Table 11-8 Classification of Voice/Speech Impairment

	Class 1 0%-14% Voice/ Speech Impairment	Class 2 15%-34% Voice/ Speech Impairment	Class 3 35%-59% Voice/ Speech Impairment	Class 4 60%-84% Voice/ Speech Impairment	Class 5 85%-100% Voice/ Speech Impairment
Audibility	Can produce speech of an intensity sufficient for *most* needs of everyday speech, although this sometimes may require effort and occasionally may be beyond individual's capacity	Can produce speech of an intensity sufficient for *many* needs of everyday speech and is usually heard under average conditions; however, may have difficulty being heard in noisy places—such as cars, buses, trains, train stations, or restaurants	Can produce speech of an intensity sufficient for *some* needs of everyday speech such as close conversation; however, has considerable difficulty at a distance or in noisy places—such as cars, buses, trains, train stations, or restaurants—because the voice tires easily and tends to become inaudible after a few seconds	Can produce speech of an intensity sufficient for a *few* needs of everyday speech, but can barely be heard by a close listener or over the telephone and may be able to whisper audibly but with no louder voice	Can produce speech of an intensity sufficient for *no* needs of everyday speech
Intelligibility	Can perform *most* articulatory acts necessary for everyday speech, but may occasionally be asked to repeat and find it difficult or impossible to produce some phonetic units	Can perform *many* articulatory acts necessary for everyday speech and be understood by a stranger, but may have numerous inaccuracies and sometimes appears to have difficulty articulating	Can perform *some* articulatory acts necessary for everyday speech and can usually converse with family and friends, but may be understood by strangers only with difficulty and often may be asked to repeat	Can perform a *few* articulatory acts necessary for everyday speech, can produce some phonetic units, and may have approximations for a few words such as names of own family members, but is unintelligible out of context	Can perform *no* articulatory acts necessary for everyday speech
Functional Efficiency	Can meet *most* demands of articulation and phonation for everyday speech with adequate speed and ease, but occasionally may hesitate or speak slowly	Can meet *many* demands of articulation and phonation for everyday speech with adequate speed and ease, but sometimes speaks with difficulty and speech may be discontinuous, interrupted, hesitant, or slow	Can meet *some* demands of articulation and phonation for everyday speech with adequate speed and ease, but can sustain consecutive speech only for brief periods and may give the impression of being easily fatigued	Can meet a *few* demands of articulation and phonation for everyday speech with adequate speed and ease (such as single words or short phrases), but cannot maintain uninterrupted speech flow; speech is labored and rate is impractically slow	Can meet *no* demands of articulation and phonation for everyday speech with adequate speed and ease

For voice and/or speech impairments, the classifications in Table 11-8 and Table 11-9 should be used. Note that the impairment ratings for speech and/or voice impairments are not evaluated separately. The degree of impairment of speech and/or voice is equivalent to the greatest percentage of impairment recorded in any one of the three sections (audibility, intelligibility, or functional efficiency) of the classification chart (Table 11-8).

Table 11-9 Voice/Speech Impairment Related to Impairment of the Whole Person

% Voice/ Speech Impairment	% Impairment of the Whole Person	% Voice/ Speech Impairment	% Impairment of the Whole Person
0	0	50	18
5	2	55	19
10	4	60	21
15	5	65	23
20	7	70	24
25	9	75	26
30	10	80	28
35	12	85	30
40	14	90	32
45	16	95	33
		100	35

Class 1: 0%-14% Voice/Speech Impairment
Audibility: Can produce speech of an intensity sufficient for most needs of everyday speech, although this sometimes may require effort and occasionally may be beyond individual's capacity
Intelligibility: Can perform most articulatory acts necessary for everyday speech, but may occasionally be asked to repeat and find it difficult or impossible to produce some phonetic units
Functional efficiency: Can meet most demands of articulation and phonation for everyday speech with adequate speed and ease, but occasionally may hesitate or speak slowly

Example 11-19
0% to 14% Voice/Speech Impairment

Subject: 47-year-old woman.

