



The Accreditation Council for Graduate Medical Education



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Neurotology Milestones

The Milestones are designed only for use in evaluation of fellows in the context of their participation in ACGME-accredited fellowship programs. The Milestones provide a framework for the assessment of the development of the fellow in key dimensions of the elements of physician competence in a specialty or subspecialty. They neither represent the entirety of the dimensions of the six domains of physician competency, nor are they designed to be relevant in any other context.

Neurotology Milestones

Work Group

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American Board of Otolaryngology – Head and Neck Surgery

Review Committee for Otolaryngology – Head and Neck Surgery

Understanding Milestone Levels and Reporting

This document presents the Milestones, which programs use in a semi-annual review of fellow performance, and then report to the ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME Competencies organized in a developmental framework. The narrative descriptions are targets for fellow performance throughout their educational program.

Milestones are arranged into levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert fellow in the specialty or subspecialty. For each reporting period, the Clinical Competency Committee will review the completed evaluations to select the milestone levels that best describe each learner's current performance, abilities, and attributes for each subcompetency.

These levels *do not* correspond with post-graduate year of education. Depending on previous experience, a junior fellow may achieve higher levels early in his/her educational program just as a senior fellow may be at a lower level later in his/her educational program. There is no predetermined timing for a fellow to attain any particular level. Fellows may also regress in achievement of their milestones. This may happen for many reasons, such as over scoring in a previous review, a disjointed experience in a particular procedure, or a significant act by the fellow.

Selection of a level implies the fellow substantially demonstrates the milestones in that level, as well as those in lower levels (see the diagram on page vi).

Additional Notes

Level 4 is designed as a graduation *goal* but *does not* represent a graduation *requirement*. Making decisions about readiness for graduation and unsupervised practice is the purview of the program director. Furthermore, Milestones 2.0 include revisions and changes that preclude using Milestones as a sole assessment in high-stakes decisions (i.e., determination of eligibility for certification or credentialing). Level 5 is designed to represent an expert fellow whose achievements in a subcompetency are greater than the expectation. Milestones are primarily designed for formative, developmental purposes to support continuous quality improvement for individual learners, education programs, and the specialty. The ACGME and its partners will continue to evaluate and perform research on the Milestones to assess their impact and value.

Examples are provided for some milestones within this document. Please note: the examples are not the required element or outcome; they are provided as a way to share the intent of the element.

Some milestone descriptions include statements about performing independently. These activities must occur in conformity to ACGME supervision guidelines as described in the Program Requirements, as well as to institutional and program policies. For example, a fellow who performs a procedure independently must, at a minimum, be supervised through oversight.

A Supplemental Guide is also available to provide the intent of each subcompetency, examples for each level, assessment methods or tools, and other available resources. The Supplemental Guide, like examples contained within the Milestones, is designed only to assist the program director and Clinical Competency Committee, and is not meant to demonstrate any required element or outcome.

Supplemental Guides and other resources are available on the Milestones page of each specialty section of the ACGME website. On www.acgme.org, choose the applicable specialty under the "Specialties" menu, then select the "Milestones" link in the lower navigation bar.

The diagram below presents an example set of milestones for one sub-competency in the same format as the ACGME Report Worksheet. For each reporting period, a fellow's performance on the milestones for each sub-competency will be indicated by selecting the level of milestones that best describes that fellow's performance in relation to those milestones.

Patient Care 1: Internal Auditory Canal (IAC) and Cerebellopontine Angle (CPA) Lesions				
Level 1	Level 2	Level 3	Level 4	Level 5
Performs a history and physical examination in patients with IAC and CPA pathology	Formulates a diagnostic and treatment plan for a patient with IAC and CPA	Explains the risks and benefits of treatment plans for IAC and CPA	Adapts standard treatment plans and techniques to atypical circumstances	
Assists in the initial approach to the temporal bone (e.g., soft tissue dissection, patient positioning incision planning)	Assists in approach to tumor exposure (e.g., labyrinthectomy, elevation of dura or decompression of sigmoid sinus)	Performs surgical approach up to tumor exposure and cranial nerve dissection identification of IAC	Performs complete tumor exposure and begins tumor dissection	Performs significant amount of tumor dissection including dissection along facial nerve
Recognizes common complications of surgery of the IAC/CPA	Initiates work-up of common complications of surgery of the IAC/CPA	Manages common complications and recognizes uncommon/infrequent complications of surgery of the IAC/CPA	Manages uncommon/ infrequent complications of surgery of the IAC/CPA	Serves as a peer resource for managing uncommon/infrequent complications of surgery of the IAC/CPA
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Comments:				completed Level 1 ssessable
Selecting a response box in the middle of a level implies that milestones in that level and in lower levels have been substantially demonstrated.		between levels in		

