

Supplemental Material for Medical Residency Milestones: Competencies in Informatics, Library, and Evidence-Based Practice

Appendix

This appendix is supplemental material for the following article:

Rhue, D. J., & Eldredge, J. D. (2022). Medical Residency Milestones: Competencies in Informatics, Library, and Evidence-Based Practice. *Medical Reference Services Quarterly*.

Article Keywords: Milestones; Evidence Based Practice; Informatics; Professional Competence; Graduate Medical Education; Educational Measurement

THE MILESTONES

The following table contains the 17 residency specialty-based milestone statements developed by the Accreditation Council for Graduate Medical Education (ACGME) that are used to track a resident's progress as they move through their residency specialty for EBP, Library and Informatics skills.

ACGME Milestones in Residency EBP, Library and Informatics Skills

Specialty: Anesthesiology, Approved: 2021

<https://www.acgme.org/Specialties/Anesthesiology/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Accesses and uses evidence in routine patient care	Articulates clinical questions and elicits patient preferences and values to guide evidence-based care	Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients	Appraises and applies evidence, even in the face of uncertainty and conflicting evidence, to guide individualized care	Coaches others to appraise and apply evidence for complex patients and/or participates in the development of guidelines

Specialty: Dermatology, Approved: 2020

<https://www.acgme.org/Specialties/Dermatology/Milestones>

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

Specialty: Emergency Medicine, Approved: 2021

<https://www.acgme.org/specialties/emergency-medicine/milestones/>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and use available evidence	Articulates the clinical questions that are necessary to guide evidence-based care	Locates and applies the best available evidence, integrating it with patient preference, to the care of complex patients	Critically appraises and applies evidence even in the face of uncertainty and of conflicting evidence to guide care that is tailored to the individual patient	Coaches others to critically appraise and apply evidence for complex patients, and/or participates in the development of guidelines

Specialty: Family Medicine, Approved: 2019

<https://www.acgme.org/specialties/family-medicine/milestones/>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access, categorize, and analyze clinical evidence	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 patients.	Coaches others to critically appraise and apply evidence for complex patients; and/or collaboratively develops evidence-based decision-making tools.

Specialty: Internal Medicine, Approved: 2020

<https://www.acgme.org/Specialties/Internal-Medicine/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access, categorize, and analyze clinical evidence, with guidance	Articulates clinical questions and elicits patient preferences and values to guide evidence-based care	Critically appraises and applies the best available evidence, integrated with patient preference, to the care of complex patients	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 to patient care

Specialty: Neurology, Approved: 2020

<https://www.acgme.org/Specialties/Neurology/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and use available evidence, and to incorporate patient preferences and values to care for a routine patient	Articulates clinical questions and elicits patient preferences and values 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 interprets 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

Specialty: Neurological Surgery, Approved: 2018

<https://www.acgme.org/specialties/neurological-surgery/milestones/>

Statement: Practice-Based Learning and Improvement 1: Evidence-Based Practice

Level 1	Level 2	Level 3	Level 4	Level 5
Applies institutional treatment guidelines in basic patient care; identifies and reports complications.	Applies published treatment guidelines in standard patient care; tracks personal clinical care outcomes.	Critically adapts guideline recommendations to individual patient specifics and preferences; evaluates and applies available outcomes data to improve patient care.	Participates in the creation and implementation of institutional guidelines or evidence-based practice protocols; analyzes and report outcomes data.	Promotes evidence-based practice by publishing clinical guidelines and teaching at local or national conferences; participates in clinical outcomes registry design or administration.

