. Morbidly obese
 - c. Pregnant woman during any trimester
 - d. Adults >50
 - e. American Indians and Alaska natives
 - f. Nursing home
 - g. Healthcare personnel
 - h. Household contacts and caregivers children <5years (esp <6 month) and >50 with conditions

- i. Fall to spring, peak Dec to Feb
- 2. Pneumococcal polysaccharide vaccine (PPSV23) and pneumococcal conjugate vaccine (PCV13)
 - a. 65 years and older
 - b. Smokers
 - c. And increased risk between 19 and 64
- 3. Varicella vaccine (VAR)
 - a. Adults born in 1980 or later
- 4. Herpes zoster vaccine recombinant (RZV) or live (ZVL)
 - a. Two doses 2 to 6 month apart to adults >50
- 5. Tetanus, diphtheria (Td), or tetanus, diphtheria, pertussis (Tdap)
- 6. Human papilloma virus (HPV)
- 7. Hepatitis A vaccine
- 8. Hepatitis B vaccine