Level 1	Level 2	Level 3	Level 4	Level 5
Performs a history and physical examination in patients with IAC and CPA pathology	Formulates a diagnostic and treatment plan for a patient with IAC and CPA lesions	Explains the risks and benefits of treatment plans for IAC and CPA lesions	Adapts standard treatment plans and techniques to atypical circumstances	
Assists in the initial approach to the temporal bone (e.g., soft tissue dissection, patient positioning incision planning)	Assists in approach to tumor exposure (e.g., labyrinthectomy, elevation of dura or decompression of sigmoid sinus)	Performs surgical approach to tumor exposure and cranial nerve dissection identification of IAC lesions	Performs complete tumor exposure and begins tumor dissection	Performs significant amount of tumor dissection including dissection along facial nerve
Recognizes common complications of surgery of the IAC/CPA	Initiates work-up of common complications of surgery of the IAC/CPA	Manages common complications and recognizes uncommon/infrequent complications of surgery of the IAC/CPA	Manages uncommon/ infrequent complications of surgery of the IAC/CPA	Serves as a peer resource for managing uncommon/infrequent complications of surgery of the IAC/CPA

Patient Care 2: Lateral Skull Base Tumors				
Level 1	Level 2	Level 3	Level 4	Level 5
Performs a history and physical examination in patients with lateral skull base tumors	Formulates a diagnostic and treatment plan for a patient with lateral skull base tumors	Explains the risks and benefits of treatment plans for lateral skull base tumors	Adapts standard treatment plans and techniques to atypical circumstances	
Assists in the initial approach to the temporal bone (e.g., soft tissue dissection, patient positioning incision planning)	Assists in approach to tumor exposure	Performs surgical approach up to tumor exposure and identification of critical structures	Performs complete tumor exposure and begins tumor dissection	Performs tumor dissection
Recognizes common complications	Initiates work-up of common complications	Manages common complications and recognizes uncommon/infrequent complications	Manages uncommon/ infrequent complications	Serves as a peer resource for managing uncommon/infrequent complications
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 3: Facial Nerve Disorders				
Level 1	Level 2	Level 3	Level 4	Level 5
Performs a history and physical examination in patients with facial nerve disorders	Formulates a diagnostic and treatment plan for patients with facial nerve disorders, including neurophysiologic testing	Explains the risks and benefits of treatment plans for facial nerve disorders	Adapts standard treatment plans and techniques to atypical circumstances	Develops innovative techniques for management of facial nerve disorders; leads a multidisciplinary conference on facial nerve disorders
Provides routine peri- operative care for patients with facial nerve disorders, including planning of surgical approach and coordination of care with subspecialties	Surgically identifies and/or skeletonizes the facial nerve lateral to the geniculate ganglion	Performs surgical exposure of all segments of the facial nerve, including peri-geniculate, labyrinthine and intracanalicular (via middle fossa and transtemporal approaches)	Performs surgery on the nerve (separates nerve from tumor, performs primary repair of sheath)	Performs facial nerve graft, including harvesting graft from local and distal sight, and performs nerve anastomosis
Recognizes common complications of facial nerve surgery	Initiates work-up of common complications	Manages common complications and recognizes uncommon/infrequent complications	Manages uncommon/ infrequent complications	Serves as a peer resource for managing uncommon/infrequent complications
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 4: Non-Operative Patient Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Evaluates patients; orders and interprets routine diagnostic testing	Orders and interprets specialty testing	Implements a plan to manage patients with typical presentation patterns, including medical and procedural options	Implements a plan to manage patients with complex presentation patterns, including medical and procedural options, and refers to the multidisciplinary team	Leads the multidisciplinary team for complex patients
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 5: Pediatric Neurotology				
Level 1	Level 2	Level 3	Level 4	Level 5
Performs an age- appropriate history and physical examination with developmental assessment	Formulates a diagnostic and treatment plan for a pediatric patient	Explains the risks and benefits of pediatric procedures; adapts diagnoses to age-related variations	Adapts standard treatment plans to special circumstances (e.g., syndromic children and infants)	Actively participates in discussion at an interdisciplinary pediatric case conference or specialty clinic
Performs standard pediatric otology procedures (e.g., chronic ear, implants)	Assists with advanced otologic procedures and pediatric neurotology procedures	Performs advanced otology procedures and components of neurotology procedures	Performs pediatric neurotology procedures	Performs rare pediatric neurotology procedures
Provides routine perioperative care for pediatric otology procedures	Recognizes and initiates work-up of routine complications of treatment	Manages routine complications and recognizes complex complications of treatment	Manages uncommon complications of treatment	Serves as a peer resource for managing uncommon/infrequent complications associated with pediatric procedures
Comments: Not Yet Completed Level 1				
			Not Yet A	ssessable

