

Pediatric Anesthesiology Milestones

The Accreditation Council for Graduate Medical Education



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The Milestones are designed only for use in evaluation of fellows in the context of their participation in ACGME-accredited residency or 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.

Pediatric Anesthesiology Milestones

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American Board of Anesthesiology

Review Committee for Anesthesiology

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 resident/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 the educational program just as a senior fellow may be at a lower level later in the educational program. There is no predetermined timing for a resident 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.

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.

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) in order to form goals	Seeks performance data episodically, with adaptability and humility	Intentionally seeks performance data consistently with adaptability and humility	Role models consistently seeking performance data with adaptability and humility	
Identifies the factors which contribute to performance deficits	Analyzes and acknowledges the factors which contribute to performance deficits	Institutes behavioral change(s) to improve performance	Considers alternatives to improve performance	Models reflective practice	
Actively seeks opportunities to improve	Designs and implements a learning plan, with prompting	Independently creates and implements a learning plan	Integrates performance data to adapt the learning plan	Facilitates the design and implementation of learning plans for others	
Comments: Not Yet Completed Level 1					
Selecting a response box in the middle of a level implies that milestones in that level and in lower levels have been substantially demonstrated. Selecting a response box on the line in between levels indicates that milestones in lower levels have been substantially demonstrated as well as some milestones in the higher level(s).					

Patient Care 1: Pediatric Pre-Anesthetic Patient Evaluation, Assessment, and Preparation					
Level 1	Level 2	Level 3	Level 4	Level 5	
Conducts and interprets a history and physical examination, with direct supervision	Conducts a focused history and physical examination, with indirect supervision	Identifies comorbidities on a history and physical examination that may require further evaluation, with indirect supervision	Independently identifies concerning history and physical exam findings that require further evaluation	Independently identifies a previously undiagnosed condition	
Comments: Not Yet Completed Level 1 Not Yet Assessable					

Patient Care 2: Technical Skills – Airway Management				
Level 1	Level 2	Level 3	Level 4	Level 5
Performs basic pediatric airway assessment	Uses the airway exam and identifiable risk factors to formulate a patient-specific plan	Devises airway management plans that address contingencies, with supervision	Independently devises airway management plans that address contingencies	Collaborates with the interdisciplinary team to develop an airway plan for a complex pediatric airway
Prepares age-/size- appropriate equipment for an uncomplicated pediatric/neonatal airway	Manages an uncomplicated pediatric/neonatal airway	Prepares and incorporates advanced equipment in the management of a complicated airway, with supervision	Independently prepares and incorporates advanced equipment in the management of a complicated airway	Functions as an expert in an airway crisis for complicated airways
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 3: Technical Skills – Pediatric Vascular Access (including Peripheral, Arterial, and Central Lines)					
Level 1	Level 2	Level 3	Level 4	Level 5	
Obtains vascular access in older children and adolescents	Obtains vascular access in neonates, with guidance	Obtains difficult vascular access, with guidance	Independently obtains difficult vascular access	Functions as an expert for vascular access	
Comments:				ompleted Level 1	

Patient Care 4: Technical Skills – Pediatric Regional (Peripheral and Neuraxial) Anesthesia				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes anatomy relevant to regional anesthesia	Describes indications and contraindications for regional anesthesia	Develops a patient- and procedure-specific regional anesthesia plan, with supervision	Independently develops a patient- and procedure-specific regional anesthesia plan	
Prepares a patient and the equipment for common regional anesthesia techniques	Performs regional anesthesia techniques, with direct supervision	Performs regional anesthesia techniques, with indirect supervision	Independently performs regional anesthesia techniques	Serves as a consultant on advanced or difficult regional techniques
Describes potential complications of regional anesthesia	Recognizes and manages complications of regional anesthesia, with direct supervision	Recognizes and manages complications of regional anesthesia, with indirect supervision	Independently recognizes and manages complications of regional anesthesia	Develops institutional protocol for using regional anesthesia and managing complications
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 5: Peri-Operative Planning for Pediatric Patients					
Level 1	Level 2	Level 3	Level 4	Level 5	
Formulates an anesthetic plan for an uncomplicated patient or procedure	Develops an anesthetic plan for a healthy patient undergoing uncomplicated procedures	Develops an anesthetic plan for patients with well- controlled comorbidities or undergoing complicated procedures	Develops an anesthetic plan for patients with multiple, uncontrolled comorbidities, and undergoing complicated procedures	Develops a peri-, intra-, and post-operative plan for a medically complex patient as the leader of a collaborative team of specialists	
Comments: Not Yet Completed Level 1 Not Yet Assessable					

