

UNITED COUNCIL  
FOR  
NEUROLOGIC  
SUBSPECIALTIES

## UCNS Neurocritical Care Milestones

For definitions and instructions to complete milestones, please visit the [ACGME website](#).

- UCNS Common Milestones for Interpersonal & Communication Skills, Practice-based Learning and Improvement, Professionalism, and Systems-based Practice, adopted from the ACGME Clinical Neurophysiology milestones
- Subspecialty-specific milestones for Patient Care and Medical Knowledge

1. Systems thinking, including cost- and risk-effective practice – Systems-based Practice				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies and describes the roles of other team members.</li> <li>Identifies obvious or critical causes of error.</li> </ul>	<ul style="list-style-type: none"> <li>Minimizes unnecessary diagnostic and therapeutic tests.</li> <li>Advocates for cost-conscious utilization of resources.</li> <li>Reports system errors that contribute to patient safety.</li> </ul>	<ul style="list-style-type: none"> <li>Practices cost-effective patient care.</li> <li>Advocates for safe patient care and optimal patient care systems.</li> <li>Participates in quality assurance or improvement activities to improve patient safety.</li> </ul>	<ul style="list-style-type: none"> <li>Leads quality assurance or improvement activities.</li> <li>Initiates care delivery models to mitigate barriers to cost-effective and high-quality care.</li> </ul>	<ul style="list-style-type: none"> <li>Mentors others in quality improvement activities.</li> <li>Mentors others in developing care delivery models.</li> </ul>
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2. Self-directed learning – Practice-based Learning and Improvement				
<ul style="list-style-type: none"> <li>Identify strengths, deficiencies, and limits in one’s knowledge and expertise</li> <li>Set learning and improvement goals</li> <li>Identify and perform appropriate learning activities</li> </ul>				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Engages in self-reflection when asked to do so.</li> <li>Responsive to feedback when offered.</li> </ul>	<ul style="list-style-type: none"> <li>Welcomes unsolicited feedback.</li> <li>Engages in self-reflection routinely.</li> <li>Receptive to feedback from multiple sources.</li> </ul>	<ul style="list-style-type: none"> <li>Recognizes sub-optimal performance as an opportunity for self-improvement.</li> <li>Consistently incorporates feedback in learning plan.</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrates proficiency in reconciling disparate or conflicting feedback.</li> <li>Continuously self-reflects and incorporates self-improvement opportunities to maximize practice improvement.</li> <li>Seeks 360-degree feedback.</li> </ul>	<ul style="list-style-type: none"> <li>Mentors others on self-reflection.</li> <li>Mentors others on the process of self-improvement.</li> <li>Provides constructive feedback to others in a non-judgmental manner.</li> </ul>
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**3. Compassion, integrity, accountability, and respect for self and others – Professionalism**

Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Demonstrates compassion, sensitivity and responsiveness to patients and families.</li> <li>• Demonstrates non-discriminatory behavior in all interactions including diverse and vulnerable populations.</li> <li>• Consistently demonstrates professional behavior, including, boundaries, dress, and timeliness in all activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates appropriate steps to address impairment in self.</li> <li>• Demonstrates compassionate practice of medicine, even in context of disagreement with patient beliefs.</li> <li>• Incorporates patients' socio-cultural needs and beliefs into patient care.</li> <li>• Advocates for quality patient care.</li> </ul>	<ul style="list-style-type: none"> <li>• Advocates to reduce healthcare disparities.</li> <li>• Demonstrates appropriate steps to address impairment in colleagues.</li> <li>• Committed to managing conflicts of interest with sponsors and/or for-profit industries.</li> </ul>	<ul style="list-style-type: none"> <li>• Mentors others in the compassionate practice of medicine, even in context of disagreement with patient beliefs.</li> <li>• Mentors others in sensitivity and responsiveness to diverse and vulnerable populations.</li> </ul>	<ul style="list-style-type: none"> <li>• Engages in scholarly activity regarding professionalism in the subspecialty.</li> <li>• Advocates for quality patient care at a regional or national level.</li> <li>• Advocates to reduce healthcare disparities at a regional or national level.</li> </ul>

  
    
    
    
    
    
    
    

