

UNITED COUNCIL
FOR
NEUROLOGIC
SUBSPECIALTIES

UCNS Autonomic Disorders Milestones

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

Draft 7 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 – Not included for comment

| 1. Patient Care – Autonomic History and Exam | | | | |
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| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <ul style="list-style-type: none"> Obtains a concise medical history relevant to autonomic disorders. Obtains a basic and accurate cardiopulmonary and neurological examination. | <ul style="list-style-type: none"> Obtains a more detailed and relevant autonomic history. Utilizes electronic medical record to formulate history without distracting from the patient interview. | <ul style="list-style-type: none"> Obtains a complete, relevant and organized autonomic history synthesizing data and integrating testing results with clinical data. Reliably obtains information on all body systems potentially affected by autonomic disorders. | <ul style="list-style-type: none"> Acquires accurate histories in an efficient, prioritized, and hypothesis-driven fashion. Performs accurate physical exam targeted to the patient's problems. Uses and synthesizes data to define a patient's central clinical problem and generates a differential diagnosis and problem list. Integrates testing results with clinical findings. | <ul style="list-style-type: none"> Obtains relevant historical subtleties, including sensitive information that informs the differential diagnosis. Capable of high-level interpretation of diagnostic tests and procedures. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | Not Applicable <input type="checkbox"/> |

| 2. Patient Care - Autonomic Testing | | | | |
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| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <ul style="list-style-type: none"> • Possesses foundational knowledge to apply diagnostic testing and procedures to patient care. • Can assist a trained technologist with the technical aspect of autonomic testing. • Recognizes factors influencing testing. • Understands and is able to explain to patients testing procedure and potential symptoms that may occur. | <ul style="list-style-type: none"> • Recognizes normal and abnormal findings obtained during testing. • Interprets basic diagnostic testing accurately, taking into account potential technical or individual non-autonomic issues. • Begins to integrate the findings of testing into patient care decisions. • Applies ethical principles of informed procedural consent when appropriate. | <ul style="list-style-type: none"> • Consistently interprets basic diagnostic tests accurately. • Fully understands the rationale and risks of testing. • Consistently recognizes appropriate indications for testing and associated risks. • Generally integrates procedures and/or testing results with clinical features in the evaluation and management of patients. • Accurately performs autonomic test procedures in a safe and effective manner with minimal supervision. | <ul style="list-style-type: none"> • Knows the indications for, and limitations of, diagnostic testing and procedures. • Consistently integrates procedures and/or testing results with clinical findings in the interpretation of testing results. • Easily recognizes artifacts and normal variants. • Interprets complex diagnostic tests accurately. • Understands and interprets results from less commonly used autonomic tests (or variations in technique). | <ul style="list-style-type: none"> • Anticipates and accounts for nuances of diagnostic interpretation. • Pursues knowledge of new and emerging diagnostic tests and procedures. • Demonstrates skill to independently perform and interpret complex or less common testing procedures. • Demonstrates expertise to teach and supervise others in the performance of non-invasive autonomic testing. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: Not Applicable <input type="checkbox"/> | | | | |

| 3. Medical Knowledge – Autonomic Physiology and Pharmacology | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <ul style="list-style-type: none"> Describes the anatomical organization of the central autonomic control centers and peripheral parasympathetic, sympathetic and enteric nervous systems. | <ul style="list-style-type: none"> Understands basic physiology of autonomic function. Understands basics of cardiovascular, respiratory, gastrointestinal, pupillary, sudomotor, and other autonomic reflexes. | <ul style="list-style-type: none"> Demonstrates knowledge of peripheral autonomic neurotransmission, including distribution of neurotransmitters and their receptors, receptor subtypes, and target organ effects. Shows advanced knowledge of normal autonomic physiology and autonomic reflexes. | <ul style="list-style-type: none"> Understands autonomic pharmacology, including pharmacokinetics and pharmacodynamics of common drugs affecting the ANS. Describes autonomic physiology associated with complex phenomena such as neurocardiogenic syncope, GI motility and thermoregulation. | <ul style="list-style-type: none"> Demonstrates advanced knowledge of autonomic physiology including off-target effects of medications, uncommon side effects and drug interactions. Demonstrates advanced knowledge of autonomic pharmacology, including pharmacokinetics and pharmacodynamics of most drugs affecting the ANS. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | Not Applicable <input type="checkbox"/> |

