

The Clinician Educator Supplemental Guide

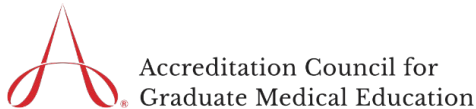
A Joint Initiative of

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Milestones Supplemental Guide

This document provides additional guidance and examples for the Clinician Educator Milestones. This is not designed to indicate any specific requirements for each level, but to provide insight into the thinking of the Milestone Work Group.

Included in this document is the intent of each Milestone and examples of what might be observed/assessed at each level. Each example is labeled with letter in parentheses to indicate which part of the continuum the example addresses; U = undergraduate medical education, G = graduate medical education, and C = continued professional development. Also included are suggested assessment models and tools for each subcompetency, references, and other useful information.

This Guide can be used to aid in self-assessment or by a trusted colleague offering a peer-assessment. Additional tools and references are available on the [Resources](#) page of the Milestones section of the ACGME website.

The Clinician Educator Supplemental Guide is designed help educators identify personal progress and create a professional development plan. The Word version of the Supplemental Guide can be downloaded and customized to meet local needs.

Suggested Use: 1) Select one subcompetency; perform a self-assessment; and specify the behaviors/actions necessary to demonstrate a desired Level (1-5). 2) Identify how to assess whether that behavior/action has been sufficiently achieved. Finally, 3) record an individualized professional development plan in the Notes and Resources section. Work through the various subcompetencies using this model as a “Commitment to Action.” The more specific the planning, the more likely one is to complete it and reach the desired Level.

These Milestones are organized under five competencies:

Universal Pillars for All Clinician Educators

Demonstrate the commitment to lifelong learning and enhancing one's own behaviors as a clinician educator.

Educational Theory and Practice

Ensure the optimal development of competent learners through the application of the science of teaching and learning to practice.

Well-Being

Apply principles of well-being to develop and model a learning environment that supports behaviors which promote personal and learner psychological, emotional, and physical health.

Diversity, Equity, and Inclusion in the Learning Environment

Acknowledge and address the complex intrapersonal, interpersonal, and systemic influences of diversity, power, privilege, and inequity in all settings so all educators and learners can thrive and succeed.

Administration

Demonstrate administrative skills relevant to their professional role, program management, and the learning environment that leads to best health outcomes.

Universal Pillar 1: Reflective Practice and Commitment to Personal Growth Overall Intent: To seek performance data and develop a learning plan	
Milestones	Examples
Level 1 <i>Accepts responsibility for personal and professional development by establishing goals</i> <i>Identifies the factors that contribute to gap(s) between expectations and actual performance</i> <i>Actively seeks opportunities to improve</i>	• (U/G/C): Actively solicits feedback on teaching and leadership behaviors • (U/G/C): Reviews summative feedback/evaluation for teaching activities and establishes plans for improvement • (U/G/C): After a challenging precepting encounter with a learner, identifies frustration as a predominant emotion and resolves to explore ways for handling one's emotions
Level 2 <i>Demonstrates openness to performance data (feedback from learners and other input) to inform goals</i> <i>Analyzes and reflects on the factors that contribute to gap(s) between expectations and actual performance</i> <i>Designs and implements a learning plan, with prompting</i>	• (U/G/C): Uses feedback to reflect on teaching and leadership performance • (U/G/C): Uses appreciative feedback to intentionally continue positive behaviors • (U/G/C): Consults with educational leaders and mentors to analyze feedback and evaluation data for greatest value • (U/G/C): Reviews feedback and summative evaluations of teaching activities to develop meaningful goals for improving teaching • (U/G/C): Creates list of educational or teaching goals as part of an annual review process • (U/G/C): After meeting with program director and/or educational leaders, initiates an annual plan for attending faculty development sessions and improve personal clinical teaching
Level 3 <i>Seeks performance data episodically, with adaptability and humility</i> <i>Analyzes, reflects on, and institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance</i> <i>Independently creates and implements a learning plan</i>	• (U/G): After reviewing academic year inpatient teaching rotation data, attends faculty development session on bedside teaching and solicits a senior colleague to observe and provide constructive feedback • (U/G): On basis of feedback about interrupting learner presentations, intentionally sets a goal not to interrupt until the learner has finished, and solicits a co-preceptor to observe and provide coaching • (U/G/C): Creates effective SMART (specific, measurable, achievable, relevant, and timely) plan for improvement in teaching and/or leadership skills

Level 4 <i>Consistently solicits specific performance data, with adaptability and humility, including from learners, that leads to behavior change</i> <i>Challenges personal assumptions and considers alternatives in narrowing the gap(s) between expectations and actual performance</i> <i>Uses performance data to measure the effectiveness of the learning plan and, when necessary, improves it</i>	• (U/G): Solicits verbal feedback from learners and tracks learner evaluations for comments, both reinforcing and modifying, on goal to provide evidence-based data when doing bedside teaching • (C): Reviews workshop evaluation data and makes modifications on best mix of didactics and experiential exercises for the next iteration • (U/G/C): Uses performance improvement methods to iteratively enhance teaching effectiveness with multiple levels of learners in the same clinical setting • (U/G): Asks learners for feedback, explicitly names the hierarchy inherent in the learner-teacher relationship, and states, “you have the opportunity to work with lots of different faculty members, whereas I don’t; I would love to hear something that someone else does that you think I should incorporate,” and then incorporates it non-defensively
Level 5 <i>Role models consistently seeking performance data with adaptability and humility and making positive behavior changes</i> <i>Coaches others on reflective practice</i> <i>Facilitates the design and implementation of learning plans for others</i>	• (U/G/C): Delivers regional or national conference presentation on impact and methods of reflective practices in improving teaching performances • (U/G/C): Serves as senior mentor to clinical educator faculty members using humble inquiry and best mentorship practices • (U/G/C): As a leader or mentor, guides a junior faculty member who is an associate program director through a self-assessment and impels further self-reflection in the process of creating a detailed three-year career development plan
Assessment Models or Tools	• Direct observation • Educator portfolio • Faculty-observed structured teaching • Learner feedback • Learner outcomes • Journaling • Multisource feedback • Performance assessment and review • Self-assessment
Notes or Resources	• The basic elements of reflective practice are cognitive, affective, and behavioral

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https://journals.lww.com/academicmedicine/fulltext/2009/08000/Measurement_and_Correlates_of_Physicians_Lifelong.21.aspx.
- Karnieli-Miller O. Reflective practice in the teaching of communication skills. *Pat Educ Couns* 2020;103:2166-2172.
- Lockspeiser TM, Schmitter PA, Lane JL, Hanson JL, Rosenberg AA, Park YS. Assessing residents' written learning goals and goal writing skill: validity evidence for the learning goal scoring rubric. *Academic Medicine*. 2013;88(10):1558-1563.
https://journals.lww.com/academicmedicine/fulltext/2013/10000/Assessing_Residents_Written_Learning_Goals_and.39.aspx.

Universal Pillar 2: Well-Being Overall Intent: To develop a plan for personal and professional well-being	
Milestones	Examples
Level 1 <i>Recognizes the importance of addressing personal and professional well-being</i>	• (U/G/C): Has sufficient self-awareness to seek help for own personal and/or professional well-being • (U/G/C): Has read articles about the prevalence of burnout in health care providers and learners • (U/G/C): Seeks validation of need for assistance with personal and/or professional well-being
Level 2 <i>Lists resources to support personal and professional well-being</i>	• (U/G/C): Knows how to access provider well-being and employee assistance resources at the institution • (U/G/C): Names options and practices to enhance resilience that the educator and others have tried • (U/G/C): Recognizes that substance use may interfere with well-being • (U/G/C): Names family members, friends, and colleagues that the educator can reliably confide in
Level 3 <i>Assesses how personal and professional well-being impact one's own clinical practice and teaching</i>	• (U/G/C): Understands that personal development precedes professional development • (U/G/C): Defines compassion fatigue, stereotype threat, imposter syndrome • (U/G/C): Develops and/or further enhances own growth mindset • (U/G/C): Identifies a mentor and/or coach for personal and/or professional well-being • (G/C): Reviews last quarter's patient experience comments where patients noticed provider being terse and irritable; provider reflects and reaches out to school well-being coach to discuss burnout
Level 4 <i>Proactively responds to the inherent emotional challenges of the clinician educator's work and develops a plan to optimize personal and professional well-being</i>	• (U/G/C): Assesses own emotional intelligence • (U/G/C): Enhances own emotional intelligence to recognize situations and manage the situation, self, and others for optimal personal and professional well-being • (G/C): Completes a voluntary self-assessment on burnout after reading poor patient experience comments; survey shows possible burnout and provider makes an appointment to speak to a well-being coach
Level 5 <i>Role models pursuit of optimal personal and professional well-being</i>	• (U/G/C): Serves as a mentor and/or coach for personal and/or professional well-being
Assessment Models or Tools	• Direct observation • Educator portfolio • Faculty-observed structured teaching • Learner feedback • Learner outcomes

