1 **Altruism:** Medical students must be compassionate and empathetic in caring for patients, and must be trustworthy and truthful in their professional dealings. They must act with integrity, honesty, and respect for patients' privacy and dignity.

By the time of graduation, a medical student will:

1.1 List and define the basic principles guiding ethical decision-making.

1.2 Apply ethical concepts to medical ethical dilemmas.

1.2.1 Demonstrate an understanding of models of ethical decision-making.
1.2.2 Apply models of ethical decision making to common medical ethical dilemmas.

1.3 Demonstrate respect for human dignity.

1.3.1 List behaviors indicative of respect for human dignity.
1.3.2 Demonstrate an understanding of the importance of behaviors indicative of respect for human dignity.
1.3.3 Behave in a manner indicative of respect for human dignity.

1.4 Provide compassionate patient care.

1.4.1 List behaviors indicative of compassionate patient care.
1.4.2 Demonstrate an understanding of the importance of behaviors indicative of compassionate patient care.
1.4.3 Behave in a compassionate manner in caring for patients.

1.5 Demonstrate honesty and integrity in educational and professional interactions.

1.5.1 Demonstrate an understanding of the importance of codes of conduct.
1.5.2 Behave in a manner consistent with the institutional and professional codes of conduct.

1.6 Demonstrate appropriate patient advocacy.

1.6.1 Demonstrate knowledge of the principles of patient advocacy.
1.6.2 Demonstrate an understanding of the importance of patient advocacy.
1.6.3 Appropriately apply principles of patient advocacy.

1.7 Understand the factors that impact health.

1.7.1 Demonstrate an understanding of economic factors that impact health.
1.7.2 Demonstrate an understanding of psychosocial factors that impact health.
1.7.3 Demonstrate an understanding of cultural factors that impact health.
1.7.4 Demonstrate an understanding of spiritual or religious factors that impact health.
1.7.5 Demonstrate an understanding of environmental factors that impact health.
1.7.6 Demonstrate an understanding of how lifestyle impacts health.
1.7.7 Demonstrate an understanding of medical factors that impact access to health care.
1.7.8 Demonstrate an understanding of factors that impact access to health care by medical underserved and marginalized persons.

1.8 Appropriately address conflicts of interest inherent to the field of medicine.

1.8.1 Recognize conflicts of interest in the field of medicine.

1.8.2 Apply appropriate measures when faced with conflicts of interest in the field of medicine.

2 **Knowledge:** Medical students must understand the scientific basis of medicine and be able to apply that understanding to the safe and effective practice of medicine. They must utilize self-assessment and self-knowledge to optimize their learning.

By the time of graduation, a medical student will:

2.1 Demonstrate knowledge of normal structure and function of the human body.

2.1.1 Demonstrate knowledge of the normal structure, metabolism, and function of the molecules that compose the human body.
2.1.2 Demonstrate knowledge of normal cellular structure and function of the human body.
2.1.3 Demonstrate knowledge of normal structure and function of human organs.
2.1.4 Demonstrate knowledge of normal structure and function of human organ systems.
2.1.5 Demonstrate knowledge of the mechanisms that maintain homeostasis.

2.2 Demonstrate knowledge of the pathogenesis and pathophysiology of disease and disorders.

2.2.1 Demonstrate knowledge of the abnormal structure, metabolism, and function of the molecules that compose the human body.
2.2.2 Demonstrate knowledge of abnormal cellular structure and function of the human body.
2.2.3 Demonstrate knowledge of abnormal structure and function of human organs.
2.2.4 Demonstrate knowledge of abnormal structure and function of human organ systems.
2.2.5 Demonstrate knowledge of the mechanisms that disrupt homeostasis.

2.3 Demonstrate knowledge of the clinical manifestations of common conditions and disorders.

2.3.1 Given a common condition or disorder, list the symptoms a patient might experience.
2.3.2 Given a common condition or disorder, list the findings that might be identified on physical exam.
2.3.3 Given a common condition or disorder, list the findings that might be identified on laboratory analysis.
2.3.4 Given a common condition or disorder, list the findings that might be identified on imaging studies.

2.4 Demonstrate knowledge of the pharmacotherapeutic modalities for common conditions and disorders.

2.4.1 Explain basic pharmacologic principles.

2.4.2 List the routine medications that might be used to manage a common condition or disorder.

2.5 Demonstrate knowledge of the basic principles of clinical and translational research.

2.5.1 List the important elements of the scientific method and basic study design.

2.5.2 Describe the role and importance of clinical and translational research in the care of patients.

2.5.3 Describe the basic principles and ethics of how clinical and translational research is conducted, evaluated, and applied to the care of patients.

2.6 Demonstrate knowledge of the epidemiology of common conditions and disorders.

2.6.1 List the epidemiologic factors that place a person or population at risk for a common condition or disorder.

2.6.2 List the epidemiologic factors that affect transmission or development of a common condition or disorder.

2.6.3 List the strategies used to control and prevent a common condition or disorder.

2.7 Demonstrate knowledge of systems of healthcare delivery.

2.7.1 Describe key features of various systems of healthcare delivery.

2.7.2 Describe the advantages and disadvantages of various systems of healthcare delivery.

3 **Skill:** Medical students must acquire wide-ranging skills that will enable them to care for patients as a professional.

By the time of graduation, a medical student will:

3.1 Obtain an accurate and complete medical history.

3.1.1 List in appropriate order the essential components of a complete medical history.
3.1.2 Describe the content of each of the essential components of a complete medical history.
3.1.3 Demonstrate an understanding of the purpose/importance of each of the essential components of a complete medical history.
3.1.4 Demonstrate effective interview techniques to obtain an accurate medical history.
3.1.5 Demonstrate effective interview techniques to obtain an accurate problem focused medical history.
3.1.6 Demonstrate effective interview techniques to obtain an accurate medical history in the following disciplines: family medicine, internal medicine, obstetrics & gynecology, pediatrics, psychiatry, surgery, neurology, and emergency medicine.
3.1.7 Demonstrate effective interview techniques to obtain an accurate medical history in the following clinical situations: history obtained from a person other than the patient, history obtained using an interpreter, history obtained under urgent circumstances.
3.1.8 Demonstrate the ability to obtain an accurate medical history from other health care providers and medical records.