**Comments:** **Not Applicable**

4. Knowledge about, respect for, and adherence to the ethical principles relevant to the practice of medicine, remembering in particular that responsiveness to patients that supersedes self-interest is an essential aspect of medical practice – Professionalism				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Demonstrates ability to discuss common ethical principles and identify ethical issues in practice.</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently displays responsiveness to patients that supersedes self-interest.</li> </ul>	<ul style="list-style-type: none"> <li>• Analyzes and manages ethical issues in straightforward clinical situations.</li> </ul>	<ul style="list-style-type: none"> <li>• Analyzes and manages ethical issues in complex clinical situations.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates leadership and mentorship in applying ethical principles.</li> <li>• Active participant on hospital ethics committee.</li> </ul>
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5. Relationship development, teamwork, and managing conflict – Interpersonal and Communication Skills				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Develops a therapeutic relationship with patients in uncomplicated situations.</li> <li>• Actively participates in team-based care.</li> </ul>	<ul style="list-style-type: none"> <li>• Manages simple patient/ family related conflicts.</li> <li>• Engages patients in shared decision making.</li> <li>• Consistently demonstrates respect for all team members.</li> </ul>	<ul style="list-style-type: none"> <li>• Manages conflict in complex situations.</li> <li>• Uses easy-to-understand language in all phases of communication (avoids “medicalese” and considers the health literacy of the recipient).</li> <li>• Consistently demonstrates respect for healthcare providers from other departments.</li> </ul>	<ul style="list-style-type: none"> <li>• Manages conflict across specialties and systems of care.</li> <li>• Leads team-based patient care activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Engages in scholarly activity regarding teamwork and conflict management.</li> <li>• Is proficient in crucial conversations.</li> </ul>
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6. Demonstrates communication skills which result in effective information exchange and collaboration with patients, their families and other healthcare professionals – Interpersonal and Communication Skills				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Completes documentation in a timely fashion.</li> <li>• Describes how to communicate respectfully with persons of different socioeconomic and cultural backgrounds.</li> <li>• Follows through on patient communications.</li> <li>• Forwards notes to appropriate providers.</li> </ul>	<ul style="list-style-type: none"> <li>• Educates patients about their diseases and management including risks and benefits of treatment options.</li> <li>• Effectively communicates the results of a neurologic consultation in a timely manner.</li> <li>• Effectively communicates with other healthcare professionals.</li> </ul>	<ul style="list-style-type: none"> <li>• Effectively gathers information from collateral sources when necessary.</li> <li>• Demonstrates synthesis, formulation, and thought process in documentation.</li> <li>• Demonstrates effective non-verbal communication skills.</li> </ul>	<ul style="list-style-type: none"> <li>• Mentors colleagues in timely, accurate and efficient documentation.</li> <li>• Consistently uses teach back in patient encounters.</li> <li>• Models cross-cultural communication and establishes therapeutic relationships with persons of diverse socioeconomic and cultural backgrounds.</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently receives highest tenth percentile patient/family feedback on communication skills on standardized validated assessments.</li> <li>• Develops patient education materials related to the subspecialty.</li> <li>• Engages in scholarly activity regarding interpersonal communication in the subspecialty.</li> </ul>
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7. Research and other scholarly activity				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Reads subspecialty-scientific literature.</li> </ul>	<ul style="list-style-type: none"> <li>• Critically evaluates and presents results of published research in the subspecialty at journal club or in a similar setting.</li> </ul>	<ul style="list-style-type: none"> <li>• Writes a case report, review article, or chapter suitable for publication in the subspecialty, or</li> <li>• Presents an abstract or lecture in field of the subspecialty at a professional meeting.</li> </ul>	<ul style="list-style-type: none"> <li>• Designs and initiates original research in field of the subspecialty.</li> <li>• Develops an educational curriculum in the subspecialty.</li> </ul>	<ul style="list-style-type: none"> <li>• Publishes original peer-reviewed research.</li> <li>• Serves as a research mentor.</li> </ul>
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**Neurocritical Care Medicine Milestones for Patient Care and Medical Knowledge**

