ENT

OSCE Preparatory Notes

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NOSE EXAMINATION

1. INSTRUMENTS

Arrange and examine (includes fixing the headlight)

2. INTRODUCTION AND CONSENT

Salaam, mera naam dr. ___ hai, mai ap ka moina karna chahoo gai, ijazat hai?

3. POSITION THE PATIENT

Patients knees should be either both left or both right of your knees

4. EXPOSURE

Unbutton at the collar for neck exposure

5. EXTERNAL EXAMINATION (without instruments)

a) Inspection

- Skin of nose
    i. color abnormality
    ii. swelling: dermoid or glioma
    iii. inflammation: furuncles, septal abscess
    iv. scar: operation or trauma
    v. growth
    vi. sinus: congenital dermoid
    vii. neoplasm: basal cell or squamous cell carcinoma
- Osteocartilagenous framework: look for any deformity like
    i. Deviated or twisted nose
    ii. Hump or depressed bridge
    iii. Bifid or pointed tip
    iv. Destruction of nose: trauma, syphilis, cancer

Note: look at the above features at 3 angles (i) front view of face (ii) ¾ sideways (iii) profile

b) Palpation

- Temperature: with the back of hand as its more sensitive
- Fixity of skin
- Thickening of soft tissue
- Tenderness in case of wound
- Crepitation in case of fracture
- Fluctuations in case of fluid presence

c) Percussion of paranasal sinuses

Note: only tenderness and percussion of frontal sinus is done at this step, the rest of the details given here are in case the examiner asks them

- Maxillary sinus
  Has 5 walls and all but the posterior can be examined by checking
  i. soft tissue of cheek, lip, lower eye lids and molar region
  ii. the orbit and vision
  iii. the vestibule of the mouth by everting the lip
  iv. upper alveolus, teeth and palate
  v. the nose by anterior and posterior rhinoscopy
  vi. tenderness by pressure over the canine fossa *(dhingra 386 fig. 74.10)*
- Frontal sinus
  Has an anterior and posterior wall and a floor and the posterior wall can't be checked
  Examine:
  i. forehead, root of nose, orbital margins and contents
  ii. swelling, redness, fistula, proptosis and displacement of eye balls

iii. tenderness by pressure or percuss with a finger on the anterior wall above the part of eyebrow
iv. tenderness by pressing upwards on its floor above the medial canthus *(dhingra 386 fig. 74.11)*
v. nose by anterior and posterior rhinoscopy to see any discharge from middle meatus (neoplasm)

- Ethmoid sinuses
  Is in 2 groups, anterior and posterior. The anterior drains into the middle turbinate and the posterior drains above it
  Examine:
  i. orbit, upper and lower lid, root of nose, eye ball and vision
  ii. tenderness by pressure on the medial wall of the orbit just behind the root of nose (tender in acute ethmoiditis)
  iii. nose by anterior rhinoscopy which may reveal pus, polyp or growth in the middle meatus (anterior group of sinuses) or between the middle turbinate and septum (posterior group)
  iv. nose by posterior rhinoscopy may reveal pus or growth below or above the middle turbinate
- Sphenoid sinus
  Can't be seen except in atrophic rhinitis or marked septum deviation
  Opens in the sphenoethmoidal recess
  i. Anterior rhinoscopy: olfactory fissure near the roof of the nose may show discharge, crusts, polyp or growth
  ii. Posterior rhinoscopy: pus in the nasopharynx or choana above the middle or superior turbinate. Growth or polyp

d) Examination of vestibule

- stabilize the head with your **right** hand
- use the thumb of the left hand to examine by lifting the tip of the nose gently

- look for any furuncles, fissures(chronic rhinitis), crusting, growths, dislocated caudal end of septum and tumors (cyst, papilloma or carcinoma)

6. **FUNCTIONAL ASSESSMENT OF NOSE**

- test patency
    1. spatula test: place a clean tongue depressor under the nose and watch it fog
    2. cotton wool test: place cotton wool under nose and watch it move
- test sense of smell
  Ask the patient to close both eyes and hold a solution (clove oil, peppermint, coffee, essence of rose) under his nose, ask him to identify it. Test each nostril separately.