Patient Care 6: Peri-Operative Management for Pediatric Patients					
Level 1	Level 2	Level 3	Level 4	Level 5	
Implements an anesthetic plan for a healthy pediatric patient undergoing uncomplicated procedures	Implements an anesthetic plan for an uncomplicated procedure in a neonate	Implements an anesthetic plan for pediatric patients with comorbidities for uncomplicated procedures	Implements an anesthetic plan for pediatric patients with comorbidities for complicated procedures	Implements a peri-, intra-, and post-operative plan for a medically complex patient as the leader of a collaborative team of specialists	
Comments: Not Yet Completed Level 1 Not Yet Assessable					

Patient Care 7: Situational Awareness and Crisis Management				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates vigilance during clinical care	Demonstrates awareness of clinical care and developments throughout a procedure	Demonstrates awareness of clinical care and developments throughout a procedure, including those outside of one's immediate control, with supervision	Independently demonstrates awareness of clinical care and developments throughout a procedure, including those outside of one's immediate control	
Articulates causes of common peri-operative crisis situations	Recognizes crisis situations; calls for help	Anticipates an impending crisis and identifies possible etiologies, with supervision	Independently anticipates an impending crisis and identifies possible etiologies	
Responds to crisis	Participates in	Initiates management and	Independently initiates	Leads the health care
situations as a reliable team member	management during crisis situations	resolves crisis situations, with supervision	management and resolves crisis situations	team in the management of crisis situations
Comments:				
	Not Yet Completed Level 1 Not Yet Assessable			

Medical Knowledge 1: Foundational Knowledge of Pediatric Anesthesiology				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of normal anatomic and physiologic features of pediatric patients, from neonates to adolescents	Demonstrates knowledge of common medical and surgical conditions in pediatric patients, from neonates to adolescents	Demonstrates comprehensive knowledge of common medical and surgical conditions in pediatric patients and related anesthetic considerations	Demonstrates comprehensive knowledge of complex medical and surgical conditions in pediatric patients and related anesthetic considerations	Serves as an expert consultant for children with complex and/or uncommon physiology and related anesthetic and surgical considerations
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 2: Clinical Reasoning				
Level 1	Level 2	Level 3	Level 4	Level 5
Accurately describes basic elements of a clinical scenario	Analyzes simple (or common) clinical scenarios using an organized, systematic approach with direct guidance	Analyzes simple (or common) clinical scenarios using an organized, systematic approach, with indirect guidance	Independently analyzes complex clinical scenarios using an organized, systematic approach	Teaches others how to analyze complex clinical scenarios using an organized, systematic approach
	Retrospectively recognizes clinical reasoning errors, with guidance	Retrospectively recognizes clinical reasoning errors independently	Identifies and actively avoids clinical reasoning errors	Models and teaches approaches to avoid clinical reasoning errors
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Systems-Based Practice 1: Patient Safety and Quality Improvement				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of common events that impact patient safety	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 departmental quality improvement initiatives	Participates in department 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 level or above
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 participates 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	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	Identifies specific population and community health needs for their local population	Uses institutional 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	Advocates for populations and communities with specific health care needs in the peri-operative setting
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
States factors impacting the costs of anesthetic care	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
	Documents anesthetic detail to facilitate accurate billing and reimbursement	Explains the impact of documentation on billing and reimbursement	Practices and advocates for cost-effective patient care	Engages in external activities related to advocacy for costeffective care
Comments: Not Yet Completed Level 1				

Practice-Based Learning	g and Improvement 1: Evide	ence-Based and Informed P	ractice	
Level 1	Level 2	Level 3	Level 4	Level 5
Accesses and uses evidence in routine patient care	Articulates clinical questions and elicits the patient's and patient's family's preferences and values to guide evidence-based care	Locates and applies the best available evidence, integrated with the patient's and patient's family's preference, to the care of complex patients	Appraises and applies evidence, even in the face of uncertainty and conflicting evidence, to guide individualized care	Mentors others to appraise and apply evidence for complex patients and/or participates in the development of guidelines
Comments:			Not Yet C	ompleted Level 1