<b>8. Gathers and synthesizes essential and accurate information to define each patient’s clinical problem(s). (General Critical Care; Neurocritical Care) – Patient Care 1</b>				
<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>
<ul style="list-style-type: none"> <li>• Collects basic relevant historical data</li> <li>• Performs a fundamentally sound physical and neurologic exam</li> <li>• Uses multiple sources to generate differential diagnoses</li> <li>• Identifies patient’s primary clinical problems</li> <li>• Recognizes potentially life-threatening problems</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently acquires accurate and relevant histories</li> <li>• Consistently performs accurate and appropriately thorough physical exams</li> <li>• Consistently recognizes patient’s central clinical problem and develops differential diagnoses.</li> </ul>	<ul style="list-style-type: none"> <li>• Acquires accurate histories in an efficient, prioritized, and hypothesis-driven fashion</li> <li>• Performs accurate physical exams that are targeted to the patient’s problems</li> <li>• Uses and synthesizes collected data to define a patient’s central clinical problem(s) and generates a prioritized differential diagnosis and problem list</li> </ul>	<ul style="list-style-type: none"> <li>• Obtains relevant historical subtleties, including sensitive information that informs the differential diagnosis</li> <li>• Identifies subtle or unusual physical exam findings</li> <li>• Efficiently utilizes all sources of secondary data to inform differential diagnosis</li> <li>• Effectively uses history and physical examination skills to minimize the need for further diagnostic testing</li> </ul>	<ul style="list-style-type: none"> <li>• Role-models and teaches the effective use of history and physical examination skills to minimize the need for further diagnostic testing</li> </ul>
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9. Develops and achieves comprehensive management plan for each patient. (General Critical Care; Neurocritical Care) – Patient Care 2				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Care plans are basic but generally appropriate and accurate</li> <li>• Generally reacts appropriately to situations that require urgent or emergency care</li> <li>• Will frequently seek additional guidance</li> </ul>	<ul style="list-style-type: none"> <li>• Develops an integrated care plan based on multiple sources and synthesis of complex data</li> <li>• Often recognizes subtle situations that require urgent or emergency care</li> <li>• Generally identifies when additional guidance is needed and appropriate</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently synthesizes complex care plans that reflect all pertinent data</li> <li>• Consistently recognizes situations requiring urgent or emergency care</li> <li>• Consistently seeks additional guidance and/or consultation for complex cases as appropriate</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriately modifies care plans based on patient’s clinical course, additional data, patient preferences, and cost-effectiveness principles</li> <li>• Recognizes disease presentations that deviate from common patterns and require complex decision-making, incorporating diagnostic uncertainty</li> <li>• Manages complex conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Role-models and teaches complex and patient-centered care</li> <li>• Develops customized, prioritized care plans for the most complex patients, incorporating diagnostic uncertainty and cost-effectiveness principles.</li> </ul>
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**10. Manages patients with progressive responsibility and independence. (General Critical Care issues, e.g., cardiopulmonary arrest, sepsis, shock, hemodynamic instability, hypoxia, multi-organ failure, etc.; Neurocritical Care) – Patient Care 3**

Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Requires direct supervision in the delivery of critical care</li> <li>• Initiates fundamental management of patients who require urgent or emergency care</li> <li>• Assumes conditional responsibility for patient management decisions</li> </ul>	<ul style="list-style-type: none"> <li>• At times requires direct supervision to ensure safety and quality care of critically ill patients</li> <li>• Conditionally able to temporarily manage problems or common critical care diseases</li> <li>• Generally able to provide emergency care in the ICU</li> <li>• Conditionally able to manage complex patients requiring intensive care with supervision</li> </ul>	<ul style="list-style-type: none"> <li>• Requires indirect supervision to ensure patient safety and quality critical care</li> <li>• Provides appropriate care in the critical care setting under indirect supervision</li> <li>• Provides comprehensive care for single or multiple diagnoses</li> <li>• Initiates management plans for urgent or emergency care</li> <li>• Beginning to demonstrate ability to simultaneously manage multiple critically ill patients</li> <li>• Can independently supervise care provided by other members of a physician-led team</li> </ul>	<ul style="list-style-type: none"> <li>• Independently manages patients in the ICU who have a broad spectrum of clinical disorders, including undifferentiated syndromes</li> <li>• Seeks additional guidance and/or subspecialty consultation as appropriate</li> <li>• Appropriately manages situations requiring urgent or emergency care</li> <li>• Effectively supervises the management decisions of the team in all appropriate clinical settings</li> <li>• Independently manages multiple critically ill patients simultaneously</li> </ul>	<ul style="list-style-type: none"> <li>• Effectively manages unusual, rare, or complex disorders</li> <li>• Ability to triage critically ill patients across a complex health care system</li> <li>• Effectively oversees remote care and/or transfer of critically ill patients at a system level</li> </ul>

                              

**Comments:** **Not Applicable**

**11. Demonstrates skill in performing, managing, and interpreting invasive procedures. (Procedural, General Critical Care) – Patient Care 4a**