3.2 Perform all components of a complete physical examination.[1]

3.2.1 List and describe the essential components of a complete physical examination.
3.2.2 Demonstrate an understanding of the purpose of each essential component of a complete physical examination.
3.2.3 Demonstrate appropriate and effective techniques in performing a complete physical examination.
3.2.4 Demonstrate appropriate and effective techniques in performing a problem focused physical examination.
3.2.5 Demonstrate appropriate and effective techniques in performing a complete and problem focused physical examination in the following disciplines: family medicine, internal medicine, obstetrics & gynecology, pediatrics, psychiatry, surgery, neurology, and emergency medicine.

3.3 Prepare for and perform basic clinical procedures.[2]

3.3.1 Demonstrate an understanding of the indications, contraindications, and potential adverse outcomes for each of the listed procedures.
3.3.2 List in appropriate order the essential steps to perform each of the listed procedures.
3.3.3 Describe the essential steps to perform each of the listed procedures.
3.3.4 Demonstrate appropriate and effective techniques in performing each of the listed procedures.

3.4 Perform basic interpretation of commonly used diagnostic tests.[3]

3.5 Recognize the typical physical exam manifestations of common medical conditions and disorders.

3.5.1 Use appropriate physical exam techniques to identify a common condition or disorder.

3.6 Demonstrate the skills of clinical reasoning and clinical problem solving for common conditions and disorders.

3.6.1 Given a patient with a particular chief complaint and medical history, list the appropriate components of the physical exam that warrant evaluation.

3.6.2 Given a patient with a particular chief complaint, medical history, and physical exam findings, list an appropriate differential diagnosis.

3.6.3 Given a patient whose history and physical exam lead to a particular differential diagnosis, list the initial studies that should be ordered, including laboratory, radiological, and other studies or procedures.

3.6.4 Demonstrate the ability to recognize conditions requiring immediate intervention from those that do not, and initiate care.

3.6.5 Utilize the information gained by history, physical exam, laboratory tests, radiology tests, and other studies or procedures to determine an appropriate diagnosis.

3.7 Create appropriate management strategies for common conditions and disorders.

3.7.1 Demonstrate an understanding of the safe and effective use of particular medications in the management of a given common condition or disorder.

3.7.2 List appropriate consultants utilized in the management of a given common condition or disorder.

3.7.3 List the procedures or surgeries that might be used to manage a given common condition or disorder.

3.7.4 Demonstrate the ability to use pertinent biomedical information in the management of a given common condition or disorder.

3.7.5 Describe how patients with a given common condition or disorder are managed over time.

3.7.6 List the admission criteria of a given common condition or disorder.

3.7.7 List interdisciplinary health services and the role they might play in the management of a given common condition or disorder.

3.7.8 Provide appropriate guidance for home management of a given common condition or disorder.

3.7.9 Provide appropriate counseling on therapeutic lifestyle changes.

3.7.10 List commonly used complementary and alternative medicine modalities.

3.8 Apply the principles of relieving total pain (physical, psychological, spiritual, social).

3.8.1 Demonstrate an understanding of the mechanisms of pain.

3.8.2 Recognize the various manifestations of pain.

3.8.3 Describe the principles of managing pain.

3.8.4 Given a particular patient situation, describe and explain appropriate pain management.

3.9 Demonstrate effective and appropriate communication of medical information, both in writing and verbally.

3.9.1 Demonstrate an understanding of the HIPAA rules on patient privacy.

3.9.2 List the process elements of effective and appropriate communication of medical information to patients, patient family members, other physicians, interprofessional team members, and other non-health care related entities.

3.9.3 Demonstrate an understanding of the importance of each of the process elements of effective and appropriate communication of medical information to patients, patient family members, other physicians, and interprofessional team members.

3.9.4 Given a specific clinical situation, demonstrate effective and appropriate communication of medical information to patients, patient family members, other physicians, interdisciplinary team members.

3.10 Demonstrate the ability and commitment to continuously improve medical knowledge and skills.

3.10.1 Demonstrate the ability to self-assess current knowledge and skills.

3.10.2 Demonstrate the ability to identify and access pertinent biomedical information resources that would address gaps in knowledge and skills.

3.10.3 Demonstrate the ability to evaluate the effectiveness of available biomedical information resources in addressing gaps in knowledge and skills.

Appendix 1:

Essential components of a complete physical examination (Objective 3.2)
Head-to-toe Physical Examination

General rules for PE

- You should consider this the standard for the PE in all SP encounters
- You may learn other maneuvers to test/examine some of these same areas and that is okay; however, the SPs will evaluate your technique based on the way we ask you to perform below.
- Inspection requires you to look without palpating for at least a couple of seconds
- Verbalize inspection as recommended; not doing so may result in points deducted from your score.
- This list is organized by organ system; however, this is not always the ideal order of a focused PE. You will always be instructed when there is an expectation of an organ system examination vs. a focused physical examination based on chief complaint.

VITAL SIGNS

Blood pressure

Measure blood pressure in one arm. Arm should be at heart level, cuff positioned correctly, stethoscope positioned correctly (bell or diaphragm is okay). It is good practice, but you are not required to report blood pressure.

Heart rate

Measure heart rate with finger pads (not thumb) in one radial artery for 15 seconds. Do not have to report heart rate.

Respiratory rate

Measure respiratory rate for 15 seconds. Reveal to standardized patient that you measured respiratory rate after doing so in a hidden manner. You do not have to report respiratory rate.