	• Multisource feedback • Performance assessment and review • Self-assessment
Notes or Resources	• AAMC. Transition to Residency. https://news.aamc.org/video/transition-residency/. Accessed 2019. • AAMC. Well-Being in Academic Medicine. https://www.aamc.org/initiatives/462280/well-being-academic-medicine.html. Accessed 2019. • ACGME. Tools and Resources. https://dl.acgme.org/pages/well-being-tools-resources. Accessed 2022. • AMA. About STEPS Forward. https://edhub.ama-assn.org/steps-forward/pages/about. Accessed 2019. • APA. Well-being and Burnout. https://www.psychiatry.org/psychiatrists/practice/well-being-and-burnout. Accessed 2019. • Chaikos D, Chad-Friedman E, Mehta DH, et al. SMART-R: a prospective cohort study of a resilience curriculum for residents by residents. <i>Acad Psychiatry</i>. 2018;42(1):78-83. https://doi.org/10.1007/s40596-017-0808-z. • Hilshak W, Lederer S, Mandili C, et al. Burnout During Residency Training: A Literature Review. <i>J Grad Med Educ</i>. 2009; 1(2):236-242. doi: 10.4300/JGME-D-09-00054.1 • Local resources, including Employee Assistance Programs • Magudia K, Bick A, Cohen J. et al. Childbearing and family leave policies for resident physicians at top training institutions. <i>JAMA</i>. 2018;320(22):2372-2374. doi:10.1001/jama.2018.14414. • National Academy of Medicine (NAM). Action Collaborative on Clinician Well-Being and Resilience. https://nam.edu/initiatives/clinician-resilience-and-well-being/. Accessed 2019. • Professional behavior refers to the global comportment of the resident in carrying out clinical and professional responsibilities. This includes: ○ being reliable, responsible, and trustworthy (e.g., knows and fulfills assignments without needing reminders); ○ being respectful and courteous (e.g., listens to the ideas of others, is not hostile or disruptive, maintains measured emotional responses and equanimity despite stressful circumstances); ○ maintaining professional appearance and attire; ○ maintaining professional boundaries;

	○ timeliness (e.g., reports for duty, answers pages, and completes work assignments on time); and ○ understanding that the role of a physician involves professionalism and consistency of one's behaviors, both on and off duty. ● These descriptors and examples are not intended to represent all elements of professional behavior. It is important to recognize the inherent conflicts and competing values involved in balancing dedication to patient care with attention to the interests of personal well-being and responsibilities to families and others. Balancing these interests while maintaining an overriding commitment to patient care requires, for example, ensuring excellent transitions of care, sign-out, and continuity of care for each patient.
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Universal Pillar 3: Recognition and Mitigation of Bias Overall Intent: To recognize own biases in communication and develop approaches to mitigate them	
Milestones	Examples
Level 1 <i>Identifies common and complex biases to effective education and patient care (e.g., language, disability, cultural differences, internalized oppression)</i>	• (U/G/C): Identifies that race, gender, sexual orientation, language, cultural differences, and disabilities are among the many biases that can impact an individual or a group of learners
Level 2 <i>Proactively seeks to assess and reflect on one's personal biases, both explicit and implicit</i>	• (U/G/C): Reflects to assess if there are implicit biases in the course materials by meeting with the adaptive technology team to review materials for accessibility • (U/G/C): Proactively welcomes (but does not require) learners in a course to identify their preferred pronouns • (G/C): After receiving patient experience data presented across different race/ethnicity groups, considers what bedside behaviors might be present/absent across encounters
Level 3 <i>Identifies strategies to mitigate the effects of bias on effective education and patient care</i>	• (U/G/C): Provides course materials in advance of the class to allow for review • (U/G/C): Identifies stereotype replacement/suppression, perspective-taking, and speaking up against bias as strategies to mitigate the impact it may have on the learners • (U/G/C): Consistently and comfortably uses "location of self" to proactively signal to learners that they and their identities are fully welcome in educational spaces
Level 4 <i>Addresses personal biases and proactively mitigates the effects of personal bias in effective education and patient care</i>	• (U/G/C): Uses perspective taking after identifying a bias against physicians who have low performance on an individual assessment; instead of treating the learner differently, speaks with the learner to identify if there was a problem with the course materials/lectures, an issue related to clinical duties, or a personal issue • (U/G/C): Consistently solicits perspectives from learners and colleagues about errors made, both nonverbal and verbal, that reveal one's own implicit bias
Level 5 <i>Mentors others on recognition and mitigation of bias</i>	• (U/G/C): Leads a workshop on identifying and mitigating microaggressions
Assessment Models or Tools	• Direct observation • Educator portfolio • Faculty-observed structured teaching • Learner feedback • Learner outcomes • Multisource feedback • Performance assessment and review • Self-assessment

Notes or Resources	• Laidlaw A, Hart J. Communication skills: an essential component of medical curricula. Part I: Assessment of clinical communication: AMEE Guide No. 51. <i>Med Teach</i>. 2011;33(1):6-8. https://www.tandfonline.com/doi/full/10.3109/0142159X.2011.531170. • MedEdPORTAL collection of anti-racism resources. https://www.mededportal.org/anti-racism. Accessed 2022. • Project Implicit Bias. https://implicit.harvard.edu/implicit/takeatest.html. Accessed 2022. • Symons AB, Swanson A, McGuigan D, Orrange S, Akl EA. A tool for self-assessment of communication skills and professionalism in residents. <i>BMC Med Educ</i>. 2009;9:1. https://bmcmmededuc.biomedcentral.com/articles/10.1186/1472-6920-9-1. • Teaching and Learning Lab. Implicit Bias. https://tll.mit.edu/teaching-resources/inclusive-classroom/implicit-bias/. Accessed 2022. • Watts-Jones TD. Location of self: opening the door to dialogue on intersectionality in the therapy process. <i>Fam Process</i>. 2010 Sep;49(3):405-20.
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Universal Pillar 4: Commitment to Professional Responsibilities Overall Intent: To uphold implicit and explicit expectations of self	
Milestones	Examples
Level 1 <i>Demonstrates the basic standards of the profession and presents "fit for duty"</i>	• (U/G/C): Is punctual and prepared for work as described in institutional policies • (U/G/C): Completes evaluations in a timely manner
Level 2 <i>Is timely in the performance of duties and takes responsibility for follow-up on details</i>	• (U/G): Adheres to institutional punctuality policies for writing progress notes/addenda • (U/G): Is accessible in a timely manner for supervision of learners • (U/G/C): Completes necessary requirements for interactions with multidisciplinary rounds and utilization management
Level 3 <i>Takes responsibility for errors/professional lapses and initiates corrective action when indicated</i>	• (U/G/C): Role models looking up answers to questions the educator doesn't know the answer to (rather than always asking learners to look up the answer) • (U/G): Overtly discloses errors with learners and discusses lessons taken for personal growth • (U/G/C): Discusses one's own failure to recognize a microaggression against a learner or team member and determines a plan of action for service recovery
Level 4 <i>Recognizes personal risks to professional behavior and effectively manages those risks to produce the best outcome</i>	• (U/G/C): Reviews personal lapses in professionalism and undertakes steps to resume demonstration of exemplary professional behaviors
Level 5 <i>Consistently role models professional behaviors in the learning and working environment</i>	• (U/G/C): Develops professional development sessions to mitigate the effect of microaggressions patients display toward learners • (U/G/C): Seeks opportunities to lead change to support professional culture (joins task forces or committees, meets with leadership or colleagues to troubleshoot identified areas of concern)
Assessment Models or Tools	• Self-reflection, journaling • Education portfolio • Multisource feedback • Objective structured teaching exercise (OSTE)
Notes or Resources	• ABIM Foundation. What is a medical professional? https://abimfoundation.org/what-we-do/medical-professionalism. Accessed 2022. • Brennan et al, Remediating professionalism lapses in medical students and doctors: a systematic review. <i>Med Educ</i> 2020;54:196-204. • Levinson W, Ginsburg S, Hafferty FW, Lucey CR. <i>Understanding Medical Professionalism</i>. New York: McGraw Hill Education, 2014. • Wheeler et al. Twelve tips for responding to microaggressions and overt discrimination: when the patient offends the learner. <i>Medical Teacher</i> 2019;41:1112-1117.

Educational Theory and Practice 1: Teaching and Facilitating Learning Overall Intent: To provide effective teaching and facilitation of learning across the continuum of medical education in various settings	
Milestones	Examples
Level 1 <i>Identifies various techniques for teaching</i> <i>Discusses lessons implicitly learned (e.g., hidden curriculum)</i>	• (U/G/C): Identifies small-group methods, large-group techniques, and didactic methods for teaching • (U/G/C): Identifies synchronous and asynchronous teaching methods • (U/G/C): Defines the hidden curriculum and gives examples from local context
Level 2 <i>Delivers instruction in unidirectional manner resulting in passive learning</i> <i>Identifies that own behavior (role modeling) is part of the hidden curriculum</i>	• (U/G/C): Provides prepared lectures without first understanding learner needs • (U/G/C): Uses consistent language with a patient and models the hidden curriculum of professional education within the team huddle • (U/G/C): Avoids behaviors that are contradictory to own teaching
Level 3 <i>Teaches in a way that invites active learning and encourages critical appraisal</i> <i>Intentionally role models desired practice behaviors to aid learners</i>	• (U/G/C): Practices bidirectional teaching for learning to assess baseline knowledge and areas for growth • (U/G/C): Maintains professional communications in conversations with the patient and with the team • (U/G/C): Actively solicits opinions of all members of the team • (U/G/C): Role models appropriate professionalism and communication behaviors • (U/G/C): Role models what is taught, while respecting the formal education curriculum • (U/G/C): Effectively teaches medication options for congestive heart failure in the classroom only
Level 4 <i>Uses scholarly teaching methods for varied levels of learners across settings</i> <i>Intentionally role models desired behaviors to aid learners across multiple settings</i>	• (U/G/C): Facilitates learning of those with varying levels of knowledge and skills within diverse settings • (U/G/C): Employs specific small-group facilitation strategies to improve critical thinking • (U/G/C): Role models even with significant stressors, such as being on-call • (U/G/C): Role models desired behaviors when there are increased, unexpected, and/or competing responsibilities and tasks • (U/G/C): Teaches medication options for congestive heart failure at morning report, in the clinic, in the critical care unit, and in an online workshop
Level 5 <i>Serves as a coach to other educators on effective teaching practices</i>	• (U/G/C): Conducts a peer-teaching evaluation program