Medical Knowledge 1: Hearing Loss				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates understanding of the anatomy and physiology of the middle and inner ear, as well as common causes of pediatric and adult hearing loss	Demonstrates proficient knowledge of normal and abnormal temporal bone and cochleovestibular histopathology	Demonstrates comprehensive understanding of the pathophysiology of cochlear hearing loss	Demonstrates a comprehensive understanding of the pathophysiology of retrocochlear and central auditory disorders	Conducts original research related to hearing loss
Demonstrates basic understanding of comprehensive audiologic testing (e.g., pure tone audiometry, speech testing, immittance testing)	Lists unusual causes for hearing loss in pediatric and adult patients, and orders/interprets appropriate advanced audiometric, laboratory, and imaging studies	Demonstrates understanding of the medical and surgical management of conductive, mixed, and sensory-neural hearing loss	Demonstrates understanding of the medical and surgical management of complex conductive, mixed, and sensory- neural hearing loss	Develops a course or conference related to hearing loss for a regional or national meeting
Demonstrates basic understanding of non- surgical and surgical options for aural rehabilitation	Demonstrates comprehensive knowledge of non-surgical and surgical options for aural rehabilitation	Demonstrates understanding of indications, outcomes, risks, and complications of cochlear implants and active middle/inner ear implants	Demonstrates understanding of indications, outcomes, risks, and complications of cochlear implantation in patients with temporal bone abnormalities and advanced surgical reconstruction of aural atresia	Demonstrates understanding of indications, outcomes, risks, and complications of auditory brainstem implants
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 2: Dizziness				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes normal anatomy and physiology of the peripheral vestibular system	Describes the integration of the peripheral vestibular system with other sensory and motor systems (e.g., vision, proprioception)	Describes diagnostic criteria and treatment options for central vestibular disorders (e.g., multiple sclerosis, vestibular migraine, stroke)	Demonstrates comprehensive understanding and interpretation of advanced vestibular testing	Conducts original research related to dizziness
Lists common causes of peripheral and central vertigo	Differentiates otologic from non-otologic causes of vertigo	Develops a complete differential diagnosis for a complicated dizzy patient and orders appropriate vestibular testing	Demonstrates understanding of a multidisciplinary approach to evaluate and manage complex cases of dizziness (e.g., vestibular rehabilitation, neurologic consultation)	Develops a course or conference related to dizziness for a regional or national meeting
Demonstrates understanding of non- surgical management of positional vertigo, labyrinthitis, vestibular neuritis, and Meniere's disease	Describes mechanisms underlying central compensation for peripheral vestibular disorders	Demonstrates knowledge of physical therapy and other rehabilitative options for peripheral and central vestibular disorders	Demonstrates knowledge of the indications, outcomes, risks, and complications of ablative and non- ablative vestibular interventions (e.g., for semicircular canal dehiscence, Meniere's disease)	Demonstrates understanding of indications, outcomes, risks, and complications of emerging technology, including vestibular implants
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 3: Clinical Reasoning					
Level 1	Level 2	Level 3	Level 4	Level 5	
Demonstrates sound clinical reasoning in common neurotology problems	Identifies errors in clinical reasoning within neurotology	Applies clinical reasoning principles to direct patient care in complex neurotology problems	Reviews the clinical decision making of oneself and the team to identify areas for improvement	Coaches and mentors others in clinical reasoning and helps them to recognize and avoid cognitive errors	
Comments:			Not Yet C Not Yet A	ompleted Level 1	

Systems-Based Practice 1: Patient Safety and Quality Improvement				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of common patient safety events	Identifies system factors that lead to patient safety events	Participates in analysis of patient safety events (simulated or actual)	Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)	Actively engages teams and processes to modify systems to prevent patient safety events
Demonstrates knowledge of how to report patient safety events	Reports patient safety events through institutional reporting systems (simulated or actual)	Participates in disclosure of patient safety events to patients and patients' families (simulated or actual)	Discloses patient safety events to patients and patients' families (simulated or actual)	Role models or mentors others in the disclosure of patient safety events
Demonstrates knowledge of basic quality improvement methodologies and metrics	Describes local quality improvement initiatives	Participates in local quality improvement initiatives	Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project	Creates, implements, and assesses quality improvement initiatives at the institutional or community level
Comments: Not Yet Completed Level 1				

