MODULE: HEAD, EYES, EARS, NOSE, MOUTH, AND THROAT

OBJECTIVES:

Upon completion of this module, the student will be able to:

1. Identify the normal anatomical structures involved in the HEENT examination.
2. Perform a complete HEENT examination, noting variations due to age.
3. Name cranial nerves II, III, IV and VI and explain their function.
4. Diagram the visual pathway.
5. Perform an examination of vision, including visual fields, distance vision, near vision, and color vision.
6. Perform a fundoscopic examination and identify the following structures: optic disc, optic cup, background, vessels and macula.
7. Describe the findings of the otoscopic examination of the tympanic membrane including landmarks, light reflex, general color and pneumatic assessment.
8. Assess hearing including age-appropriate screening methods.

REQUIRED READINGS:

Bates’ guide to physical examination and history taking, Chapter 7, The Head and Neck

Equipment needed for HEENT Exam:
- Oto-ophthalmoscope, ear pieces/nasal speculum
- Tongue blade
- Penlight
- Snellen chart, eye cover
- Pocket visual acuity screen with a 14 inch measure
- Tuning fork 256 or 512
- Disposable glove
- Glass of water
- 2” x 2” gauze
MODULE: HEENT
STUDY QUESTIONS: HEAD AND NECK

Define:
- Amblyopia
- Anisocoria
- A/V nicking
- Blepharitis
- Chalazion
- Entropion/ectropion
- Gingivitis
- Koplik’s spots
- Leukoplakia
- Papilledema
- Pterygium
- Ptosis
- Strabismus (esotropia/exotropia)
- Tophus
- Torus palatinus
- Exophthalmos
- Hordeoleum
- Arcus senilus
- Hyphema

1. What are the key symptoms of HEENT disorders?
2. Name and locate/diagram all head and neck lymph nodes.
3. Name and locate/diagram parts of the tympanic membrane.
4. Describe the normal findings of the fundoscopic exam: optic disc, cup, vessels, macula.
5. Describe common normal and abnormal variations in the fundoscopic exam.
6. Describe the clinical significance of a positive Weber or Rinne test.
7. Describe papilledema. What is its clinical significance?
8. What are the clinical features of the eye grounds that might be found in hypertension? Glaucoma? Diabetes mellitus?
9. What are the risk factors for oral cancer?
10. Describe the visual field changes that would be consistent with a lesion:
    a. at the optic chiasm
    b. optic nerve
    c. (l) retina
    d. optic tract
11. Which of the nasal turbinates are you able to visualize with a nasal speculum?
12. What is the difference between a pterygium and pinguecula?
13. Describe the oral lesions associated with HIV infections.
MODULE: HEENT
ASSESSMENT OF THE HEAD AND NECK

A. FACE AND HEAD AS A WHOLE

1. Size and shape
   a. cranium (forehead--abnormal size/shape?)
   b. congenital abnormalities--?down’s syndrome
   c. increased bone structure
   d. swellings or injury

2. Scalp--distribution of hair, swelling, hair loss, alopecia, nits, dandruff, lesions

3. Skin--lesions, color

B. EYE

1. History
   a. eye trauma, discomfort or vision loss
   b. long standing impairment in acuity or visual changes may not be I.D. unless you ask.
   c. ask about--diplopia, glasses, visions, blurring, photophobia, inflammation, scotoma.
   d. clarify meaning of double vision, blurred vision or pan vision.
   e. identify the circumstances, background and characteristics of complaint.
      determine effects upon daily activities.
   f. clarify unilateral or bilateral; persistent or intermittent
   g. associated disease?  DM, HTN, HIV
   h. PMH
   i. FH

2. Visual acuity (CN II Optic Nerve)
   a. pocket screener or Snellen chart (20’), check also for near vision
   b. indicate if tested with glasses (corrected) or not