<i>Works collaboratively to develop educators' ability to demonstrate evidence-based teaching behaviors</i>	• (U/G/C): Runs OSTE as part of a faculty development program
Assessment Models or Tools	• Direct observation • Educator portfolio • Faculty-observed structured teaching • Learner feedback • Learner outcomes • Multisource feedback • Performance assessment and review • Self-assessment
Notes or Resources	• Definition of facilitated learning: A learning approach where students are encouraged to take ownership and control of their learning process and the role of the teacher changes from supplier of knowledge to facilitator of the process of learning. This is done by providing learning resources and actively challenging students through systematic, problem-based learning and other active learning methods. • AAMC Faculty development Te4Q program. https://www.aamc.org/what-we-do/mission-areas/medical-education/teaching-for-quality-certificate-program. • ACCME. CE Educator's Toolkit https://www.accme.org/ceeducatorstoolkit. Accessed 2022. • American College of Physicians (ACP). Teaching in Medicine series https://store.acponline.org/ebiz/products-services/product-details/productid/22402 • Bastable SB, Sopczyk D, Gramet P, Jacobs K. <i>Health Professional as Educator: Principles of Teaching and Learning</i>. 2nd ed. Jones & Bartlett Learning. 2021. • Chen HC et al. Sequencing learning experiences to engage different level learners in the workplace: an interview study with excellent clinical teachers. <i>Med Teach</i> 2015;37:1090-1097. • Clinical Teaching Program - Stanford Faculty Development Program for Medical Teachers. https://med.stanford.edu/sfdc/clinical_teaching.html. Accessed 2022. • Hafferty FW. Defining curriculum reform: confronting medicine's hidden curriculum. <i>Acad Med</i> 1998;73:403-407. • Program director organizations

Educational Theory and Practice 2: Professionalism in the Learning Environment Overall Intent: To uphold implicit and explicit expectations of the profession and society in all learning settings	
Milestones	Examples
Level 1 <i>Understands rights, feelings, traditions, and wishes of learners, patients, and team members</i>	• (U/G/C): In team meetings, notes how goals and perspectives of various stakeholders in a particular patient care case, including interprofessional team members, may overlap and differ
Level 2 <i>Demonstrates respect for learners, patients, and team members through behavior and communication</i>	• (U/G/C): In team meetings, explicitly states how goals of various stakeholders in a particular patient care case, including interprofessional team members, overlap and differ, and actively works to seek solutions
Level 3 <i>Recognizes potential obstacles to unbiased and respectful communication, leadership, and educational practice</i>	• (U/G/C): Notes differences in perceptions about learners and reflects about potential implicit biases that may influence those judgments
Level 4 <i>Applies strategies to mitigate against obstacles to produce outcomes that are always in the learner's best interest</i>	• (U/G/C): Notices microaggressions from a patient to a learner, intervenes empathically in the moment, and debriefs the learner afterward • (U/G/C): Takes appropriate actions when microaggressions occur (takes accountability, rethinks harmful assumptions, empathizes, provides support by offering resources and asking how to help)
Level 5 <i>Develops organizational and institutional processes and strategies to facilitate respectful and unbiased communication and problem solving</i>	• (U/G/C): Leads a professional standards board that reviews learner lapses in professionalism and supports those learners work toward exemplary behavior
Assessment Models or Tools	• Direct observation • Education portfolio • Multisource feedback • OSTE • For professional identity formation: Defining Issues Test (https://ethicaldevelopment.ua.edu/about-the-dit.html) and Professional Identity Essay (see Bebeau, below)
Notes or Resources	• Bebeau MJ and Faber-Langendoen K. Remediating lapses in professionalism. In Kalet A, Chou CL, eds. <i>Remediation in Medical Education: A Mid-course Correction</i>. New York: Springer, 2014. • Brennan et al. Remediating professionalism lapses in medical students and doctors: a systematic review. <i>Med Educ</i> 2020;54:196-204. • Cruess et al, A schematic representation of the professional identity formation and socialization of medical students and residents: a guide for medical educators. <i>Acad Med</i> 2015;90:718-725.

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| | <ul style="list-style-type: none">● Gill et al. Responding to moderate breaches in professionalism: An intervention for medical students. <i>Med Teach</i> 2015 Feb; 37(2): 136-139.● Mak-van der Vossen et al. How to identify, address and report students' unprofessional behavior in medical school. <i>Med Teach</i> 2020;42:372-379.● Wheeler et al. Twelve tips for responding to microaggressions and overt discrimination: when the patient offends the learner. <i>Medical Teacher</i> 2019;41:1112-1117. |
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Educational Theory and Practice 3: Learner Assessment Overall Intent: To apply and develop principles of formative and summative assessment to improve performance	
Milestones	Examples
Level 1 <i>Discusses the goals and principles of both formative and summative assessment</i>	• (U/G/C): Explains the difference between summative and formative assessment to a learner • (U/G/C): Describes when a formative versus summative evaluation should be used
Level 2 <i>Uses appropriate methods and tools for assessment in a specific setting</i>	• (U/G/C): Differentiates when to use a global assessment versus more focused assessment of performance • (U/G/C): Employs pre-/post-test to assess knowledge/skill/competence after an educational activity • (U/G/C): Uses daily feedback forms to provide formative assessment • (U/G/C): Provides daily verbal feedback to learners to help learners prepare for similar cases during a subspecialty rotation • (U/G/C): Ensures assessment is based on learning objectives
Level 3 <i>Uses assessment data to identify strengths and opportunities for improvement of learners</i>	• (U/G): Uses training exam data and faculty member evaluations from a clinical rotation and identifies areas for improvement • (G/C): Uses patient outcomes and patient experience surveys to identify areas of strength for a learner
Level 4 <i>Educates others, and when necessary, advises on selection and use of appropriate assessment methods and tools</i>	• (U/G/C): Assists faculty members in selecting optimal assessment methods (e.g., intent to change, knowledge tests, practice improvement measurement) • (U/G/C): Advises colleagues against using the Milestone Reporting Worksheet as an assessment tool
Level 5 <i>Designs and implements evidence-based assessment methods and tools</i>	• (U/G/C): Creates post-activity assessment tools such as intent to change and/or practice improvement measurement • (U/G/C): Develops daily feedback forms to use in a clinical setting • (U/G): Develops and guides the use of a summative rotation assessment form that collates all feedback from the rotation in a manner that lets learners know how they performed during the entire educational experience • (G): Designs and creates evaluations or assessments with the intent of informing Milestone evaluations
Assessment Models or Tools	• Direct observation • Education portfolio • Continuing professional development/maintenance of certification activities in practice • Multisource feedback • OSTE
Notes or Resources	• Learn at ACGME. https://dl.acgme.org/. Accessed 2022/

- Van Der Vleuten CPM, Schuwirth LWT, Driessen EW, Govaerts MJB, Heeneman S. Twelve tips for programmatic assessment. *Medical Teacher* 37:7,641-646. DOI: 10.3109/0142159X.2014.973388.

Educational Theory and Practice 4: Feedback	
Overall Intent: To foster conversations that motivate learners to incorporate feedback for performance improvement	
Milestones	Examples
Level 1 <i>Describes timing, content, and approaches to conducting feedback conversations</i> <i>Describes importance of soliciting feedback in developing a growth mindset</i> <i>Describes importance of establishing a learning environment that values feedback</i>	• (U/G/C): Names the important elements required for effective feedback (communication (method/details/style), specific observations, and culture (behaviors to promote positive feedback)) • (U/G/C): Identifies resources on how “growth mindset” improves learning • (U/G/C): Identifies that effective feedback requires a permissive and healthy learning climate
Level 2 <i>Elicits learners’ goals and gives predominantly reinforcing feedback based on goals</i> <i>Reviews feedback about self, manages emotional reactions to feedback, and incorporates relevant items</i> <i>Role models exemplary feedback practices without explicitly setting up the learning environment</i>	• (U/G/C): Identifies a learner’s goal of improved patient education and provides reinforcing feedback • (U/G/C): Receives feedback from learners after initial reluctance makes iterative improvement by partially incorporating the feedback into education practice • (U/G/C): Does not explicitly state the importance of or rationale underlying feedback but meets with team learners halfway through their rotations and notes specific skills that learners should continue
Level 3 <i>Identifies reinforcing and modifying data to give feedback that initiates behavior change</i> <i>Actively solicits general feedback from learners</i> <i>Role models exemplary feedback practices and explicitly states importance of feedback in the learning environment</i>	• (U/G/C): Conducts a feedback conversation that covers the learner’s goals and motivations, and that ends with specific actionable take-home points • Asks learners at the end of the rotation or course about what they should continue to do, and what they could do differently • (U/G): At the beginning of the learning relationship, explicitly states that feedback is one of the most effective ways for all team members, including oneself, to improve, and that both reinforcing and modifying feedback conversations will be frequent, ongoing, and bidirectional