Orthostatic blood pressure

Measure orthostatic blood pressure. Measure the blood pressure in supine, sitting, and standing positions. Verbalize that you would wait 3 minutes once patient is supine, sitting, and standing (you do not have to actually wait three minutes for SP activities). There are variations on how to take orthostatic blood pressure as described in Bates. For the purpose of OSCE, students are expected to follow the method outlined in this checklist.

HENT and NECK (includes CERVICAL LYMPH NODES)

Skin

Inspect the skin of the face and neck for color, moisture, temperature, texture, mobility, turgor, and lesions. State to patient *"I am inspecting the skin of your face and neck"*

Head

1. Inspect the hair and scalp. State to patient *"I am inspecting your hair and scalp."*
2. Palpate the skull for tenderness or deformities.

Ears

1. Inspect **both** auricles for size, symmetry, deformity, tenderness, or lesions. State to patient *"I am inspecting the outside of your ear."*
2. Inspect the external ear canal of **both** ears with the otoscope for discharge, swelling, or redness. State to the patient, *"I am going to look in your ear now."*
3. Inspect tympanic membranes. Inspect **both** TMs with the otoscope (use a disposable speculum); observe the color, contour, and cone of light.
4. **Test auditory acuity (gross hearing test). Test one ear at a time by using the whisper test or by rubbing your fingers together. (CN VIII).
5. **Perform the Weber test (lateralization) by placing a vibrating 512 Hz tuning fork (correct one required) firmly on top of the patient's head. *Ask them where they hear the sound: on one or both sides?* (CN VIII)
6. **Perform the Rinne test (bone vs. air conduction) by placing a vibrating 512 Hz tuning fork on the mastoid bone, behind the ear. When the patient can no longer hear the sound, quickly place the tuning fork close to the opening of the external ear canal and ask if they can now hear the sound. Perform this test on **both** ears. (CN VIII)

**Cranial Nerve exam- also on the CN list

Nose

1. Inspect the nose for symmetry and deformity. State to patient *"I am inspecting your nose."*
2. Test the patency of each nostril. Have patient occlude one nostril, ask the patient to inhale through the open nostril and then repeat on the other side.
3. Inspect nasal passages **with the otoscope** and the ear speculum (replace the speculum if used on the ears). Observe the nasal mucosa over the septum and turbinates for deformities, color and swelling.
4. Palpate for sinus tenderness. Palpate **both** the frontal and maxillary sinuses **bilaterally** by firmly pressing over them.

Mouth and Pharynx (Wear gloves when examining the mouth and tongue)

1. Inspect the lips for color, moisture, masses, ulcers, scaling. State, "I am inspecting your lips."
2. Inspect the mouth and throat. State, *"I am inspecting your mouth and throat."*
3. You must use a light source (penlight, otoscope) and examine the patient's entire mouth and throat, including having the patient lift their tongue and pulling the cheeks aside using your finger or a tongue blade.
4. Inspect the oral mucosa, hard palate, floor of mouth, and gums for color, ulcers, and nodules.
    a. Inspect the teeth for color, deformity, or absence of teeth.
    b. Inspect the anterior and posterior pillars, tonsils, and pharynx. Note color, symmetry, and lesions. May need to have the patient say "ah" or use a tongue depressor to hold tongue down.
5. Inspect the extended tongue, examining both sides for symmetry, color, and texture. Examine the dorsum, sides, and undersurface of the tongue.
6. Identify the parotid duct (Stenson's duct) and the submandibular gland duct (Wharton's ducts). State *"I am examining your salivary gland openings."*
7. Gently palpate the tongue for induration or masses.
8. Palpate the floor of the mouth.
9. **Observe the movement of the soft palate and uvula by having the patient say "ah" and watching the back of the mouth. You may need to use a tongue blade and/or light source to visualize. (CN IX, X)

**Cranial Nerve exam- also on the CN list

Neck (and cervical lymph nodes)

1. Inspect the neck for symmetry, masses, and thyroid enlargement. State to patient *"I am inspecting your neck."*
2. Palpate the **lymph nodes** of the neck noting size, shape, delimitation, mobility, consistency, and tenderness.
    a. Occipital
    b. Posterior auricular
    c. Preauricular
    d. Tonsillar
    e. Submandibular
    f. Submental
    g. Cervical: Superficial cervical, Posterior cervical, Deep cervical chain
    h. Supraclavicular
3. Palpate the thyroid gland from the front **or** from behind the patient. You **must** have the patient swallow (can use a sip of water) to aid your examination.

**Cranial Nerve exam — also on the CN list

EYE

External eye

1. **Assess visual acuity of **both** eyes with a hand held visual acuity card held 14 inches from the patient. Test each eye separately; have patient cover non-tested eye. Patient should leave glasses on for this test. (CNII)

2. **Test peripheral visual fields of **both** eyes. Ask the patient to cover one eye and test **at least four quadrants** using waving fingers (start the test with your fingers out of the patient's field of vision) or having the patient count fingers. Repeat with the other eye. Test each of the patient's eyes individually. (CNII)

3. Inspect **both** eyes for the following and state *"I am inspecting your external eye."*
   - Position and alignment of the eyes
   - General inspection of the eyebrows and eyelids
   - Conjunctiva and sclera for color, nodules, swelling (**must** pull inferior eyelids down)

4. Inspect the **cornea** and **lens** of **both** eyes for opacities. Using a light source, shine the light obliquely (from the side of the eye while you are in front of the patient) and look for opacities. Repeat on other side. State *"I am inspecting the cornea and the lens."*

5. Inspect the pupils for size, shape and symmetry. State "*I am inspecting your pupils."*

6. **Assess pupillary reaction 3 ways: direct, consensual, accommodation.
   - *Direct*— shine a light (penlight, oto/ophthalmoscope, etc.) at one eye and watch that pupil's response to light.
   - *Consensual*—shine light source at one eye while watching the other for pupil response.
   - *Accommodation*—have the patient look at your finger at arm's distance and then watch for pupillary response as you move your finger in toward the patient. State *"I am testing for accommodation."*
   - Must examine **both** eyes. (CN III)

7. **Assess extraocular muscle function. Ask the patient to follow your finger with their eyes as you move through the six cardinal fields of gaze. Make a wide "H" (15-16 inches to either side) in front of the patient's face (14-20 inches away), and watch the movement of the eyes. (CN III, IV, VI)

8. Test convergence. Have the patient follow the tip of your finger as you move it in toward the bridge of their nose. Watch how the patient's eyes come together. State *"I am testing for convergence."*

Internal Eye (Direct Ophthalmoscopy)

For items 9 and 10, it is preferable and improves visualization of the fundi to dim the room lights whenever possible.