3. Inspection
   a. position of lids--should not cover pupil--ptosis (droop), edema, entropion, ectropion, exophthalmos
   b. condition of eyelids--inflammation--blepharitis, styel= hordeoleum, chalazion--nodule away from lid margin, ecchymosis
   c. position of corneal light reflex (Hirschberg’s sign) --2-4” using light to see if equally centered on pupils
      1. esotropia--inward deviation
      2. exotropia1--outward deviation
   d. Conjunctiva--sclera, iris
      1. use penlight to view surface
      2. check pigmentation, hemorrhage, growths, inflammation, jaundice
      3. examine palpebral and bulbar conjunctiva--appearance, injection, pinguecula, pterygium
   e. cornea (CN V)
      1. angle penlight from side to check clouding, ulceration, opacities
      2. corneal abrasions--cause severe pain each time lid moves over cornea
   f. pupils and pupillary reaction to light (CN II, III)
      1. check size, shape, equality
      2. patient looks at examiner, penlight brought from side to center line of vision
3. direct and consensual (other eye constricts) pupillary reaction
4. check equality, shape, size(brisk or sluggish); accommodation--
   constrict or convergence--breaks at about 2"
   a. when checking convergence accommodation--have pt.
      gaze into distance, then focus on penlight as moves toward nose
   g. cover test--strabismus--esotropia or exotrophia
4. Extra ocular movements (CN III, IV, VI)  ("LR6, SO4, the rest are 3, there ain’t no more")
   a. Direct patient to move eyes into six cardinal fields of gaze to test function of each
   b. check if one of the EOM’s is paralyzed
   c. check for any lid lag
5. Visual fields--confrontation testing
   a. patient stares steadily at examiner's eye; examiner slowly brings finger from
      lateral position into field of vision, noting when client first sees examiner's finger.
      (test 8 visual fields)
   b. normal:  vertical 45 degrees, temporal 85 degrees
   c. when checking temporal fields--come from behind the patient
6. Tonometry--measures intraocular pressure
7. Ophthalmoscopy
   a. best performed with dilated pupils (10% neosynephrine HCL ophthalmic viscous
      solution)
   b. patient stares at fixed distant object: move in at 15 degree angle from line of
      vision--start at 12” and check red reflex--right eye to right eye and left eye to left
      eye
   c. 8-10” positive + diapeter lens used; as approach eye, gradually reduce power to
      visualize abnormalities in the cornea, aqueous, lens, vitreous until retina comes
      into focus, reduce that lens necessary to focus on the retina--negative diopter =
      red.
   d. retina--examine optic disc and cup, major branches of optic vessels, arteries &
      veins, macula
      1. check clarity of disc edges, color, crescents, size of cup
   e. normal findings
      1. C:D ratio: cup usually less than half the diameter of disc.
      2. A:V ratio, artery to vein ratio is normally 2-3 or 4-5
      3. Color of the background varies with the patient’s skin color.
   f. abnormals
      1. Disc:  pallor, increased cupping (glaucoma), papilledema (increased
         intracranial pressure)
      2. vessels: venous engorgement, hemorrhages, arteriolar narrowing,
         hypertension, arterial occlusion, copper or silver wiring, tortuosity,
         vessel proliferation, sheathing, A-V nicking
      3. Retina:  exudates, hard, soft (cotton wool, waxy), color changes, retinal
         detachment
C. EAR
1. History
   a. abnormals common with very young and very old
   b. most adults o.k.
   c. Ask, “any ear trouble?”
d. if yes, then more ROS—pain, deafness, discharge, tinnitus, vertigo

e. questions to ask if ‘earache’—fever, perforation, trauma, skin diving, flying, past complications, treatment, hx of swimming

f. deafness—ear involved, progression, occupation/education
g. tinnitus—ear involved, progression, drug history, occupation, head injury, recent URI

h. vertigo—perforation, infections middle ear, recent URI, head injury, syncope, transient paralysis

2. Exam
   a. inspect and palpate—auricle, meatus, tragus, mastoid area
   b. otoscopic exam—largest speculum that will fit
      i. retract auricle up and back in adults—babies—down and backward
      ii. in sick child—must examine ear—how to restrain
      iii. cerumen—cleaning, curette, irrigation
      iv. brace otoscope against head; tilt client’s head toward opposite shoulder, check tympanic membrane for light reflex, landmarks, color, retraction or bulging of membrane, fluid levels or bubbles; canal for erythema or drainage.