Level 4 <i>Consistently engages in challenging feedback conversations that results in desired behavior change</i> <i>Consistently solicits specific feedback from learners that leads to behavior change</i> <i>Supports learning environment in which all learners and faculty engage in actionable feedback</i>	• (U/G/C): Asks learners who show differences of all types (e.g., background, learning differences, and strong differences of opinion) about their perspective with humility and curiosity; reflects back the content and tone of what was said; and inquires deeply about other relevant perspectives before suggesting any changes • (U/G/C): Reflects on implicit bias in direct observations that may affect feedback; incorporates concepts of stereotype threat and imposter syndrome into feedback conversations; uses affirmations to mitigate stereotype threat and uses substitution to check implicit bias • (U/G/C): Empathizes with a learner who doesn't want feedback, lacks insight, or doesn't receive it well, and helps them gain insight into their unprofessional behavior • (U/G/C): Works with neurodiverse learners to help them communicate better with patients • (U/G/C): Asks learners for feedback, explicitly names the hierarchy inherent in the learner-teacher relationship, and states, "you have the opportunity to work with lots of different faculty members, whereas I don't; I would love to hear something that someone else does that you think I should incorporate" – and then incorporates it non-defensively • (U/G/C): Meets regularly with all members of the patient team to elicit their goals for the day and hosts feedback conversations afterwards • (U/G/C) Creates an environment where team members provide feedback to each other, including faculty members
Level 5 <i>Guides others to conduct effective feedback conversations</i> <i>Guides others to solicit, reflect on, and incorporate feedback</i> <i>Demonstrates expertise in explicitly constructing and maintaining learning environment in which all learners give and receive feedback to improve performance</i>	• (U/G/C): Performs direct observation of a mentee's feedback conversations with learners and engages in debriefing and coaching specific to the mentee's performance during these feedback conversations • (U/G/C): Reviews various feedback models and role plays with a colleague to improve feedback • (U/G/C): Consistently role models inquiry mode of feedback, particularly for sensitive or summative feedback; responds to learners with reflection and empathy statements; supportively challenges learners with next steps to get them to the next level of performance • (U/G/C): Coaches faculty members who struggle with feedback to and from learners to approach feedback with a growth mindset • (U/G/C): Teaches a course to design an environment in which the learners freely seek and provide feedback
Assessment Models or Tools	• Direct observation • Multisource feedback

	• OSTE • Portfolio or journal review: How do learners rate the educator's feedback? What evidence shows that the educator incorporated feedback?
Notes or Resources	• Feedback is defined as information communicated to the learner that is intended to modify the learner's thinking or behavior for the purpose of improved learning. • Milan et al. A model for educational feedback based on clinical communication skills strategies: beyond the "feedback sandwich." <i>Teach Learn Med</i> 2006;18:42-47. • Ramani et al. Meaningful feedback through a sociocultural lens. <i>Med Teach</i> 2019 Dec;41(12):1342-1352. • Sergeant et al. R2C2 in action: testing an evidence-based model to facilitate feedback and coaching in residency. <i>JGME</i> 2017:165-170. • Stone D and Heen S. Thanks for the feedback: the science and art of receiving feedback well. New York: Viking; 2014. • Telio et al. The "educational alliance" as a framework for reconceptualizing feedback in medical education. <i>Acad Med</i> 2015 May;90(5):609-14. • Watling and Ginsburg. Assessment, feedback and the alchemy of learning. <i>Med Educ</i> 2019;53:76-85.

Educational Theory and Practice 5: Performance Improvement and Remediation Overall Intent: To offer compassionate course correction for learners, all of whom struggle at some point in the educational program	
Milestones	Examples
Level 1 <i>Identifies a learner who needs improvement</i>	• (U/G/C): States the value of remediation • (U/G/C): Records specific observations of learners who struggle and notifies teaching supervisors; does not “kick the can down the road”
Level 2 <i>In conjunction with the learner, identifies factors that contribute to poor performance, identifies helpful resources, and develops individualized learning plans</i>	• (U/G/C): Has a conversation with a learner who struggles; asks clarifying questions about underlying contributing factors; empathizes with the learner; collaborates on a learning plan that encompasses the learner’s struggles; and suggests reading materials, reflective exercises, and practice sessions to improve skills • (U/G/C): Develops individualized learning plans with referral to local and national resources; identifies specialty-specific resources for improvement • (U/G/C): When looking at factors that impact a learner who struggles, considers issues such as challenges related to imposter syndrome, electronic health record (EHR), financial stress, and knowledge/understanding of a specific clinical area as part of defining the issues
Level 3 <i>Implements learning plans and follow-up strategies and successfully guides a learner who is struggling toward a short-term goal, separate from formal remediation</i>	• (U/G/C): Follows up a learning plan with conversations that impel reflection, direct observation with specific feedback to change maladaptive behaviors, and referral to mental health services to mitigate burnout • (U/G/C): Documents follow-up and helps learners identify additional resources to support their growth • (U/G/C): Implements individualized learning plan with routine coaching
Level 4 <i>Develops and implements a formal remediation plan with outcome measures</i>	• (U/G/C): Has conversations with learners whose struggles extend into multiple competencies and that indicate broader issues such as learning preference, mental health, and/or lack of sleep; determines a viable improvement path that may include removing the learner from current clinical rotations; coaches the learner through reflections and standardized patient interactions, notes areas of success and areas for further improvement; continues iterative practice and reflection • (G/C): Identifies quality metrics, including patient comments, that are necessary to successfully complete a remediation plan • (G/C): Explains formal remediation as it relates to continuing medical education (CME) and graduate medical education (GME) • (C): Uses continuing professional development and CME resources as part of remedial plan

	• (C): Uses outcomes data to extend or conclude a for-cause focused professional evaluation
Level 5 <i>Guides others in remediation recognition and management (in all four remediation domains: identification, clarification, intervention, assessment)</i>	• (U/G/C): Oversees a cadre of remediation coaches who support learners who struggle throughout a program and mentors the communication and coaching skills necessary for them to succeed • (U/G/C): Identifies potential legal, human resources, and medical board considerations within the remediation process • (U/G/C): Designs training program for faculty members in how to remediate a struggling learner
Assessment Models or Tools	• Direct observation • Multisource feedback • OSTE • Portfolio or journal review: How do remediating learners rate the educator's remediation coaching and administration? How does the educator balance advocacy for the student with adherence to necessary guidelines?
Notes or Resources	• Baars GJA, Stijnen T, Splinter TAW. A model to predict student failure in the first year of the undergraduate medical curriculum, <i>Health Professions Education</i> 2017 3;1:5-14. ISSN 2452-3011. https://doi.org/10.1016/j.hpe.2017.01.001. • Bennion LD, Durning SJ, LaRochelle J. <i>et al.</i> Untying the Gordian knot: remediation problems in medical schools that need remediation. <i>BMC Med Educ</i> 2018;18:120. • Brennan et al, Remediating professionalism lapses in medical students and doctors: a systematic review. <i>Med Educ</i> 2020;54:196-204. • Cheun TJ, Davies MG. Improving ABSITE scores – a meta-analysis of reported remediation models. <i>American Journal of Surgery</i> 2020;220(6)1557-1565. https://doi.org/10.1016/j.amjsurg.2020.04.028 • Chou CL, Kalet A, Joao Costa M, Cleland J, Winston K. Guidelines: the do's, don'ts, and don't knows of remediation in medical education. <i>Perspectives on Medical Education</i> 2019;8:322-338. • Guerrasio, J. <i>Remediation of the Struggling Medical Learner</i>. Irwin PA: Association for Hospital Medical Education; 2013. ISBN: 0615800580. • Kalet A and Chou CL. <i>Remediation in Medical Education: A Course Correction</i>. Springer; 2014. • Kalet A et al. Twelve tips for developing and maintaining a remediation program in medical education. <i>Medical Teacher</i>. 2016;38(8):787-792. • Prunuske A., Skildum A. Just-in-time remediation of medical students during the preclinical years. <i>Med.Sci.Educ</i>. 2014 24:103-109. https://doi.org/10.1007/s40670-014-0010-9.

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| | <ul style="list-style-type: none">• Warburton KM, Goren E, Dine CJ. Comprehensive assessment of struggling learners referred to a graduate medical education remediation program. <i>J Grad Med Educ</i>(2017) 9 (6): 763-767. https://doi.org/10.4300/JGME-D-17-00175.1• Yonder S, Pandey J. Remediation of pre-clerkship clinical skill performance using a hybrid coaching model. <i>Medical Education Online</i>. 2021 26:1, 1842660, DOI: 10.1080/10872981.2020.1842660 |
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Educational Theory and Practice 6: Programmatic Evaluation Overall Intent: To design and implement evaluation for accreditation, improvement, scholarship, and planning	
Milestones	Examples
Level 1 <i>Contributes to programmatic evaluation as directed by others</i> <i>Carries out an action plan designed by others to address areas identified as needing improvement</i>	• (U/G/C): Participates in a program evaluation committee • (U/G/C): Differentiates between program evaluation and assessment • (C): Participates in continuing professional development unit process improvement plan(s) • (U/G/C): Thoughtfully completes a survey regarding the program • (U/G/C): Follows an action plan for the program which could involve coaching/teaching/giving more feedback
Level 2 <i>Describes the importance and elements of comprehensive programmatic evaluation</i> <i>Describes how to create an action plan</i>	• (C): Engages on CME/continuing professional development committee with oversight of continuing professional development program evaluation • (G): Names the elements required by the ACGME for programmatic assessment • (U/G/C): Describes the importance of evaluating the learning environment in programmatic evaluation • (U/G/C): Describes the association between programmatic quality and future practice patterns • (U/G/C): Articulates the components of SMART goals • (U/G/C): Describes the PDSA (Plan, Do, Study, Act) cycle
Level 3 <i>Conducts comprehensive programmatic evaluation for curricular areas of responsibility</i> <i>Creates an action plan to address areas identified as needing improvement</i>	• (U/G/C): Solicits evaluation data from a variety of stakeholders within and outside of the department or unit • (U/G): Uses learner outcome data to inform program/curricular evaluation • (U/G/C): Develops evaluation tools to collect data from a variety of sources (e.g., learning outcomes, satisfaction, graduate outcomes) • (U/G/C): Uses course survey data and conducts a focus group to identify areas for improvement in the course • (U/G/C): Ensures action plans are specific, measurable, attainable, relevant, and timely • (U/G/C): Uses program evaluation model such as Logic Model or Kirkpatrick for comprehensive evaluation and action plan
Level 4 <i>Uses theory or frameworks to guide programmatic evaluation</i>	• (U/G/C): Uses accreditation framework and data for program evaluation • (U/G/C): Employs utilization-focused evaluation theory to identify and engage stakeholders at every step of the evaluation process

