

# **Renal Medicine Milestones**

ACGME International, Inc. (ACGME-I)



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## **Renal Medicine Milestones**

The Milestones are designed only for use in evaluation of residents and fellows in the context of their participation in ACGME-I-accredited residency and fellowship programs. The Milestones provide a framework for the assessment of the development of the resident or 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 competence, nor are they designed to be relevant in any other context.

### **Understanding Milestone Levels and Reporting**

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

Milestones are arranged into levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert resident or 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, more junior residents/fellows may achieve higher levels early in their educational program just as more senior residents/fellows may be at a lower level later in their educational program. There is no predetermined timing for a resident or fellow to attain any particular level. Residents and 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 resident/fellow.

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

#### **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 the Milestones as a sole assessment in high-stakes decisions. Level 5 is designed to represent an expert resident or 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. ACGME-I 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. 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 conformance with ACGME-I supervision guidelines as described in the applicable Program Requirements, as well as with institutional and program policies. For example, a resident who performs a procedure independently must, at a minimum, be supervised through oversight.

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

The diagram below presents an example set of milestones for one subcompetency in the same format as the ACGME-I Report Worksheet. For each reporting period, a resident's/fellow's performance on the milestones within each subcompetency will be indicated by selecting the Milestones Level that best describes that individual's performance in relation to those milestones.

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 their families (simulated or actual)	Discloses patient safety events to patients and their families (simulated or actual)	others in the disclosure of
Demonstrates knowledge of basic quality improvement methodologies and metrics	Describes local quality improvement initiatives (e.g., community vaccination rate, infection rate, smoking cessation)	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
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Comments: Not Yet Completed Level 1				
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middle of a level	•	between levels indicat		
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#### Patient Care 1: Acute Kidney Injury

Level 1	Level 2	Level 3	Level 4	Level 5
Creates a basic differential diagnosis for patients with acute kidney injury using the history and physical exam	Formulates a comprehensive differential diagnosis for patients with acute kidney injury using a focused history and physical exam	Formulates a prioritized differential diagnosis for patients with acute kidney injury	Independently formulates a prioritized differential diagnosis for patients with common and uncommon causes of acute kidney injury	Independently formulates a prioritized differential diagnosis with consideration of rare or newly recognized causes of acute kidney injury
Develops a basic diagnostic plan	Recommends diagnostic testing to inform the differential diagnosis	Interprets diagnostic test results, including evaluation of urine sediment, laboratory and imaging studies, and kidney biopsy	Independently interprets and integrates diagnostic test results	Identifies indications for ordering advanced diagnostic studies
Develops a basic management plan	Identifies patients who need urgent treatment, including dialysis and medication adjustment	Develops and implements a management plan, including dialysis modality selection and/or disease- specific treatment	Independently develops and implements a management plan with consideration of patient acuity and complexity	Formulates a management plan incorporating novel therapies
Comments:				
			Not Yet C Not Yet A	ompleted Level 1

Level 1	Level 2	Level 3	Level 4	Level 5
Lists the indication(s) for initiation of chronic dialysis	Selects appropriate dialysis modality and writes patient-specific hemodialysis and peritoneal dialysis prescriptions	Modifies a dialysis prescription based on patient assessment	Independently manages patients receiving dialysis	Identifies the complexities of providing quality care to a population of patients receiving dialysis
Lists common complications in patients on chronic dialysis	Assesses for common complications of chronic dialysis	Treats common complications of chronic dialysis	Independently anticipates and manages common and uncommon complications of chronic dialysis	Anticipates and manages the breadth of comorbid medical and technical complications in the patient on dialysis, including when dialysis is not appropriate
Identifies types of dialysis access and common access complications	Performs basic assessment of dialysis accesses	Develops a diagnostic and therapeutic plan for management of common access complications	Develops a diagnostic and therapeutic plan for management of uncommon access complications	

Patient Care 3: Chronic Kidney Disease				
Level 1	Level 2	Level 3	Level 4	Level 5
Develops a differential diagnosis of causes of chronic kidney disease	Expands the differential diagnosis based on specific history/physical information	Reformulates the differential diagnosis as necessary for atypical disease presentations	Independently diagnoses common and uncommon causes of chronic kidney disease	Independently recognizes rare and newly described causes of chronic kidney disease
Develops a basic diagnostic plan for patients with chronic kidney disease	Modifies the diagnostic plan based on evolving clinical data for patients with chronic kidney disease	Identifies patients with chronic kidney disease who require more evaluation, including kidney biopsy	Identifies indications for ordering advanced or novel diagnostic studies	
Identifies stages of chronic kidney disease and how they relate to patient prognosis	Develops a management plan to slow chronic kidney disease progression	Develops a management plan for chronic kidney disease complications and discusses treatment options	Independently leads the preparation for the next steps in management of progressive chronic kidney disease and integrates patient- specific goals of care	Identifies candidates for enrollment in research and novel and emerging therapies
Comments: Not Yet Completed Level 1				