7. INTERNAL EXAMINATION/ ANTERIOR RHINOSCOPY (with instruments)

a) Inspection

- hold the nasal speculum in your left hand and insert it in the nose while its closed
- clockwise or counterclockwise inspect:
    - **i.** nasal passage: narrow (septal deviation, hypertrophy of turbinates, growth), wide (atrophic rhinitis)
    - **ii.** septum: deviation, spur, ulcer, perforation, swelling (hematoma or abscess), growth (rhinosporidiosis, hemangioma)
    - **iii.** floor: secretions, defect (cleft palate, fistula), swelling (dental cyst), neoplasm (hemangioma), granulations (foreign bodies or osteitis)
    - **iv.** roof: growth, atrophic rhinitis

v. lateral wall (inferior and middle turbinates and meatuses):
1. Color of mucosa:
   Congested in inflammation
   Pale in allergy
2. Size of turbinate:
   Enlarged and swollen: hypertrophic rhinitis
   Small and rudimentary: atrophic rhinitis
3. Discharge: from the middle meatus indicates infection of maxillary, frontal or anterior ethmoid sinuses
   Discharge above the middle meatus indicates infection of posterior ethmoid or sphenoid sinuses
4. Mass: polyp, rhinosporidiosis, carcinoma
   Check the site, consistency, mobility and sensitivity of the mass with a probe (probe test)

- if a growth is found:
  (i) blow out nose in a street fashion
  (ii) probe test: before starting make sure it does not pain the patient i.e. no tenderness is present; then with a probe check the consistency of the growth and whether it bleeds on touching
  (iii) vasoconstrictor test: vasoconstrictor spray is used to see if the growth vasoconstricts

8. TRANSILLUMINATION

a) Maxillary Sinus

Normal: place a light source in the mouth and close the lips to see a crescent of light in the inferior fornix and glow in the pupils equally bright on both sides

In the presence of pus, thickened mucosa or neoplasm: affected side doesn't transmit light

b) Frontal Sinus

Place the light source in the supermedial angle of the orbit and see light transmit through anterior wall of the sinus

9. EXAMINATION OF ASSOCIATED STRUCTURES

a) Oral exam: tongue, buccal mucosa, palette, teeth (percus), gag reflex

b) Posterior rhinoscopy: warm the curved mirror and bring it to the back of the uvula to see (*dhingra pg 385 fig 74.8*):

i. posterior ends of turbinates
ii. opening of Eustachian tube
iii. adenoids
iv. posterior border of nasal septum
v. fossa of rosenmuller
vi. torus tubarius
vii. upper surface of soft palate

The following abnormalities may be found:

i. choanal polyp or atresia
ii. hypertrophy of posterior end of inferior turbinate
iii. discharge in the middle meatus

c) Lamina papyracea: wall between ethmoid and eyes

d) Eyes: check displacement, acuity, movement (move finger in a "I-I-I" manner), field of vision and perform fundoscopy

10. EXAMINATION OF CRANIEL NERVES

2nd= optic: checked while checking visual acuity

3rd= occulomotor : checked with eye movement (H-I)

4th= trochlear : checked with eye movement (H-I)

5th= trigeminal: working muscles of mastication and sensation on the face

6th= abducent: checked with eye movement (H-I)

9th= glossopharyngeal: afferent for gag reflex

10th= vagus: efferent for gag reflex

12th=hypoglossal: movement of tongue

11. NECK EXAMINATION

a. inspection

- **skin**
- **swelling**
- **widening**
- **displacement**
- **Maneuvers**
  - **Protrude tongue**
  - **Swallow**
  - **Valsalva**
  - **cough**

b. palpation

i. skin

- **temperature**
- **fixity**
- **thickening**
- **tenderness**
- **fluctuation**
- **crepitation**

ii. cartilages

- **Laryngeal crepitations**
- **tracheal deviation**
- **tenderness**
- **mobility**
- **abnormality**

iii. **glands**
- **thyroid**
- **submandibular**
- **parotid**

iv. **lymph nodes**
- Stand at the back of the patient with his neck slightly flexed. Look for:
  - location of nodes
  - number of nodes
  - size
  - consistency:
    - metastatic nodes are hard
    - lymphoma nodes are firm and rubbery
    - heperstatic nodes are soft
    - metastatic melanoma nodes are soft
  - discrete or matted nodes
  - inflammatory nodes are tender
  - fixity to overlying skin

a) Superficial lymph nodes

- external jugular chain: superficial to sternocledomastoid

b) Deep palpation

- submental
- submandibular
- parotid
- facial
- postauricular
- occipital
- upper, middle and lower deep cervical
- spinal accessory chain
- transverse cervical chain