9. Inspect the red reflex of **both** eyes. Using the ophthalmoscope locate the red reflex in each eye. State to patient *"I am inspecting for the red reflex of your eye."*

10. **Inspect the optic disc and retina of **both** eyes.

    Using the ophthalmoscope locate the optic disc and retina – including retinal arteries, retinal veins, and macula. State to patient *"Now I am going to focus more closely on the back of your eye."* You must use your correct eye to inspect the patient's eye (i.e. your right eye to inspect the patient's right eye while holding the ophthalmoscope in your right hand). (CN II)

**Cranial Nerve exam- also on the CN list

CHEST AND LUNG (PULMONARY)

Posterior Thorax

1. Inspect posterior chest for lesions or swelling. State, *"I am inspecting the back of your chest."*

2. Palpate the posterior chest for masses or tenderness using moderately firm pressure.

3. Check chest expansion (respiratory excursion). Wrap hands around the lower portion of the ribs with thumbs pointing upward. Have the patient take a deep breath.

4. Test for tactile fremitus. Using the bony portion of hands (palmar side of knuckles, or lateral edge of hands on pinky side), have patient say "99", comparing symmetric areas. Test upper, middle, and lower lung fields.

5. Percuss the posterior chest wall comparing sides symmetrically and bilaterally: start with the upper fields, then middle fields, then lower lung fields (top to bottom)

6. Auscultate the lungs with the diaphragm of the stethoscope, as the patient (1) breathes deeply (2) through an open mouth. Compare sides symmetrically and bilaterally in upper, middle, and lower lung fields. Must listen through the entire breath cycle each time.

7. Auscultate for egophony. Auscultate for E-to-A change by asking the patient to say "E" while auscultating the posterior lung fields with the diaphragm of the stethoscope. Compare sides symmetrically and bilaterally in upper, middle, and lower lung fields.

Anterior Thorax *(the patient may be seated or supine)*

1. Inspect the anterior chest. State "*I am inspecting the front of your chest*."

2. Palpate the anterior chest in the upper fields only

3. Auscultate the anterior lung fields in the upper lobes; stethoscope should be placed between the collarbone and top of the breast. Compare sides bilaterally, as the patient (1) breathes deeply (2) through an open mouth. Must listen through the entire breath cycle each time.

4. Auscultate the right middle lobe by listening with the diaphragm of the stethoscope around the right breast anterior to the mid-axillary line, as the patient (1) breathes deeply (2) through an open mouth. Must listen through the entire breath cycle.

BREASTS AND AXILLAE
(Advanced Clinical Skill)

1. Inspect the breasts and nipples. Pt should be sitting and disrobed to the waist. Look for skin changes, symmetry, contours, and retraction with patients'

    a. arms at sides
    b. arms over head
    c. hands pressed against hips
    d. leaning forward

2. Palpate the breasts and nipples. With patient supine, use the pads of your 2nd, 3rd and 4th fingers to palpate a rectangular area from the clavicle to the inframammary fold (bra line) and the midsternal line to the posterior axillary line. Palpate in small concentric circles using light then medium then deep pressure noting any nodules. Also thoroughly examine the axilla. Spend approximately three minutes per breast.

    *(Note: there is some variation on technique and it may vary between preceptors. The vertical strip pattern is preferred)

    a. Palpate lateral breast area. Have pt shift weight to opposite hip and place hand overhead with shoulder flat on exam table. Palpate from axilla to inframammary fold then move medially and palpate in a vertical strip up to clavicle. Continue in vertical strips until you reach the nipple.

    b. Palpate medial breast area. Have pt place hand at neck and lower elbow until perpendicular and even with shoulder. Continue palpating in vertical strips until you reach the midsternal line.

    c. Palpate the nipple, noting any discharge.

UT Health San Antonio
Joe R. & Teresa Lozano Long School of Medicine

Competencies and Objectives of the Doctor of Medicine (M.D.) Degree Program

CARDIOVASCULAR SYSTEM

Neck

1. Inspect for JVD. Place the head of the exam table at 30° and patient supine. Measure JVP by placing a ruler upright at the sternal angle and then another ruler or flat object parallel to the floor (see Bates pg 361-365, 11th ed.). Measure the distance in cm of pulsation above the sternal angle. You do not need to report this finding. If table is flat or >45 degree angle, it is incorrect.
2. Palpate the carotid pulse using the pads of your first and second fingers (Bates says thumb is okay, but the pads of your fingers is preferred). Assess *only one artery* at a time; **never** occlude both sides at the same time.
3. Auscultate the carotid arteries for bruits using diaphragm or bell. You **must** have patient hold his/her breath during this maneuver.