<i>Uses varied approaches to address programmatic areas of improvement</i>	• (U/G/C): Uses the Donabedian model to assess the quality of medical care to identify program gaps • (U/G/C): Identifies a new program or strategy from conference proceedings or the literature to address an area for improvement
Level 5 <i>Develops and implements multi-site evaluations or meta-evaluations</i> <i>Disseminates interventions that support programmatic improvement</i>	• (U/G/C): Coordinates program evaluation efforts at multiple sites • (U/G/C): Develops a system to engage educators at sites outside of the Sponsoring Institution in program evaluation • (U/G/C): Develops tools to collect feedback from learners about community sites to inform program evaluation and improvement • (U/G/C): Presents outcomes of innovative program improvement efforts at a local, regional, or national conference
Assessment Models or Tools	• ACCME criteria • Donabedian (2005) Model for Evaluating the Quality of Medical Care • Kellogg's Logic Model • Moore's or Kirkpatrick's Model • University of California San Francisco's six programmatic principles
Notes or Resources	• AAMC. Te4Q faculty development program. https://www.aamc.org/what-we-do/mission-areas/medical-education/teaching-for-quality-certificate-program. • ACGME. Developing Faculty Competencies in Assessment course. • ACGME. Common Program Requirements. https://www.acgme.org/what-we-do/accreditation/common-program-requirements/. • Johnson SB, Fair MA, Howley LD, Prunuske J, Cashman SB, Carney JK, Jarris YS, Deyton LR, Blumenthal D, Krane NK, Fiebach NH, Strelnick AH, Morton-Eggleston E, Nickens C, Ortega L. Teaching public and population health in medical education: an evaluation framework. <i>Acad Med</i>. 2020 Dec;95(12):1853-1863. https://pubmed.ncbi.nlm.nih.gov/32910003/. • Learn at ACGME. https://dl.acgme.org/. Accessed 2022

Educational Theory and Practice 7: Learner Professional Development	
Overall Intent: To deliberately facilitate professional development of learners across the career continuum, which encompasses knowledge, skills, attitudes, and professional identity	
Milestones	Examples
Level 1 <i>Describes differences between coaching, sponsoring, advising, and/or mentoring in relationship to continuous professional development of learners</i>	• (U): Describes the professional development changes that occur from pre-clinical to clinical to graduating medical student • (G): Describes the growth and change in professional identity from general medicine resident to specialty fellow • (C): Describes the growth of a geriatrician who becomes a clinical expert and educator on fall prevention • (U/G/C): Includes specific definitions of mentoring, advising, sponsoring, and coaching when describing interactions with a learner
Level 2 <i>Identifies approaches or strategies (e.g., learning plan) for different learners to provide coaching, sponsoring, advising, and/or mentoring</i>	• (U): Connects a Year 2 medical student to resources to learn more about a career in a specific specialty of medicine • (G/C): Provides article access to faculty members and programs to aid in career exploration and skill development for someone interested in a clinician-educator career • (U/G/C): Links a mentor-seeking learner to a women-in-science mentoring program • (U/G/C): Encourages a learner to include strategies on professional identity formation in the learner's individual learning plan • (U/G/C): Enhances standard teaching/educational activities with longitudinal provision of support of learner professional development • (U/G/C): Identifies the key elements of an individualized learning plan
Level 3 <i>Employs a variety of approaches or strategies for coaching, sponsoring, advising, and/or mentoring</i>	• (U/G/C): Uses the GROW model (Goal, Reality, Options, Will), as an example, for coaching learners in a small group, clinic, or program • (G): Individualizes support of professional development to learners based on their intended post-graduation interests (fellowship versus community practice versus academic practice) • (C): Sponsors a more junior faculty member for a leadership position • (U/G/C): Engages mentors and follows up with the learner on progress • (U/G/C): Individualizes support of professional development to learners across the career continuum • (U/G/C): Uses appreciative inquiry questions as part of the semi-annual check-in • (U/G/C): Co-creates a self-directed learning plan with the learner and facilitates the learner's repeated engagement with the plan
Level 4 <i>Implements best practices for coaching, sponsoring, advising, and/or mentoring</i>	• (U/G/C): Supplies relevant mentorship and resources for learners who are underrepresented in medicine (URiM)

	• (U/G/C): Designs a program using the GROW coaching model that includes faculty development and measurement of impact • (U/G/C): Coaches the learner to adapt the learning plan and respond to feedback
Level 5 <i>Demonstrates expertise (e.g., teaching, researching) for coaching, sponsoring, advising, and/or mentoring</i>	• (U/G/C): Teaches, researches, or writes a review article for a specific subject • (U/G/C): Speaks at national conferences about professional development • (U/G/C): Implements a system to improve learner access to guidance to improve professional development • (U/G/C): Is recognized as a leader/educator of other advisors, mentors, coaches, and sponsors • (U/G/C): Customizes existing curricula to provide personalized education for the learner
Assessment Models or Tools	• Mentor Education Tool
Notes or Resources	• The American Medical Association (AMA) has plans to publish another book about coaching across the continuum shortly • Deiorio, NM, Hammoud, MM. <i>Coaching in Medical Education: A Faculty Handbook</i>. Chicago: AMA, 2017. https://www.ama-assn.org/system/files/2019-09/coaching-medical-education-faculty-handbook.pdf. • Fernandez, CR, et al. Introducing trainees to academic medicine career roles and responsibilities. <i>MedEdPORTAL</i> 2017;13. • Holden M, Buck E, Clark M, Szauter K, Trumble J. Professional identity formation in medical education: the convergence of multiple domains. <i>HEC Forum</i>. 2012 Dec;24(4):245-55. doi: 10.1007/s10730-012-9197-6. PMID: 23104548. • Leach, S. Behavioural coaching: The GROW model. In: Passmore J. <i>The Coaches' Handbook: The Complete Practitioner Guide for Professional Coaches</i>. Routledge, 2021. • Lovell B. What do we know about coaching in medical education? A literature review. <i>Med Educ</i>. 2018 Apr;52(4):376-390. doi: 10.1111/medu.13482. Epub 2017 Dec 11. PMID: 29226349. • Manuel SP, Poorsattar SP. Mentoring up: twelve tips or successfully employing a mentee-driven approach to mentoring relationships. <i>Med Teach</i> 2021;43:384-387. • Schein, Edgar H., and Peter A. Schein. <i>Humble Inquiry: The Gentle Art of Asking Instead of Telling</i>. Berrett-Koehler Publishers, 2021. • Vo, M, Dallaghan GB, Borges N, Gill AC, Good B, Gollehon N, Balmer D. Planning for Happenstance: Helping Students Optimize Unexpected Career Developments. <i>MedEdPORTAL</i> 2021;17:11087. • Whitmore, J. <i>Coaching for Performance</i>. 5th ed. London: Nicholas Brearley Publishing, 2010. • Wolff M, Deiorio NM, Miller Juve A, Richardson J, Gazelle G, Moore M, Santen SA, Hammoud MM. Beyond advising and mentoring: Competencies for coaching in medical

	education. <i>Med Teach</i> . 2021 Oct;43(10):1210-1213. doi: 10.1080/0142159X.2021.1947479. Epub 2021 Jul 27. PMID: 34314291 ● Yukawa M, Gansky SA, O'Sullivan P, Teherani A, Feldman MD. A new mentor evaluation tool: evidence of validity. <i>PLOS One</i> . 2020 Jun 16;15(6):e0234345. doi: 10.1371/journal.pone.0234345. PMID: 32544185; PMCID: PMC7297334.
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Educational Theory and Practice 8: Science of Learning	
Overall Intent: To demonstrate how clinician educators use the knowledge base of adult learning and development, health professions education, and its associated disciplines for their roles as educators	
Milestones	Examples
Level 1 <i>Describes scholarly approaches for science of learning, teaching, fostering intellectual curiosity, and learning preferences</i>	• (U/G/C): Discusses neuroscience of cognition • (U/G/C): Describes the zone of proximal development • (U/G/C): Explains single and double loop learning • (U/G/C): Describes how they keep up with the medical literature and subscribes to electronic tables of contents of journals • (U/G/C): Identifies Glassick's criteria for scholarship and Boyer's definition of scholarship • (U/G/C): Describes learning theories that promote comprehension, engagement, retention, recall, and reflection in learners
Level 2 <i>Incorporates theories and strategies for teaching and promoting intellectual curiosity for different learning preferences</i>	• (U): As a UME course director, incorporates periodic knowledge checks to enhance retrieval of facts based on the spacing effect • (G): As a fellowship research director, designs and implements a career development workshop • (U/G/C): Aids in identifying development and career goals, and incorporates both self and group reflection as part of the design • (U/G/C): Names the steps of the "learning ladder," identifies where any given learner is on the ladder, and can name ways in which teaching could be tailored for those learners
Level 3 <i>Routinely incorporates variety of approaches derived from literature and other high-quality sources to improve teaching practices and promote intellectual curiosity</i>	• (G): Encourages a senior endoscopy director in charge of endoscopy training for a gastroenterology fellowship to attend a national workshop on endoscopy about the Dreyfus model of development and cognitive load theory; the director changes the teaching program to include simulation, sequencing of endoscopic cases based on complexity, and a faculty development to decrease extrinsic cognitive load • (C): Encourages a CME course lecturer to incorporate a more active learning strategy; the lecturer converts part of the slide materials to include audience-response polling and adds two schemas to help with organizing a differential diagnosis for back pain • (U/G/C): Attends national medical education conferences to discover and incorporate new advances in evidence-based education • (U/G/C): Reads texts and treatises in educational theory and science to increase effectiveness • (U/G/C): Converts a large-group didactic lecture to a flipped classroom approach to maximize opportunities for active learning
Level 4 <i>Role models and coaches for scholarly approach to science of learning, teaching,</i>	• (U/G/C): When updating teaching scripts, consults recent primary literature to enhance the clarity and impact of their teaching