- anterior jugular chain
- juxtavisceral chain: prelaryngeal, pretracheal, Paratracheal

Note: detail on neck in dhingra pg 392-403

c. auscultation

- **bruit**

12. REDRAPE AND THANK THE PATIENT

EAR EXAMINATION

STEPS 1-4 ARE THE SAME AS NOSE EXAM

5. ASSERTAIN THE BETTER EAR

Start with the diseased ear

Note: In principle both ears should be examined but due to lack of time during ospe examine the diseased ear first

6. EXTERNAL EXAMINATION

a) Inspection

- skin
  1. color
  2. scars
  3. Sinuses
  4. growth
- cartilaginous framework of pinna:
  1. size: microtia, macrotia
  2. shape: abnormalities of contour, cauliflower ear
  3. position: bar ear
  4. redness: furuncle or abscess
  5. swelling: hematoma, abscess
  6. vesicles in concha and retroauricular groove: herpes zoster
  7. scars: trauma or operation
  8. ulceration or neoplasm
- Look around the pinna for any :
  1. swellings: mastoid or zygomatic abscess, neoplasm or lymph nodes
  2. sinuses: preauricular sinus
  3. scars: endaural or postaural scars due to previous operations
- mastoid:

i. swelling: abscess or enlarged nodes
ii. obliteration of retroauricular groove: furuncle
iii. fistula: burst abscess
iv. scar: previous operation

b) Palpation

- pinna:
  i. see both lateral and medial surfaces
  ii. pull the pinna to see inflammation
  iii. raised temperature: perichondritis or abscess
  iv. thickness of tissue: perichondritis
  v. fluctuation: seroma or abscess
  vi. tenderness
  vii. movement of pinna is painful in furunculosis of external canal
- mastoid:
  i. normal mastoid surface has irregularities that are ironed out and the surface feels smooth in periosteal inflammation and subperiosteal abscess
  ii. tenderness: mastoiditis
  This is elicited at 3 sites:
  1. over the antrum (just above and behind the meatus)
  2. over the tip
  3. over the area between the tip and the antrum
- tragus

c) External auditory canal:

- examine without speculum
  i. pull pinna upwards and backwards and pull tragus forwards to spread open the meatus
  ii. size of meatus: narrow or wide
  iii. contents of lumen: wax, debris, discharge or polyp
  iv. swelling of its wall: furuncle or neoplasm

- examine with speculum (part of internal exam)
    i. use the largest speculum that can easily enter the canal
    ii. wax, debris, discharge, polyp granulations, exotosis, benign or malignant neoplasm, sagging of posterosuperior area (coalescent mastoiditis)

7. INTERNAL EXAMINATION

Includes examination of external auditory canal (with speculum) and tympanic membrane

Done with 3 instruments:

1. aural speculum
2. otoscope
3. pneumatic otoscope

a) Tympanic membrane

- Normal: pearly white, Semitransparent and Obliquely set at medial end of meatus.
- Both pars tensa and flaccida should be examined
- color:
    i. red and congested: acute otitis media
    ii. bluish: secretory otitis media or haemotympanum
    iii. chalky plaque: tympanosclerosis
- position:
    (i) retracting:
        1. general retraction: tubal occlusion
        2. retraction pockets: seen in attic or posterosuperior region and may collect epithelial flakes
        3. adhesive otitis media: tympanic membrane very thin, deeply retracted and fixed to promontory
    (ii) bulging: acute otitis media, haemotympanum or neoplasm of middle ear that has not yet perforated the drum
- surface of tympanic membrane:

(i) vesicles or bullae: herpes zoster and myringitis bullosa
(ii) perforation: acute or chronic otitis media
1. central perforation (in pars tensa): small, medium, total or subtotal
2. attic perforation (in pars flacida)
3. marginal perforation (in the periphery involving annulus)

- mobility:
  Tested by Siegles's speculum
  Normal tympanic membrane is mobile
  Restricted mobility seen in the presence of fluid or adhesions in middle ear
  Hypermobility in atrophic section
- polyp
- granulations
- cholesteatoma

Scenarios

- discharge: note color, quantity/amount, consistency, smell and character
- mass: on probing does it bleed or hurt and consistency of mass
- Perforation: site (ant, post, sup, inf), size, margins (recent have jagged edged and old ones have smooth edges), mucous membrane of middle ear and any in-growth of squamous epithelium from the edges of the perforation.

