



# UCNS Neonatal Neurocritical Care Milestones

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

**Draft 3 for Comment Period**

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

8. Gathers and synthesizes essential and accurate information to define each patient's clinical problem(s). (Neonatal Neurocritical Care) – Patient Care 1				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Collects basic relevant historical data</li> <li>• Performs a developmentally appropriate neonatal exam</li> <li>• Uses multiple sources to generate differential diagnoses</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently acquires accurate and relevant history, including relevant maternal, fetal as well as neonatal course</li> <li>• Consistently performs developmentally appropriate neurologic exams</li> <li>• Consistently recognizes patient's primary neurologic problem and develops differential diagnoses based on examination / localization</li> </ul>	<ul style="list-style-type: none"> <li>• Acquires accurate histories in an efficient, prioritized, and hypothesis-driven fashion</li> <li>• Performs accurate neonatal neurologic exams that are targeted to the patient's problems, appropriately localizing pathology based on examination</li> <li>• Uses and synthesizes collected data to define a patient's central neurologic 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 information that informs the differential diagnosis</li> <li>• Identifies subtle or unusual physical exam findings, include use of dysmorphology evaluation to help guide genetic testing</li> <li>• Utilizes / interprets standardized neonatal neurologic examination tools</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 recommendations for each patient. (Neonatal Neurocritical Care) – Patient Care 2				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Recommendations are basic but generally appropriate and accurate</li> <li>• Reacts appropriately to situations that require urgent or emergency consultation / management</li> <li>• Will frequently seek additional guidance</li> </ul>	<ul style="list-style-type: none"> <li>• Develops recommendations based on multiple sources and synthesis of complex data</li> <li>• Often recognizes subtle situations that require urgent or emergency consultation / management</li> <li>• 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 evaluation / management</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, and cost-effectiveness principles</li> <li>• Recognizes disease presentations that deviate from common patterns and require complex decision-making, incorporating diagnostic uncertainty</li> </ul>	<ul style="list-style-type: none"> <li>• Role-models and teaches complex and patient-centered care</li> <li>• Develops customized recommendations 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. (Neonatal 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</li> <li>• Initiates fundamental management of patients who require urgent or emergency evaluation</li> <li>• Assumes conditional responsibility for patient management decisions</li> </ul>	<ul style="list-style-type: none"> <li>• At times requires direct supervision</li> <li>• Conditionally able to temporarily manage problems or common neonatal neurology presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Requires indirect supervision</li> <li>• Provides appropriate care in the inpatient and outpatient settings under indirect supervision</li> <li>• Beginning to demonstrate ability to simultaneously manage multiple infants with acute neurologic concerns</li> <li>• Can independently supervise care provided by other members of a physician-led team</li> </ul>	<ul style="list-style-type: none"> <li>• Able manage multiple neonates in the critical care units with a broad spectrum of neurologic clinical presentations, including undifferentiated syndromes</li> <li>• Seeks additional guidance and/or subspecialty consultation as appropriate</li> <li>• Effectively supervises the team in all appropriate clinical settings</li> </ul>	<ul style="list-style-type: none"> <li>• Effectively identifies and manages unusual, rare, or complex neurologic disorders</li> </ul>
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11. Demonstrates skill in bedside interpretation of Neonatal Neurocritical Care-specific procedural data. (Procedural, Neonatal Neurocritical Care) – Patient Care 4				
Required Procedures include: LP result interpretation, bedside conventional EEG, aEEG; Transcranial Dopplers, Basic Intracranial Neuromonitoring including but, not limited to, NIRS, Neonatal NCV/EMG, Neuroimaging (including, but not limited to head ultrasound, CT, MRI, angiography)				
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 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 neonatal neurocritical specific procedural data with appropriate supervision</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 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 developmental variants</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates skill to independently interpret complex procedural data</li> <li>• Demonstrates expertise to teach and supervise others in the interpretation of procedural data</li> </ul>
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**12. Provides consultative care in both inpatient and outpatient settings (Neonatal Neurocritical 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>• Demonstrates collaboration and professionalism when acting as a consultant</li> <li>• Identifies the need to request appropriate additional consultations</li> </ul>	<ul style="list-style-type: none"> <li>• Conditionally manages patients as a consultant to other physicians/health care teams</li> <li>• Identifies competing recommendations made on complex critically ill patients</li> </ul>	<ul style="list-style-type: none"> <li>• Provides consultation services for patients / families with neurologic concerns in a variety of settings</li> <li>• Recognizes need to request appropriate subspecialty consultations</li> <li>• Asks meaningful clinical questions that guide the input of subspecialty consultants both in the ICU setting as well as after discharge</li> <li>• Recognizes neurological comorbidities in critically ill patients</li> </ul>	<ul style="list-style-type: none"> <li>• Provides consultation services for patients with basic and complex clinical neurologic problems, including in the fetal period</li> <li>• Demonstrates the ability to appropriately request additional subspecialty consultative services</li> <li>• Appropriately integrates recommendations from other consultants in order to effectively manage patient neurologic care</li> <li>• Provides appropriate recommendations to consultants seeking input regarding neurological concerns in critically ill neonates and infants</li> </ul>	<ul style="list-style-type: none"> <li>• Provides consultation services for patients and families with very complex neurologic problems requiring extensive risk assessment across multiple settings (fetal consultations, intensive care units, outpatient follow up clinics)</li> <li>• Collaborative model of recommendations to coordinate among multiple consultants</li> </ul>

                                  

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

13. 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 consultive care</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses sufficient scientific, socioeconomic, and behavioral knowledge required to provide neonatal neurologic care in a family-centered manner</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses the scientific, socioeconomic, and behavioral knowledge required to provide care for common neonatal neurology presentations, including urgent and emergent care</li> </ul>	<ul style="list-style-type: none"> <li>• Possesses the scientific, socioeconomic, and behavioral knowledge required to evaluate and provide care for complex neonatal neurologic conditions</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 neonatal neurologic conditions in a family centered manner</li> </ul>
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14. 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> </ul>	<ul style="list-style-type: none"> <li>• Consistently interprets basic diagnostic tests accurately</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>• 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 and clinical care guidelines</li> </ul>
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15. 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 safety, education, or research)</li> </ul>
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