3. Hearing—(CN VIII)
   a. conductive loss—most common—involves outer and middle ear; causes: ear wax, perforated TM, fluid—middle ear, otosclerosis (stapes immobilized)
   b. sensorineural loss—involves either cochlea VIII, cranial nerve, or brain
   c. Weber—tuning fork in middle of head, lateralization occurs with conductive and perceptive loss
      1. conductive loss—heard best in ‘bad ear’
      2. sensorineural—heard worse in ‘bad ear’
   d. Rinne’ air conduction longer than bone—hold vibrating fork against mastoid process—when no longer heard, hold it adjacent to ext. meatus of ear—test for conductive loss and middle ear problems.
   e. audiometry—watch ticking or whisper

D. NOSE

1. History
   a. dryness, bleeding, drainage, allergies, broken nose, sneezing, drug use, sense of smell

2. Inspection
   a. deformity, asymmetry, inflammation
   b. insert nasal speculum into each nostril—anteroposterior direction—avoid pressure on septum
      1. first inspect lower portion of nose—mucosa for color, swelling, drainage, bleeding septal—deviation, bleeding, perforation
      2. then tip head back and view inferior and middle turbinates for color, edema, drainage, polyps.

E. SINUSES

1. history—infeciton, congestion, headaches, drainage, tenderness, allergies
2. inspection
   a. swelling, color
3. palpation
   a. press or percuss: compare bilaterally
      i. frontal, maxillary
4. transilluminate
F. MOUTH AND PHARYNX

1. history--ability to chew, teeth, gums, dental care, tonsils, sore throat, sores, lesions, swallowing, condition of lips, tongue.

2. Inspection--using gauze, glove, tongue blade, light
   a. lips--color, moisture, ulcers, lesions, cracking
   b. buccal mucosa - color, pigmentation, ulcers, nodules
      1. ducts of salivary glands
   c. gums and teeth
      1. discoloration, inflammation, swelling, bleeding, retraction of gums
      2. position, shape, number of teeth loose/missing, discoloration, caries
   d. hard palate
      1. shape, torus palatinous, color
   e. tongue
      1. color, texture, papillae
      2. use gauze and inspect sides of tongue, under surface
      3. floor of mouth, submaxillary ducts, frenulum, signs of carcinoma
      4. ask patient to put out tongue--check for symmetry, fasciculation--12th cranial nerve
   f. pharynx
      1. press tongue blade on the middle of arched tongue and ask patient to say “ah” watch for the rise of the soft palate (testing for the 10th C.N.)
      2. inspect soft palate, anterior and posterior pillars, uvula, tonsils, post. pharynx
      3. tonsils--color, size, symmetry, exudate, edema, ulceration, crypts

3. palpation
   a. any suspicious or tender areas

G. NECK

1. history--pain, swelling, nodes, dysphagia, thyroid trouble
2. inspection
   a. symmetry, masses, scars, parotid glands, lymph nodes, thyroid swelling, pulsations
3. palpation
   a. lymph nodes--palpate preauricular, postauricular, occipital, tonsillar, submaxillary, submental, superficial cervical, post. cervical, deep cervical, supraclavicular
      1. note size, shape, consistency, mobility, tenderness
      2. in enlarged, tender nodes--examine areas they drain

H. TRACHEA
1. identify tracheal cartilages--thyroid, cricoid
2. inspect and palpate for tracheal deviation--finger along each side of trachea
   a. should be equal spaces between each side and sternocleidomastoid muscles

I. THYROID
1. inspect
   a. visibility, contour, symmetry
2. palpate--from behind or in front
   a. neck slightly extended, fingers in nape of neck
   b. i.d. cricoid cartilage and then feel the thyroid isthmus below it
   c. ask pt. to swallow--feel isthmus and lateral lobes as pt. swallows pt. can sip a glass of water
   d. ask pt. to bend neck forward and to the right
      move thyroid cartilage to the right with your left hand--palpate with right hand while asking pt. to swallow--repeat on other side by reversing technique.
ASSESSMENT OF THE ELDERLY CLIENT HEENT

I. GENERAL APPEARANCE

A. Stature and weight
The elderly experience a change in body stature as a result of MSK and subcutaneous tissue changes. The spinal column shortens as discs thin and compress and there are associated postural changes resulting in a flexed stance. Subcutaneous fat deposits decrease in the periphery and are redistributed to the trunk, especially the hips and abdomen.