8. EXAMINE THE OTHER EAR

Same steps

9. TMJ

10. POSTERIOR RHINOSCOPY

Same procedure as described in nose. Used here to examine the Eustachian tube

Note: function of the Eustachian tube can be tested by the valsalva maneuver; if a perforation is present air can be felt to escape from the ear

11. FUNCTIONAL EXAMINATION

Tests of cranial nerves

a) **Facial nerve**:

- tested through frowning of forehead, closing eyes and whistling or showing teeth and also through taste sensations

- Paralysis of facial nerve may be present with acute or chronic supurative otitis media, herpes zoster otitis, malignant otitis externa, tumors of middle or external ear and trauma. Upper and lower motor lesions

b) **vestibulocochlear nerve**:

- **cochlear tests/ auditory tests**
  - (i) Voice test/ whisper test: whisper near the patient's ear "ap mujhe sun saktay hain?"
  - (ii) finger friction test: rub fingers near the ear
  - (iii) tuning fork tests:
    1. rinne test
    2. weber test
    3. schwabach test
    4. absolute bone conduction test
- **vestibular tests** *(dhingra 47)*
  - i. spontaneous nystagmus
  - ii. positional tests
    1. Romberg test
    2. Sharpened Romberg test

3. Gait and turning
4. Dix Hallpike maneuvers (benign proximal positional vertigo)

iii. cerebellar tests

1. finger nose test: asynergia
2. rapid supination pronation of hand: adiadokinesia
3. rebound phenomenon
4. midline disease of cerebellum causes:
   Wide base gait
   Falling in any direction
   Inability to make sudden turns while walking
   Truncal ataxia
5. nystagmus is cerebellar diseases:
   Gaze evoked nystagmus
   Rebound nystagmus
   Abnormal optokinetic nystagmus

Note: dhingra classifies vestibular tests as clinical (all mentioned above) and laboratory (caloric, electronystagmography, optokinetic, rotation, galvanic, posturography)

12. NECK EXAM
13. REDRAPE AND THANK THE PATIENT

THROAT EXAMINATION

STEPS 1-4 ARE THE SAME AS NOSE EXAM

5. EXAMINATION OF ORAL CAVITY

a) Inspection

First inspect without instruments

- lips: swelling vesicles, scars, ulcers, crusts, unilateral or bilateral clefts
- buccal mucosa:

i. change in color
ii. ulcerations, vesicles or bullae: pemphigus
iii. white stria: lichen planus
iv. blanched appearance with submucosal scars: submucous fibrosis
v. leukoplakia
vi. erythroplakia
vii. pigmentation
viii. atrophic change
ix. swelling or growth
x. opening of parotid duct opposite upper 2nd molar tooth may be red, swollen with secretions at massage of parotid glan: viral or suppurative parotitis

- teeth and gums
  i. red and swollen gums: gingivitis
  ii. ulcerated gums covered with membrane: viral ulcers or vincent's infection
  iii. hyperplasia: pregnancy and dilantin therapy
  iv. growths: benign or malignant neoplasms
  v. loose teeth: maxillar or mandibular growth, periodontitis
  vi. carious infected tooth: cause of maxillary sinusitis if upper and ludwig's angina if lower
  vii. malocclusion: fractures of mandible or of teeth, abnormalities in TMJ

- hard palate
  i. cleft palate
  ii. oronasal fistula: trauma or syphilis
  iii. high arched palate: mouth breathers
  iv. bulge: tumors of palate, nose or antrum
  v. bony growth in midline: torus palatines
  vi. Mass or ulcer: cancer

- tongue: ask the patent “zabaan bahar nikaalain, taaloo ko lagain, gaal ko lagain, dosray gaal ko”; examine the tip, dorsum, lateral borders and undersurface
    i. large size: macroglossia, haemangioma, lymphangioma, cretinism, edema and abscess
    ii. inability to protrude: congenital ankyloglossia, painful ulcer, abscess, cancer of tongue or floor of mouth
    iii. deviation on protrusion: paralysis of CN 12
    iv. bald tongue: Fe deficiency anemia, median rhomboid glossitis, geographical tongue
    v. fissures: melkersson’s syndrome, syphilitic, a single non healing fissure may be malignant
    vi. ulcers: aphthous traumatic (jagged tooth or denture), malignant, syphilitic, tubercular
    vii. white thick patch or plaque: leukoplakia
    viii. proliferative growth: malignancy