| 4. Medical Knowledge – Pathophysiology of Autonomic Disease States | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <ul style="list-style-type: none"> • Describes the various categories of disease that can affect autonomic function. | <ul style="list-style-type: none"> • Gives specific examples of autonomic disorders of different etiologies (e.g., genetic, neurodegenerative, metabolic, immune-mediated). • Understands the consequences and manifestations of baroreflex dysfunction. • Differentiates neurogenic from non-neurogenic orthostatic hypotension. | <ul style="list-style-type: none"> • Describes the core clinical features of different neurodegenerative autonomic disorder. • Describes common etiologies of autonomic and small fiber neuropathies (including diabetes and amyloidosis). • Describes common etiologies of syncope and orthostatic intolerance. • Describes differences between disorders of central versus peripheral autonomic nervous system. | <ul style="list-style-type: none"> • Describes the pathological and pathophysiological differences between different autonomic disorders. • Describes uncommon causes of autonomic neuropathy (such as autoimmune and paraneoplastic). • Understands nuances of the manifestations of autonomic dysfunction in diabetes. • Describes various pathophysiological mechanisms that may contribute to postural tachycardia syndrome. | <ul style="list-style-type: none"> • Detailed understanding of alpha-synuclein biology. • Detailed understanding of familial dysautonomia and other inherited autonomic disorders. • Participates in research on or teaching in pathophysiology of autonomic disorders. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: Not Applicable <input type="checkbox"/> | | | | |

| 5. Medical Knowledge – Cardiology, Gastroenterology, Urology & Other diagnostics | | | | |
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| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <ul style="list-style-type: none"> • Possesses foundational knowledge of cardiac, GI & GU autonomic anatomy and physiology. • Possesses basic knowledge of cardiac, GI & GU pharmacology. | <ul style="list-style-type: none"> • Understands the concepts of standard GI & GU testing and interprets test results • Understands basic concepts of cardiac electrophysiological testing and interventions. • Possesses basic knowledge to explain results of cardiac, GI, and GU testing to patients. • Recognizes appropriate patients for referral, indications for testing, and associated risks. | <ul style="list-style-type: none"> • Consistently interprets GI & GU basic diagnostic tests accurately with limited assistance and understands the concepts of test performance. • Understands use and interpretation of other diagnostics such as Holter monitoring, ambulatory BP, echocardiography, gastric motility studies, urodynamic testing, and plasma catecholamines. • Generally integrates procedures and/or testing results with clinical features in the evaluation and management of patients. | <ul style="list-style-type: none"> • Knows the indications for, and limitations of, GI & GU testing and less commonly used procedures. • Consistently integrates procedures and/or testing results with clinical findings in the evaluation and management of patients. • Understands indications and interpretation of advanced diagnostic testing (e.g., autoantibodies, advanced imaging and tissue biopsy). | <ul style="list-style-type: none"> • Demonstrates sophisticated knowledge of diagnostic methods, interpretation, limitations and controversies, including new and emerging diagnostic procedures. • Demonstrates ability to work in multidisciplinary care teams with other specialists. • Understands indications and implications of genetic testing. |
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| Comments: Not Applicable <input type="checkbox"/> | | | | |

| 6. Patient Care - Therapeutics | | | | |
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| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <ul style="list-style-type: none"> • Differentiates between symptomatic therapies and disease-modifying therapies for autonomic disorders. • Prioritizes symptoms to target for therapy. | <ul style="list-style-type: none"> • Understands the concept of pharmacological and non-pharmacological therapies. • Identifies symptoms that may be responsive to therapy. | <ul style="list-style-type: none"> • Describes non-pharmacological approaches for common autonomic symptoms (i.e., orthostatic hypotension, constipation, syncope). • Identifies approved pharmacotherapies for autonomic conditions. | <ul style="list-style-type: none"> • Understands the dosing, efficacy, and side effects of commonly used drugs. • Able to counsel patients about risks and benefits of initiating therapy. • Develops a comprehensive treatment plan for patients with autonomic disorders including pharmacological and non-pharmacological interventions. | <ul style="list-style-type: none"> • Demonstrates competence to describe an approach to immunotherapies for immune-mediated autonomic disorders. • Describes emerging symptomatic and disease-modifying therapies. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | Not Applicable <input type="checkbox"/> |