Supplemental Guide: Internal Medicine

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Milestones Supplemental Guide

This document provides additional guidance and examples for the Internal Medicine 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 a Clinical Competency Committee (CCC) might expect to be observed/assessed at each level. Also included are suggested assessment models and tools for each subcompetency, references, and other useful information.

Review this guide with the CCC and faculty members. As the program develops a shared mental model of the Milestones, consider creating an individualized guide (Supplemental Guide Template available) with institution/program-specific examples, assessment tools used by the program, and curricular components.

Additional tools and references, including the Milestones Guidebook, Clinical Competency Committee Guidebook, and Milestones Guidebook for Residents and Fellows, are available on the Resources page of the Milestones section of the ACGME website.

Patient Care 1: History **Overall Intent:** To competently interact with patients from heterogenous backgrounds and consistently use all available resources to obtain a comprehensive patient history	
Milestones	**Examples**
Level 1 *Elicits and reports a comprehensive history for common patient presentations, with guidance*	● Obtains accurate, patient-centered history from a 30-year-old patient with a red swollen joint using open-ended and directed questions, but without exploring clear underlying hypotheses ● Presents oral and written report that is organized but not focused on the chief complaint
Seeks data from secondary sources, with guidance	● Needs prompting to seek data from family members, ancillary staff members, outside pharmacy, outside labs, and databases for controlled substances
Level 2 *Elicits and concisely reports a hypothesis-driven patient history for common patient presentations*	● Interviews a patient with no past medical history with a chief complaint of a red swollen joint, asking the patient about recent alcohol use, diet, trauma, sexual history, and other pertinent questions; reports history limited to pertinent positive and negative facts ● Without prompting, reviews and presents relevant data from previous medical records, including past labs and primary care physician notes, family members, ancillary staff members, outside pharmacy, outside labs, and databases for controlled substances
Independently obtains data from secondary sources	● Proactively reviews prescription history from available databases and calls the patient's pharmacy for recent prescriptions that note allopurinol has not been refilled in months
Level 3 *Elicits and concisely reports a hypothesis-driven patient history for complex patient presentations*	● Presents an 85-year-old with a history of congestive heart failure, coronary artery disease, chronic obstructive pulmonary disease (COPD), and diabetes with a chief complaint of several weeks of shortness of breath, asking about medication and dietary adherence; reports on the presence of angina or heart failure symptoms, recent upper respiratory infection, and allergen exposure
Reconciles current data with secondary sources	● Completes accurate medication reconciliation using multiple sources and clarifies history based on new information as it becomes available from caregivers who note recent weight gain
Level 4 *Efficiently elicits and concisely reports a patient history, incorporating pertinent psychosocial and other determinants of health*	(NOTE: Example uses same patient from Level 3) ● Discovers the patient has not filled recent prescriptions and determines it was due to an insurance lapse, and that the patient does not have reliable transportation to a pharmacy ● Determines that patient has no reliable prescription plan coverage
Uses history and secondary data to guide the need for further diagnostic testing	● Determines patient recently had cardiac work-up at another hospital one month ago and does not order echocardiogram based on previous results

Level 5 *Efficiently and effectively tailors the history taking, including relevant historical subtleties, based on patient, family, and system needs* *Models effective use of history to guide the need for further diagnostic testing*	● Obtains a history from a patient presenting with macrocytosis, gout, and liver function test abnormalities, building trust to explore relevant history and learns that the patient consumes alcohol despite initial denial ● Takes a history from an injured patient and realizes that the boyfriend answers all of the questions; identifies that the patient may be a victim of intimate partner violence based on non-verbal cues ● Obtains history of medication prescription plan and recognizes that patient may not have Medicare Part D or is in the coverage gap (i.e., “donut hole”) ● Evaluates a patient with a complaint of headache and illustrates to the more junior learners the elements of the history that preclude the need for additional testing
Assessment Models or Tools	● Chart stimulated recall ● Direct observation ● Medical record (chart) audit ● Observable structured clinical examination (OSCE) ● Simulation ● Mini-CEX
Curriculum Mapping	●
Notes or Resources	● American College of Physicians. Estimate the Impact of Insurance on Patients' Outcomes. https://www.acponline.org/cme-moc/online-learning-center/estimate-the-impact-of-insurance-on-patients-outcomes. 2020. ● Bickley L, Szilagyi PG. *Bates’ Guide to Physical Examination and History-Taking.* 11th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2012. ● Caring with Compassion. ACP. https://caringwithcompassion.org/. 2020. ● Gottlieb LM, Tirozzi KJ, Manchanda R, Burns AR, Sandel MT. Moving electronic medical records upstream: incorporating social determinants of health. *American Journal of Preventive Medicine*. 2015;48(2):215-218. https://www.ajpmonline.org/article/S0749-3797(14)00375-4/fulltext. 2020. ● Smith RC. *Patient-Centered Interviewing: An Evidence-Based Method.* 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2018.

Patient Care 2: Physical Examination **Overall Intent:** To perform a respectful and complete physical exam appropriate to the context of the visit	
Milestones	**Examples**
Level 1 *Performs a general physical examination while attending to patient comfort and safety* *Identifies common abnormal findings*	● Examines an elderly patient who is bedbound and performs a comprehensive exam, including rolling the patient to visually assess the back, minimizing discomfort ● Examines a 35-year-old patient and identifies a holosystolic murmur
Level 2 *Performs a hypothesis-driven physical examination for a common patient presentation* *Interprets common abnormal findings*	● Examines a 25-year-old patient with ankle pain after running and keeps the exam focused on local musculoskeletal, vascular, neurologic systems without extraneous, unfocused exam maneuvers ● Identifies a systolic murmur with radiation to the carotids, and prioritizes aortic stenosis at the top of the differential ● Recognizes that a patient has scleral icterus by examining the inferior portion of the sclera and orders liver function tests
Level 3 *Performs a hypothesis-driven physical examination for a complex patient presentation* *Identifies and interprets uncommon and complex abnormal findings*	● Presents an 85-year-old patient with a history of congenital heart failure, coronary artery disease, COPD, and diabetes presenting with several weeks of shortness of breath; evaluates for jugular-venous distension, hepatojugular reflex, lower extremity edema, wheezing, pallor, and new murmurs ● Identifies a diastolic murmur and also notes the presence of splinter hemorrhages, and recognizes potential endocarditis
Level 4 *Uses advanced maneuvers to elicit subtle findings* *Integrates subtle physical examination findings to guide diagnosis and management*	● In a 35-year-old patient with the new heart murmur, performs cardiac maneuvers such as valsalva, raising legs, and squatting to distinguish the cause of the heart murmur ● Identifies a pulsatile abdominal mass, prompting a referral for urgent imaging ● Recognizes a concerning pigmented lesion on the heel of a patient with dark skin and appropriately refers patient to dermatology for evaluation of possible acral lentiginous melanoma
Level 5 *Models effective evidence-based physical examination technique* *Teaches the predictive values of the examination findings to guide diagnosis and management*	● Demonstrates evidence-based techniques for evaluating rotator cuff impingement ● Articulates diagnostic significance of findings for rotator cuff impingement to determine the need for further imaging studies

	● Teaches the team that the presence of jugular-venous distension more effectively rules in volume overload than the absence of it rules it out ● In a patient presenting with ankle pain after a fall, uses the Ottawa criteria and decides not to order any imaging
Assessment Models or Tools	● Chart stimulated recall ● Direct observation ● Medical record (chart) audit ● OSCE ● Simulation
Curriculum Mapping	●
Notes or Resources	● Bickley L, Szilagyi PG. *Bates' Guide to Physical Examination and History-Taking.* 11th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2012. ● JAMA Network. The Rational Clinical Examination. https://jamanetwork.com/collections/6257/the-rational-clinical-examination. 2020. ● McGee S. *Evidence-Based Physical Diagnosis*. 4th ed. Philadelphia, PA: Elsevier; 2018 ● McGee S. Teaching evidence-based physical diagnosis: six bedside lessons. *Southern medical journal*. 2016;109(12):738-742. https://sma.org/southern-medical-journal/article/teaching-evidence-based-physical-diagnosis-six-bedside-lessons/. 2020. ● Orient JM. *Sapira's Art and Science of Bedside Diagnosis*. 5th ed. Philadelphia: Wolters Kluwer; 2019 ● Stanford Medicine. The Stanford Medicine 25. https://stanfordmedicine25.stanford.edu/the25.html. 2020. ● Swartz M. *Textbook of Physical Diagnosis*: *History and Examination*. 7th ed. Philadelphia, PA: Elsevier; 2014. ● American College of Physicians. How Rene Laennec and the stethoscope changed the course of medicine. Origins. 2019. http://static.acponline.org/impower/origins-episode-1-the-stethoscope.mp3?_ga=2.185807918.623753382.1580306715-1440023779.1560277848