History: Professional operatic soprano and voice teacher; had sudden onset of dysphonia 1 year previously; diagnosis was vocal fold hemorrhage. Developed vocal fold mass secondary to hemorrhage. Gastroesophageal reflux. Five vocal fold surgeries for repeated vocal fold masses. Had operations to attempt to reduce vocal fold scar. Advised to undergo another surgical procedure that would implant fat into vocal fold.

Current Symptoms: Husky speaking voice; lowered pitch; oral dryness; postnasal drip. Unable to sing or perform professionally since vocal fold hemorrhage.

Physical Exam: Voice is mildly hoarse, mildly soft, and slightly breathy. Left vocal fold posthemorrhagic cyst, right vocal fold mass, left vocal fold scar, possible mild superior laryngeal nerve paresis, muscular tension dysphonia, and gastro-esophageal reflux disease on laryngeal examination by strobovideolaryngoscopy. Singing technique was very good and was able to correct minor technical deficiencies.

Clinical Studies: Mild decrease in maximum phonation time and air-conduction flow.

Diagnosis: Recurrent vocal fold hemorrhage and vocal fold scar. Intermittently uncontrolled gastroesophageal reflux disease. Obesity. Inability to regain singing voice she had prior to the vocal fold injury. Altered and diminished self-image.

Impairment Rating: 0% to 14% voice/speech impairment; 0% to 5% impairment of the whole person.

Comment: Afraid her career is over. Traumatic change in self-image. Unable to resume her living as an internationally known opera star. Resigned her teaching position in Europe and moved to the United States to receive necessary voice care. Voice is now of a sufficient intensity for most everyday speech needs. However, because of her emotional distress, loss of her previous occupation as an international opera star, and change in activities of daily living, an impairment rating is warranted.

Example 11-20
0% to 14% Voice/Speech Impairment

Subject: 58-year-old man.

History: Attorney; underwent thoracoscopic excision of mediastinal schwannoma 2 months previously. Postoperatively immediately developed hoarseness, breathiness, and dysphagia. Was diagnosed with bilateral vocal fold weakness. Underwent speech therapy but voice did not improve. Computed tomography (CT) scan of larynx 1 month later revealed dislocated arytenoid cartilage.

Current Symptoms: Hoarseness; breathiness; decreased volume; lower pitch; voice fatigue. Cannot effectively communicate with clients in courtroom.

Physical Exam: All symptoms were noted, but examination of head and neck was otherwise normal. Left arytenoid dislocation and left vocal fold paresis on strobovideolaryngoscopy. Sulcus vocalis.

Clinical Studies: Laryngeal electromyogram: left superior laryngeal nerve paresis with 50% decreased recruitment of left posterior cricoarytenoid and vocalis muscle and 70% decreased recruitment response of left cricothyroid muscle. Normal right superior laryngeal nerve function. Evidence of right recurrent laryngeal nerve paresis. CT scan of larynx: widening of left cricoarytenoid joint with anteromedial rotation of left arytenoid cartilage.

Diagnosis: Markedly decreased intensity, frequency range, and phonation time. All acoustic measurements were severely abnormal.

Impairment Rating: 0% to 14% voice/speech impairment; 0% to 5% impairment of the whole person.

Comment: Had surgical correction of arytenoid dislocation. After surgery his voice was nearly normal, with only slight voice breaks and slightly decreased volume.

Class 2 15%-34% Voice/Speech Impairment
Audibility: Can produce speech of an intensity sufficient for many needs of everyday speech and is usually heard under average conditions; however, may have difficulty being heard in noisy places—such as cars, buses, trains, train stations, or restaurants
Intelligibility: Can perform many articulatory acts necessary for everyday speech and be understood by a stranger, but may have numerous inaccuracies and sometimes appears to have difficulty articulating
Functional efficiency: Can meet many demands of articulation and phonation for everyday speech with adequate speed and ease, but sometimes speaks with difficulty and speech may be discontinuous, interrupted, hesitant, or slow

Example 11-21
15% to 34% Voice/Speech Impairment

Subject: 28-year-old man.