Practice-Based Learning	and Improvement 2: Refle	ctive Practice and Commit	ment 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 and humility	Intentionally seeks performance data consistently, with adaptability and humility	Role models consistently seeking performance data with adaptability and humility	
Identifies the factors that contribute to performance deficits	Analyzes and acknowledges the factors that contribute to performance deficits	Institutes behavioral change(s) to improve performance	Considers alternatives to improve performance	Models reflective practice	
Actively seeks	Designs and implements	Independently creates	Integrates performance	Facilitates the design and	
opportunities to improve	a learning plan, with prompting	and implements a learning plan	data to adapt the learning plan	implementation of learning plans for others	
Comments:			Not Yet C	ompleted Level 1	

Professionalism 1: Profe	essional Behavior and Ethic	cal Principles			
Level 1	Level 2	Level 3	Level 4	Level 5	
Describes when and how to report lapses in professionalism and demonstrates insight into professional behavior in routine situations	Uses insight into professional behavior to take responsibility in professionalism lapses, as well as to identify potential areas for self-improvement	Demonstrates professional behavior in complex or stressful situations	Serves as a model for professionalism among colleagues; actively solicits help and acts on recommendations to resolve complex interpersonal situations	Coaches others when their behavior fails to meet professional expectations	
Demonstrates knowledge of the ethical principles underlying patient care	Analyzes complex situations using ethical principles	Recognizes need to seek help in managing and resolving complex interpersonal situations	Recognizes and utilizes resources for managing and resolving ethical dilemmas	Addresses system-level factors that induce or exacerbate ethical problems or impede their resolution	
Comments:			Not Yet C	ompleted Level 1	

Professionalism 2: Acco	untability/Conscientiousne	ess		
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes situations that may impact one's own ability to complete tasks and responsibilities in a timely manner	Performs most tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations	Takes responsibility for the rare occurrence in which tasks are not completed in a timely manner and identifies strategies to prevent recurrence	Prioritizes tasks and responsibilities in a timely manner with appropriate attention to detail in even the most complex or stressful situations	Designs and implements an institutional systems approach to ensure timely task completion and shared responsibility
Comments:			Not Yet C	ompleted Level 1

Professionalism 3: Well-	Being			
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes the importance of addressing personal and professional well-being	Lists available resources for personal and professional well-being	With assistance, proposes a plan to promote personal and professional well-being	Independently develops a plan to promote personal and professional well-being	Creates institutional-level interventions that promote colleagues' well-being
	Describes institutional resources that are meant to promote well-being	Recognizes which institutional factors affect well-being	Describes institutional factors that positively and/or negatively affect well-being	Describes institutional programs designed to examine systemic contributors to burnout
Comments:			Not Yet C	ompleted 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.

Level 1	Level 2	Level 3	Level 4	Level 5
Communicates with patients and their families in an understandable and respectful manner	Customizes communication in the setting of biases and barriers with patients and patients' families	Explains complex and difficult information to patients and patients' families	Facilitates difficult discussions with patients and patients' families	Mentors others in the facilitation of crucial conversations
	Actively listens to patients and patients' families to elicit patient preferences and expectations	Uses shared decision- making to make a personalized care plan	Effectively negotiates and manages conflict among patients, patients' families, and the health care team	Mentors others in conflict resolution

Interpersonal and Communication Skills 2: Interprofessional and Team Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Respectfully requests or receives consultations	Clearly, concisely, and promptly requests or responds to a consultation	Uses closed-loop communication to verify understanding	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	Adapts communication style to fit team needs	Maintains effective communication in crisis situations	Leads an after-event debrief of the health care team
Respectfully receives feedback from the health care team	Solicits feedback on performance as a member of the health care team	Communicates concerns and provides feedback to peers and learners	Communicates constructive feedback to superiors	Facilitates regular health care team-based feedback in complex situations
Comments:	Comments: Not Yet Completed Level 1			

Level 1	Level 2	Level 3	Level 4	Level 5
Accurately records information in the patient record; demonstrates judicious use of documentation shortcuts	Accurately records information in the anesthetic record for basic cases	Accurately records information in the anesthetic record and communicates complex care decisions for complex cases	Uses medical record functionality to highlight challenges in anesthetic care to facilitate future peri-operative management	Explores innovative uses of the medical record to facilitate peri-operative management
Safeguards patient personal health information	Documents required data in formats specified by institutional policy	Appropriately selects direct and indirect forms of communication based on context	Models exemplary written or verbal communication	Guides departmental or institutional policies and procedures around communication
Communicates through appropriate channels as required by institutional policy	Respectfully communicates concerns about the system	Respectfully communicates concerns about the system and contributes to solutions	Uses appropriate channels to offer clear and constructive suggestions to improve the system	Initiates difficult conversations with appropriate stakeholders to improve the system