Patient Care 3: Clinical Reasoning **Overall Intent:** To consistently develop a complete and prioritized differential diagnosis while minimizing the impact of cognitive errors	
Milestones	**Examples**
Level 1 *Organizes and accurately summarizes information obtained from the patient evaluation to develop a clinical impression*	● After evaluating a patient, states that the 27-year-old woman on oral contraceptives presents with acute onset, pleuritic right-sided chest pain and dyspnea following a 12-hour car trip
Level 2 *Integrates information from all sources to develop a basic differential diagnosis for common patient presentations* *Identifies clinical reasoning errors within patient care, with guidance*	● Uses patient history, physical exam findings, laboratory data, and prior medical records to develop a differential diagnosis of appendicitis, ectopic pregnancy, and ovarian torsion for a 25-year-old woman with acute right lower-quadrant abdominal pain ● In discussion with senior physician, identifies premature closure as reason for excluding systemic lupus erythematosus from differential diagnosis for pleuritic chest pain in a young woman on oral contraceptives with a malar rash ● In discussion with clinic attending, recognizes bias as a reason for not identifying thyroid disease as the diagnosis in a Hispanic woman presenting with complaints of weight gain and fatigue
Level 3 *Develops a thorough and prioritized differential diagnosis for common patient presentations* *Retrospectively applies clinical reasoning principles to identify errors*	● For a 65-year-old female presenting to the office with complaints of fatigue, weight loss, and depressed mood, posits major depressive disorder as the most likely underlying cause while also considering apathetic hyperthyroidism, occult cancer, malabsorption, medication adverse effects, or adrenal insufficiency ● During a team discussion of a patient with a posterior circulation stroke presenting with vertigo, recognizes they anchored on the diagnosis of benign positional vertigo by the overnight resident ● After expression of frustration with a patient for “non-compliance” with diet and exercise recommendations, asks patient about access to food and safe and accessible areas for exercise ● Recognizes the underdiagnosis of acute coronary syndromes in Black patients and works with the interdisciplinary team including cardiology consults to advocate for evidence-based testing in the workup of ischemia
Level 4 *Develops prioritized differential diagnoses in complex patient presentations and incorporates subtle, unusual, or conflicting findings*	● For an elderly patient presenting with recurrent falls and a subtle gait abnormality but otherwise normal neurologic examination, considers normal pressure hydrocephalus, multisystem atrophy, and inclusion body myositis in addition to more common causes of falls

Continually re-appraises one's own clinical reasoning to improve patient care in real time	● While re-assessing a patient with shock symptoms on appropriate antibiotics, considers adrenal insufficiency when the patient is not responding to therapy ● When the patient's weight remains elevated despite appropriate lifestyle counseling, asks patient about access to food and safe and accessible areas for exercise
Level 5 *Coaches others to develop prioritized differential diagnoses in complex patient presentations* *Models how to recognize errors and reflect upon one's own clinical reasoning*	● Teaches an intern to link missed associations in order to hone the first-year resident's differential diagnosis in an unconscious intensive care unit (ICU) patient with multi-organ failure ● Articulates how the diagnosis of posterior circulation stroke was missed due to anchoring on the diagnosis provided by the overnight resident and discusses how to change the evaluation in future transitions of care
Assessment Models or Tools	● Chart-stimulated recall ● Direct observation ● Medical record (chart) audit ● Multisource feedback ● Reflection ● Simulation ● Evaluation of formal case presentations incorporating explicit discussion of clinical reasoning (case conferences, morbidity and mortality (M and M) conferences, etc.)
Curriculum Mapping	●
Notes or Resources	● American College of Physicians. Getting it Right: Cases to Improve Diagnosis. https://www.acponline.org/cme-moc/online-learning-center/getting-it-right-cases-to-improve-diagnosis. 2020. ● ACP. Teaching Clinical Reasoning. https://store.acponline.org/ebiz/products-services/product-details/productid/21910?productId=21910. 2020. ● Bowen JL. Educational strategies to promote clinical diagnostic reasoning. *New England Journal of Medicine*. 2006;355(21):2217-2225. https://www.researchgate.net/publication/6674220_Educational_Strategies_to_Promote_Clinical_Diagnostic_Reasoning. 2020. ● Charlin B, Tardif J, Boshuizen HP. Scripts and medical diagnostic knowledge: theory and applications for clinical reasoning instruction and research. *Academic Medicine*. 2000;75(2):182-190. https://www.ncbi.nlm.nih.gov/pubmed/10693854. 2020. ● Croskerry P. A universal model of diagnostic reasoning. *Academic Medicine*. 2009;84(8):1022-1028. http://files.neuroligase.webnode.com/200000215-5a1485bc7a/A_Universal_Model_of_Diagnostic_Reasoning-14.pdf. 2020. ● Docnomo, a phone app

	● Graber ML, Franklin N, Gordon R. Diagnostic error in internal medicine. *Archives of Internal Medicine*. 2005;165(13):1493-1499. https://www.researchgate.net/publication/298348382_Diagnostic_Error_in_Internal_Medicine. 2020. ● Mamede S, Schmidt HG, Penaforte JC. Effects of reflective practice on the accuracy of medical diagnosis. *Medical Education*. 2008;42(5):468-475. https://www.ncbi.nlm.nih.gov/pubmed/18412886. 2020. ● Norman GR, Monteiro SD, Sherbino J, Ilgen JS, Schmidt HG, Mamede S. The causes of errors in clinical reasoning: cognitive biases, knowledge deficits, and dual process thinking. *Academic Medicine*. 2017;92(1):23-30. https://www.researchgate.net/publication/309465770_The_Causes_of_Errors_in_Clinical_Reasoning_Cognitive_Biases_Knowledge_Deficits_and_Dual_Process_Thinking. 2020. ● Society to Improve Diagnosis in Medicine. https://www.improvediagnosis.org/. 2020.

Patient Care 4: Patient Management – Inpatient **Overall Intent:** To implement and follow through on comprehensive management plans for hospitalized patients	
Milestones	**Examples**
Level 1 *Formulates management plans for common conditions, with guidance*	● Creates an appropriate management plan for a patient admitted with community-acquired pneumonia, after receiving guidance from a more senior physician
Identifies opportunities to maintain and promote health	● Identifies need for tobacco cessation counseling and vaccinations for a patient with community-acquired pneumonia
Level 2 *Develops and implements management plans for common conditions, recognizing acuity, and modifies based on the clinical course*	● Correctly triages a COPD patient with exacerbation who needs a higher level of monitoring ● Orders a renal ultrasound in a patient who continues to be febrile to 103 degrees and reports increasing flank pain 48 hours after antibiotics for a urinary tract infection were initiated ● For a patient with diabetes, anticipates and manages hyperglycemia when steroids are prescribed for an asthma exacerbation
Develops and implements management plans to maintain and promote health, with guidance	● After discussion with supervising physician, refers patient with advanced COPD to a pulmonary rehabilitation program ● Counsels a woman with alcoholic hepatitis about the importance of alcohol cessation and seeks guidance to appropriately refer her to an outpatient treatment program
Level 3 *Develops and implements value-based (high value) management plans for patients with multisystem disease and comorbid conditions; modifies based on the clinical course*	● Orders broad spectrum antibiotic coverage appropriate to the hospital's antibiogram for a patient with fever and neutropenia with advanced cancer, undergoing chemotherapy who now develops hypotension
Independently develops and implements plans to maintain and promote health, incorporating pertinent psychosocial and other determinants of health	● For a patient with COPD, coronary artery disease, diabetes, atrial fibrillation, and chronic kidney disease, selects medications that minimize tachycardia and avoid drug-drug interactions with anticoagulants ● Independently refers a patient with advanced congestive heart failure with decreased ejection fraction to a cardiac rehabilitation program ● Reviews list of low-cost medications from retail pharmacy prior to discharge for an underinsured patient's new medications and after discussing the risks and benefits of influenza and pneumococcal vaccination and gaining consent, ensures the patient receives these prior to discharge ● Reviews list of low-cost medications from retail pharmacy prior to discharge for an underinsured patient's new medications

	● Recommends that a patient receiving mechanical ventilation ambulate daily ● Consults social work or chaplain to meet with a patient who has is the sole survivor of a motor vehicle crash ● Asks to have a married couple admitted to the hospital co-located
Level 4 *Uses shared decision making to develop and implement value-based (high value) comprehensive management plans for patients with comorbid and multisystem disease, including those patients requiring critical care* *Independently develops and implements comprehensive plans to maintain and promote health, incorporating pertinent psychosocial and other determinants of health*	● Uses evidence-based clinical decision tools to perform peri-operative risk assessment and develop a peri-operative management plan for an elderly patient with hip fracture and history of diabetes and coronary artery disease, avoiding blood transfusions for religious reasons ● Reviews evidence-based guidelines and weighs consultant recommendations for a 67-year-old patient with structural heart disease who now presents with syncope and orders an echocardiogram and appropriately does not order carotid ultrasound ● Incorporates religious and cultural beliefs into management plans by adjusting insulin dosing during periods of fasting
Level 5 *Develops and implements comprehensive management plans for patients with rare or ambiguous presentations or unusual comorbid conditions*	● Selectively orders testing for pheochromocytoma or Wilson disease only in patients with a high pretest probability ● Pursues a tiered, evidence-based approach to assessment of fatigue, fever of unknown origin, or “failure to thrive” in a developmentally disabled adult ● Manages hypertensive crisis during pregnancy for a woman with systemic lupus erythematosus
Assessment Models or Tools	● Case based discussion ● Chart stimulated recall ● Direct observation ● Medical record (chart) audit ● Multisource feedback ● OSCE ● Reflective exercise ● Simulation
Curriculum Mapping	●
Notes or Resources	● Adina Kalet, Calvin L. Chou (Eds.) *Remediation in Medical Education*. Springer, NY. 2018 ● Alliance for Academic Internal Medicine. UME/GME Program Resources. https://www.im.org/resources/ume-gme-program-resources/curriculum. 2020. ● AAIM. Primary Care Track Toolkit. https://www.im.org/resources/ume-gme-program-resources/pccurriculum. 2020.