**Required procedures include: Airway Management including Endotracheal Intubation; Basic Critical Care Bronchoscopy; Mechanical Ventilation; Central Venous Access; Arterial Cannulation; Tube Thoracostomy; Lumbar Puncture; Procedural sedation; Interpretation of Pulmonary Artery Data**

**Optional procedures include but are not limited to: Placement of Pulmonary Artery Catheter; placement of Temporary Transvenous Pacemaker; Tracheostomy; Paracentesis; placement of Intracranial Monitoring Devices; etc.**

Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Able to describe indications for and risks of common invasive procedures</li> <li>• Begins to recognize cases in which invasive procedures are unwarranted or unsafe</li> <li>• Recognizes the need to discuss procedure indications, processes, or potential risks with patients</li> <li>• Understands the informed consent process, and effectively describes risks and benefits of procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses technical skill for safe completion of common invasive procedures with appropriate supervision</li> <li>• Begins to anticipate or prevent common complications</li> <li>• Developing attention to patient safety and comfort when performing invasive procedures</li> <li>• Understands, applies and communicates ethical principles of informed consent for procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses basic technical skill for the completion and interpretation of many common invasive procedures with appropriate indirect supervision</li> <li>• Demonstrates ability to anticipate or prevent common complications</li> <li>• Consistently manages patient safety and comfort when performing invasive procedures</li> <li>• Recognizes appropriate patients, indications, and associated risks in the performance of invasive procedures</li> <li>• Obtains and documents informed consent</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently demonstrates technical skill to successfully and safely perform and interpret invasive procedures</li> <li>• Consistently anticipates or prevents common complications</li> <li>• Maximizes patient comfort and safety when performing invasive procedures</li> <li>• Consistently recognizes appropriate patients, indications, and associated risks in the performance of invasive procedures</li> <li>• Integrates procedures and/or testing results with clinical findings in the evaluation and management of patients</li> <li>• Recognizes procedures and/or testing results that indicate high-risk</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates skill to independently perform and interpret complex invasive procedures that are anticipated for future practice</li> <li>• Demonstrates expertise and instructs others in the ability to anticipate or prevent common complications</li> <li>• Demonstrates expertise to teach and supervise others in the performance of invasive procedures</li> <li>• Participates in development of procedural related policies, informed consent documents, and/or educational materials.</li> </ul>

			state or adverse prognosis <ul style="list-style-type: none"> <li>• Recognizes artifacts and normal variants</li> <li>• Effectively obtains and documents informed consent in challenging circumstances (e.g., language or cultural barriers)</li> <li>• Quantifies evidence for risk-benefit analysis during obtainment of informed consent for complex procedures or therapies</li> </ul>					
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**12. Demonstrates skill in performing and interpreting non-invasive procedures and/or testing. (Procedural, General Critical Care) – Patient Care 4b**

**Required procedures include: Non-invasive Positive Pressure Ventilation; Non-invasive Hemodynamic Monitors; Cardioversion; Point of Care Ultrasound**

Level 1	Level 2	Level 3	Level 4 Ready for	Level 5
<ul style="list-style-type: none"> <li>Recognizes patients for whom non-invasive procedures may not be safe</li> <li>Has begun to perform or interpret non-invasive procedures and/or testing</li> <li>Recognizes the need to discuss procedure indications, processes, or potential risks with patients</li> <li>Engages the patient in the informed consent process when appropriate and/or effectively describes risks and benefits of procedures.</li> </ul>	<ul style="list-style-type: none"> <li>Possesses sufficient skill to safely perform and interpret non-invasive procedures and/or testing with appropriate supervision</li> <li>Is attentive to patient safety and comfort when performing non-invasive procedures and/or testing procedures</li> <li>Applies ethical principles of informed procedural consent when appropriate</li> <li>Recognizes need to obtain informed procedural consent for procedures when appropriate, but ineffectively obtains it</li> <li>Balances patient safety with the need to acquire diagnostic data</li> </ul>	<ul style="list-style-type: none"> <li>Generally recognizes appropriate patients, indications, and associated risks in the utilization of non-invasive procedures and/or testing</li> <li>Generally integrates procedures and/or testing results with clinical features in the evaluation and management of patients</li> <li>Can safely perform and interpret selected non-invasive procedures and/or testing procedures with minimal supervision</li> <li>Inconsistently recognizes high-risk findings and artifacts/normal variants</li> <li>Obtains and documents informed consent when appropriate</li> </ul>	<ul style="list-style-type: none"> <li>Consistently recognizes appropriate patients, indications, limitations, and associated risks in utilization of non-invasive procedures and/or testing</li> <li>Consistently performs and interprets non-invasive procedures and/or testing in a safe and effective manner</li> <li>Integrates procedures and/or testing results with clinical findings in the evaluation and management of patients</li> <li>Recognizes procedures and/or testing results that indicate high-risk state or adverse prognosis</li> <li>Recognizes artifacts and normal variants</li> <li>Effectively obtains and documents informed consent in challenging circumstances (e.g., language or cultural barriers)</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrates skill to independently perform and interpret complex non-invasive procedures and/or testing</li> <li>Demonstrates expertise to teach and supervise others in the performance of advanced non-invasive procedures and/or testing</li> </ul>