#### Patient Care 4: Transplant

Level 1	Level 2	Level 3	Level 4	Level 5
Discusses indications and contraindications for kidney transplantation	Identifies and counsels patients and their families regarding kidney transplant candidacy and the evaluation process	Manages stable ambulatory post- transplant patients	Independently manages stable and unstable post-transplant patients	Identifies opportunities to improve kidney transplantation access and outcomes
Identifies the presence of kidney allograft dysfunction	Generates a differential diagnosis for common causes of kidney allograft dysfunction	Generates a differential diagnosis for uncommon causes of kidney allograft dysfunction and an initial management plan for common causes of kidney allograft dysfunction	Independently generates a differential diagnosis and management plan for uncommon causes of kidney allograft dysfunction	Identifies novel and emerging therapies for immunosuppression and
Lists indications for common kidney transplant immunosuppressive medications	Identifies common and uncommon complications of immunosuppressive medications	Manages immunosuppressive medications, including common complications and drug interactions	Independently manages immunosuppressive medications, including patients with allograft dysfunction and failure	transplant dysfunction
Comments: Not Yet Completed Level 1				

Patient Care 5: Fluid and Electrolytes					
Level 1	Level 2	Level 3	Level 4	Level 5	
Creates a differential diagnosis and initial management plan	Develops a comprehensive differential diagnosis, recommends initial diagnostic testing, and identifies patients who require urgent treatment	Develops a prioritized differential diagnosis, interprets diagnostic test results, and implements a comprehensive management plan	Independently formulates a differential diagnosis, including common and uncommon causes, and adjusts management plan based on patient response	Independently and effectively manages unusual, rare, or complex fluid and/or electrolyte disorder(s)	
Comments: Not Yet Completed Level 1					

#### Patient Care 6: Hypertension

Level 1	Level 2	Level 3	Level 4	Level 5	
Diagnoses and manages hypertension, proposes initial evaluation for secondary causes, and recognizes hypertensive emergencies	Develops a differential diagnosis, evaluates causes of secondary and resistant hypertension, and proposes a management plan	Interprets the results of specialized testing for secondary and resistant hypertension, and adjusts management plan based on treatment results and patient comorbidity	Independently develops and implements a management plan for secondary and resistant hypertension, and adjusts therapy based on patient acuity and complexity	Independently and effectively manages unusual, rare, or complex presentations of hypertension	
Comments: Not Yet Completed Level 1					

Patient Care 7: Competence in Procedures					
Level 1	Level 2	Level 3	Level 4	Level 5	
Discusses the indications for and assists with all procedures Discusses potential	Performs procedures, with direct supervision Recognizes complications	Competently performs procedures, with indirect supervision Manages complications of	Proficiently and independently performs procedures	Serves as an educational resource for procedures and their complications	
procedural complications	of procedures and enlists help	procedures, with supervision	Anticipates and independently manages complications of procedures		
Comments: Not Yet Completed Level 1					

Medical Knowledge 1: Physiology and Pathophysiology				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies key clinical physiological and pathophysiological concepts	Demonstrates knowledge of more complex clinical physiology and pathophysiology	Applies knowledge of common clinical pathophysiology to diagnosis and management	Integrates knowledge of advanced clinical pathophysiology with diagnosis and management	Researches newly described and emerging clinical physiology and pathophysiology concepts
Identifies key basic science concepts (e.g., histopathology, immunology, genetics, molecular biology)	Demonstrates knowledge of more complex basic science concepts	Applies knowledge of basic science concepts of common diseases to diagnosis and management	Integrates knowledge of advanced basic science concepts of less common diseases with diagnosis and management	Researches newly described and emerging basic science concepts
Comments: Not Yet Completed Level 1				

Medical Knowledge 2: Pharmacology and Therapeutics					
Level 1	Level 2	Level 3	Level 4	Level 5	
Demonstrates knowledge of pharmacology	Recognizes the effect of kidney disease on pharmacokinetics of medications	Monitors and adjusts the choice and dosing of common medications	Monitors and adjusts the choice and dosing of uncommon medications	Demonstrates advanced knowledge of pharmacology of novel therapeutic agents	
Recognizes kidney toxicity of common medications and effects of intoxicants	Employs strategies to minimize drug toxicity in common scenarios	Employs strategies to minimize drug toxicity in complex scenarios	Identifies strategies to manage drug toxicities and acute intoxications		
Comments: Not Yet Completed Level 1					

Medical Knowledge 3: Diagnostic Testing in Kidney Disease					
Level 1	Level 2	Level 3	Level 4	Level 5	
Recognizes indications, risks, and benefits for basic diagnostic testing	Provides interpretation of basic diagnostic testing results	Recognizes indications, risks, and benefits for advanced diagnostic testing	Independently interprets advanced diagnostic testing	Recognizes emerging applications of novel diagnostic testing technologies	
Comments:			Not Yet Co Not Yet As	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 their families (simulated or actual)	Discloses patient safety events to patients and their 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 (e.g., community vaccination rate, infection rate, smoking cessation)	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 utilizing the roles of the interprofessional teams	Coordinates care of patients in complex clinical situations, effectively utilizing the roles of the interprofessional teams	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	
Comments: Not Yet Completed Level 1					