	● ACP. High Value Care Medical Educators' Resources. https://www.acponline.org/clinical-information/high-value-care/medical-educators-resources. 2020. ● Caring with Compassion. ACP. https://caringwithcompassion.org/. 2020. ● David JA. *CURRENT Practice Guidelines in Inpatient Medicine*. 1st ed. New York, NY: McGraw-Hill Education; 2018. ● National Center for Biotechnology Information. PubMed Clinical Queries. https://www.ncbi.nlm.nih.gov/pubmed/clinical. 2020. ● Owens DK, Qaseem A, Chou R, Shekelle P. High-value, cost-conscious health care: concepts for clinicians to evaluate the benefits, harms, and costs of medical interventions. *Annals of Internal Medicine*. 2011;154(3):174-180. https://annals.org/aim/fullarticle/746773/high-value-cost-conscious-health-care-concepts-clinicians-evaluate-benefits. 2020. ● Society of Hospital Medicine. The Core Competencies in Hospital Medicine. https://www.hospitalmedicine.org/professional-development/core-competencies/. 2020. ● Annals for Hospitalists https://annals.org/aim/annals-for-hospitalists 2020.

Patient Care 5: Patient Management – Outpatient **Overall Intent:** To implement and follow through on comprehensive management plans for outpatients	
Milestones	**Examples**
Level 1 *Identifies opportunities to maintain and promote health* *Formulates management plans for a common chronic condition, with guidance* *Formulates management plans for acute common conditions, with guidance*	● Identifies patient who is seen for an ankle sprain and identifies that patient is due for pneumococcal vaccination after checking health maintenance tab ● Formulates an appropriate management plan for a patient with uncomplicated essential hypertension after discussion with a supervising physician ● Formulates an appropriate management plan for a patient with an upper respiratory infection after discussion with a supervising physician
Level 2 *Develops and implements management plans to maintain and promote health* *Develops and implements management plans for common chronic conditions* *Develops and implements management plans for common acute conditions*	● Discusses the importance of weight-bearing exercise and dietary calcium intake to maintain bone health and provides patient instructions using electronic health record (EHR) pre-created phrases ● Advises regular and proper use of inhaled corticosteroid for a patient with moderate persistent asthma ● Implements an evidence based management plan for a patient with acute low back pain
Level 3 *Develops and implements plans to maintain and promote health, incorporating pertinent psychosocial and other determinants of health* *Develops and implements management plans for multiple chronic conditions* *Develops and implements an initial management plan for patients with urgent or emergent conditions in the setting of chronic comorbidities*	● Uses motivational interviewing to explore smoking cessation and appropriately refers a patient on a fixed income to a state-sponsored quit smoking program ● Recognizes that the neighborhood in which the patient lives does not have a supermarket (i.e., “a food desert”) and connects patient to a local food pantry ● Adjusts medications to optimize glycemic control and blood pressure for a patient with diabetes mellitus, stage IV chronic kidney disease, and COPD ● Prescribes oral steroids, escalates bronchodilator regimen, and creates an asthma action plan in EHR to manage mild to moderate asthma exacerbation in the ambulatory setting ● Initiates emergent care for a patient developing anaphylaxis after receiving a parenteral antibiotic in the office
Level 4 *Develops and implements value-based (high-value) comprehensive plans to maintain and promote health*	● Overrides an EHR best practice alert indicating that a mammogram is due in a 60-year-old female with metastatic lung cancer

Develops and implements value-based (high value) comprehensive management plans for multiple chronic conditions, incorporating pertinent psychosocial and other determinants of health *Develops and implements value-based (high value) management plans for patients with acute conditions*	● Minimizes polypharmacy for an elderly patient with heart failure, kidney disease, COPD, cognitive impairment, and urinary incontinence ● Incorporates religious and cultural beliefs into management plans by adjusting insulin dosing during periods of fasting ● Recognizes that patient cannot take time off from work for physical therapy and provides home-based exercise plan for chronic low back pain ● Discusses therapeutic options with a patient who presents with acute gout, including NSAIDs, colchicine, oral or intra-articular steroids, and facilitates final management plan including assessment of costs and availability of medications through patient's prescription plan
Level 5 *Creates and leads a comprehensive patient-centered management plan for the patient with highly complex chronic conditions, integrating recommendations from multiple disciplines* *Develops and implements management plans for patients with subtle presentations, including rare or ambiguous conditions*	● Uses EHR to communicate with cardiology, pain team, orthopaedics, and endocrinology about a patient who has poorly controlled diabetes, a left ventricular assist device (LVAD), on anticoagulation, chronic pain related to severe osteoarthritis and needing interventions to improve quality of life related to knee osteoarthritis and to determine if surgical intervention is appropriate ● Identifies a patient who has frequent visits to the emergency department and has poorly controlled asthma, bipolar disorder, substance abuse disorder, and unstable housing, and develops and implements a patient-centered plan, documented in EHR patient coordination section, to have frequent clinic visits and coordinate with psychiatry, pulmonology, and social work to address issues proactively and avoid emergency department visits ● Negotiates a referral for a second opinion to an undiagnosed disease network hospital to pursue a diagnosis of mastocytosis in the setting of a normal skin biopsy, normal urine and blood testing, and persistent chronic abdominal pain, vomiting, diarrhea, and itching
Assessment Models or Tools	● Chart stimulated recall ● Direct observation ● Medical record (chart) audit ● Multisource feedback ● OSCE ● Simulation
Curriculum Mapping	●
Notes or Resources	● The following definition(s) of "high-value care" should be considered when assessing resident progression in this milestone: The American College of Physicians defines high-value care as health care that balances clinical benefit with costs and harms with the goal of improving patient outcomes. The Institute of Medicine defines it as

	"the best care for the patient, with the optimal result for the circumstances, delivered at the right price." ● AAIM. Primary Care Track Toolkit https://www.im.org/resources/ume-gme-program-resources/pccurriculum. 2020. ● ACP. High Value Care. https://www.acponline.org/clinical-information/high-value-care/medical-educators-resources. 2020. ● Annals of Internal Medicine. In the Clinic. https://annals.org/aim/in-the-clinic. 2020. ● Caring with Compassion. ACP. https://caringwithcompassion.org/. 2020. ● National Center for Biotechnology Information. PubMed Clinical Queries. https://www.ncbi.nlm.nih.gov/pubmed/clinical. 2020. ● Owens DK, Qaseem A, Chou R, Shekelle P. High-value, cost-conscious health care: concepts for clinicians to evaluate the benefits, harms, and costs of medical interventions. *Annals of Internal Medicine*. 2011;154(3):174-180. https://annals.org/aim/fullarticle/746773/high-value-cost-conscious-health-care-concepts-clinicians-evaluate-benefits. 2020. ● Yale School of Medicine. Yale Office-Based Medicine Curriculum. https://medicine.yale.edu/intmed/residency/pc/curriculum/ambulatory/curricula/curricula.aspx. 2020.

Patient Care 6: Digital Health **Overall Intent**: To optimally use EHRs and technology to enhance patient care, reflecting the increasing role of technology in the management of patients	
Milestones	**Examples**
Level 1 *Uses electronic health record (EHR) for routine patient care activities*	● Manages clinical inbox ● Enters basic patient care orders ● Documents clinical encounters (e.g., ambulatory, inpatient, consult, communications) ● Reviews clinical data and information (e.g., laboratory results, radiology results, medication lists, other provider notes)
Identifies the required components for a telehealth visit	● Identifies secure telehealth software as a requirement ● Knows that the patient must have access to a smart phone or computer with a microphone
Level 2 *Expands use of EHR to include and reconcile secondary data sources in patient care activities*	● Performs accurate and thorough medication reconciliation ● Reconciles and updates information accurately in the EHR on admission to hospital with information from outside pharmacies, and outside hospital visits
Performs assigned telehealth visits using approved technology	● Initiates an e-consult ● Communicates with patients through approved electronic systems (e.g., patient portal, secure health system email)
Level 3 *Effectively uses EHR capabilities in managing acute and chronic care of patients*	● Uses health maintenance support tools to attend to and update cancer screening and vaccination update reminders ● Uses tools such as “smart phrases”, order sets, templates
Identifies clinical situations that can be managed through a telehealth visit	● Communicates effectively with other team members through EHR ● On phone call resident appreciates need to assess patient in person ● Uses electronic data sources to monitor blood pressure readings, glucose reading downloads, and international normalized ratio monitoring to support patient management
Level 4 *Uses EHR to facilitate achievement of quality targets for patient panels*	● Achieves pap smear completion target for patient panel through ongoing review of panel
Integrates telehealth effectively into clinical practice for the management of acute and chronic illness	● Reschedules an in person visit to telehealth after recognizing the patient has recently been seen and examined and only preventive care is needed to be discussed ● Transitions a telehealth visit to an in person visit when a triage note suggests patient may be sicker than originally described
Level 5 *Leads improvements to the EHR*	● Serves as a “super-user” for the EHR ● Develops clinical decision-making pathways ● Serves on steering or advisory committees for EHR

Develops and innovates new ways to use emerging technologies to augment telehealth visits	● Shares advancements in EHR functionality with peers and colleagues in formal and informal ways ● Manages a patient from diagnosis through treatment through digital means including review of data, referral to consultants and initiation of a treatment plan
Assessment Models or Tools	● Medical record (chart) audit ● Chart stimulated recall ● Simulation ● Direct observation ● Multisource feedback ● Portfolio ● Telehealth Patient Log ● Quality dashboard
Curriculum Mapping	●
Notes or Resources	● American Medical Informatics Association (AMIA). https://www.amia.org/ ● AMA Telemedicine in Practice Guide. https://www.ama-assn.org/practice-management/digital/ama-telehealth-quick-guide. Accessed July 2020. ● Sieja A, Markley K, Pell J, et al. Optimization sprints: improving clinician satisfaction and teamwork by rapidly reducing electronic health record burden. *Mayo Clinic Proceedings.* 2019;94(5):793-802. https://www.mayoclinicproceedings.org/article/S0025-6196(18)30788-2/pdf. Accessed 2019. ● ACP Health Information Technology - resources - https://www.acponline.org/practice-resources/business-resources/health-information-technology. Accessed July 2020. ● ACP Health Information Technology https://www.acponline.org/cme-moc/online-learning-center/telemedicine-a-practical-guide-for-incorporation-into-your-practice ● Lee MS, Nambudiri V. Integrating telemedicine into training. *J Grad Med Educ.* 2019 Jun;11(3):251-254. doi: 10.4300/JGME-D-18-00754.1. ● Kirkland E, DuBose-Morris R, Duckett A. Telehealth for the Internal Medicine resident: A 3-year longitudinal curriculum. *Journal of Telemedicine and Telecare*. 2019. https://doi.org/10.1177%2F1357633X19896683 ● American Academy of Family Physicians Recommended Curriculum Guidelines for Family Medicine Residents - Medical Informatics, updated August 2018. https://www.aafp.org/dam/AAFP/documents/medical_education_residency/program_directors/Reprint288_Informatics.pdf. Accessed July 2020. ● King SL, Shipman SA. Telehealth in academic medicine: roles, opportunities, and risks. *Acad Med*. 2019 Jun;94(6):915. doi: 10.1097/ACM.0000000000002708.