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**13. Demonstrates skill in bedside interpretation of Neurocritical Care-specific procedural data. (Procedural, Neurocritical Care) – Patient Care 4c**

**Required Procedures include: Bedside EEG; Transcranial Dopplers, Basic Intracranial Neuromonitoring (including but, not limited to, intracranial pressure and waveforms, cerebral perfusion pressure, brain tissue oxygen monitoring, brain temperature, etc.), Evoked Potentials, NCV/EMG, Neuroimaging (including, but not limited to CT, MRI, angiography, and perfusion imaging)**

**Optional Procedures include: Advanced Intracranial Neuromonitoring (including, but not limited to, cerebral blood flow, microdialysis, spreading depolarizations, etc.)**

Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Begins to interpret procedural data under supervision</li> <li>• Recognizes cases in which procedures are unwarranted or unsafe</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses adequate skill to interpret core neurocritical care procedural data with supervision</li> <li>• Conditionally recognizes critical monitoring data and initiates appropriate basic therapy</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses basic skill for the interpretation of common NCC specific procedural data with appropriate supervision</li> <li>• Generally manages patient safety and comfort during procedures</li> <li>• Generally recognizes appropriate patients, indications for, and associated risks of procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently demonstrates skill to successfully and safely interpret NCC specific procedural data</li> <li>• Consistently recognizes appropriate patients, indications, and associated risks of procedures and assess them in context of potential value of procedural data</li> <li>• Integrates procedures and/or testing results with clinical findings in the evaluation and management of patients</li> <li>• Recognizes procedures and/or testing results that indicate high-risk state or adverse prognosis</li> <li>• Recognizes artifacts and normal variants</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates skill to independently interpret complex NCC procedural data that are anticipated for future practice</li> <li>• Demonstrates expertise to teach and supervise others in the interpretation of procedural data</li> </ul>



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<b>Comments:</b>								
<b>Not Applicable</b> <input type="checkbox"/>								

**14. Requests and provides consultative care. (Neurocritical Care, General Critical Care) – Patient Care 5**

Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Responds to questions or concerns of others when acting as a consultant or utilizing consultant services</li> <li>• Utilizes consultant services when appropriate for patient care</li> <li>• Demonstrates collaboration and professionalism when acting as a consultant</li> <li>• Identifies the need to request appropriate consultations</li> </ul>	<ul style="list-style-type: none"> <li>• Conditionally manages patients as a consultant to other physicians/health care teams</li> <li>• Usually identifies competing risks of recommendations made on complex critically ill patients</li> <li>• Generally formulates a clinical question for a consultant to address</li> </ul>	<ul style="list-style-type: none"> <li>• Provides consultation services for patients with clinical problems requiring basic risk assessment</li> <li>• Consistently recognizes the need to request appropriate consultations</li> <li>• Asks meaningful clinical questions that guide the input of consultants</li> <li>• Recognizes neurological comorbidities in critically ill patients</li> <li>• Consistently recognizes competing risks of recommendations made on complex critically ill patients</li> </ul>	<ul style="list-style-type: none"> <li>• Provides consultation services for patients with basic and complex clinical problems requiring detailed risk assessment</li> <li>• Demonstrates the ability to appropriately request consultative services</li> <li>• Appropriately integrates recommendations from other consultants in order to effectively manage patient care</li> <li>• Provides appropriate recommendations to consultants seeking input regarding neurological and neurosurgical disorders in critically ill patients</li> </ul>	<ul style="list-style-type: none"> <li>• Provides consultation services for patients with very complex clinical problems requiring extensive risk assessment</li> <li>• Seamlessly integrates appropriate consultative services into all aspects of patient care.</li> <li>• Models management of discordant recommendations from multiple consultants</li> </ul>