<i>fostering intellectual curiosity of learners, and incorporation of best practice</i>	• (U/G/C): Asks learners to incorporate primary literature in their notes and oral presentations and evaluates the quality of the included data • (U/G/C): Directly observes attending rounds and makes suggestions to faculty members on how to incorporate feedback • (U/G/C): Participates in a work-in-progress conference and gives advice on how to improve measurement
Level 5 <i>Contributes to new knowledge in the science of learning</i>	• (U/G/C): Participates in a study to explore the application of critical reflection theory and transformative learning on identity and career development for URiM pre-medical and medical students • (U/G/C): Conducts a mixed-methods study applying sociocultural learning theories to explore interprofessional team dynamics during a robotic surgery • (U/G/C): Acts as senior author to mentor advanced learners to develop their independent expertise as medical education investigators
Assessment Models or Tools	• Describing theoretical or conceptual framework in talks or papers where educational projects are described • Incorporating educational theory or learning science into peer review requests of educational papers or products (such as in a MedEdPortal submission review) • Review of educational portfolio entry which connects design to theory
Notes or Resources	• AAMC Medical Education Certificate Course (https://www.aamc.org/what-we-do/mission-areas/medical-education/meded-research-certificate-program) • Academic journals: <i>Journal of Graduate Medical Education (JGME)</i>, <i>Academic Medicine</i>, Association for Medical Education in Europe (AMEE) <i>BEME</i> [Best Evidence Medical and Health Professional Education] <i>Guides</i> • ACCME. Education design resources. https://accme.org/resources/educational-design-resources. • AMEE. BEME Guides. https://www.bemecollaboration.org/BEME+Guides/. • Baker LR et al. Re-envisioning paradigms of education: towards awareness, alignment, and pluralism. <i>Adv Health Sci Educ</i> 2021; pub ahead of print. • Bransford JD, Brown AL, Cocking RR (Eds) (2000). <i>How People Learn - Brain, Mind, Experience, and school</i>, National Academy Press • Johns Hopkins Science of Learning Institute. What is the science of learning? http://scienceoflearning.jhu.edu/science-to-practice/resources/what-is-the-science-of-learning. Accessed 2022. • Master of Education (MEd) /Medical Education (MMedEd)/Health Professions Education (MHPE) programs Ng SL et al. The divergence and convergence of critical reflection and critical reflexivity: implications for health professions education. <i>Acad Med</i> 2019;94:1122-1128.

- Ng SL et al. There shouldn't be anything wrong with not knowing: epistemologies in simulation. *Med Educ* 2019;53:1049-1059.
- Stanford University. Stanford | Teaching Commons. TEACH Symposium. <https://teachingcommons.stanford.edu/teach-stanford-symposium>. Wilson, AL, Hayes E. eds. *Handbook of Adult and Continuing Education*. John Wiley & Sons, 2009.

Educational Theory and Practice 9: Medical Education Scholarship Overall Intent: To encourage clinician educators to base their teaching in scholarship (theory and evidence) and contribute to the literature	
Milestones	Examples
Level 1 <i>Describes definition of educational scholarship</i>	• (U/G/C): Describes how they keep up with the medical literature and subscribes to electronic tables of contents of journals • (U/G/C): Identifies Glassick's criteria for scholarship and Boyer's definition of scholarship • (U/G/C): Names medical education journals, online forums, and courses that enhance personal educational practices • (U/G/C): Identifies forums for dissemination of educational approach, curricula, and/or research
Level 2 <i>Participates in medical education scholarship and the dissemination of educational approaches, curricula, and/or research</i>	• (U/G/C): Participates in development of curricular modules for local courses • (U/G/C): Participates in a medical education research project to learn fundamental qualitative, quantitative, or synthetic skills • (U/G/C): Edits a section of a medical education scholarly article or chapter • (U/G/C): Serves as a reviewer for MedEdPortal submission
Level 3 <i>Expands medical education scholarship or evidence through regular dissemination of educational approaches, curricula, and/or research findings</i>	• (U/G/C): Presents a medical education study at a regional or national medical education conference • (U/G/C): Writes a section of a medical education scholarly article or chapter
Level 4 <i>Serves as the principal investigator for medical education scholarship</i>	• (U/G/C): Designs theoretical framework and completes and evaluates a trial on assessing the effect of clinical and educational work hours on patient safety
Level 5 <i>Demonstrates expertise in the field of medical education scholarship and provides guidance, consultation, and mentoring across medical education</i>	• (U/G/C): Mentors a more junior faculty member in writing a book chapter using education theory and practice • (U/G/C): Serves a section editor or associate editor for a medical education journal
Assessment Models or Tools	• Academic productivity • Educator philosophy • Educational portfolio • Multisource feedback • Scholarly presentations
Notes or Resources	• AAMC. Medical Education Research Certificate (MERC) Program. https://www.aamc.org/what-we-do/mission-areas/medical-education/meded-research-certificate-program. Accessed 2022. • Boyer, E. <i>Scholarship Reconsidered: Priorities for the Professoriate</i>. Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching: 1990. Note: Focus on Boyer's expanded definition of scholarship.

- Glassick, E. Boyer's expanded definitions of scholarships standards for assessing scholarship, and the elusiveness of the scholarship of teaching. *Academic Medicine* 2000;75(9)877-880. <https://www.augusta.edu/mcg/academic-affairs/eii/documents/glassick-criteria.pdf>.

Note: Focus on Glassick's criteria for scholarship.

Educational Theory and Practice 10: Learning Environment Overall Intent: To foster an ideal, diverse, and inclusive environment that optimizes learning	
Milestones	Examples
Level 1 <i>Defines learning environment</i> <i>Defines different roles and how they contribute to the interprofessional learning environment</i>	• (U/G/C): In orientation materials, uses the term “learning environment” to describe various clinical settings in which training will occur (e.g., operating rooms, clinic, catheterization lab) • (U/G/C): Advises learners to contact pharmacy to better understand drug interactions when they have a concern regarding drugs listed on discharge paperwork • (U/G): Provides the learner with the contact numbers and description of role for team members (e.g., nurse, physician assistant) who help carry out various patient care tasks • (U/G/C): Defines the Interprofessional Education Collaborative (IPEC) Core Competencies for Collaborative Practice
Level 2 <i>Describes elements of an effective learning environment</i> <i>Describes the value of an interprofessional team-based approach in the learning environment</i>	• (U/G/C): Articulates to the learner the importance of face-to-face communication with interdisciplinary team members versus electronic or pager communication, when possible, to manage complex patients • (U/G/C): Encourages open communication with a new team as a strategy to optimize patient care and the clinical learning environment • (U/G/C): Orients learner to team organizational chart and structure, including the charge nurse, certified nurse assistant, case manager, and speech therapist
Level 3 <i>Employs best practices in fostering an effective learning environment</i> <i>Engages effectively in interprofessional learning environments</i>	• (U/G/C): When a disagreement about the course of patient care arises, works with team members to seek to understand differing perspectives • (U/G/C): Provides educational resources to develop facilitation and teamwork skills while on an ICU rotation based on current team science • (U/G/C): Proactively introduces learners to various team members when orienting a learner to a new educational assignment • (U/G/C): Develops interprofessional lecture series to create shared mental models of patient care practices and communication strategies based on current team science • (U/G/C): Invites various provider types (e.g., nurse practitioner, case manager, pharmacist) to actively engage in rounding • (U/G/C): Solicits performance feedback from all team members when developing end-of-rotation evaluation
Level 4 <i>Works collaboratively and leads others to foster effective learning environments</i>	• (U/C/G): Identifies when changes/interventions need to occur to create a collaborative learning environment

<i>Creates and manages effective interprofessional learning environments</i>	• (U/G/C): Solicits feedback from all team members when drafting clinic workflow guidelines • (U/G/C): Facilitates in-person conversation when conflict arises between team members • (U/G/C): Provides professional development to all team members on teaching strategies for various learner roles (e.g., medical students, midwifery students, fellows) and competency levels (novice to expert) • (U/G/C): Encourages and role models for all team members to solicit, provide, and accept feedback from one another
Level 5 <i>Leads system-level strategic efforts to improve learning environments</i> <i>Coaches others in development of effective interprofessional learning environments</i>	• (U/C/G): Solicits and reviews annual evaluation to identify system-level problems with a learning environment and adjusts the experience to ensure optimal education • (U/G/C): Assesses individuals based on their education and develops appropriate onboarding resources • (U/G/C): Develops a program for interprofessional training in a single environment • (U/G/C): Delivers a workshop at a national meeting describing how a program changes clinic workflow and teaching to incorporate families and a social worker into the learning environment
Assessment Models or Tools	• Direct observation • Educational portfolio • Multisource feedback
Notes or Resources	• Interprofessional Education Collaborative (IPEC). IPEC Core Competencies for Collaborative Practice https://www.ipecollaborative.org/ipec-core-competencies. • Macy Foundation. Addressing harmful bias and eliminating discrimination in health professions learning environments: https://macyfoundation.org/publications/conference-summary-eliminating-bias-discrimination.