History: Rock-and-roll singer/songwriter; developed new onset of vocal difficulties while recording album 1 year previously. Had been singing and performing for 10 years with no prior vocal difficulties. Loss of midrange, decreased volume, breathiness, and hoarseness while singing. Diagnosed with left vocal fold polyp 3 months later. Underwent surgical excision of lesion 1 month after that. Treated for laryngopharyngeal reflux with usual medical therapy.

Current Symptoms: Breathiness; hoarseness; loss of vocal stamina; loss of volume; loss of lower range. Voice is worse in morning, with frequent throat-clearing and sensation of lump in throat.

Physical Exam: Right vocal fold mass, left vocal fold scar, reflux laryngitis, and neurolaryngologic asymmetries on strobovideolaryngoscopy. Excess tension in jaw and tongue, hoarseness, and decreased range while singing.

Clinical Studies: Laryngeal electromyogram: 20% decreased function of left superior laryngeal nerve. Abnormalities in electroglottogram (EGG), quasi-open quotient, air-conduction flow, minimal flow, maximum flow rate, S/Z ratio, maximum phonation time, and acoustic measurements.

Diagnosis: Persistent vocal fold mass and vocal fold scar after recent vocal fold surgery; superior laryngeal nerve paresis; laryngopharyngeal reflux disease.

Impairment Rating: 15% to 34% voice/speech impairment; 5% to 12% impairment of the whole person.

Comment: Class 2 on the basis of audibility and activities of daily living, not including work. Unhappy with his vocal progress. Totally disabled as a professional singer because of this work-related injury.

Example 11-22
15% to 34% Voice/Speech Impairment

Subject: 46-year-old man.

History: Voice teacher/singer; involved in motor vehicle collision 4 months ago in which he screamed loudly and seat belt tightened across anterior part of neck. Experienced immediate hoarseness and throat pain. Seen for treatment of sore throat 3 days later. Negative cultures. Attempted to give two 30-minute performances 3 days after collision. Voice became hoarse, strained, and fatigued quickly. Experienced problems with pitch control. Has not performed or sung since. Does not smoke or drink. Had direct laryngoscopy and biopsy, flexible bronchoscopy, and rigid esophagoscopy.

Current Symptoms: Hoarseness; voice fatigue; pain. Unable to sing or speak extensively. Weak, strained voice. Unable to project voice.

Physical Exam: Gastroesophageal reflux disease, height disparity of vocal folds, and white, irregular, firm, vocal fold mass on laryngeal exam by strobovideolaryngoscopy.

Clinical Studies: Laryngeal electromyogram: left superior laryngeal nerve paresis with 50% decreased recruitment response and left recurrent laryngeal nerve paresis with 30% decreased recruitment, both from vocalis and posterior cricoarytenoid muscles. Objective voice measures: mild acoustic abnormalities including increased mean flow rate and decreased maximum phonation time. Laryngeal CT scan: normal cricoarytenoid joint and no focal lesions. Normal magnetic resonance imaging (MRI) scan with gadolinium of larynx.

Diagnosis: Infiltrating keratinizing squamous cell carcinoma of left vocal fold with evidence of focal chronic inflammatory infiltrate. Lesion was classified T2 N0 M0. Has undergone radiation therapy, reflux treatment, and voice therapy.

Impairment Rating: 15% to 34% voice/speech impairment; 5% to 12% impairment of the whole person.

Comment: May not be able to continue as a voice teacher and singer, with subsequent loss of income and life alteration. Will have to make frequent visits to physician for cancer surveillance, probably for life. Motor vehicle collision probably caused hemorrhage into previously asymptomatic cancerous tumor. Reflux was the only known risk factor in this nonsmoker. Voice became worse after surgery and radiation therapy.

Class 3 35%-59% Voice/Speech Impairment
Audibility: Can produce speech of an intensity sufficient for some needs of everyday speech such as close conversation; however, has considerable difficulty at a distance or in noisy places—such as cars, buses, trains, train stations, or restaurants—because the voice tires easily and tends to become inaudible after a few seconds
Intelligibility: Can perform some articulatory acts necessary for everyday speech and can usually converse with family and friends, but may be understood by strangers only with difficulty and often may be asked to repeat
Functional efficiency: Can meet some demands of articulation and phonation for everyday speech with adequate speed and ease, but can sustain consecutive speech only for brief periods and may give the impression of being easily fatigued

Example 11-23
35% to 59% Voice/Speech Impairment

Subject: 52-year-old woman.