- floor of mouth: the lateral gutters are better examined with 2 tongue depressors, one retracting the tongue and the other the cheek
  the submandibular ducts are seen as raised papillae on either side of the frenulum
    i. short frenulum: ankyloglossia (tongue tied)
    ii. scar: trauma or corrosive burn
    iii. ulcer: trauma, erosion of stone in submandibular duct, aphthous ulcer, malignancy
    iv. swelling: ranula, sublingual dermoid, calculus of submandibular duct, benign or malignant tumors, ludwig’s angina

Now inspect the same structures with a tongue depressor and include

- soft palate

- tonsils
- gag reflex
- retromolar trigone: done with 2 tongue depressors to look for any inflammation due to impaction of last molar tooth or occult malignancies

b) Palpation (with gloves)

- evert lips to see the cutaneous and mucosal surface and the vermilion border
- single handed: lesions of tongue, cheek, lip and palate
- bimanual palpation: floor of mouth (to differentiate swelling of submandibular salivary gland from submandibular lymph nodes)

6. POSTERIOR RHINOSCOPY

Can be done after inspection for convenience

7. IDL EAXMINATION (indirect laryngeoscopy)

Us a laryngeal mirror and hold it firmly against the uvula soft palate

a) supraglottis

- lumen: stricture
- mucosa: ulcer
- mass or growth

b) glottis

- vocal chords
    i. appearance
    ii. position
    iii. Movement:
    take deep inspiration (abduction of chords)
    say Aa (adduction of chords)
    sae Eee (adduction and tension in chords)

iv. voice production, breathing and cough

- mucosa
- mass/ growth

c) subglottis: same as supraglottis

8. DETAILED NECK EXAM

a. inspection
- **skin-** color of skin: redness seen in abscess and perichondritis
- **Swelling-** extension of growth or enlarged lymph nodes
- **widening**
- **displacement-**trauma or neoplasm
- **surgical emphysema**: accidental or surgical trauma
- **Maneuvers**
    - **Protrude tongue**
    - **Swallow**
    - **Valsalva**
    - **cough**

b. palpation

i. skin
- temperature
- fixity
- thickening
- tenderness
- fluctuation
- crepitation

ii. cartilages
- Laryngeal crepitus moving of larynx from side to side with a grating sound
  lost due to postcricoid carcinoma
- tracheal deviation

- tenderness
- mobility
- abnormality

iii. glands

- **thyroid**
- **submandibular**
- **parotid**

iv. lymph nodes

- Stand at the back of the patient with his neck slightly flexed. Look for:
    - location of nodes
    - number of nodes
    - size
    - consistency:
        - metastatic nodes are hard
        - lymphoma nodes are firm and rubbery
        - hyperplastic nodes are soft
    - discrete or matted nodes
    - inflammatory nodes are tender
    - fixity to overlying skin

a) Superficial lymph nodes

- external jugular chain: superficial to sternocledomastoid

b) Deep palpation

- submental
- submandibular
- parotid
- facial
- postauricular
- occipital
- upper, middle and lower deep cervical

- spinal accessory chain
- transverse cervical chain
- anterior jugular chain
- juxtavisceral chain: prelaryngeal, pretracheal, Paratracheal

Note: detail on neck in dhingra pg 392-403

9. FUNCTIONAL ASSESMENT

a) Taste: sweet, sour, bitter (chorda tympani)

b) Breathing (done in IDL)

c) Voice (done in IDL)

- quality: powerful/weak
- manner of production: hypo/hyper
- hoarsness: present/absent
- Response :cough/yawning