<table>
<thead>
<tr>
<th>Subjective complaints</th>
<th>Objective findings</th>
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<tbody>
<tr>
<td>1. body image changes--clothes fit differently, increase waist size</td>
<td>1. long thin extremities</td>
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<tr>
<td>2. diminished height</td>
<td>2. accentuation of bony prominences</td>
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<td>3. increased abd. girth</td>
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<td>4. knee and hip flexion</td>
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<td>5. kyphosis of spine</td>
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<td>6. muscle atrophy of arms and legs</td>
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<td>7. diminished spontaneous movement</td>
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II. HEAD AND FACE

There is generalized loss of subcutaneous tissue and sebaceous, sweat glands and hair follicles. Collagen and elastin degenerate, blood vessels thicken and superficial vessels become prominent. Loss of estrogen in women leads to the development of some male characteristics. There is extrapyramidal tract impairment which affects facial reaction as well as producing slowing of movements.

<table>
<thead>
<tr>
<th>Subjective complaints</th>
<th>Objective findings</th>
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<tbody>
<tr>
<td>1. loss and thinning of hair</td>
<td>1. graying thin hair</td>
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<tr>
<td>2. wrinkling of face and neck</td>
<td>2. wrinkled dry facial skin</td>
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<td>3. chin whiskers (female)</td>
<td>3. facial hair growth (females)</td>
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<tr>
<td>4. decreased facial hair (male)</td>
<td>4. prominent superficial face blood vessels</td>
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<td>5. thinned and bristling eyebrows</td>
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<td>6. impassive facial expression with decreased eye blinking</td>
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III. NOSE

Skin becomes thickened in nasal area, and gravitational pull makes organs appear longer. CNS changes contribute to decreased smell (parietal lobe). There is thinning and drying of nasal mucous membrane.

<table>
<thead>
<tr>
<th>Subjective complaints</th>
<th>Objective findings</th>
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<tbody>
<tr>
<td>1. nose is larger</td>
<td>1. large elongated ‘thick skinned’ vascular nose</td>
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<tr>
<td>2. loss of smell</td>
<td>2. inability to recognize scents or discriminate between smells</td>
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<tr>
<td>3. epistaxis</td>
<td>3. shiny, vascular nasal membrane turbinates</td>
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</table>

IV. MOUTH, THROAT, AND NECK

There are atrophic changes which occur in the mouth. Salivary glands and lateral papilla on sides of the tongue atrophy and mucous membranes thin. Facial muscles become lax, and mandible loses normal contours due to bony changes, gravitational pull and muscle weakening. There is inward bulging of the buccal mucosa because of loss of elasticity of the fibers that attach the buccinator muscle and the mucous membrane. Gingival tissue atrophy and recede, and there is a diminished cough and swallowing reflex. Neuronal degeneration results in a diminished sense of taste, especially sweets.

The surface pattern of and color of teeth change, roots are resorbed and pulp fibroses and calcifies. Dentine loses permeability and becomes dehydrated.
Loss of skin elasticity and gravitational pull result in accentuated wrinkling in the neck area, and the musculoskeletal changes of the spine produce a forward tilting of the head. The neck is shortened as a result of these changes and the thyroid may descend below the clavicles.

Elongation of the aorta and elevation of the aortic arch may cause malposition or distention of the innominate artery or jugular vein. Tonsillar lymph nodes may be calcified as a result of old infections such as tuberculosis. These is a loss of elasticity in laryngeal muscles and cartilage.

HEARING LOSS AND HEARING AIDS

Consider hearing loss in three ways:
1. degree--volume above normal level needed to hear
2. configuration--range of frequencies at which loss occurs
3. type--part of the auditory system affected.
   (all 3 benefit from hearing aid)

Type influences treatment
1. conductive--gasically mechanical; often treated surgically or manually
2. sesorineural--abnormality of cochlea, auditory nerve or brain
   a. infections--in utero or infancy/childhood
   b. drugs (antibiotics)
   c. congenital (Down’s syndrome, cystic fibrosis, etc.
   d. tumors
   e. presbycusis
3. mixed--combination of 1 & 2.
4. central--centers responsible for decoding nerve signals that represent could can be damaged by trauma, strokes, tumors, and genetic defects. Peripheral hearing is good by patient cannot process the information.