History: Chronic hoarseness and dysphonia for 10 years. Gastroesophageal reflux disease for at least 10 years. Multiple laryngeal surgeries, including vocal fold polypectomy, microlaryngoscopy, excision of left vocal fold mass, and vaporization of laryngeal vocal fold varices. Initial improvement with voice therapy; deteriorated after heavy voice use in classroom. Developed recurrent vocal fold mass. Had vocal fold hemorrhage after yelling. Multiple bouts of acute laryngitis secondary to voice overuse. Recurrent vocal fold nodules that were initially treated with voice therapy. Experienced voice fatigue by Wednesday of each week. Developed severe upper respiratory infection that resulted in vocal fold hemorrhage. Vocal fold stiffness and scar secondary to recurrent vocal fold hemorrhages. Relatively asymptomatic for about a year. Thereafter had ongoing treatment for reflux disease and underwent voice therapy. Reflux disease became more problematic. Referred to gastroenterologist for problem with gastroesophageal reflux. Considered surgical treatment of reflux disease.

Current Symptoms: Recurrent hoarseness, despite strictly adhering to antireflux treatment and voice therapy modifications.

Physical Exam: Left vocal fold scar, new right vocal fold mass (probably a cyst), evidence of reflux laryngitis, and muscle-tension dysphonia on strobovideolaryngoscopy. Voice hoarse, soft, and strained.

Clinical Studies: Abnormal acoustic measures, including harmonic measures and harmonic to noise ratio.

Diagnosis: Vocal fold mass and scar; muscle-tension dysphonia; reflux laryngitis.

Impairment Rating: 35% to 59% voice/speech impairment; 12% to 21% impairment of the whole person.

Comment: Direct microlaryngoscopy and excision of right vocal fold mass; left vocal fold autologous fat injection and, possibly, fat implantation for treatment of scar recommended. Rated class 3 on basis of audibility.

Example 11-24
35% to 59% Voice/Speech Impairment

Subject: 40-year-old man.

History: Recurrent sinusitis and progressive hoarseness for 2 years. Voice worse after vocal fold "polypectomy" for leukoplakia. Had septoplasty and functional endoscopic sinus surgery. No complaint of nasal/sinus disease. Speaks about 14 hours a day over loud noise. Must talk loudly or yell frequently. Is regularly exposed to car fumes, asbestos, and aerosols. Does not smoke. Rarely drinks alcohol.

Current Symptoms: Constant hoarseness. Difficulty speaking, but without pain, by afternoon. Frequently clears throat. Complains of lump in throat.

Physical Exam: Leukoplakia on left vocal fold and stiffness of vibratory margin secondary to scar on strobovideolaryngoscopy. Erythema and edema of glottis consistent with gastroesophageal reflux disease. Improper speaking technique and significant muscle-tension dysphonia.

Clinical Studies: Laryngeal electromyogram: left superior laryngeal nerve paresis and muscle-tension dysphonia. No evidence of neuromuscular junction abnormalities. Severely abnormal harmonic to noise ratios, decreased intensity, decreased frequency range, and decreased phonation time.

Diagnosis: Vocal fold scar, leukoplakia (hyperkeratosis), muscle-tension dysphonia, and gastroesophageal reflux disease.

Impairment Rating: 35% to 59% voice/speech impairment; 12% to 21% impairment of the whole person.

Comment: Leukoplakia requires biopsy. Hoarseness caused by scarring from previous injury and from surgery is permanent.