Medical Knowledge 1: Applied Foundational Sciences **Overall Intent:** To ensure attainment of medical knowledge that underlies the care of patients through the spectrum of health and disease states	
Milestones	**Examples**
Level 1 *Explains the scientific knowledge (e.g., physiology, social sciences, mechanism of disease) for normal function and common medical conditions*	● Explains physiologic changes with aging ● Explains the anatomical basis of carpal tunnel syndrome ● Explains the epidemiology related to screening for hepatitis C in patients presenting to the continuity clinic ● Explains the epidemiology and microbiology of cellulitis ● Explains the role of socioeconomic status in asthma ● Explains the pathophysiology of cough with angiotensin-converting enzyme (ACE) inhibitors use ● Explains the impact of social determinants of health
Level 2 *Explains the scientific knowledge for complex medical conditions*	● Explains the physiologic changes occurring during multi-organ failure in the setting of sepsis ● Explains the biochemistry of diabetic ketoacidosis ● Explains the anticipated nutritional deficiencies following bariatric surgery ● Explains the pathophysiology of elevated parathyroid hormone
Level 3 *Integrates scientific knowledge to address comorbid conditions within the context of multisystem disease*	● Integrates knowledge of pathophysiology of bone disease in a patient with chronic kidney disease ● Integrates knowledge of physiology for hypertension, pulmonary and peripheral edema and renal failure in the setting of a heart failure exacerbation ● Explains how the biochemistry of diabetes affects the vascular and renal systems in patients with peripheral artery disease ● Explains the role of social determinants of health in diabetes management, including complications
Level 4 *Integrates scientific knowledge to address uncommon, atypical, or complex comorbid conditions within the context of multisystem disease*	● Determine appropriate risk-based screening for adult survivors of childhood cancers ● Applies knowledge of pathophysiology of hepatorenal syndrome to manage patient appropriately (e.g., understands medication risks, knows personal limitations) ● Recognizes that the screening tool used to assess severity of illness uses a proxy for social determinants of health and appropriately adjusts recommendations based on patients known medical and social history
Level 5 *Demonstrates a nuanced understanding of the scientific knowledge*	● Analyzes and describes the evolving evidence behind pathophysiology of postural orthostatic hypotensive syndrome in a patient with pre-existing hypertension

related to uncommon, atypical, or complex conditions	● Analyzes and describes the evolving evidence of the mechanism of disease extra-articular manifestations of chronic inflammatory arthritis ● Investigates the evolving evidence on the impact of racism on health to question previously held biases, policies, and procedures in her practice and practice environment
Assessment Models or Tools	● Chart stimulated recall ● Direct observation at bedside, in meetings or during conferences ● End-of-rotation evaluation ● In-training examination ● Online question banks (e.g., MKSAP, New England Knowledge Plus, USMLEWorld)
Curriculum Mapping	●
Notes or Resources	● Aquifer. Sciences Curriculum. https://www.aquifersciences.org/learning_objectives?q%5Bcond%5D=&recent_filter=true. 2020. ● Common clinical conditions may vary based on the residency program and sites of training but should include those diseases most frequently encountered in the inpatient and outpatient environments. ● Complex clinical conditions may vary based on the residency program and sites of training but should include those that are less frequently encountered and those that involve emerging or conflicting scientific knowledge. ● Online question banks (e.g., MKSAP, New England Knowledge Plus, USMLEWorld) ● Yale School of Medicine. Yale Office-Based Medicine Curriculum. https://medicine.yale.edu/intmed/obm/. 2020.

Medical Knowledge 2: Therapeutic Knowledge **Overall Intent:** To ensure attainment of medical knowledge that guides therapeutic interventions of patients through the spectrum of disease states	
Milestones	**Examples**
Level 1 *Explains the scientific basis for common therapies*	● Describes the mechanism of action for ACE inhibitors in the treatment of hypertension ● Describes the biochemical mechanism of action of penicillin
Level 2 *Explains the indications, contraindications, risks, and benefits of common therapies*	● Describes the risks and benefits for a therapeutic thoracentesis for a para-pneumonic effusion ● Describes the indications and complications of diuretics in a patient with heart failure ● Uses prior culture data showing a prior extended-spectrum beta-lactamases organism in a patient with catheter associated urinary tract infection to narrow antibiotic coverage for antibiotic stewardship
Level 3 *Integrates knowledge of therapeutic options in patients with comorbid conditions, multisystem disease, or uncertain diagnosis*	● Uses evidence-based treatments for heart failure in either the inpatient or outpatient setting in the context of diabetes and renal failure ● Determines antimicrobial therapy for community acquired pneumonia in an inpatient with alcohol withdrawal and QTc prolongation ● Initiates empiric broad-spectrum antibiotics and antifungals in a patient with acquired immunodeficiency syndrome (AIDS), fever and a headache while cultures are pending ● Considers the risk of a therapeutic paracentesis to renal function in patients with decompensated cirrhosis
Level 4 *Integrates knowledge of therapeutic options within the clinical and psychosocial context of the patient to formulate treatment options*	● Incorporates the risks of insulin therapy in the treatment of a patient with diabetes who is homeless ● Determines optimal therapeutic options for chronic pain management for a patient with chronic kidney disease, diabetes, chronic liver disease, and depression ● Integrates the pharmacokinetics and interactions between antiepileptics and novel oral anticoagulants in the treatment of a patient with deep venous thrombosis and epilepsy ● Escalates to invasive respiratory ventilation from non-invasive respiratory support based on clinical factors in a patient with severe congestive heart failure and considers the psychological factors ● Advocates for coronary artery bypass graft surgery for a Black woman in her 50s who presents with multi-vessel disease and persistent angina after discussion with patient about priorities, and fears, and review of the literature demonstrating barriers to care of female patients of color
Level 5 *Demonstrates a nuanced understanding of emerging, atypical, or complex therapeutic options*	● Describes the rationale behind treatment of hyperlipidemia with an emerging monoclonal antibody (e.g., PCSK9 inhibitor evolocumab) ● Recognizes the autoimmune complications on thyroid function of PD-1 checkpoint inhibitors while treating a patient with cancer

	●
Assessment Models or Tools	● Direct observation at bedside, in meetings, or during conferences ● High-fidelity, clinical decision simulation ● In-training examination ● Online question banks (e.g., New England Knowledge Plus, USMLEWorld) ● Review of clinical experiences via an EHR
Curriculum Mapping	●
Notes or Resources	● ACP. Diagnostic Reasoning, Tools, Techniques. https://www.acponline.org/online-learning-center/diagnostic-reasoning-tools-techniques. 2020. ● Annals of Internal Medicine. In The Clinic. https://annals.org/aim/in-the-clinic. 2020. ● Aquifer. Sciences Curriculum. https://www.aquifersciences.org/learning_objectives?q%5Bcond%5D=&recent_filter=true. 2020. ● Choosing Wisely. American Board of Internal Medicine (ABIM). https://www.choosingwisely.org/. 2020. ● Life in the Fast Lane. Top 100. https://litfl.com/top-100/. 2020. ● Online question banks (e.g., MKSAP, New England Knowledge Plus, USMLEWorld) ● The New England Journal of Medicine. Medical Videos. https://www.nejm.org/multimedia/medical-videos. 2020. ● Therapies can include both pharmacologic and procedural modalities ● Yale School of Medicine. Yale Office-Based Medicine Curriculum. https://medicine.yale.edu/intmed/obm/. 2020. ● Medical Knowledge of Self-Assessment Program (MKSAP). American College of Physicians (ACP). https://www.acponline.org/featured-products/mksap-18 2020.

