GOALS & OUTCOMES:

1. To introduce the applied anatomy relevant for the examination of the head and neck.
2. To introduce concepts and techniques of the physical examination of the head and neck.
3. Introduce the concepts of health promotion as they relate to the clinical examination.
4. To learn the use of the otoscope.

ASSIGNMENTS DUE FOR THIS SESSION:

2. View: **Head & Neck Video**

Review the *Using Diagnostic Equipment* video

3. Review the physical exam steps outlined below.
4. Bring your otoscope with you to learn its use.

ASSIGNMENTS DUE FOR NEXT WEEK:

1) Practice the skills learned on friends, family, pets, etc.

SESSION ACTIVITIES:

1) Watch the high yield demonstration with course faculty
2) Examine each other in small groups guided by faculty

SUGGESTED TIMELINE:

- 30 minutes
- 60 minutes
BACKGROUND – TO BE READ BEFORE COMING TO THE SMALL GROUP

This session is a continuation of the physical exam sessions representing a collaborative effort between the two courses Patient Centered Medicine 1 and Structure of the Human Body.

Process:

1) Meet in the lecture hall for the high yield demonstration

2) Then you will have an assigned time at which to report to the clinical skills center. Typically, there are three waves of assigned times usually 1:00 p.m., 2:00 p.m. and 3:00 p.m. Please attend at your assigned time, and sign-in at the CSC.

Wear loose clothing that will allow for your peers to examine you, and bring your stethoscopes. If you have issues with having your peers examine you, please let your group know. Only students who volunteer in each small group will be examined. However, it is the expectation that most students will want to help their peers learn the physical exam by volunteering to be examined.

A faculty member will be leading you through learning the physical examination on each other.

The steps of the exam of the head and neck are below. Please review this before the small group. The better prepared you are, the more you will learn from this practice session.

Before and after this session, practice the skills learned on your friends, family, pets, and on willing patients whom you see with your physician and student mentors.

Session Objectives:

1. Locate and identify the parotid and submandibular salivary glands.
2. Locate and identify the superficial temporal artery.
3. Locate and identify the papillae of the ducts of the Submandibular glands (Wharton’s ducts), the opening of the Parotid gland, the hard and soft palate, anterior and posterior pillars, tonsils and uvula.
4. Locate and identify the trapezius muscle by "shrugging" shoulders and sternocleidomastoid muscle by turning head against hand.
   - Identify the anterior triangle (mandible, sternocleidomastoid muscle midline of neck) and posterior triangle (sternocleidomastoid muscle, trapezium, and clavicle).
   - Identify the external jugular vein by performing a Valsalva maneuver (forced expiration against a closed glottis) and the external carotid artery.
5. Locate and identify the following midline structures: hyoid bone, thyroid cartilage, Cricoid cartilage, Thyroid gland, and sternal notch.
6. Locate and identify the structures that make up the external ear, the external auditory canal (understanding that the external canal extends somewhat anteriorly and superiorly
by visualizing the eardrum with an otoscope by pulling the auricle upward and backward).

7. Identify the following lymph node group:

   a. Pre-auricular (parotid) & post-auricular (mastoid) - in front of and behind the ear.
   b. Occipital - back of skull/posterior
   c. Submaxillary - between angle of jaw and top of mandible
   d. Submental - just below the chin
   e. Superficial cervical - superficial to the sternocleidomastoid muscle
   f. Posterior cervical - along of anterior edge of trapezius muscle
   g. Supraclavicular - in angle formed by clavicle and head of sternocleidomastoid muscle

HEAD AND NECK EXAMINATION STEPS

WASH YOUR HANDS BEFORE BEGINNING.

1. Locate and identify the superficial temporal arteries.
   = the continuation of the external carotid artery as it emerges from the Parotid gland, between the TMJ and the ear. As it runs anterior to the ear over the zygomatic arch into the temporal region of the skull.

You are seeing a 28 year old woman with a chief concern of ‘dry mouth.’ You know that salivary gland infection, inflammation or duct obstruction can cause this symptom. Examine the parotid and submandibular glands and the openings of their ducts into the mouth. (#2-5)

2. Locate and identify the parotid glands.
   Student should point to area behind and superficial to mandible, below the zygomatic arch and in front of the ear.

3. Locate and identify the submandibular salivary glands.
   Student should point to area deep to or at the inner surface of the mandible

4. Locate and identify the papillae of the ducts of the submandibular glands.
   Wharton’s duct, located in the mouth at the base of the tongue, on both sides of the midline lingual frenulum. Student should ask patient to curl up their tongue or touch the tongue to the roof of the mouth to demonstrate these ducts at the base of the tongue. Utilize a light source and a tongue depressor to move the buccal mucosa laterally away from the gums.