Systems-Based Practice 2: System Navigation for Patient-Centered Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of care coordination	Coordinates care of patients in routine clinical situations effectively using the roles of interprofessional team members	Coordinates care of patients in complex clinical situations effectively using the roles of interprofessional team members	Role models effective coordination of patient- centered care among different disciplines and specialties	Analyzes the process of care coordination and leads in the design and implementation of improvements
Identifies key elements for safe and effective transitions of care and hand-offs	Performs safe and effective transitions of care/hand-offs in routine clinical situations	Performs safe and effective transitions of care/hand-offs in complex clinical situations	Role models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems, including outpatient settings	Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes
Demonstrates knowledge of population and community health needs and inequities	Identifies specific population and community health needs and inequities for the local population	Uses local resources effectively to meet the needs of a patient population and community	Participates in changing and adapting practice to provide for the needs of specific populations	Leads innovations and advocates for populations and communities with health care inequities
Comments: Not Yet Completed Level 1				

Systems-Based Practice 3: Physician Role in Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies key components of the complex health care system (e.g., hospital, skilled nursing facility, finance, personnel, technology)	Describes how components of a complex health care system are interrelated, and how they impact patient care	Discusses how individual practice affects the broader system (e.g., length of stay, readmission rates, clinical efficiency)	Manages various components of the complex health care system to provide efficient and effective patient care and transitions of care	Advocates for or leads systems change that enhances high-value, efficient, and effective patient care and transitions of care
Describes basic health payment systems, including government, private, public, uninsured care, and practice models	Delivers care with consideration of each patient's payment model (e.g., insurance type)	Engages with patients in shared decision making, informed by each patient's payment model	Advocates for patient care needs (e.g., community resources, patient assistance resources) with consideration of the limitations of each patient's payment model	Participates in health policy advocacy activities
Comments: Not Yet Completed Level 1				

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access available evidence, and incorporates patient preferences and values to take care of routine neurotologic conditions	Articulates clinical questions and elicits patient preferences and values to guide evidence-based care	Locates and applies the best available evidence, integrated with patient preference, to manage complex neurotologic conditions	Critically appraises the current literature and presents management in either a grand rounds or journal club setting	Coaches others to critically appraise and apply evidence for complex patients, and/or participates in the development of guidelines
Comments: Not Yet Completed Level 1				

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth				
Level 1	Level 2	Level 3	Level 4	Level 5
Accepts responsibility for personal and professional development by establishing goals	Demonstrates openness to performance data (feedback and other input) to inform goals	Seeks performance data episodically, with adaptability	Intentionally seeks performance data consistently, with adaptability	Role models consistently seeking performance data with adaptability
Identifies the factors that contribute to gap(s) between expectations and actual performance	Analyzes and reflects on the factors that contribute to gap(s) between expectations and actual performance	Analyzes, reflects on, and institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance	Challenges assumptions and considers alternatives in narrowing the gap(s) between expectations and actual performance	Coaches others on reflective practice
Actively seeks opportunities to improve	Designs and implements a learning plan, with prompting	Independently creates and implements a learning plan	Uses performance data to measure the effectiveness of the learning plan, and, when necessary, improves it	Facilitates the design and implementation of learning plans for others
Comments: Not Yet Completed Level 1				

Professionalism 1: Professional Behavior and Ethical Principles				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies and describes potential triggers for lapses in professionalism	Demonstrates insight into professional behavior in routine situations and how to appropriately report lapses in professionalism	Demonstrates professional behavior in complex or stressful situations	Recognizes situations that might trigger lapses in professionalism and intervenes to prevent lapses in oneself and others	Coaches others when their behavior fails to meet professional expectations
Demonstrates knowledge of the ethical principles underlying patient care	Analyzes straightforward situations using ethical principles	Analyzes complex situations using ethical principles and recognizes the need to seek help in managing and resolving complex ethical situations	Recognizes and uses appropriate resources for managing and resolving ethical dilemmas as needed	Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution
Comments: Not Yet Completed Level 1				