10. CRANIAL NERVES

9th and 10th in gag reflex

11th in shrugging shoulders

11. REDRAPE AND THANK THE PATIENT

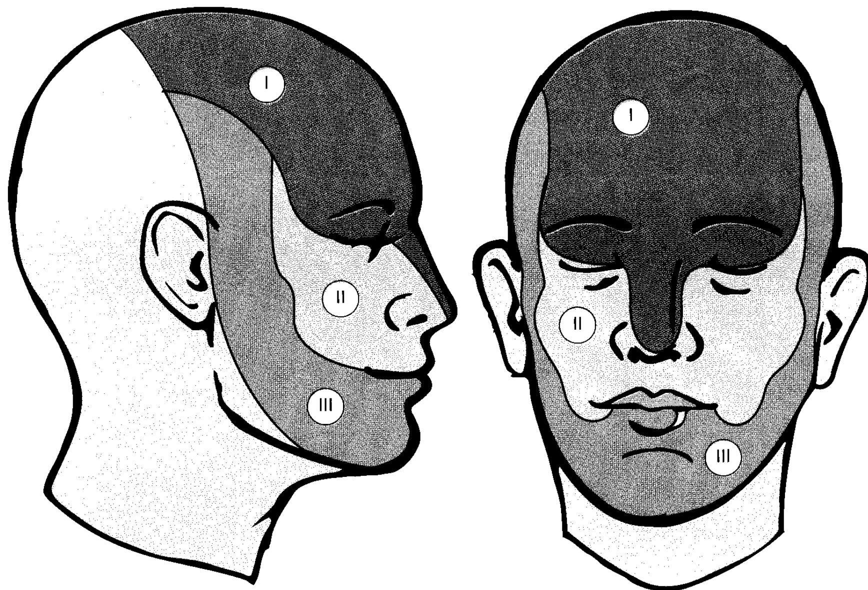
CRANIAL NERVES

Nerve	Function	How to test
I. olfactory	olfaction	with an odorous substance

II. optic	vision	vision chart
III. occulomotor	most eye muscles	follow the moving finger
IV. trochlear	superior oblique	look down at the nose
V. trigeminal	facial sensation	touch the face
	muscles of mastication	clench the teeth
VI. abducent	lateral rectus	look to the side
VII. facial	facial expression	smile, raise the eyebrows
	taste	sugar or salt
VIII. vestibulocochlear	hearing	tuning fork
	balance	look for vertigo
IX. glossopharyngeal	pharynx sensation	gag reflex
X. vagus	muscles of larynx and pharynx, parasymp.	check for hoarseness, open wide and say "AH"
XI. accesory	trapezius and sternocleidomastoid	test shoulder raise or turning the head
XII. hypoglossal	tongue muscles	stick out the tongue

V. Trigeminal Nerve (Mixed)

The motor fibers supply muscles of mastication (chewing), such as the temporalis and the masseter. The sensory fibers convey pain, temperature, touch, and pressure information from the eye, face, nasal and oral mucosa, gums, teeth, and anterior two-thirds of the tongue.The motor function may be tested by placing your fingertips on the temporalis muscles at each temple of the subject and asking the subject to clench his or her teeth several times. Compare the strength of muscle contraction on each side. Test the strength of masseter muscles using the same technique. The masseter can be palpated just above and to the front of the angle of the lower jaw. Check the strength of jaw closure by asking the subject to grip a tongue depressor with his or her teeth on each side while you try to extract the depressor. Strength of closure should be bilaterally good. Ask the subject to open his or her mouth. Note any deviation of the jaw to the right or left. Ask the subject to move the lower jaw side to side to assess medial and lateral pterygoid muscle function.



Corneal reflexes: long thin strand of cotton

Test the areas of the skin on each side of the midline supplied by the three divisions of the trigeminal nerve for their sensitivity to light touch (cotton ball) and pain (pin prick).

VII. Facial Nerve (Mixed)

The motor fibers innervate muscles of facial expression, and parasympathetic fibers stimulate salivary glands. Sensory fibers convey taste information from the anterior two-thirds of the tongue

Test: show teeth and smile, lift the eyebrows, frown, and close the eyes tightly. All facial movements should be equal bilaterally.

Peripheral facial paralysis (Bell's palsy) on the side of the lesion: the affected individual will be unable to close the eye on that side, wrinkle his or her forehead, or show teeth, loss of muscle tone on the side of the lesion allows the corner of the mouth to droop.

Test taste using a sugar or salt solution. Place a few drops on half of the anterior two-thirds of the protruded tongue and instruct the subject to keep the tongue out until he or she has tasted the substance. Test each side of the tongue separately

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