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 this impacts 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 transition of care	Advocates for or leads systems change that enhances high value, efficient, and effective patient care and transition of care	
Describes the principles of cost-effective care	Delivers care with consideration of each patient's payment model	Engages with patients in shared decision making, informed by cost-effective care principles	Advocates for patient care needs (e.g., community resources, patient assistance resources) regardless of ability to pay	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 and use available evidence, and incorporate patient preferences and values in order to take care of a routine patient	Articulates clinical questions and elicits patient preferences and values in order to guide evidence-based care	Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients	Critically appraises and applies evidence, even in the face of uncertainty and conflicting evidence, to guide care tailored to the individual patient	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) in order 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 which contribute to gap(s) between expectations and actual performance	Analyzes and reflects on the factors which 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 professionalism lapses	Demonstrates insight into professional behavior in routine situations	Demonstrates professional behavior in complex or stressful situations	Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in self and others	Coaches others when their behavior fails to meet professional expectations	
Describes when and how to appropriately report professionalism lapses, including strategies for addressing common barriers	Takes responsibility for own professionalism lapses	Recognizes need to seek help in managing and resolving complex ethical situations	Recognizes and utilizes appropriate resources for managing and resolving ethical dilemmas as needed (e.g., ethics consultations, literature	Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their	
Demonstrates knowledge of the ethical principles underlying informed consent, surrogate decision making, advance directives, confidentiality, error disclosure, stewardship of limited resources, and related topics	Analyzes straightforward situations using ethical principles	Analyzes complex situations using ethical principles	review, risk management/legal consultation)	resolution	
Comments: Not Yet Completed Level 1					

#### Professionalism 2: Accountability/Conscientiousness

Level 1	Level 2	Level 3	Level 4	Level 5	
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 routine situations	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations	Recognizes situations that may impact others' ability to complete tasks and responsibilities in a timely manner	Takes ownership of system outcomes	
Responds promptly to requests or reminders to complete tasks and responsibilities	Recognizes situations that may impact 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			
Comments: Not Yet Completed Level 1					

Professionalism 3: Self-Awareness and Help-Seeking					
Level 1	Level 2	Level 3	Level 4	Level 5	
Recognizes status of personal and professional well-being, with assistance	Independently recognizes status of personal and professional well-being	With assistance, proposes a plan to optimize personal and professional well-being	Independently develops a plan to optimize personal and professional well-being	Coaches others when emotional responses or limitations in knowledge/ skills do not meet professional expectations	
Recognizes limits in the knowledge/skills of self or team, with assistance	Independently recognizes limits in the knowledge/ skills of self or team and demonstrates appropriate help-seeking behaviors	With assistance, proposes a plan to remediate or improve limits in the knowledge/skills of self or team	Independently develops a plan to remediate or improve limits in the knowledge/skills of self or team		
Comments: Not Yet Completed Level 1					

Interpersonal and Communication Skills 1: Patient and Family-Centered Communication	
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Level 1	Level 2	Level 3	Level 4	Level 5
Uses language and nonverbal 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 patient/ family 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 own role within the health care system	Identifies complex barriers to effective communication (e.g., health literacy, cultural)	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 patient/ family expectations and understanding of their health status and treatment options	Organizes and initiates communication with patient/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 patient/ family values, goals, and preferences, and acknowledges uncertainty and conflict	Independently, uses shared decision making to align patient/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 a consultation	Clearly and concisely requests a consultation	Checks own understanding of consultant recommendations	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	
Respectfully receives a consultation request	Clearly and concisely responds to a consultation request	Checks understanding of recommendations when providing consultation			
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			
	Solicits feedback on performance as a member of the health care team	Communicates concerns and provides feedback to peers and learners	Communicates feedback and constructive criticism to superiors	Facilitates regular health care team-based feedback in complex situations	
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 anticipatory guidance	Models feedback to improve others' written communication	
Safeguards patient personal health information	Demonstrates accurate, timely, and appropriate use of documentation shortcuts Documents required data in formats specified by institutional policy	Appropriately selects direct (e.g., telephone, in- person) and indirect (e.g., progress notes, text messages) forms of communication based on context	Achieves 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	
Communicates through appropriate channels as required by institutional policy (e.g., patient safety reports, cell phone/pager usage)	Respectfully communicates concerns about the system	Uses appropriate channels to offer clear and constructive suggestions to improve the system	Initiates difficult conversations with appropriate stakeholders to improve the system	Facilitates dialogue regarding systems issues among larger community stakeholders (institution, health care system, field)	
Comments:	Comments: Not Yet Completed Level 1				