Educational Theory and Practice 11: Curriculum	
Overall Intent: To apply a stepwise approach in curriculum design	
Milestones	Examples
Level 1 <i>Identifies the elements, types, and purpose of a curriculum</i>	• (U/G/C): Names six steps of curriculum development in medical education (problem identification, needs assessment, writing of goals and objectives, designing educational strategies, implementation, evaluation) • (U/G/C): Reads examples of curricular innovations in MedEdPORTAL • (U/G/C): Describes differences between explicit and hidden curriculum
Level 2 <i>Participates in developing a curriculum</i>	• (U/G/C): Identifies gaps in learners' knowledge, attitudes, or skills and makes instructional changes to address them • (U/G/C): Joins a team of educators in writing a new module for a course • (U/G/C): Converts an in-person workshop to online (and/or vice versa)
Level 3 <i>Adapts curriculum to meet the needs of the learner</i>	• (U/G): Reads a curriculum on MedEdPortal for medical students and adapts it for residents • (U/G/C): Reads course evaluation data and makes changes to teaching methods
Level 4 <i>Leads development of a curriculum</i>	• (U/G): Designs, implements, and assesses a new elective for learners on new methods for point-of-care ultrasound • (U/G/C): Convenes a group of educators to design, implement, and assess a workshop series on interprofessional humanism
Level 5 <i>Coaches others to develop curriculum for the needs of their learners</i>	• (U/G/C): Comprehensively evaluates an existing curriculum, makes suggestions to a curricular team based on ongoing gaps for learner experience, and helps the team design assessable strategies to address the gaps • (U/G/C): Mentors a junior faculty member to lead a curriculum development process
Assessment Models or Tools	• Aggregated exam data (board pass rate, in training exam) • ACGME survey data • CME data • Quality and patient safety data • Any validated tool that exists for the goals/objectives (e.g., mini-CEX)
Notes or Resources	• Martin SK, Ahn J, Farnan JM, Fromme HB. Introduction to Curriculum Development and Medical Education Scholarship for Resident Trainees: A Webinar Series. <i>MedEdPORTAL</i>. 2016 Sep 16;12:10454. doi: 10.15766/mep_2374-8265.10454. PMID: 31008232; PMCID: PMC6464455. • Nikiforova T, Carter A, Yecies E, Spagnoletti CL. Best Practices for Survey Use in Medical Education: How to Design, Refine, and Administer High-Quality Surveys. <i>South Med J</i>. 2021 Sep;114(9):567-571. doi: 10.14423/SMJ.0000000000001292. PMID: 34480187.

- Reed DA. Nimble approaches to curriculum evaluation in graduate medical education. *J Grad Med Educ*. 2011 Jun;3(2):264-6. doi: 10.4300/JGME-D-11-00081.1. PMID: 22655156; PMCID: PMC3184902.
- Sheets KJ, Anderson WA, Alguire PC. Curriculum development and evaluation in medical education. *J Gen Intern Med*. 1992 Sep-Oct;7(5):538-43. doi: 10.1007/BF02599461. PMID: 1403213.
- Thomas PA, Kern DE, Hughes MT, Chen BY (eds). *Curriculum Development for Medical Education: A Six-Step Approach*. Baltimore, Maryland: John Hopkins University Press; 1998.

Well-Being: Well-Being of Learners and Colleagues	
Overall Intent: To acknowledge and provide support and resources in the arduous process of becoming and being health care professionals	
Milestones	Examples
Level 1 <i>Describes relationship between well-being, burnout, learning, and patient safety</i> <i>Describes signs of physical, emotional, and/or professional distress</i>	• (U/G/C): Describes well-being, burnout, and learning • (U/G/C): Defines professional identity and the reward for growing and becoming clinically stronger (with connection to purpose) • (U/G/C): Describes learning environments and well-being environments as one in the same • (U/G/C): Defines psychological safety and how it relates to patient safety and optimal learning
Level 2 <i>Shares approaches to support well-being</i> <i>Recognizes learners or colleagues in apparent distress</i>	• (U/G/C): In a peer discussion, shares own approaches to managing clinical and teaching demands using department or institutional resources • (U/G/C): Incorporates ample breaks for networking, nourishment, and recharging during a three-day board review course • (U/G/C): Identifies the signs of those experiencing depression or considering suicide • (U/G/C): Identifies signs/signals of burnout in a colleague or peer
Level 3 <i>Employs various approaches that support and foster well-being and reduce burnout</i> <i>Intervenes and identifies resources for a specific situation</i>	• (U/G/C): Intervenes in a crisis • (U/G/C): Gets the learner to the right person for help • (U/G/C): Identifies a faculty member, chief resident, or chair who can list school and hospital resources for well-being and to address burnout • (U/G/C): Talks openly and constructively with a colleague who may need help managing well-being (e.g., question, persuade, refer (QPR))
Level 4 <i>Employs system-based approaches that foster well-being and reduce burnout and consistently provides support and resources to foster well-being and reduce burnout</i> <i>Guides learners or colleagues in distress and provides on-going support</i>	• (G): Uses internal and ACGME survey data on well-being to advocate for well-being and stress reduction resources when meeting with the dean or hospital president • (U/G/C): Recognizes a distressed learner, intervenes to facilitate health care referrals and use of employee assistance programs (EAPs), and follows up to ensure that the learning environment can continue to support the learner
Level 5 <i>Uses experiences with learners to assess, reimagine, and create new system-</i>	• (U/G/C): Engages in scholarship or research on well-being

<i>based interventions and structures to support well-being</i> <i>Guides others in recognizing learners in distress and educates them in available resources</i>	• (U/G/C): Goes to institutional leadership to ask for environmental or physical changes to enhance the well-being of learners (i.e., higher-level advocacy)
Assessment Models or Tools	• Well-being index
Notes or Resources	• AAMC. The rise of wellness initiatives in health care: using national survey data to support effective well-being champions and wellness programs. Report. https://www.aamc.org/data-reports/report/rise-wellness-initiatives-health-care-using-national-survey-data-support-effective-well-being. • AAMC. Well-Being in Academic Medicine. https://www.aamc.org/news-insights/wellbeing/faculty. • Linton M, Dieppe P, Medina-Lara A Review of 99 self-report measures for assessing well-being in adults: exploring dimensions of well-being and developments over time <i>BMJ Open</i> 2016;6:e010641. doi: 10.1136/bmjopen-2015-010641. • NAM. NAM Action Collaborative on Clinician Wellbeing Knowledge Hub https://nam.edu/initiatives/clinician-resilience-and-well-being/. • NAM. NAM Action Collaborative on Clinician Wellbeing Conceptual Framework: https://nam.edu/journey-construct-encompassing-conceptual-model-factors-affecting-clinician-well-resilience/. • Shanfelt T, Goh J, Sinsky C. The business case for investigating in physician well-being. <i>JAMA Intern Med.</i> 2017;177(12):1826-1832. doi:10.1001/jamainternmed.2017.4340.

Diversity, Equity, and Inclusion (DEI) in the Learning Environment	
Overall Intent: To acknowledge and address the numerous factors in diversity, equity, and inclusion that affect learners, the learning environment, and patient care	
Milestones	Examples
Level 1 <i>Defines diversity, equity, inclusion, racism, and oppression (structural, institutional, interpersonal, and internalized) and their impact on the learning environment</i>	• (U/G/C): Provides examples of commitment to self-reflection and growth in DEI such as reading, attending courses, small-group learning, or individual coaching • (U/G/C): Completes unconscious bias training and other professional development to raise self-awareness, knowledge, and skills in DEI • (U/G/C): Describes systemic disadvantages and racism within the health care system and educational programs
Level 2 <i>Identifies inequities and applies strategies to mitigate racism and oppression and develop a diverse, inclusive, and equitable learning environment</i>	• (U/G/C): Follows specific steps to demonstrate allyship when witnessing a microaggression • (U/G/C): Creates a welcoming and inclusive environment and actively engages all learners regardless of race, ethnicity, gender, sexual orientation, and/or ability • (U/G/C): Gives examples of systemic racism and a strategy used to address it within the local environment
Level 3 <i>Applies best practices in diversity, equity, inclusion, and anti-oppression in one's own learning environment</i>	• (U/G/C): Advocates for allyship and DEI values in all venues, including large groups, committees, and department meetings • (U/G/C): Uses inclusive language to address learners, colleagues, and patients • (U/G/C): Uses an inclusive range of images and case studies when teaching
Level 4 <i>Designs learning experiences that engage and support persons from diverse backgrounds, orientations, abilities, experiences, and perspectives</i>	• (U/G/C): Conducts ongoing DEI needs assessments for the learning environments • (U/G/C): Develops or replicates DEI initiatives in multiple venues • (U/G/C): Measures the impact of DEI programs • (U/G/C): Is recognized as an expert in DEI best practices or programs
Level 5 <i>Role models and advocates for best practices in diversity, equity, and inclusion in the learning environment, and works to systemically address inequities</i>	• (U/G/C): Institutes a DEI program within an educational curriculum that is based on assessment of needs • (U/G/C): Provides examples of leading others—informally or formally—to advance DEI initiatives • (U/G/C): Uses the local Community Health Needs Assessment (CHNA) to tailor educational experiences • (U/G/C): Collects race, language, and other community-level data to identify local disparities in care and incorporate it into teaching and learning practices • (U/G/C): Implements strategies to recruit, retain, and support diversity in all forms among leaders, faculty members, and learners
Assessment Models or Tools	• Diversity, Inclusion, Culture, and Equity (DICE): https://store.aamc.org/diversity-inclusion-culture-and-equity-dice.html.