Heart

1. Palpate the apical impulse or PMI. Locate the point of maximal impulse (usually 5th intercostal space, mid-clavicular line) using the palmar surface of your right hand, and then further identify the impulse using your finger pads. Place the patient in the left lateral decubitus position if necessary to locate the pulse.
2. Palpate the precordium. Assess for thrills by pressing over the aortic, pulmonic, tricuspid, and mitral (apical) areas sequentially. Use the area of your hand below your fingers or the lower area of your palm.
3. Auscultate all four valve areas. Use the diaphragm to listen to the entire precordium to identify the first (S1) and second heart sounds (S2). Auscultate all 4 areas sequentially – right 2nd interspace (aortic), left 2nd interspace (pulmonic), left 3-5th interspace at the lower sternal border (tricuspid), and left 5th interspace (approx) at the mid-clavicular line (apex and mitral).
4. Auscultate for extra heart sounds. Using the bell placed lightly to the chest, auscultate the mitral and tricuspid areas for extra heart sounds (S3, S4). It is fine to position the patient in the left lateral decubitus position for this maneuver. State to patient *"I am listening for extra heart sounds with the bell of my stethoscope."*

Peripheral vasculature

You **must expose** each area in order to receive credit:

1. Palpate the radial pulses. Palpate both arms using the pads of your first and second fingers.
2. Palpate the brachial pulses. Palpate both arms using the pads of your first and second fingers.
3. Palpate the femoral pulses. Palpate both legs in the groin crease using the pads of your first and second fingers.
4. Palpate the popliteal pulses. Palpate both legs behind knee in tibial side of knee crease using the pads of your first and second fingers.
5. Palpate the dorsalis pedis pulses. Palpate on middle of top of both feet using the pads of your first and second fingers.
6. Palpate the posterior tibial pulses. Palpate behind lower edge of interior side of both ankles (medial malleolus) using the pads of your first and second fingers.
7. Capillary refill: Press on nail beds of a couple of fingers on **both** hands. Look for color to return in ~2 secs
8. Inspect for edema in the feet and lower legs. State to patient *"I am looking for swelling in your feet and legs."*
9. Palpate for pitting edema on both legs using firm pressure over the dorsum of the feet **and/or** anterior lower legs (ankle/shin area). You must hold pressure with the pad of your finger for **at least 5 seconds**.

ABDOMEN, PERIPHERAL LYMPH NODES, and KIDNEYS

Abdomen

1. Inspect the abdomen for contour, symmetry, lesions. State *"I am inspecting your abdomen."* You **must** have full view of the abdomen – drape/shorts should be placed almost to symphysis pubis. The anterior superior iliac spine should be exposed.
2. Auscultate for bowel sounds, **before** palpation/percussion.
3. Auscultate for an aortic bruit at the midline above the umbilicus.
4. Percuss lightly in all four quadrants to assess the distribution of tympani and dullness
5. Assess liver span. Assess the vertical liver span by percussing the upper and lower borders of the liver in the midclavicular line. **Indicate to the patient both the upper and lower liver edges.**
6. Lightly palpate all four quadrants, noting any muscular resistance or tenderness. If the patient complains of pain, start in the quadrant farthest away from the area of pain.
7. Deeply palpate all four quadrants, noting any tenderness, masses, or pulsations. If the patient complains of pain, start in the quadrant farthest away from the area of pain.
8. **Note**: The SP must be able to tell the difference between light and deep palpation, but please keep in mind that the SP may have multiple examinations during a session so please keep your deep palpation to a minimum.
9. Palpate the aortic pulse. Palpate the abdomen at the midline above the umbilicus.
10. Palpate the liver. Check for the lower edge of the liver with deep palpation (Bates pgs 459-460, 11th ed). Do **not** perform the "hooking technique."
11. Palpate the spleen. Check for the lower edge of the spleen with deep palpation. The patient can be placed either supine **or** lying on his/her right side (Bates pgs 462-463, 11th ed.).
12. Test for rebound tenderness. Over a tender area, press down with your fingers firmly and slowly, and then withdraw them quickly. Ask the patient, "*Which hurts more, when I press down or let go?*"

Peripheral Lymph Nodes

Examine **both** sides of the body. You may wear gloves to examine the axillae and groin.

All areas must be exposed during the examination.

1. Inspect the axillae: Inspect the area of palpation, you must expose the axillae.
2. Palpate axillary nodes with the patient's arm down and relaxed (Bates, pgs 405, 425, 11th ed.). Note the areas of central, anterior, posterior and lateral nodes
3. Palpate epitrochlear nodes: Palpate each upper extremity for epitrochlear nodes (Bates pg 501, 11th ed.)
4. Palpate inguinal nodes: Palpate each groin for the superficial **horizontal** inguinal nodes over the inguinal canal (Bates pg 502, 11th ed.). You must visualize the area of palpation. (**Note:** The SPs prefer that you approach the inguinal area by lifting up the leg of their shorts, rather than approaching from the waistband side.)

BACK (Kidneys)

- Percuss (gently) the costovertebral angle (CVA) on both flanks with your fist to examine for tenderness (Bates pg 464, 11th ed.).

MALE GENITALIA, HERNIAS, AND PROSTATE

(Advanced Clinical Skill)

Wear gloves for all parts of this examination.

1. Inspect the penis
    a. Inspect the base of the penis and pubic area
    b. Inspect the skin of the entire penis
    c. Palpate the shaft of the penis noting tenderness or induration
    d. Inspect the prepuce (foreskin) and retract it
    e. Inspect the glans; Note location of urethral meatus
    f. Compress the glans to open the urethral meatus
    g. Replace foreskin if it was retracted (if you don't you can really hurt the patient)

2. Inspect and palpate the scrotum
    a. Inspect the skin, lifting the scrotum to see the posterior surface. Note any lumps, swelling or veins
    b. Palpate each testis, noting any pain, swelling or nodules. Transilluminate any swelling that is found
    c. Palpate each epididymis on the superior posterior surface of each testicle
    d. Palpate each spermatic cord from the epididymis to the superficial inguinal ring

3. Inspect and palpate for hernias
    a. Inspect the inguinal and femoral areas carefully for bulges. Ask patient to bear down and observe area for new bulges
    b. Place forefinger on patient's loose scrotal skin and invaginate skin to palpate with finger up the spermatic cord to inguinal ligament and the opening of the external inguinal ring. Ask patient to bear down or cough and note any herniation
    c. Palpate anterior thigh in region of femoral canal. Ask patient to bear down or cough and note any swelling or tenderness