Class 4 **60%-84% Voice/Speech Impairment**
Audibility: Can produce speech of an intensity sufficient for a few needs of everyday speech, but can barely be heard by a close listener or over the telephone and may be able to whisper audibly but with no louder voice
Intelligibility: Can perform a few articulatory acts necessary for everyday speech, can produce some phonetic units, and may have approximations for a few words such as names of own family members, but is unintelligible out of context
Functional efficiency: Can meet a few demands of articulation and phonation for everyday speech with adequate speed and ease (such as single words or short phrases), but cannot maintain uninterrupted speech flow; speech is labored and rate is impractically slow

Example 11-25
60% to 84% Voice/Speech Impairment

Subject: 40-year-old man.

History: Involved in motor vehicle collision 20 years previously. Sustained massive brain stem trauma and multiple injuries including fractured clavicle, shoulder, and hands. Was comatose for 8 weeks. Underwent tracheotomy and gastrostomy 3 days after collision. Left hemiparesis, cognitive deficits, memory loss, and "personality change." Completed occupational therapy, physical therapy, and speech and cognitive rehabilitation.

Current Symptoms: Unable to be heard on telephone; cannot carry on sustained conversation; cannot raise voice above soft whisper.

Physical Exam: Extremely breathy, soft voice. Halting speech pattern. Short phrasing. Can only count up to "eight" on one breath. Has left facial weakness, dysphagia, and chronic cough. Bilateral vocal fold immobility with patent but narrow airway on strobovideolaryngoscopy.

Clinical Studies: Laryngeal electromyogram: bilateral vocal fold paralysis. Severely short phonation times. All acoustic measures: highly abnormal.

Diagnosis: Bilateral vocal fold paralysis.

Impairment Rating: 60% to 84% impairment due to bilateral vocal fold paralysis; 21% to 30% whole person impairment. Combine with appropriate ratings due to other impairments to determine whole person impairment (see Combined Values Chart, p. 604).

Comment: Underwent voice therapy. Conservative, anterior vocal fold medializations. Cannot be heard in office setting or anywhere with background noise. Is dysfluent and has halting speech (often interpreted by others as intellectual deficits). Unable to use the telephone. Unable to carry on sustained conversation. Unlikely to ever regain voice he had prior to motor vehicle collision. Requires ongoing medical care (not only for voice) and will require multiple laryngeal surgical procedures for voice improvement. Is prone to aspiration pneumonia secondary to vocal fold paralysis. Requires ongoing voice therapy and voice-assistive devices.

Example 11-26
60% to 84% Voice/Speech Impairment

Subject: 42-year-old woman.

History: Taught elementary school 7 years previously. Experienced sudden onset of hoarseness 1 month after starting teaching. Continued to teach for several months with hoarseness before seeking medical attention. Otolaryngologist diagnosed vocal fold nodules and recommended resting voice for 4 days. She complied, but with no improvement in voice. Saw speech therapist weekly for 2 years with minimal voice improvement. Underwent excision of bilateral vocal fold masses. Voice improved until 6 months later, when recurrent hoarseness developed. Had recurrent vocal fold masses. Diagnosed with gastroesophageal reflux disease. Had surgery after aggressive medical treatment for reflux disease and after voice therapy. No improvement in appearance of vocal fold lesions. Had excisional biopsy for definitive pathology.

Current Symptoms: Constant hoarseness and voice fatigue. Unable to project voice well and unable to sing. Year-round allergy symptoms.

Physical Exam: Moderately hoarse and breathy voice. Broad-based, solid, white mass of right vocal fold and fibrotic mass of left vocal fold on strobovideolaryngoscopy. Arytenoid erythema and edema consistent with gastroesophageal reflux disease, bilateral superior surface varicosities, and scars on stroboscopy. No neuromuscular junction abnormalities were noted.

Clinical Studies: Laryngeal electromyogram: mild bilateral superior laryngeal nerve paresis. Decreased intensity, phonation time, harmonic to noise ratio, acoustic measures, and S/Z ratio.

Diagnosis: Adult-onset laryngeal papillomatosis.

Impairment Rating: 60% to 84% voice/speech impairment; 21% to 30% impairment of the whole person.

Comment: Required two subsequent laryngeal surgeries in attempt to eradicate disease and improve phonatory function. Requires ongoing surveillance by laryngologist for recurrence of papillomas and surveillance for development of laryngeal carcinoma. Requires ongoing voice therapy and treatment for reflux disease. Will require personal amplification system to help with vocal projection for job. Vocal prognosis is guarded.