Statement: Practice-Based Learning and Improvement 2: Research

Level 1	Level 2	Level 3	Level 4	Level 5
Formulates hypotheses and investigative approaches to clinical or basic scientific problems.	Participates effectively in clinical or basic scientific research.	Contributes to peer-reviewed clinical or basic scientific literature.	Leads a clinical or basic scientific research effort, including application for funding.	Receives grant funding for clinical or basic scientific work and makes novel scientific contribution(s)

Specialty: Obstetrics & Gynecology, Approved: September 2015

<https://www.acgme.org/Specialties/Obstetrics-and-Gynecology/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates an understanding of critical appraisal of the literature Demonstrates responsiveness to constructive feedback.	Identifies resources (e.g., texts, search engines) to answer questions while providing patient care Recognizes limits of knowledge, expertise, and technical skills Describes commonly used study designs (e.g., randomized controlled trial [RCT], cohort; case-control, cross-sectional).	Applies patient-appropriate evidence-based information from review articles or guidelines on common topics in practice. Critically reviews and interprets the literature with the ability to identify study aims, hypotheses, design, and biases.	Tailors evidence-based practice based on the values and preferences of each patient Reads and assesses strength of evidence in current literature and applies it to one's own practice Analyzes his or her own outcomes as compared to national standards	Designs a hypothesis-driven or hypothesis-generating study Contributes to peer-reviewed medical literature.

Specialty: Ophthalmology, Approved: 2020

<https://www.acgme.org/specialties/ophthalmology/milestones/>

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 patients	Coaches others to critically appraise and apply evidence for complex patients; and/or participates in the development of patient care guidelines

Specialty: Orthopedic Surgery, Approved: July 2021

<https://www.acgme.org/specialties/orthopaedic-surgery/milestones/>

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 straightforward condition	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 conditions	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 conditions; and/or participates in the development of guidelines

Specialty: Otolaryngology: Head & Neck Surgery, Approved: 2021

<https://www.acgme.org/Specialties/Otolaryngology---Head-and-Neck-Surgery/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access available evidence, and incorporate patient preferences and values to take care of a routine patient	Articulates clinical questions and elicits patient preferences and values 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 to the individual patient	Coaches others to critically appraise and apply evidence for complex patients; and/or participates in the development of guidelines

Specialty: Pediatrics, Approved: 2021

<https://www.acgme.org/Specialties/Pediatrics/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Develops an answerable clinical question and demonstrates how to access available evidence, with guidance	Independently articulates clinical question and accesses available evidence	Locates and applies the evidence, integrated with patient preference, to the care of patients	Critically appraises and applies evidence, even in the face of uncertainty and conflicting evidence to guide care tailored to the individual patient	Coaches other to critically appraise and apply evidence for complex patients

Specialty: Psychiatry, Approved: 2020

<https://www.acgme.org/Specialties/Psychiatry/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and summarize available evidence for routine conditions	Articulates clinical questions and initiates literature searches to provide evidence-based care	Locates and applies the best available evidence to the care of patients applying a hierarchy of evidence	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

Specialty: Radiology, Approved: 2019

<https://www.acgme.org/Specialties/Radiology/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and use available evidence to determine the best imaging examination for a routine patient/diagnosis	Articulates clinical questions and elicits patient preferences and values in order to guide evidence-based imaging	Locates and applies the best available evidence, integrated with patient preferences and values, to the care of complex patients	Critically appraises 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

Specialty: Surgery, Approved: 2019

<https://www.acgme.org/specialties/surgery/milestones/>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and use available evidence, and incorporate patient preferences and values into the care of patients with routine conditions	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 patients with complex conditions	Critically appraises and applies evidence, even in the face of uncertain and/or conflicting evidence, to guide care, tailored to the individual patient	Coaches others to critically appraise and apply evidence for patients with complex conditions; and/or participates in the development of guidelines

Specialty: Transitional Year, Approved: 2019

<https://www.acgme.org/Specialties/Transitional-Year/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates awareness of evidence-based practice parameters, how to access and use available evidence, and how to assess the quality of the evidence	Demonstrates critical thinking of clinical situations and incorporates patient preferences and values in evidence-based care plan for routine patients	Applies the best available evidence, integrated with patient preference, to the care of complex patients	Navigates conflicting evidence to guide care tailored to individualized patient	Coaches others to critically appraise and apply evidence for the care of complex patients; and/or participates in the development of guidelines

Specialty: Urology, Approved: 2020

<https://www.acgme.org/Specialties/Urology/Milestones>

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access available evidence	Articulates clinical questions to guide evidence-based care	Integrates best available evidence with patient preferences to guide care	Tailors patient care in the setting of conflicting or absent evidence	Coaches others to critically appraise and apply evidence for patients with complex conditions