How Does Hearing Aid Help?
By setting or programming the amount of amplification the instrument provides at various frequencies, the hearing aid attempts to make speech easier to hear and understand. Although the aid amplifies sound it does not automatically improve the clarity of speech for all wearers.

Recent improvements in hearing aids
   a. filter background noise
   b. change tonal qualities
   c. modify (suppress) amount of power delivered to ear to control environmental loudness
   d. miniaturization
   e. digital--able to program to various listening situations
   f. improved signal to noise ratio
** Branching Exam Procedure**

<table>
<thead>
<tr>
<th>COMPONENT ACTIVITIES</th>
<th>DONE</th>
<th>NOT DONE</th>
<th>COMMENTS</th>
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<td><strong>HEAD</strong></td>
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<tr>
<td>1. Observe the head</td>
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<td>2. Observe the hair</td>
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<td>3. Palpate the scalp</td>
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<tr>
<td><strong>FACIAL</strong></td>
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<td>1. Observe the face and features</td>
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<td><strong>EYES</strong></td>
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<tr>
<td>1. Observe the eyebrows, eyelids</td>
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<tr>
<td>2. Inspect/palpate lacrimal ducts and glands</td>
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<td>3. Test visual acuity</td>
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<td>4. ** Test 8 visual fields by confrontation</td>
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<td>5. Perform cover test</td>
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<td>6. Test extraocular muscle function 6 fields</td>
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<td>7. Check accommodation (convergence of eyes and pupil constriction)</td>
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<td>8. Inspect eye tangentially with light</td>
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<td>9. Assess corneal light reflection (Hirschberg)</td>
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<td>10. Inspect conjunctiva and sclera with light (Omit eversion of eyelid)</td>
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<td>11. Inspect pupil and iris</td>
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<td>12. Check pupillary response (direct and consensual)</td>
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<td>13. Check for red light reflex</td>
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<td>14. Perform fundoscopic exam (describe findings)</td>
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<td><strong>EARS</strong></td>
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<td>1. Inspect/palpate auricle, mastoid, preauricular area, parotid area</td>
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<td>2. Estimate auditory acuity, whisper</td>
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<td>3. ** Perform Weber</td>
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<td>4. ** Perform Rinne</td>
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<td>5. Inspect external canal</td>
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<td>7. ** Perform pneumoscopical exam</td>
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<td><strong>NOSE &amp; SINUSES</strong></td>
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<tr>
<td>1. Inquire about changes in smell acuity</td>
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<td>2. Observe nares</td>
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<tr>
<td>3. Test patency of each nostril</td>
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<td>4. Inspect mucosa &amp; septum</td>
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<td>5. Inspect turbminates</td>
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<td>6. Palpate frontal sinuses</td>
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<td>7. Palpate maxillary sinuses</td>
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<td><strong>MOUTH</strong></td>
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<td>1. Inspect lips</td>
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<td>2. Inspect mucosal surfaces, gingival, teeth, tongue</td>
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<td>3. Inspect parotid and submaxillary ducts</td>
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<td>4. Inspect tonsils and pillars</td>
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<td>5. Inspect hard and soft palate, uvula</td>
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<td>6. Elicit gag reflex &amp; observe rise of uvula &amp; symmetrical movement of soft palate</td>
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</table>
7. Palpate mouth surfaces and tongue with gloved hand

**NECK (sitting)**

1. Observe the neck
2. Test range of motion
3. Systematically palpate and name all lymph nodes:
   a. Preauricular
   b. Postauricular
   c. Occipital
   d. Tonsilar
   e. Submaxillary
   f. Submental
   g. Superficial cervical
   h. Posterior cervical
   i. Deep cervical
   j. Supraclavicular
   k. Infraclavicular
4. Palpate trachea
5. Inspect for enlarged thyroid as client swallows
6. Palpate thyroid (front & back)
   a. Isthmus
   b. Right lobe
   c. Left lobe
7. **If thyroid enlarged, listen over lateral lobes for bruits**