Class 5 **85%-100% Voice/Speech Impairment**
Audibility: Can produce speech of an intensity sufficient for no needs of everyday speech
Intelligibility: Can perform no articulatory acts necessary for everyday speech
Functional efficiency: Can meet no demands of articulation and phonation for everyday speech with adequate speed and ease

Example 11-27
85% to 100% Voice/Speech Impairment

Subject: 38-year-old man.

History: Worked with rubber, plastics, and chemicals for 20 years (described as responsible for "everything that blows up"). Suffered inhalation injury from heavy exposure to vinyl chloride fumes due to reactor malfunction. Had microlaryngoscopy and excision of bilateral vocal fold polyps 1 year after inhalation injury. Voice improved after surgery; remained off work for 6 weeks after operation. Exposed to ammonia fumes 1 month after returning to work. Experienced immediate dyspnea and sudden and severe hoarseness. Required a second microlaryngoscopy and vocal fold polypectomy. Became aphonic after 3 days back at work. Required two vocal fold surgeries since initial injury. Undergoing psychological counseling for stress-related problems secondary to voice problems. Quit smoking.

Current Symptoms: Voice deterioration after using voice and after any exposure to fumes, perfume, smoke, or gasoline; hoarseness associated with shortness of breath; chronic sensation of lump in throat.

Physical Exam: Voice is harsh, hoarse, slightly breathy, and strained. Bilateral vocal fold scarring, decreased mucosal wave, hypervascularity, and mucosal irregularities on strobovideolaryngoscopy.

Clinical Studies: Marked abnormalities in harmonic to noise ratio, shimmer, and maximum flow rate.

Diagnosis: Mucosal vocal fold injury secondary to inhalation of noxious fumes, initially vinyl chloride. Airway hyperactivity that causes dysphonia and dyspnea.

Impairment Rating: 85% to 100% voice/speech impairment; 30% to 35% impairment of the whole person.

Comment: Third surgery is recommended. Vocal fold mucosa and voice quality have never returned to normal. Had progressive dysplastic vocal fold changes (leukoplakia) 5 years later. Would be rated class 3 on basis of audibility if in an environment (such as home) protected from fumes or pollution. However, in activities of daily living, has a class 5 impairment.

Example 11-28
85% to 100% Voice/Speech Impairment

Subject: 50-year-old man.

History: Had large endolaryngeal tumor without airway obstruction. Hoarseness for 1 year. Enlarging anterior neck mass for 2 weeks. Dysphagia and 4.5-kg (10-lb) weight loss over 2 months. Forty to 50 pack-year history of smoking. Moderately heavy alcohol user. Underwent total laryngectomy with radical neck dissection and excision of malignant laryngeal cutaneous fistula. Surgery was followed by radiation therapy. Underwent four esophageal dilatations and stomal revisions in preparation for Singer-Blom prosthesis after laryngectomy and radiation therapy. Had submental swelling that required full mouth dental extraction and alveoloplasty. Smokes through tracheostoma. Eats well; weight is stable. Has virtually no family to assist him in his care.

Current Symptoms: Unable to speak. Unable to develop esophageal speech or use electrolarynx. Remains totally aphonic.

Physical Exam: No evidence of cancer. Has very dense and deep scarring of neck musculature. Stoma appears epithelialized and open.

Clinical Studies: Four esophageal dilatations. Stoma remains open, but he has not been able to accommodate Singer-Blom prosthesis.

Diagnosis: Laryngeal cancer; laryngectomy.

Impairment Rating: 85% to 100% voice/speech impairment; 30% to 35% impairment of the whole person.

Comment: Altered self-image secondary to disfigurement from cancer, radical neck surgery, and tracheostomy. Unable to achieve speech with Singer-Blom assistive device or by alternative means. Lacks motivation and dexterity for use of assistive voicing devices due to chronic alcohol abuse.