4. Inspect and palpate the anus, rectum and prostate

    This exam may be performed with the patient standing and leaning forward (hips flexed) or in the side-lying position with patient's hips and knees flexed.

    a. Spread the buttocks apart and inspect the sacrococcygeal and perianal area skin. Palpate any abnormal appearing areas.
    b. Insert gloved, lubricated forefinger gently into the anal canal toward umbilicus
        i. Note sphincter tone of anus
        ii. Rotate finger around posterior portion of anus and note any irregularities or nodules
        iii. Rotate finger back toward the umbilicus to palpate the posterior surface of the prostate gland
            - Identify lateral lobes and median sulcus between them
            - Note size, shape and consistency of prostate
            - Identify nodules or tenderness

FEMALE GENITALIA
(Advanced Clinical Skill)

Wear gloves for all parts of this examination.

External

1. Inspect and palpate mons pubis noting pubic hair distribution.

2. Inspect and palpate the labia majora.

3. Separate the labia majora and inspect:
    a. the labia minora
    b. the clitoris
    c. the urethral meatus
    d. the vaginal opening (introitus)

Internal

1. Insert the speculum into the vagina to bring the cervix into view.
    a. inspect the cervix noting position and any nodules, masses or ulcerations
    b. inspect the cervical os for discharge

2. While slowly withdrawing the speculum, inspect the vaginal wall.

Bimanual

From a standing position, insert lubricated index and middle finger of gloved hand into vagina. Pressure and direction should be posteriorly. Thumb should be abducted and ring and little fingers flexed into palm. Other hand should be on abdomen halfway between umbilicus and symphysis pubis.

1. Palpate urethra and vagina
2. Palpate the cervix
3. Palpate the uterus between both hands
4. Palpate each ovary (sometimes not palpable)

UT Health San Antonio
Joe R. & Teresa Lozano Long School of Medicine

Competencies and Objectives of the Doctor of Medicine (M.D.) Degree Program

MUSCULOSKELETAL SYSTEM

Make sure to first inspect for a few seconds before you start palpating the area, these must be two distinct steps.

Upper Extremities

1. Examine **both shoulders**:

    - Inspection; State *"I am inspecting your shoulders."*
    - Palpation of acromioclavicular joint, coracoid process, subacromial bursa/ supraspinatous insertion, and biceps tendon
    - Active range of motion (AROM)—the patient moves their own limb including forward flexion, extension, external rotation, internal rotation, abduction and adduction

2. Examine **both elbows**:

    - Inspection of extensor surface of ulna and olecranon process; State *"I am inspecting your elbows."*
    - Palpation of olecranon process and epicondyles
    - AROM including flexion, extension, pronation, supination

3. Examine **both wrists**:

    - Inspection of palmar and dorsal surfaces; State *"I am inspecting your wrists."*
    - Palpation of distal radius and ulna on lateral and medial surfaces, groove of joint on dorsal surface and the carpal bones, you must palpate both sides and front and back of wrists
    - AROM including flexion, extension, radial and ulnar deviation

4. Examine **both hands** and **all fingers**:

    - Inspection of the dorsal and palmar surfaces of the hands and fingers; State to patient *"I am inspecting your hands and fingers."*
    - General palpation of anatomic snuffbox and metacarpals; and joint palpation of MCP joints, and medial and lateral aspects of each PIP joint and DIP joint
    - AROM of the fingers including flexion, extension, abduction, adduction
    - AROM of the thumb including flexion, extension, abduction, adduction, opposition

Spine

1. Examine the **spine**:

   - Inspection of posture and spinal curvature from behind, State to patient *"I am inspecting your spine."* Only correct if you expose the entire spine and stand behind the patient for this.
   - Palpation of spinous processes of each vertebra, the paravertebral muscles, and sacroiliac joints
   - AROM of the **neck** including flexion, extension, rotation, lateral bending,
   - AROM of the **spine** including flexion, extension, rotation, lateral bending (hold patient's hips stable, if necessary, so that the patient moves at the waist only),

Lower Extremities

1. Examine **both hips:**
   - Observation of gait (may include with examination of the spine),
   - Palpation of trochanteric bursa,* **bilaterally** (patient lying on their **side**), area exposed
   - Passive range of motion-hip extension* (PROM=you move the patient's leg), with patient lying on their **side**.*
   - PROM; (patient **supine**) move the hip through flexion, abduction, adduction, external rotation, internal rotation

   *You may perform these items one after the other, while patient is on her/his side.

2. Examine **both knees**:
   - Inspection of contour and swelling, state to patient *"I am inspecting your knees."*
   - Palpation with knee in flexion of the patellar tendon, femoral condyles, medial and lateral collateral ligaments, and joint lines,
   - AROM including flexion and extension

3. Examine **both ankles**:
   - Inspection for deformities and swelling state to patient *"I am inspecting your ankles"*,
   - Palpation (anterior ankle, Achilles tendon),
   - AROM including dorsiflexion and plantarflexion

4. Examine **both feet**:
   - Inspection for deformities and swelling state to patient *"I am inspecting your feet"*
   - Palpation (metatarsophalangeal joints, heel, plantar fascia)
   - AROM including inversion and eversion of foot, and flexion of toes

NERVOUS SYSTEM

Mental Status

You must have these questions memorized

1. Orientation to person: Ask for the patient's full name.

2. Orientation to place: Do you know where you are right now? Ask for the name of hospital, floor, city, state, or county.

3. Orientation to time: Ask patient for the date, month, year, day of week, or season.

4. Recall: Ask patient to name three unrelated objects and immediately repeat them. (Give the patient 3 simple unrelated nouns to recall: for example- apple, table, penny). Tell the patient you will ask him/her to tell you these 3 words again in a few minutes.