	• Foundational Principles of Inclusion Excellence (FPIE): https://store.aamc.org/foundational-principles-of-inclusion-excellence-fpie-toolkit.html • Project Implicit (self-assessment): https://implicit.harvard.edu/implicit/takeatest.html
Notes or Resources	• AAMC. Cross Continuum Competencies in DEI: Competencies Across the Learning Continuum. https://store.aamc.org/diversity-equity-and-inclusion-competencies-across-the-learning-continuum.html. Accessed 2022. • AAMC. Diversity, Inclusion, Equity, Culture Inventory. https://store.aamc.org/diversity-inclusion-culture-and-equity-dice.html. • AAMC. Understanding and Addressing Sexual Harassment in Academic Medicine. https://store.aamc.org/downloadable/download/sample/sample_id/524/. Accessed 2022. • ACGME. ACGME <i>Equity Matters</i>™. https://dl.acgme.org/pages/equity-matters. Accessed 2022. • MedEdPORTAL. Collection of Anti-Racism Resources. https://www.mededportal.org/anti-racism. Accessed 2022.

Administration 1: Administration Skills Overall Intent: To function efficiently and effectively within an organization	
Milestones	Examples
Level 1 <i>Describes administrative domains of program management</i> <i>Describes components of legal, regulatory, and accreditation functions</i>	• (U/G/C): Describes the recruitment life cycle and relevant timelines in medical education • (U/G): Identifies the data collected in AAMC GME Track, the National GME Census database (e.g., Resident Survey, Program Survey, Fellowship and Residency Electronic Interactive Database (FREIDA)) • (U/G/C): Describes the roles of licensing authorities for medical practice and whom to contact to initiate the process of learner licensure • (U/G/C): Differentiates learner, resident/fellow, and full licensure
Level 2 <i>Identifies best administrative practices for effective program management</i> <i>Identifies relevant resources for legal, regulatory, and accreditation functions</i>	• (U/G/C): Identifies effective strategies that result in successful recruitment, including virtual approaches and social media • (U/G/C): Recognizes effective recruitment strategies in DEI that meet community needs • (U/G/C): Compares different tools to meet program needs (e.g., interview scheduling, rotation scheduling, call requirements) • (U/G/C): Creates spreadsheets and can share data visually
Level 3 <i>Employs best administrative practices for effective program management</i> <i>Employs effective approaches to perform legal, regulatory, and accreditation functions</i>	• (U/G/C): Employs effective strategies that result in successful recruitment • (U/G/C): Chooses the most effective options/approaches • (G/C): Identifies program human resources/full-time equivalency (FTE) needs • (U/G/C): Responds to and elevates issues in program administration (e.g., too much critical care time, absence of key experiences) • (U/G/C): Shares data in different formats based on the audience receiving the data
Level 4 <i>Consistently demonstrates best practices across administrative domains</i> <i>Consistently integrates legal, regulatory, and accreditation functions into practice</i>	• (U/G): Finds funding for additional training lines; manages off-cycle learners • (U/G/C): Works with and assists other program administrators in other specialties • (U/G): Ensures surveys are completed and in-service assessments are tracked and shared appropriately • (U/G): Ensures learners know program recordkeeping and information sharing with external stakeholders
Level 5 <i>Leads and guides others for best administrative practices for effective program management</i>	• (U/G/C): Runs mentorship program • (U/G/C): Is recognized as an authority on novel strategies for successful recruitment

<i>Leads and guides others in legal, regulatory, and accreditation functions</i>	• (U/G/C): Navigates efforts to instruct other program directors how to prepare a new program application or for successful site visit
Assessment Models or Tools	• Direct observation • Educational portfolio • Identification of program responsiveness to stakeholders • Multisource feedback • Review of learner and program surveys
Notes or Resources	• AAMC. GME Leadership Development Certificate Program. https://www.aamc.org/professional-development/leadership-development/gme-leadership-development-certificate-program. • ACGME. Program Directors' Guide to the Common Program Requirements. https://www.acgme.org/Portals/0/PFAssets/ProgramResources/PDGuideResidency.pdf. • Gonzaga AMR, Appiah-Pippim J, Onumah CM, Yialamas MA. A framework for inclusive graduate medical education recruitment strategies: meeting the ACGME standard for a diverse and inclusive workforce. <i>Acad Med</i>. 2020 May;95(5):710-716. doi: 10.1097/ACM.0000000000003073. PMID: 31702694.

Administration 2: Leadership Skills Overall Intent: To develop individual and collegial leadership abilities to achieve program outcomes	
Milestones	Examples
Level 1 <i>Identifies essential styles, skills, and attributes for leadership</i>	• (U/G/C): Differentiates leadership styles and how they can effectively collaborate with other styles • (U/G/C): Identifies specific leadership resources to understand the various leadership styles
Level 2 <i>Identifies own leadership style and develops leadership skills with guidance</i>	• (U/G/C): Develops effective leadership attributes with a guide or mentor • (U/G/C): Takes a leadership assessment survey, reflects on results, and applies to own leadership skills
Level 3 <i>Independently assesses situations and determines which leadership skills are needed to achieve intended outcomes in routine situations</i>	• (U/G/C): Performs a needs assessment to identify the optimal leadership style to apply in a one-on-one teaching encounter for learner development • (U/G/C): Identifies gaps and brings an expert in to teach leadership styles
Level 4 <i>Leads others to achieve intended outcomes in complex and dynamic situations</i>	• (U/G/C): Applies different leadership styles on an interdisciplinary team (for residents/fellows, medical students, nurse practitioners, physician assistants) on an inpatient medical service • (U/G/C): Creates a multidisciplinary work group in response to a citation from a regulatory visit
Level 5 <i>Leads diverse individuals and teams to achieve program- or system-level outcomes</i>	• (U/G/C): Demonstrates mastery of team leadership • (U/G/C): Works effectively with faculty members in other disciplines and interprofessional team members to manage residents/fellows during a pandemic, applying leadership skills to assist in multiple areas, including revenue, schedules, and negotiations relevant to the health system
Assessment Models or Tools	• Direct observation • Educational portfolio • Leadership or personality assessment tools • Multisource feedback • Program evaluation results • Review of a written curriculum or decision-making tool
Notes or Resources	• Program evaluation can be completed using theories like Kellogg's Logic Model, Moore or Kirkpatrick's Model, and other data, including board pass rates, continued accreditation, and team member retention • Leadership assessment tools can include: DiSC Model (Dominance, Influence, Steadiness, and Conscientiousness), Myers-Briggs Type Indicator, and others

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| | <ul style="list-style-type: none">• AAMC. Leadership Education and Development (LEAD) Certification Program. https://www.aamc.org/professional-development/leadership-development/lead. Accessed 2022. |
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Administration 3: Change Management	
Overall Intent: To incorporate change management as a skill for ongoing continue quality improvement in medical education	
Milestones	Examples
Level 1 <i>Describes why change management is important in medical education</i>	• (U/G/C): Using the COVID-19 pandemic as an example for necessary change, describes how academic institutions have had to rapidly adapt their educational programming • (U/G/C): Recognizes need for change
Level 2 <i>Participates in change management initiatives</i>	• (U/G/C): Supports and does not impede change initiatives • (U/G/C): Is an early adopter of a new learning management system
Level 3 <i>Facilitates and manages change management initiatives</i>	• (U/G/C): Creates a proposal to improve night float • (C): Participates in a super-user group after implementation of a new EHR to provide feedback and suggestions for improvement to the implementation team
Level 4 <i>Implements change and reviews outcomes</i>	• (U/G/C): Implements various types of changes (technical or transformational) at various levels of the institution (program, department, or institutional level) • (U/G/C): Consistently uses tools to evaluate ideas and initiate change • (U/G/C): Implements a well-being program using Kotter's model of change to address learner and clinician burnout
Level 5 <i>Coaches others how to create and implement change management</i>	• (U/G/C): Coaches learners and faculty members implementing a leadership project to include change management frameworks as part of a leadership development program
Assessment Models or Tools	• Dashboards
Notes or Resources	• Hord SM, Rutherford WL, Huling-Austin L, Hall GE. <i>Taking Charge of Change</i>. Alexandria, VA: Association for Supervision and Curriculum Development, 1987. • Kotter JP. <i>Leading Change</i>. Revised edition. Cambridge, Massachusetts; Harvard Business Review Press; 2012. • Prosci. The Prosci ADKAR® Model. https://www.prosci.com/methodology/adkar. Accessed 2022. • Rogers, Everett M. <i>Diffusion of Innovations</i>. New York: Free Press of Glencoe; 1962. • William Bridges Associates. Bridges Transition Model https://wmbridges.com/about/what-is-transition/. Accessed 2022.