11.5 Ear, Nose, Throat, and Related Structures Impairment Evaluation Summary

See Table 11-10 for an evaluation summary for the assessment of impairmnent of the ear, nose, throat, and related structures.

Table 11-10 Ear, Nose, Throat, and Related Structures Impairment Evaluation Summary

Disorder	History, Including Selected Relevant Symptoms	Examination Record	Assessment of Physical Function
General	Ear, nose, and throat symptoms (eg, hearing loss, dizziness, or vertigo) and general symptoms; impact of symptoms on function and ability to do daily activities; prognosis if change anticipated; review medical history and any resulting limitation of physical function	Comprehensive physical examination; detailed relevant system assessment	Data derived from relevant studies (eg, audiometry)
Hearing Impairment	Comprehensive history including family history, developmental history of trauma, noise, and drug exposure; surgical procedures; symptoms of imbalance (eg, unsteadiness or vertigo); ear-popping; history of tinnitus; age; associated metabolic and/or endocrine disorders	General physical examination; ear, nose, and throat examination; findings from pneumonotoscopy, tuning-fork tests, hearing tests, balance function tests, and radiographic tests; metabolic evaluation	Otologic examination on tuning-fork tests; tympanometry; behavioral, audiometry, and auditory brain (evoked) response tests; electrocochleography tests; electronystagmography; metabolic and endocrine studies as necessary
Vestibular Impairment	Discuss symptoms and antecedent events; determine associated symptoms (eg, nausea, vomiting, or tinnitus); review medications; trauma; disorders associated with dizziness	Complete physical examination findings; audiologic evaluation; balance tests; electronystagmogram; blood pressure; radiologic studies	Blood pressure tests; provocative maneuvers; audiometry; electronystagmogram tests; x-rays as appropriate
Structural Facial Impairment	Case history (including symptoms) relative to facial structure and integrity; relate to other organ systems (eg, skin, eye, alimentary tract, and upper airway); social acceptability	Description of comprehensive examination of head and neck, especially the face; cutaneous abnormalities; description of supporting structures of the face such as lips; record of eye examination; photographic records; radiologic records; records of psychosocial behavior	Consider data from relevant physical findings; assess cutaneous findings, structural abnormalities, and neurologic impairments
Facial Disfigurement	History of burns, trauma, or infection; dysplasia; social factors	Records of physical findings of face, head, and neck; neurologic studies; photographic records	Consider data from clinical examination of face and facial nerve studies; photographic studies
Impairment of Respiration (Air Passage Defects)	Medical history (especially respiratory function) related to upper airway, lower airway, and lungs; consider signs and symptoms of breathiness and dyspnea; limitations of exercise; sleep disorders; consider related systems (eg, pulmonary, cardiac, allergy, metabolic, neurologic, or psychological systems)	Data from examination of head and neck, especially nasal, oropharyngeal, and tracheobronchial airways; rhinometric studies; endoscopic findings; pulmonary function tests; radiologic findings; ultrasound studies	Examination of airway; rhinometry; endoscopy; pulmonary function tests; radiologic studies; ultrasound studies of airway

	Physical Findings	Diagnosis	Degree of Impairment
	Assessment of sequelae including end-organ damage and impairment	Record all pertinent diagnoses; note if they are at maximal medical improvement; if not, discuss under what conditions and when stability is expected	Criteria outlined in this chapter
	Assess relevant organs; external ear and middle ear functions; eustachian tube function; status of hearing by audiometry; status of electrophysiologic tests as applicable	Conductive, sensorineural, mixed, and functional hearing loss; tinnitus; Meniere's disease	See Table 11-5
	Signs of otitis media and head trauma; audiogram; auditory brain (evoked) response findings; electronystagmogram findings; evidence of cardiovascular, endocrine, metabolic, and/or ocular disorders	Otitis media; head trauma; drug side effects; vestibular neuronitis; seizure disorder; syncope; hyperventilation; benign positional vertigo; endolymphatic hydrops; CPA tumor Cardiovascular, endocrine, metabolic, functional, and/or ocular disorders	See Table 11-4
	Examine cutaneous aspects of face; examine supporting (structural) aspects of face, head, and neck; consider integrity and appearance of lips, nose, eyebrows, and eyelids; radiologic studies of head and neck; CT scans; MRI scans; assess related systems (eg, visual, cutaneous, respiratory, neurologic, and psychosocial)	Visible scars; abnormal pigmentation; depressed fracture of facial bones and/or nasal cartilage; mutilation of nose or ear; distortion of anatomic facial structure; notable facial distortion; loss of social acceptance	See Table 11-5
	Examine face; assess physical findings; perform facial nerve function tests; make photographic records	Facial nerve paresis or paralysis; deformity or loss of external ear or nose	See Table 11-5
	Partial obstruction of nose and/or oropharynx, larynx, trachea, or bronchi; complete obstruction of nose and/or nasopharynx; tracheotomy or tracheostomy	Air passage defect with no, mild, moderate, severe, or profound dyspnea; permanent tracheotomy or tracheostomy	See Table 11-6