Medical Knowledge 3: Knowledge of Diagnostic Testing **Overall Intent:** To ensure attainment of medical knowledge that guides diagnostic testing through various disease states	
Milestones	**Examples**
Level 1 *Explains the rationale, risks, and benefits for common diagnostic testing* *Interprets results of common diagnostic tests*	● Explains the rationale for obtaining an electrocardiogram (EKG) in a patient with chest pain, and interprets the findings of flipped T waves ● Explains the rationale and interprets the findings of a urinalysis in a patient with acute kidney injury ● Explains the rationale behind the choice of imaging or forgoing imaging in a patient with a knee injury ● Explains the necessity for thoracentesis in an asymptomatic patient with a pleural effusion
Level 2 *Explains the rationale, risks, and benefits for complex diagnostic testing* *Interprets complex diagnostic data*	● Explains the rationale, risks, and benefits behind obtaining or not obtaining a D dimer in a patient with dyspnea ● Does not assume that a positive antinuclear antibody equates to an autoimmune disease
Level 3 *Integrates value and test characteristics of various diagnostic strategies in patients with common diseases* *Integrates complex diagnostic data accurately to reach high-probability diagnoses*	● Compares and contrasts the risks, benefits, and test characteristics of an exercise stress test compared to a pharmacologic nuclear study in a patient with angina ● Compares and contrasts the risks, benefits, and test characteristics of various methods of colon cancer screening in a healthy patient requesting screening ● Recognizes that commonly used measures to assess creatinine clearance likely exhibit bias and corrects for this in his assessment ● Interprets an arterial blood gases and metabolic panel to determine co-existing acid-base disorders in a setting of encephalopathy ● Interprets the results of an antinuclear antibodies panel to identify the presence or absence of an autoimmune disease
Level 4 *Integrates value and test characteristics of various diagnostic strategies in patients with comorbid conditions or multisystem disease* *Anticipates and accounts for limitations when interpreting diagnostic data*	● Compares and contrasts the risks, benefits, and test characteristics of various methods of colon cancer screening in a patient on anticoagulation for a mechanical valve ● Accounts for a low HbA1c in a patient with significantly elevated home glucose self-monitoring values
Level 5 *Demonstrates a nuanced understanding of emerging diagnostic tests and procedures*	● Discusses the application of a new genetic array in the staging of cancer
Assessment Models or Tools	● Case-based discussions ● Chart documentation and review

	● Direct observation at bedside, in meetings or during conferences ● Global assessment ● In-training examination ● Online question banks (e.g., MKSAP, New England Knowledge Plus, USMLEWorld) ● OSCE ● Portfolios
Curriculum Mapping	●
Notes or Resources	● American College of Radiology. ACR Appropriateness Criteria. https://www.acr.org/Clinical-Resources/ACR-Appropriateness-Criteria. 2020. ● Choosing Wisely. ABIM. https://www.choosingwisely.org/. 2020. ● Online question banks (e.g., MKSAP, New England Knowledge Plus, USMLEWorld) ● The New England Journal of Medicine. NEJM Knowledge Plus. https://knowledgeplus.nejm.org/. 2020. ● Yale School of Medicine. Yale Office-Based Medicine Curriculum. https://medicine.yale.edu/intmed/obm/. 2020. ● Annals of Internal Medicine. In The Clinic. https://annals.org/aim/in-the-clinic. 2020. ● ACP. High Value Care. https://www.acponline.org/clinical-information/high-value-care/medical-educators-resources. 2020.

Systems-Based Practice 1: Patient Safety and Quality Improvement (QI) **Overall Intent:** To develop knowledge, skill, and experience with patient safety and quality improvement	
Milestones	**Examples**
Level 1 *Demonstrates knowledge of common patient safety events*	● Reviews a medication ordering error that is corrected by the pharmacy prior to administration and correctly identifies the event as a near miss and differentiates it from an adverse event
Demonstrates knowledge of how to report patient safety events	● Describes the institutional reporting pathways, including incident reporting systems and confidential hotline
Demonstrates knowledge of basic quality improvement methodologies and metrics	● Describes quality improvement frameworks (e.g., Model for Improvement, LEAN, Six Sigma) ● Describes the purpose of a root cause analysis
Level 2 *Identifies system factors that lead to patient safety events*	● In analyzing an actual or simulated event, describes how high workload and communication failures contributed to the event
Reports patient safety events through institutional reporting systems (actual or simulated)	● Notes that an incorrect infection control precaution sign is placed outside a patient room, and in addition to contacting the bedside nurse and nurse manager, enters a patient safety event report in the system
Describes local quality improvement initiatives (e.g., community vaccination rate, infection rate, smoking cessation)	● Describes influenza vaccination program as a local QI initiative
Level 3 *Contributes to the analysis of patient safety events (simulated or actual)*	● Reviews a patient safety event for a M and M conference presentation
Participates in disclosure of patient safety events to patients and families (simulated or actual)	● Actively participates as a team member when the more senior resident discloses an iatrogenic pneumothorax to patient and family; answers questions as appropriate
Contributes to local quality improvement initiatives	● Participates in a hypertension QI project aimed at addressing barriers to control between white and black patients in the clinic by collecting data
Level 4 *Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)*	● Collaborates with a team to analyze contributions to a patient's fall on the resident teaching service and offers strategies to reduce sedating medication

Discloses patient safety events to patients and families (simulated or actual)	● Leads disclosure of iatrogenic pneumothorax to patient or family in simulated experience
Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project	● Designs and implements a QI project on improving zoster (i.e., shingles) vaccination in patients older than age 50 in a continuity clinic and makes iterative changes based on prior results
Level 5 *Leads teams and processes to modify systems to prevent patient safety events*	● Competently assumes a leadership role for a patient safety initiative for improving all ICU transfers to the floor
Models the disclosure of patient safety events	● Role playing with a first-year resident who will participate in disclosing the team's patient error to the patient and family members
Creates, implements, and assesses sustainable quality improvement initiatives at the institutional or community level	● Works with EHR team to implement changes in the health maintenance tab to include age appropriate hepatitis C screening after successful pilot implementation in the local clinic setting
Assessment Models or Tools	● Chart or other system documentation ● Conference presentation with evaluation ● Direct observation ● Multisource feedback ● Portfolio ● QI Knowledge Assessment Toolkit ● Simulation ● Standards for Quality Improvement Excellence (SQUIRE) guidelines ● Poster or abstract QI project presentation with feedback
Curriculum Mapping	●
Notes or Resources	● ACGME. Clinical Learning Environment Review (CLER). https://www.acgme.org/What-We-Do/Initiatives/Clinical-Learning-Environment-Review-CLER. 2020. ● ACP. Advance Quality Improvement Curriculum. http://acponline.org/practice-resources/ACP-quality-improvement/ACP-advance/quality-improvement-curriculum. 2020. ● Institute for Healthcare Improvement. http://www.ihi.org/Pages/default.aspx. 2020. ● SGIM. Quality and Patient Safety Resource Library. https://www.sgim.org/communities/clinical-practice/improving-care/quality-patient-safety-resources. 2020.

Systems-Based Practice 2: System Navigation for Patient-Centered Care **Overall Intent:** To effectively navigate the health care system, including the interdisciplinary team and other care providers, and to adapt care to a specific patient population to ensure high-quality patient outcomes	
Milestones	**Examples**
Level 1 *Demonstrates knowledge of care coordination*	● During conference discussion identifies social workers and case managers as part of the clinical care team
Identifies key elements for safe and effective transitions of care and hand-offs	● During simulation identifies code status, allergies, and pending lab data as key elements for successful day-night hand-offs
Demonstrates knowledge of population and community health needs	● Recognizes bias as a contributor to health care barriers
Level 2 *Coordinates care of patients by effectively engaging interprofessional teams in routine clinical situations*	● Engages the case manager to facilitate home oxygen therapy for anticipated discharge of a patient with COPD ● Consults the chaplain for a patient who expresses fear of death
Performs safe and effective transitions of care/hand-offs in routine clinical situations	● Performs medication reconciliation and accurately completes documentation when discharging a patient to a long-term care facility ● Completes structured sign-out for a patient with diabetic ketoacidosis ● Performs accurate and thorough medication reconciliation ● Reconciles and updates information accurately in the EHR on admission to hospital with information from outside pharmacies, and outside hospital visits
Identifies specific population and community health needs for the local population	● Identifies a Nepali refugee population within own panel of patients as being at high risk for thyroid disease due to iodine deficiency ● Identifies patients at high risk for human immunodeficiency virus (HIV) who may benefit from pre-exposure prophylaxis and recognizes that Black and Latinx communities have had barriers to access PrEP ● Identifies food deserts as contributing to the obesity seen in local clinic population
Level 3 *Coordinates care of patients by effectively engaging interprofessional teams in complex clinical situations*	● For a patient with a new diagnosis of lung cancer and severe malnutrition works with nutrition, respiratory therapy, and physical therapy to optimize care ● Actively contributes to a pre-clinic huddle for an elderly patient with cognitive impairment ● Reviews panel data from continuity clinic to identify patients in need of cancer screening ● Generates a list of patients with diabetes with a HgB A1c greater than nine to support panel management
Performs safe and effective transitions of care/hand-offs in complex clinical situations	● Uses a structured format to provide a comprehensive hand-off for a busy ICU service to the night team

Uses local resources effectively to meet the needs of a patient population and community	● In managing patients in continuity clinic, provides information about resources for a local food bank and dental clinic near the patients home ● Communicates with patients through approved electronic systems (e.g., patient portal, secure health system email) ● Uses electronic data sources to monitor blood pressure readings, glucose reading downloads, and in monitoring for patients not able to make clinic visits ● Enlists a community health worker to support a patient who is struggling to attend appointments and obtain medications
Level 4 *Models effective coordination of patient-centered care among different disciplines and specialties*	● Includes case manager, social worker, pharmacist, and diabetes educator in rounds to arrange safe discharge for a patient with an diabetic foot ulcer with osteomyelitis and homelessness ● Leads the discussion in an interprofessional discharge planning conference for a patient with complex psycho-social issues
Models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems, including outpatient settings	● Educates students and more junior team members regarding the engagement of appropriate interprofessional team members, as needed for each patient and/or case, and ensures the necessary resources have been arranged
Participates in changing and adapting practice to provide for the needs of specific populations	● In the continuity clinic, helps implement a literacy screening tool to identify populations that would benefit from alternative patient education materials ● Finds opportunities to safely provide information materials for Intimate Partner Violence at the VA Women's Clinic
Level 5 *Analyzes the process of care coordination and leads in the design and implementation of improvements*	● Works with clinic nurse manager to analyze clinical schedule and make changes to the appointment structure to minimize no show rates and improve access to care ● Develops EHR clinical decision support such as creating pop-up reminders or order set algorithm ● Works with clinic manager to modify late appointment policies that disproportionately impact patients reliant on public transportation
Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes	● Leads a hospital team to analyze 30-day readmission rates and designs strategy to reduce readmission rates