                              

**Comments:** **Not Applicable**

15. Possesses Clinical knowledge – Medical Knowledge 1				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Possesses fundamental medical knowledge, with culturally appropriate modifiers, required to initiate patient care</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses sufficient scientific, socioeconomic, and behavioral knowledge required to provide care for common medical conditions and basic preventive care</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses the scientific, socioeconomic, and behavioral knowledge required to provide care for common critical care conditions, including basic emergency and acute care</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses the scientific, socioeconomic, and behavioral knowledge required to provide care for complex conditions and comprehensive critical care</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses the scientific, socioeconomic, and behavioral knowledge required to successfully diagnose and treat medically uncommon, ambiguous, and complex conditions</li> </ul>
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**16. Knowledge of diagnostic testing and procedures – Medical Knowledge 2**

Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Possesses foundational knowledge to apply diagnostic testing and procedures to patient care</li> </ul>	<ul style="list-style-type: none"> <li>• Conditionally interprets basic diagnostic tests accurately</li> <li>• Begins to integrate the concepts of pre-test probability and test performance characteristics into patient care decisions</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently interprets basic diagnostic tests accurately</li> <li>• Needs limited assistance to understand the concepts of pre-test probability and test performance characteristics</li> <li>• Fully understands the rationale and risks associated with common procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Interprets complex diagnostic tests accurately while accounting for limitations and biases</li> <li>• Knows the indications for, and limitations of, diagnostic testing and procedures</li> <li>• Understands the concepts of pre-test probability and test performance characteristics</li> <li>• Teaches the rationale and risks associated with common procedures and anticipates potential complications of procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Anticipates and accounts for subtle nuances of interpreting diagnostic tests and procedures</li> <li>• Pursues knowledge of new and emerging diagnostic tests and procedures</li> </ul>

**Comments:**

**Not Applicable**

### 17. Scholarship – Medical Knowledge 3

Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Has foundational understanding of scientific inquiry and scholarly productivity</li> <li>• Beginning to develop the skills necessary to effectively disseminate knowledge in the subspecialty</li> </ul>	<ul style="list-style-type: none"> <li>• Performs a literature search using relevant scholarly sources to identify pertinent articles</li> <li>• Is aware of basic statistical concepts, conditionally identifies methodological flaws</li> <li>• Communicates fundamental details of scientific work, including his or her own scholarly work; working towards consistent presentational skills</li> <li>• Begins to engage in critical thinking regarding clinical practice, quality improvement, patient safety, education, or research</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies areas worthy of scholarly investigation and formulates a plan under supervision of a mentor</li> <li>• Critically reads scientific literature and identifies major methodological flaws and inconsistencies within or between publications</li> <li>• Understands and is able to apply basic statistical concepts, and can identify potential analytic methods for data or problem assessment</li> <li>• Effectively presents at journal club, quality improvement meetings, clinical conferences, and/or is able to effectively describe and discuss his or her own scholarly work or research</li> </ul>	<ul style="list-style-type: none"> <li>• Formulates ideas worthy of scholarly investigation</li> <li>• Collaborates with other investigators to design and complete a project related to clinical practice, quality improvement, patient safety, education, or research</li> <li>• Critiques specialized scientific literature effectively</li> <li>• Dissects a problem into its many component parts and identifies strategies for solving</li> <li>• Uses analytical methods of the field effectively</li> <li>• Presents scholarly activity at local or regional meetings, and/or submits an abstract summarizing scholarly work to regional/state/ national meetings, and/or publishes non-peer-reviewed manuscript(s) (reviews, book chapters)</li> </ul>	<ul style="list-style-type: none"> <li>• Independently formulates novel and important ideas worthy of scholarly investigation</li> <li>• Leads a scholarly project advancing clinical practice, quality improvement, patient safety, education, or research</li> <li>• Obtains independent research funding</li> <li>• Critiques specialized scientific literature at a level consistent with participation in peer review</li> <li>• Employs optimal statistical techniques</li> <li>• Teaches analytic methods in chosen field to peers and others</li> <li>• Effectively presents scholarly work at national and international meetings</li> <li>• Publishes peer-reviewed manuscript(s) containing scholarly work (clinical practice, quality improvement, patient</li> </ul>

									safety, education, or research)
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<b>Comments:</b> <div style="text-align: right;"> <b>Not Applicable</b> <input type="checkbox"/> </div>									