5. Remote memory: Ask patient for 1-2 historical events relevant to his/her past (i.e., jobs held, birth date, name of schools attended).

6. Recent memory: Ask patient to tell you events about the day (i.e., the weather, today's appointment time).

7. Attention: Ask patient to subtract serial 7s. Stop after 5 answers. Alternatively, ask patient to spell WORLD backwards.

8. Information and Vocabulary: Ask about patient's work, hobbies, favorite music/TV programs, current events. Ask specific facts (i.e., name of president, vice president, name 5 large cities in the US)

9. Calculating ability: Ask patient to solve simple arithmetic problems.

10. Abstract thinking: Ask patient to explain a proverb or similarities.

11. Constructional ability: Ask patient to draw a clock complete with numbers and hands and set to a specific time. Example-"Please draw a clock showing the time 2:30."

12. Ask patient to repeat the names of the three objects above in #4.

Cranial Nerves

1. CN I (Olfactory)
   a. Test smell in each nostril individually with different scents. With patient's eyes closed and occluding the non-tested nostril.

2. CN II (Optic)
   a. Assess visual acuity of **both** eyes with a hand held visual acuity card held 14 inches from the patient. Test each eye separately; have patient cover non-tested eye. Patient should leave glasses on for this test.
   b. Test peripheral visual fields of **both** eyes. Ask the patient to cover one eye and test **at least four quadrants** using waving fingers (start the test with your fingers out of the patient's field of vision) or having the patient count fingers. Repeat with the other eye. Test each of the patient's eyes individually.
   c. Inspect the optic disc and retina.
      Using the ophthalmoscope locate the optic disc and retina – including retinal arteries, retinal veins, and macula. State to patient *"Now I am going to focus more closely on the back of your eye."* You must use your correct eye to inspect the patient's eye (i.e. your right eye to inspect the patient's right eye while holding the ophthalmoscope in your right hand). Inspect **both** eyes.

3. CN III (Optic and Oculomotor) – Pupillary response
   a. Direct— shine a light (penlight, oto/ophthalmoscope, etc.) at one eye and watch that pupils' response to light.
   b. Consensual—shine light source at one eye while watching the other for pupil response.
   c. Accommodation—have the patient look at your finger at arm's distance and then watch for pupillary response as you move your finger in toward the patient. State *"I am testing for accommodation."*
   d. Must examine **both** eyes.

4. CN III, IV, VI (Oculomotor, Trochlear, Abducens). Extraocular muscle function (EOM).
   a. Ask the patient to follow your finger with their eyes as you move through the six cardinal fields of gaze. Make a wide "H" (15-16 inches to either side) in front of the patient's face (14-20 inches away), and watch the movement of the eyes.

5. CN V (Trigeminal)
   a. Test sensation on face. With the *patient's eyes closed,* use light touch with finger, tissue or other soft object on forehead, cheeks, and chin. Should compare *two sides at the same time.*
   b. Test jaw clenching by palpating at *jaw for muscle contra*ction.

6. CN VII (Facial)
   a. Test face muscles: (1) wrinkling forehead, (2) strength of eyelid closure (student must try to open the patient's *closed eyes*), and (3) smiling and/or puffing cheeks (must do ALL 3)

7. CN VIII (Acoustic)
   a. Test auditory acuity (gross hearing test). Test one ear at a time by using the whisper test or by rubbing your fingers together.
   b. Perform the Weber test (lateralization) by placing a vibrating 512 Hz tuning fork (correct one required) firmly on top of the patient's head. *Ask them where they hear the sound: on one or both sides?*
   c. Perform the Rinne test (bone vs. air conduction) by placing a vibrating 512 Hz tuning fork on the mastoid bone, behind the ear. When the patient can no longer hear the sound, quickly place the tuning fork close to the opening of the external ear canal and ask if they can now hear the sound. Perform this test on **both** ears.

8. CN IX, X (Glossopharyngeal, Vagus)
   a. Observe movement of the soft palate and uvula by having the patient say "ah" and watching the back of the mouth. You may need to use a tongue blade and/or light source to visualize.
   b. Listen to patient's voice. State, *"I am listening to/have listened to your voice."*

9. CN XI (Spinal Accessory)
   a. Test strength of trapezius with shrugging shoulders against firm pressure
   b. Test strength of sternocleidomastoid by turning head each direction against firm pressure

10. CN XII (Hypoglossal) – Test by having patient stick tongue straight out.

Motor System

1. Inspect muscle bulk and tone of **both** arms and hands. State, *"I am inspecting the muscle bulk of your arms and hands."* Check tone by moving the extremity back and forth at the elbow and wrist joints.

2. Test muscle strength of **both** upper extremities, making sure to isolate the muscle(s) to be tested. Test all of the following:
   - deltoids (C5, C6)
   - triceps (C6, C7, C8)
   - biceps (C5, C6)
   - wrist flexors (C6, C7, C8, radial nerve)
   - wrist extensors (C6, C7, C8, radial nerve)
   - finger grip (C7, C8, T1)
   - finger abduction (C8, T1)
   - thumb to little finger opposition (C8, T1, median nerve)

3. Inspect muscle bulk and tone of **both** legs and feet. State, *"I am inspecting the muscle bulk of your legs and feet."* Check tone by moving the extremity back and forth at the knee and ankle joints.