Leads innovations and advocates for populations and communities with health care needs	● Identifies needs of the local elderly refugee population in continuity clinic with barriers to mobility and transportation and designs a home visit program to improve the vaccination rate ● Designs a social determinants of health curriculum to help others identify local resources and barriers to care and laboratory testing
Assessment Models or Tools	● Direct observation ● Medical record (chart) audit ● Multisource feedback ● OSCE ● Portfolio ● Review of sign-out tools ● Simulation
Curriculum Mapping	●
Notes or Resources	● Adams C. In pursuit of patient-centered care. *MLO Med Lab Obs*. 2016;48(4):48. https://www.mlo-online.com/molecular/genomics/article/13008645/in-pursuit-of-patientcentered-care. 2020. ● ACP. https://www.acponline.org/. 2020. ● Caring with Compassion. ACP. https://caringwithcompassion.org. 2020. ● Centers for Disease Control and Prevention. Population Health Training in Place Program (PH-TIPP). https://www.cdc.gov/pophealthtraining/whatis.html. 2020. ● O'Toole JK, Starmer AJ, Calaman S, Campos ML, Goldstein J. I-PASS mentored implementation handoff curriculum: implementation guide and resources. *MedEd PORTAL*. 2018;14:10736. https://www.mededportal.org/publication/10736/. 2020. ● Skochelak SE, Hawkins RE, Lawson LE, Starr SR, Borkan JM, Gonzalo JD. *AMA Education Consortium: Health Systems Science.* 1st ed. Philadelphia, PA: Elsevier; 2016. https://commerce.ama-assn.org/store/ui/catalog/productDetail?product_id=prod2780003. 2020. ● Principles for Patient and Family Partnership in Care: An American College of Physicians Position Paper. https://annals.org/aim/fullarticle/2716698/principles-patient-family-partnership-care-american-college-physicians-position-paper ●

Systems-Based Practice 3: Physician Role in Health Care Systems **Overall Intent:** To understand the physician's role in the complex health care system and how to optimize the system to improve patient care and the health system's performance	
Milestones	**Examples**
Level 1 *Identifies key components of the health care system*	● In clinical discussions differentiates between skilled nursing facilities and nursing homes ● Identifies hospital finance, technology, and support services as essential components of the health care system
Describes basic health payment systems	● Describes the different payment systems, such as Medicare, Medicaid, Veterans Affairs (VA), and commercial third-party payers
Level 2 *Describes how components of a complex health care system are interrelated, and how this impacts patient care*	● Acknowledges timely discharge is important for bed availability to maintain community access to emergency department care
Delivers care with consideration of each patient's payment model	● Checks the patient's insurance status before prescribing a higher-priced anti-hypertensive
Level 3 *Discusses how individual practice affects the regional and national health care system*	● Discusses how personal timeliness in follow-up of testing results affects length of stay ● Recognizes that biases are contributing to a disparity in referral for bariatric surgery in black patients with obesity
Engages with patients in shared decision making, informed by each patient's payment models	● Discusses how clinical documentation impacts health system outcomes measures and financial status ● Discussion of choice of anticoagulation therapy with the patient includes cost, convenience, and safety ● Leads a discussion with a patient whose high copay and deductible are making him ambivalent about pursuing a sleep study for severe daytime somnolence
Level 4 *Manages various components of the complex health care system to provide efficient and effective patient care*	● Proactively works with the discharge team to complete enrollment in home hospice from the hospital ● Uses Centers for Medicare & Medicaid Services (CMS) criteria to admit a patient to observation status versus inpatient status
Advocates for patient care needs with consideration of the limitations of each patient's payment model	● Independently responds to preauthorization request for patient in need of magnetic resonance imaging (MRI) ● Identifies a consulting practice accessible through public transportation for patients with limited transportation options

Level 5 *Advocates for or leads systems change that enhances high-value, efficient, and effective patient care* *Actively engaged in influencing health policy through advocacy activities at the local, regional, or national level*	● Works with community health department to allow resident participation in a local mobile clinic ● Improves institutional informed consent process for non-English-speaking patients requiring interpreter services ● Works with physician society groups to advocate for lower insulin pricing ● Works with community health or professional organizations to advocate for no smoking ordinances ● Works in collaboration with local Department of Public Health and community organizations to deliver accessible health education to high risk communities during the pandemic
Assessment Models or Tools	● Curriculum vitae (CV) review ● Direct observation ● Medical record (chart) audit ● Multisource feedback ● Portfolio ● Procedure log ● QI project
Curriculum Mapping	●
Notes or Resources	● Agency for Healthcare Research and Quality (AHRQ). Measuring the Quality of Physician Care. https://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/physician/challenges.html. 2020. ● American Board of Internal Medicine. QI/PI Activities. http://www.abim.org/maintenance-of-certification/earning-points/practice-assessment.aspx. 2020. ● ACP. Healthcare Transparency: Talking to Patients about the Cost of Their Health Care. https://www.acponline.org/clinical-information/high-value-care/resources-for-clinicians/cost-of-care-conversations. 2020. ● ACP. Resident/Fellow Membership: Career Development. https://www.acponline.org/membership/residents. 2020. ● Annals of Internal Medicine. Fostering Productive Health Care Cost Conversations: Sharing Lessons Learned and Best Practices. https://annals.org/aim/issue/937992. 2020. ● Caring with Compassion. ACP. https://caringwithcompassion.org/. 2020. ● Dzau VJ, McClellan MB, McGinnis JM, et al. Vital directions for health and health care: priorities from a National Academy of Medicine initiative. *JAMA*. 2017;317(14):1461-1470. https://nam.edu/vital-directions-for-health-health-care-priorities-from-a-national-academy-of-medicine-initiative/. 2020. ● Institute for Healthcare Improvement. http://www.ihi.org/Pages/default.aspx. 2020. ● Kaiser Family Foundation. Health Reform. https://www.kff.org/topic/health-reform/. 2020.

	● Smith CD, Balatbat C, Corbridge AL, et al. Implementing optimal team-based care to reduce clinician burnout. Washington, DC: National Academy of Medicine; 2018. https://nam.edu/implementing-optimal-team-based-care-to-reduce-clinician-burnout/. 2020. ● The Commonwealth Fund. Health Reform Resource Center. http://www.commonwealthfund.org/interactives-and-data/health-reform-resource-center#/f:@facasubcategoriesfacet63677=[Individual%20and%20Employer%20Responsibility. 2020.

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice **Overall Intent:** To incorporate evidence and patient values into clinical practice	
Milestones	**Examples**
Level 1 *Demonstrates how to access, categorize, and analyze clinical evidence, with guidance*	● Identifies evidence-based guidelines for osteoporosis screening at US Preventative Services Task Force website ● Actively participates in journal club
Level 2 *Articulates clinical questions and elicits patient preferences and values to guide evidence-based care*	● In a patient with hyperlipidemia, identifies and discusses potential evidence-based treatment options, and solicits patient perspective
Level 3 *Critically appraises and applies the best available evidence, integrated with patient preference, to the care of complex patients*	● Obtains, discusses, and applies evidence for the treatment of a patient with hyperlipidemia and co-existing diabetes and hypertension ● Understands and appropriately uses clinical practice guidelines in making patient care decisions while eliciting patient preferences ●
Level 4 *Applies evidence, even in the face of uncertainty and conflicting evidence, to guide care, tailored to the individual patient*	● Accesses the primary literature to identify alternative treatments to bisphosphonates for osteoporosis
Level 5 *Coaches others to critically appraise and apply evidence to patient care*	● Leads clinical teaching on application of best practices in critical appraisal of sepsis criteria
Assessment Models or Tools	● Chart stimulated recall ● Direct observation ● Evaluation of a presentation ● Journal club and case-based discussion ● Multisource feedback ● Oral or written examination ● Portfolio ● Simulation
Curriculum Mapping	●
Notes or Resources	● AHRQ. Guidelines and Measures. https://www.ahrq.gov/gam/index.html. 2020. ● Centre for Evidence Based Medicine. www.cebm.net. 2020. ● Guyatt G, Rennie D. *Users Guide to the Medical Literature: A Manual for Evidence-Based Clinical Practice*. Chicago, IL: AMA Press; 2002. ● Local Institutional Review Board (IRB) guidelines ● National Institutes of Health. Write Your Application. https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/write-your-application.htm. 2020.