Professionalism 2: Accountability/Conscientiousness				
Level 1	Level 2	Level 3	Level 4	Level 5
Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations	Takes responsibility for failure to complete tasks and responsibilities, identifies potential contributing factors, and describes strategies for ensuring timely task completion in the future	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations	Recognizes situations that might impact others' ability to complete tasks and responsibilities in a timely manner	Leads a conference on accountability and task completion
Responds promptly to requests or reminders to complete tasks and responsibilities	Recognizes situations that might impact one's own ability to complete tasks and responsibilities in a timely manner	Proactively implements strategies to ensure that the needs of patients, teams, and systems are met	Gives appropriate feedback to individuals or groups to facilitate task completion in a timely manner	Leads a quality improvement study on accountability
Comments: Not Yet Completed Level 1				

Professionalism 3: Knowledge of Systemic and Individual Factors of Well-Being				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes the importance of getting help when needed to address personal and professional well-being	Lists resources to support personal and professional well-being	With prompting, reflects on how personal and professional well-being can impact one's clinical practice	Reflects on actions in real time to proactively respond to the inherent emotional challenges of physician work	Participates in institutional changes to promote personal and professional well-being
Recognizes departmental factors affecting well-being	Participates in departmental well-being committee activities	Recognizes the institutional factors affecting well-being	Describes institutional factors that affect one's own well-being and that of others	Suggests potential solutions to institutional factors that affect well-being
Comments: Not Yet Completed Level 1				

This subcompetency is not intended to evaluate a fellow's well-being. Rather, the intent is to ensure that each fellow has the fundamental knowledge of factors that affect well-being, the mechanisms by which those factors affect well-being, and available resources and tools to improve well-being.

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Uses language and non- verbal behavior to demonstrate respect and establish rapport	Establishes a therapeutic relationship in straightforward encounters using active listening and clear language	Establishes a therapeutic relationship in challenging patient encounters	Easily establishes therapeutic relationships, with attention to a patient's/patient's family's concerns and context, regardless of complexity	Mentors others in situational awareness and critical self-reflection to consistently develop positive therapeutic relationships
Identifies common barriers to effective communication (e.g., language, disability) while accurately communicating one's own role within the health care system	Identifies complex barriers to effective communication (e.g., health literacy, cultural differences)	When prompted, reflects on personal biases while attempting to minimize communication barriers	Independently recognizes personal biases while attempting to proactively minimize communication barriers	Role models self- awareness while identifying a contextual approach to minimize communication barriers
Identifies the need to adjust communication strategies based on assessment of a patient's/patient's family's expectations and understanding of their health status and treatment options	Organizes and initiates communication with a patient/patient's family by introducing stakeholders, setting the agenda, clarifying expectations, and verifying understanding of the clinical situation	With guidance, sensitively and compassionately delivers medical information; elicits a patient's/patient's family's values, goals, and preferences; and acknowledges uncertainty and conflict	Independently, uses shared decision-making to align the patient's/patient's family values, goals, and preferences with treatment options to make a personalized care plan	Role models shared decision making in patient/family communication including those with a high degree of uncertainty/conflict
Comments: Not Yet Completed Level 1				

Interpersonal and Communication Skills 2: Interprofessional and Team Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Respectfully requests/receives a consultation	Clearly and concisely requests/responds to a consultation	Receives follow-up and feedback on the outcome of the consultation	Coordinates recommendations from different members of the health care team to optimize patient care	Role models flexible communication strategies that value input from all health care team members, resolving conflict when needed
Uses language that values all members of the health care team	Communicates information effectively with all health care team members	Uses active listening to adapt communication style to fit team needs	Facilitates health care team-based feedback in routine situations	Facilitates health care team-based feedback in complex situations
	Respectfully receives feedback on performance as a member of the health care team	Solicits feedback on performance as a member of the health care team	Communicates concerns and provides feedback to peers, learners, and superiors	Facilitates teaching of team-based communication and feedback
Comments: Not Yet Completed Level 1				

Interpersonal and Communication Skills 3: Communication within Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Accurately records information in the patient record	Demonstrates organized diagnostic and therapeutic reasoning through notes in the patient record	Concisely reports diagnostic and therapeutic reasoning in the patient record	Communicates clearly, concisely, timely, and in an organized written form, including providing anticipatory guidance	Models feedback to improve others' written communication
Safeguards patients' personal health information	Documents required data in formats specified by institutional policy	Appropriately selects direct (e.g., telephone, inperson) and indirect (e.g., progress notes, text messages) forms of communication based on context	Produces written or verbal communication (e.g., patient notes, email) that serves as an example for others to follow	Guides departmental or institutional communication around policies and procedures
Comments: Not Yet Completed Level 1				