4. Test muscle strength of **both** lower extremities, making sure to isolate the muscle(s) to be tested. Test all of the following:
    - hip flexion (L2,L3,L4—iliopsoas)
    - hip extension (S1—gluteus maximus)
    - hip abduction (L4,L5, S1—gluteus medius and mimimus)
    - hip adduction(L2, L3, L4—adductors)
    - knee flexion (L4, L5, S1, S2—hamstrings)
    - knee extension (L2, L3, L4—quadriceps)
    - ankle dorsiflexion (mainly L4, L5)
    - ankle plantarflexion (S1)

5. Pronator drift: Have patient sit or stand with their arms out straight, **palms up**, and eyes closed. Have them hold this position for at least 20 seconds to observe any movement or pronator drift

Sensory System

*You **MUST** have the patient close their eyes for all of the following, 1-6. All areas must be exposed. These are required for credit. You should demonstrate each test for the patient and explain what you are looking for before proceeding with the examination.*

1. Test sensation to light touch, **bilaterally**. With patient's eyes closed, touch symmetric areas on both sides of the body **one side at a time** (list below). Use a cotton ball or your finger. Ask the patient to tell you a) when the touch is felt AND b) compare both sides ("*Does this feel the same as this?*")
    - Shoulders (C4)
    - Inner and outer aspects of forearms (C6 and T1)
    - Thumbs and little fingers (C6 and C8)
    - Fronts of thighs (L2)
    - Medial and lateral aspects of calves (L4 and L5)
    - Little toes (S1)

2. Test sensation to pain, **bilaterally.** With patient's eyes closed, touch symmetric areas on both sides of the body **one side at a time** (list below) with a sharp object. Use the broken end of a cotton swab for sharp (please do not use safety pins with standardized patients). The cotton end can be used for dull sensation. Ask the patient to tell you a) if they feel a sharp sensation AND b) compare both sides ("*Does this feel the same as this?*")
    - Shoulders (C4)
    - Inner and outer aspects of forearms (C6 and T1)
    - Thumbs and little fingers (C6 and C8)
    - Fronts of thighs (L2)
    - Medial and lateral aspects of calves (L4 and L5)
    - Little toes (S1)

3. Test sensation to temperature, **bilaterally**. With patient's eyes closed, use a tuning fork (cool sensation-we do not have a "hot") to compare symmetric areas one side at a time (list below). Ask the patient to tell you when they feel a cool touch.
    - Upper arms
    - Lower arms
    - Fronts of thighs
    - Lateral calves

4. Test vibratory sensation, **bilaterally**, using the 128 Hz tuning fork. With the patient's eyes closed, tap the tuning fork and place it firmly on the joint. Ask the patient to describe what they feel, then to tell you when the feeling stops. Lightly touch the tuning fork with your hand to stop the vibration. Again ask the patient what they feel. Test over:
    - the DIP joint of one finger on each hand
    - the interphalangeal joint of both big toes

5. Test position sense, **bilaterally** (by holding the *sides of the joint, not top and bottom*). With the patient's eyes closed, test the following;
    - One finger on **each** hand—holding the DIP
    - **Both** big toes—holding the interphalangeal joint

6. Test discriminative sensation in **one hand** by;
    - *Stereognosis* – with the patient's eyes closed, place an object in the patient's hand and ask them to identify the object
    - *Number identification (graphesthesia)* – with the patient's eyes closed, draw a number on the patient's palm and ask them to identify the number

Deep Tendon Reflexes (DTR)

1. Test reflexes, **bilaterally** (list below). **Do not** strike the patient's tendon more than 3 times to elicit the response. If you elicit the response with the first attempt, move on with the exam.
    - Biceps (C**5**/6)
    - Brachioradialis (C5/**6**)
    - Triceps (C7)
    - Knee (L3/4)
    - Ankle (S1)

2. Test plantar response (Babinski)**, bilaterally**. With the end of a tongue depressor stroke the lateral aspect of the sole from the heel to the ball of the foot, curving medially across the ball (Bates pg 730, 11th ed). Use only gentle pressure with the SPs, do not use a sharp tool (many handles of reflex hammers are too sharp) and always warn your patients before doing this test.

3. Test for clonus**, bilaterally**. Push foot up (dorsiflex ankle) sharply once and hold to see if foot pushes back down; if it does, note the number of times it does so.

Coordination

1. Test rapid alternating movements, **bilaterally**. Have patient alternate striking palm and back of hands on thighs as quickly as they can (pg. 716, Bates 11th ed.).

2. Perform point-to-point testing, **bilaterally** ("finger to nose"). Ask the patient to touch your index finger and then his/her nose. Move your finger about so that the patient has to alter directions and extend the arm fully to reach it. Perform this maneuver several times.

3. Perform heel to shin **bilaterally**. Have the patient slide their leg from their knee to their foot as straight as possible three times in a row.

Gait

1. Observe walking – look for symmetry and at posture
   - Normal walking
   - Tandem walking (heel-to-toe on a straight line)
   - Heel walking
   - Toe walking

2. Romberg*: Have patient stand for at least 20 seconds with arms at their sides, feet together, and eyes closed (be prepared to stop the test; have them open eyes, if they start to lose balance and be ready to catch/stabilize).

*You may sometimes see Romberg and pronator drift tested at the same time. These are two separate tests that test different components of the neurologic system. Romberg tests position sense, but is done here because the patient is already standing in order to test gait. Most Neurologists write the results of this test in the sensory exam even though it is tested with the gait. Pronator drift tests for a lesion in the corticospinal tract and is tested with the motor exam.

Appendix 2:

Basic Clinical Procedures (Objective 3.3)

1. Establish and maintain a sterile field
2. Perform venipuncture
3. Perform arterial puncture
4. Insert and remove an intravenous catheter
5. Insert and remove a nasogastric tube
6. Insert and remove a foley catheter
7. Suture simple incisions and lacerations
8. Administer subcutaneous and intramuscular injections
9. Perform basic cardiac life support (BLS)
10. Perform advanced cardiac life support (ACLS)

Appendix 3:

Commonly used diagnostic tests (Objective 3.4)

1. Abdominal x-ray series
2. Arterial blood gas analysis
3. Body fluid analysis (cerebrospinal fluid, ascites, pleural effusion)
4. Cardiac enzymes
5. Chest x-ray
6. Complete blood count
7. Comprehensive metabolic profile
8. Culture & sensitivities
9. Electrocardiogram
10. Peak flow
11. Pregnancy test
12. Urinalysis