	● NEJM Knowledge. Exploring the ACGME Core Competencies: Practice-Based Learning and Improvement. https://knowledgeplus.nejm.org/blog/practice-based-learning-and-improvement/. 2020. ● Society for Medical Decision Making. https://smdm.org/. 2020. ● U.S. National Library of Medicine. PubMed Tutorial. https://www.nlm.nih.gov/bsd/disted/pubmedtutorial/cover.html. 2020. ● ACP Clinical Guidelines. https://www.acponline.org/clinical-information/guidelines 2020. ● Online Interactive High Value Care Cases. ACP. https://www.acponline.org/clinical-information/high-value-care/resources-for-clinicians/online-interactive-high-value-care-cases ● Annals of Internal Medicine Understanding Clinical Research series: 1. Annals Understanding Clinical Research: Interpreting results with large p values (Ann Intern Med. 2018; 169(7):485-486) 2. Evaluating the meaning of summary estimate in meta-analysis (Ann Intern Med. 2017; 167(4):275-277) 3. Intention-to-Treat Analysis (Ann Intern Med. 2017; 166(9):662-664) 4. Implications of missing data (Ann Intern Med. 2017; 166(8):596-598)

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth **Overall Intent:** To seek clinical performance information with the intent to improve care; reflect on all domains of practice, personal interactions, and behaviors and their impact on colleagues and patients (reflective mindfulness); develop clear objectives and goals for improvement in some form of a learning plan	
Milestones	**Examples**
Level 1 *Accepts responsibility for personal and professional development by establishing goals*	● Acknowledges knowledge deficits after an ICU rotation and makes goal of reviewing goals and objectives prior to next rotation ● Identifies a goal of eating regular meals while on-call
Identifies the factors that contribute to gap(s) between ideal and actual performance, with guidance	● After a readmission occurs, identifies incomplete medication reconciliation at the time of discharge as a contributing factor to readmission ● Does not complete all clinic notes within 24 hours of a visit and identifies lack of preparation prior to clinic as contributor to delay in completing notes after discussion with clinic preceptor
Level 2 *Demonstrates openness to performance data (feedback and other input) to inform goals*	● Uses feedback from difficult interaction with staff member with a goal of using closed-loop communication with colleagues the following week ● Attending alerts resident of missed lab result from clinic encounter, and resident makes goal to regularly check “in” basket of EHR between clinics
Analyzes and reflects on the factors which contribute to gap(s) between ideal and actual performance, with guidance	● Does not prioritize continuity clinic and realizes how this impacts the ability to set aside time to prepare for clinic after discussion with clinic preceptor ● Recognizes how biases may have impacted an interaction with an Islamic black patient after a complaint is lodged and calls to apologize
Actively seeks opportunities to improve	● Requests to meet with the program director to create a learning plan to improve medical knowledge
Level 3 *Seeks performance data episodically, with adaptability, and humility*	● Requests feedback only after an end-of-life discussion goes poorly ● Requests feedback on vaccination rates in the clinic after a rise in influenza hospitalizations
Institutes behavioral change(s) to narrow the gap(s) between ideal and actual performance	● Prepares for clinic within the EHR to assist in efficiency of clinic session and note completion
Designs and implements an individualized learning plan, with prompting	● With resident advisor, designs a study plan to improve critical care medical knowledge ● Meets with palliative care member to request coaching on end-of-life discussion ● Seeks education on bias after noting variation in satisfaction metrics between White and Black patients

Level 4 *Seeks performance data consistently with adaptability, and humility* *Challenges one's own assumptions and considers alternatives in narrowing the gap(s) between ideal and actual performance* *Independently creates and implements an individualized learning plan*	● Requests feedback on their leadership skills from attending following ward rounds each week ● In managing patients with chronic pain, recognizes prior bias and blind spots as contributors to personal attitudes and seeks additional training ● Questions whether prior efforts to board preparation were adequate and seeks additional input for alternative methods to optimize learning ● Identifies research mentor and sets up schedule over the year to complete chart review for project ●
Level 5 *Models consistently seeking performance data with adaptability and humility* *Coaches others on reflective practice* *Uses performance data to measure the effectiveness of the individualized learning plan and when necessary, improves it*	● Routinely initiates team discussion on readmissions and openly analyzes opportunities for team (including self) improvement on patient care ● At the end of a ward rotation, asks more junior learners about what went well for them and designs plans to meet those goals for future ward rotations ● After soliciting continued feedback on communication with colleagues and recognizing that current efforts have been ineffective, asks obtain further professional coaching
Assessment Models or Tools	● Direct observation ● Multisource feedback ● Portfolio ● Reflection ● Review of learning plan ● Self-assessment
Curriculum Mapping	●
Notes or Resources	● Burke AE, Benson B, Englander R, Carraccio C, Hicks PJ. Domain of competence: practice-based learning and improvement. *Academic Pediatrics.* 2014;14(2):S38-S54. https://www.acgme.org/Portals/0/PDFs/Milestones/Practice-basedLearningandImprovementPediatrics.pdf. 2020. ● Ericsson KA. Deliberate practice and the acquisition of maintenance of expert performance in medicine and related domains. *Academic Medicine*. 2004;79(10):S70-S81. https://journals.lww.com/academicmedicine/Fulltext/2004/10001/Deliberate_Practice_and_the_Acquisition_and.22.aspx. 2020.

	● Hojat M, Veloski JJ, Gonnella JS. Measurement and correlates of physicians' lifelong learning. *Academic Medicine.* 2009;84(8):1066-1074. https://journals.lww.com/academicmedicine/fulltext/2009/08000/Measurement_and_Correlates_of_Physicians__Lifelong.21.aspx. 2020. ● 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. 2020. ● ACP. Performance Measures. https://www.acponline.org/clinical-information/performnace-measures

Professionalism 1: Professional Behavior **Overall Intent:** To recognize and address lapses in ethical and professional behavior, demonstrates ethical and professional behaviors, and use appropriate resources for managing ethical and professional dilemmas	
Milestones	**Examples**
Level 1 *Demonstrates professional behavior in routine situations*	● Informs program when arriving late on a call day ● Dresses appropriately in clinical settings ● Completes mandatory compliance training requirements without need for reminders ● Responds to program emails in a timely fashion
Level 2 *Identifies potential triggers for professionalism lapses and accepts responsibility for one's own professionalism lapses*	● Receives feedback about being late to rounds without becoming defensive, making excuses, or blaming others ● After using a sharp tone with a colleague, apologizes for the behavior and realizes that this behavior is more common when excessively tired ● Recognizes that personal life issues are affecting interactions with work colleagues
Level 3 *Demonstrates a pattern of professional behavior in complex or stressful situations*	● Maintains a calm demeanor and even tone of voice when dealing with a difficult patient during a night shift ● Acknowledges responsibility and takes part in disclosure when involved with a medical error
Level 4 *Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in oneself and others*	● Monitors and responds to fatigue, hunger, stress, etc. in self and team members in a post-call team ● Maintains a calm and collaborative demeanor when called for multiple admissions in the midst of taking care of an acutely ill patient ● Notifies the program director when a colleague is noticeably struggling with the workload or personal stresses
Level 5 *Coaches others when their behavior fails to meet professional expectations*	● Coaches a first-year resident who was rude to a nurse to apologize ● Pulls aside a colleague who is habitually late for sign-out and explains the need for accountability and how these actions impact others ● Leads workshop for residency program on microaggressions and bias
Assessment Models or Tools	● Direct observation ● End-of-rotation evaluation ● Mentor and program director observations ● Multisource feedback ● Oral or written self-reflection (e.g., of a personal or observed lapse, ethical dilemma, or systems-level factors) ● Professionalism tools (e.g., Gauger et. al., ABIM) ● Semi-annual evaluation ● Simulation
Curriculum Mapping	●

Notes or Resources	● ABIM, American College of Physicians-American Society of Internal Medicine, European Federation of Internal Medicine. Medical professionalism in the new millennium: a physician charter. *Ann Intern Med*. 2002;136:243-246. http://abimfoundation.org/wp-content/uploads/2015/12/Medical-Professionalism-in-the-New-Millenium-A-Physician-Charter.pdf. 2020. ● American Medical Association. Ethics. https://www.ama-assn.org/delivering-care/ama-code-medical-ethics. 2020. ● Bynny RL, Paauw DS, Papadakis MA, Pfeil S. *Medical Professionalism Best Practices: Professionalism in the Modern Era*. Aurora, CO: Alpha Omega Alpha Medical Society; 2017. *Medical Professionalism Best Practices: Professionalism in the Modern Era*. Aurora, CO: Alpha Omega Alpha Medical Society; 2017. http://alphaomegaalpha.org/pdfs/Monograph2018.pdf. 2020. ● Byyny RL, Papadakis MA, Paauw DS. *Medical Professionalism Best Practices*. Menlo Park, CA: Alpha Omega Alpha Medical Society; 2015. https://alphaomegaalpha.org/pdfs/2015MedicalProfessionalism.pdf. 2020. ● Domen RE, Johnson K, Conran RM, et al. Professionalism in pathology: a case-based approach as a potential education tool. *Arch Pathol Lab Med.* 2017;141(2):215-219. https://www.archivesofpathology.org/doi/pdf/10.5858/arpa.2016-0217-CP. 2020. ● Levinson W, Ginsburg S, Hafferty FW, Lucey CR. *Understanding Medical Professionalism*. 1st ed. New York, NY: McGraw-Hill Education; 2014. ● Professionalism tools (e.g Gauger et. al., ABIM) ● Sulmasy LS, Bledsoe TA, ACP Ethics, Professionalism and Human Rights Committee. American College of Physicians Ethics Manual: Seventh Edition. *Ann Intern Med*. 2019;170:S1–S32. https://annals.org/aim/fullarticle/2720883/american-college-physicians-ethics-manual-seventh-edition. 2020. ● Soleymani Lehmann et al. Hidden Curricula, Ethics, and Professionalism: Optimizing Clinical Learning Environments in Becoming and Being a Physician: A Position Paper of the American College of Physicians Ann Intern Med. 2018;168(7):506-508. https://pubmed.ncbi.nlm.nih.gov/29482210 ● AbdelHameid D. Professionalism 101 for Black Physicians. *N Engl J Med*. 2020;383(5):e34. doi:10.1056/NEJMpv2022773 ● American College of Physicians. Supervising interns & managing teams.; 2019. https://www.acponline.org/about-acp/about-internal-medicine/career-paths/residency-career-counseling/impower/supervising-interns-managing-teams. ● American College of Physicians. Teaching junior residents.; 2019. https://www.acponline.org/about-acp/about-internal-medicine/career-paths/residency-career-counseling/impower/teaching-junior-residents.