5. Locate and identify the opening of the Parotid glands.
   Stensen’s duct, located in the mouth at the 2nd upper molar on the buccal mucosa by a small papilla
6. **Locate and examine the trapezius muscles.**  
(Tests CN XI = Spinal Accessory Nerve)  
*Technique should be to ask patient to “shrug” shoulders upward.*

7. **Locate and examine the sternocleidomastoid muscles.**  
(Also tests CN XI = Spinal Accessory Nerve)  
*Technique should be to ask patient to turn head to each side against 1st year student’s hand. As the patient turns head to each side, observe the contraction of the opposite sternocleidomastoid. The right sternocleidomastoid contracts and turns patient’s head to patient’s left.*

8. **Locate and identify the borders of the anterior triangles** (each side of the neck is divided into 2 triangles, by the diagonally running sternocleidomastoid muscle)  
*Anterior triangle borders - mandible, sternocleidomastoid muscle, and midline of neck*

9. **Locate and identify the external jugular vein by performing a Valsalva maneuver**  
The external jugular vein is identified behind the clavicular head of the sternocleidomastoid or roughly about the middle third of the clavicle and then passes diagonally over the surface of the sternocleidomastoid and up behind the angle of the mandible. A Valsalva maneuver is a forced expiration against a closed glottis  
*Student may need to lay the patient supine or at 30 or 45 degrees to best demonstrate this step.*

10. **Locate and the carotid artery**  
*In the lower neck, the carotid artery is deep to the sternocleidomastoid muscle and as you move higher up the neck, the carotid artery is anterior to the sternocleidomastoid muscle*  
*The student should only palpate for one carotid at a time!!*

11. **Locate and identify the location of the thyroid gland**  
*Student may ask the patient to take a sip of water to facilitate this step. Student places finger pads of both hands so that the index fingers are just below the cricoid cartilage. Ask the patient to swallow and the student attempts to feel the thyroid rising under their finger pads. Student’s fingers should be a little lateral to midline. The thyroid has 2 lateral lobes and a midline isthmus and is usually located between the levels of the C5 and T1 vertebrae.*

12. **Locate and identify the structures that make up the external ear**  
*Cartilaginous ear- auricle- pinna. Outermost rim- helix, antihelix is internal to helix, and the tragus lies in front of the external auditory meatus. The ear lobule has no cartilage.*

13. **Locate and identify the external auditory canals**  
*The canal is behind the tragus of the ear. The canal is normally about 2-3 cm long in adults.*

14. **Locate and examine the tympanic membrane with an otoscope**  
*Student makes sure the otoscope light works, and uses an ear speculum for the exam. Student should stand close to the patient and warn the patient before they start. Student gently pulls the ear upward and backward to straighten the canal for easy visualization. This maneuver assists in visualization in majority of patients (UP, OUT, and BACK).*  
  a. Identify the normal anatomy of the eardrum, including the pars tensa, with its and the handle and short process of the malleus.  
  b. Observe for blood, inflammation, swelling, cerumen, foreign bodies, or purulent secretion in the auditory canal.
You are seeing a 55 year old man who smokes regularly for his yearly physical. You know that smoking strongly increases the risk of head and neck cancers, which commonly present as swollen lymph nodes. Thus you perform a screening examination of this patient’s head and neck lymph node groups. Locate and identify the superficial cervical, posterior cervical, supraclavicular, submental occipital and pre & post auricular lymph nodes. (#15-20)

15. **Locate and identify the Pre & post auricular lymph nodes**
   Preauricular - parotid lymph nodes would be in front of the ear
   Post-auricular- mastoid lymph nodes would be behind the ear and superficial to the mastoid process.

16. **Locate and identify the Occipital lymph nodes**
   At the base of the skull, posteriorly.

17. **Locate and identify the Submental lymph nodes**
   A few centimeters behind the tip of the mandible (chin).

18. **Locate and identify the Superficial cervical lymph nodes**
   These are superficial to the surface of the sternocleidomastoid muscles.

19. **Locate and identify the posterior cervical lymph nodes**
   These are located along the anterior border of the trapezius muscles.

20. **Locate and identify the supraclavicular lymph nodes**
   These are part of the deep cervical lymph nodes, located in the angle formed by the clavicle and the clavicular head of the SCM.

**WASH YOUR HANDS WHEN FINISHED.**