Table 11-10 continued

Disorder	History, Including Selected Relevant Symptoms	Examination Record	Assessment of Physical Function
Impairment of Mastication and Deglutition	History and symptoms of mastication and/or deglutition difficulty; history of dietary habits and restrictions; history of burns or trauma; records of related systems (eg, gastrointestinal, neurologic, endocrine, or dental systems)	Comprehensive examination of nose and throat; records of temporomandibular joint function; results of speech articulation tests; esophageal function tests; endocrine studies; neurologic reports; assessment of pain if present; dental reports	Examination of nose, throat, and oropharynx; examination of temporomandibular joint function; x-rays of head and neck; swallowing studies; esophageal examination; esophageal studies; dental findings
Impairment of Olfaction and/or Taste	Ear, nose, and throat infections; head trauma; structural or foreign body nasal obstruction; nasal allergy; infections of nose and sinuses; history of head and neck tumors; drug use	Tests for odor identification; tests for taste identification; results of x-rays of head and neck; results of MRI and CT studies of head and neck; allergy tests	Subjective tests for odor identification; subjective tests for taste identification; electrical taste tests; x-rays of head and neck; MRI and CT studies of head; cranial nerve function tests; test for nasal allergens
Voice and Speech Impairment	History of general health and development; history of speech development and dysfluency; history of onset of speech and/or voice symptoms; history of surgery, trauma, infections, tumors, and treatment	Records of general medical examination; ear, nose, and throat examination; reports of hearing tests, neurologic evaluations, and pulmonary function studies; reports of laryngeal surgery and endocrine and metabolic evaluations	Records of general medical examination; examination of ears, nose, throat, and larynx; laryngoscopy; voice analysis; strobovideolaryngoscopy; speech analysis; pulmonary function tests; laryngeal electromyography

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	Physical Findings	Diagnosis	Degree of Impairment
	Abnormal temporomandibular joint function; pain (see Chapter 18); contributory dental conditions; gastroenterologic findings (see Chapter 6)	Temporomandibular joint disorder; pain (see Chapter 18); neurologic diagnoses (see Chapter 13); gastroenterologic diagnoses (see Chapter 6)	See Table 11-7
	Nasal obstruction due to mucosal edema, nasal polyps, septal or turbinate occlusion of airway, or nasal tumor; physical findings may be normal except for presenting symptom; surgery sequela	Nasal septal deviation; nasal airway occlusion by turbinate bone; allergic rhinitis; nasal polyps; sinusitis; foreign body in nose; traumatic anosmia; drug toxicity; dermoid encephalocele; meningocele; intracranial or other tumor	See Olfaction and Taste (Section 11.4c)
	Assess laryngeal structures; assess vocal cord function and articulators of oropharynx; assess palatal function; assess phonation, articulation, and speech intelligibility; consider esophageal speech; include assessment of respiratory, neurologic, and psychiatric findings when applicable	Pulmonary function disorder; phonatory disorder (eg, voice fatigue, weak voice, abnormal pitch, melodic variation, hoarseness, harshness, or breathiness); articulatory disorder; larynx or airway tumor; myasthenia gravis; esophageal speech	See Table 11-8

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