Professionalism 2: Ethical Principles **Overall Intent:** To recognize and address lapses in ethical and professional behavior, demonstrate ethical and professional behaviors, and use appropriate resources for managing ethical and professional dilemmas	
Milestones	**Examples**
Level 1 *Demonstrates knowledge of basic ethical principles*	● Names the principles of autonomy and non-malfeasance
Level 2 *Applies basic principles to address straightforward ethical situations*	● Discusses the ethical principles involved in performing a paracentesis in a patient with ascites, abdominal pain, and a clear capacity to make a decision ● Discusses the ethical principles involved in analysis of the pros and cons of feeding tube placement in a patient with brain death
Level 3 *Analyzes complex situations using ethical principles and identifies the need to seek help in addressing complex ethical situations*	● Analyzes the ethical principles involved in performing a paracentesis in a patient with ascites, abdominal pain and altered mental status, and involves the durable power of attorney ● Analyzes the principles involved in the pros and cons of feeding tube placement in a patient with amyotrophic lateral sclerosis (ALS) and asks for assistance from the attending ● Contacts ethics consults in a situation involving end-of-life care with complex family dynamic and mistrust of the health care system
Level 4 *Analyzes complex situations and engages with appropriate resources for managing and addressing ethical dilemmas as needed*	● Works with the ethics committee and family to develop a plan in a patient suspected of malingering ● Engages with a multidisciplinary team to address issues when families and physicians disagree on care plan for a patient with brain death; recognizes that prior experiences for the patient and family influence their trust and defer discussion of most complex issues to those who the family have demonstrated trust in, rather than assuming a hierarchical structure
Level 5 *Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution*	● Participates in a work group, committee, or task force (e.g., ethics committee or an ethics subcommittee, risk management committee, root cause analysis review, patient safety or satisfaction committee, professionalism work group, IRB, learner grievance committee, etc.) ● Adeptly manages ethical conflicts when family values are in conflict and there is no clear durable power of attorney
Assessment Models or Tools	● Direct observation in clinical or classroom setting ● Mentor and program director observations ● Multisource feedback ● Oral or written self-reflection (e.g., of a personal or observed lapse, ethical dilemma, or systems-level factors) ● Simulation

Curriculum Mapping	●
Notes or Resources	● American Board of Internal Medicine, American College of Physicians-American Society of Internal Medicine, European Federation of Internal Medicine. Medical professionalism in the new millennium: a physician charter. *Ann Intern Med*. 2002;136:243-246. http://abimfoundation.org/wp-content/uploads/2015/12/Medical-Professionalism-in-the-New-Millenium-A-Physician-Charter.pdf. 2020. ● American Medical Association. Ethics. https://www.ama-assn.org/delivering-care/ama-code-medical-ethics. 2020. ● Byyny RL, Papadakis MA, Paauw DS. *Medical Professionalism Best Practices*. Menlo Park, CA: Alpha Omega Alpha Medical Society; 2015. https://alphaomegaalpha.org/pdfs/2015MedicalProfessionalism.pdf. 2020. ● Discusses and applies the basic principles underlying ethics (beneficence, nonmaleficence, justice, autonomy) and professionalism (professional values and commitments) to clinical scenarios (authentic or simulated) ● Sulmasy LS, Bledsoe TA, ACP Ethics, Professionalism and human rights committee. American College of Physicians Ethics Manual: Seventh Edition. *Ann Intern Med*. 2019;170:S1–S32. https://annals.org/aim/fullarticle/2720883/american-college-physicians-ethics-manual-seventh-edition. 2020

Professionalism 3: Accountability/Conscientiousness **Overall Intent:** To take responsibility for one's own actions and the impact on patients and other members of the health care team	
Milestones	**Examples**
Level 1 *Performs administrative tasks and patient care responsibilities, with prompting*	● Responds to prompting from a program administrator to complete clinical and work hours logs ● Responds to prompting to complete clinic notes or hospital discharge summaries in a timely manner ● Completes mandatory compliance training requirements, with reminders ● Responds to program emails with reminders
Level 2 *Performs administrative tasks and patient care responsibilities in a timely manner in routine situations*	● Completes discharge summaries in a timely manner with attention to detail without prompting from attendings or senior residents ● Completes mandatory compliance training requirements without need for reminders ● Responds to program emails in a timely fashion without reminders ● Returns clinic patient call by the end of the day without prompting
Level 3 *Performs administrative tasks and patient care responsibilities in a timely manner in complex or stressful situations*	● Ensures completion of safe hand-off of patients to the day team after a busy shift with multiple decompensating patients ● Identifies influenza in self and calls in back-up resident to cover clinical services
Level 4 *Proactively implements strategies to ensure that the needs of patients, teams, and systems are met*	● A peer identifies a first-year resident who chronically runs behind in clinic and works with them to develop a more efficient work flow pattern ● Recognizes that a team member in the ICU is overwhelmed due to patient complexity and asks their attending to provide support ● Adjusts team's schedule to allow an intern to present at a conference ● Develops time management strategies to ensure on-time completion of board certification application and advanced cardiovascular life support renewals ●
Level 5 *Creates strategies to enhance other's ability to efficiently complete administrative tasks and patient care responsibilities*	● Works with the EHR team to develop an efficient hand-off tool ● Develops strategies to assist incoming interns ability to learn the EHR from a physician perspective
Assessment Models or Tools	● Compliance with deadlines and timelines ● Direct observation ● Documentation of mentor, program administration and program leadership observations ● Multisource feedback ● Self-evaluations and reflective tools ● Simulation
Curriculum Mapping	●

Notes or Resources	● ACP. Physician Charter on Professionalism. https://www.acponline.org/clinical-information/ethics-and-professionalism/physician-charter-on-professionalism. 2020. ● Code of conduct from resident institutional manual ● Expectations of residency program regarding accountability and professionalism ● Sulmasy LS, Bledsoe TA, ACP Ethics, Professionalism and Human Rights Committee. American College of Physicians Ethics Manual: Seventh Edition. *Ann Intern Med*. 2019;170:S1–S32. https://annals.org/aim/fullarticle/2720883/american-college-physicians-ethics-manual-seventh-edition. 2020.

Professionalism 4: Knowledge of Systemic and Individual Factors of Well-Being **Overall Intent:** To identify, use, manage, improve, or seek help for personal and professional growth within self and others	
Milestones	**Examples**
Level 1 *Recognizes the importance of getting help when needed to address personal and professional well-being*	● After concerns are expressed by a program leader regarding well-being or burnout, is receptive to considering options for assistance ● When a concerned chief resident or supervising physician reaches out about possible burnout due to changes in their mood or professional function, acknowledges the expression of concern as a form of professional support
Level 2 *Lists resources to support personal and professional well-being* *Recognizes that institutional factors affect well-being*	● In annual advisor meeting, discusses institutional resources that support personal and professional well-being ● In setting goals for the next year, identifies and lists resources to help improve in-training exam scores and incorporates those resources into the learning plan ● After completion of learning modules, can clearly articulate how institutional factors may impact resident well-being ● Identifies aspects of the clinical learning environment seem to impact personal well-being, including when having to work more than four nights in a row on night float ● Identifies “microaggressions” or bias as factors affecting learner well-being when the resident sees a medical student become disengaged after an encounter with the attending
Level 3 *With prompting, reflects on how personal and professional well-being may impact one’s clinical practice* *Describes institutional factors that affect well-being*	● After hearing a speaker discuss physician well-being at a retreat, writes a brief reflection on the impact of well-being on own current and future practice of medicine ● After several months of a challenging schedule, responds to feedback from a nurse by recognizing that a recent patient interaction lacked necessary empathy, and seeks support and advice from the attending physician ● At semiannual review, identifies specific institutional factors that positively or negatively affect personal well-being including lack of access to healthy food in the cafeteria and insufficient social work support for complex discharges ● Describes mistreatment and microaggressions committed by the interprofessional team and patients as negatively impacting well-being ● Identifies the need for additional mentorship to enhance personal and professional development after discussion with the associate program director reveals that initial career plans do not align with personal goals

Level 4 *Reflects on actions in real time to proactively respond to the inherent emotional challenges of physician work*	● Develops action plans for job search prioritizing lifestyle and family goals ● Prepares a robust board study schedule to minimize undue stress and anxiety ● Recognizing increased anxiety when performing certain procedures, arranges practice sessions with the sim lab ● Proactively reaches out to program leadership for support when the resident grieves a personal loss of a family member, including requesting resources for psychological support ● Identifies fear of leading codes as a "stress point" in education and seeks advice from an experienced physician ● After snapping at a nurse after a stressful interaction with a patient, approaches nurse and apologizes; takes a few minutes to process the interaction with the patient with his team
Suggests potential solutions to institutional factors that affect well-being	● Participates in graduate medical education (GME) round table discussion on the experience of imposter syndrome particularly felt by women and black, indigenous, and people of color (BIPOC) learners in medicine and its association with burnout in residency and offers constructive feedback on mitigating burnout ● Gives feedback to program leadership on issues with identifying appropriate case managers to assist with patient discharge ● Recommends schedule adjustments while on the medical intensive care unit rotation to improve compliance with clinical and educational work hours
Level 5 *Participates in institutional changes to promote personal and professional well-being*	● Develops a plan that incorporates personal wellness goals for the next few months ● Recognizes that an upcoming rotation in critical care may be emotionally draining, so schedules restorative activities on off days ● When pandemic conditions limit options for communication and socialization with peers, actively explores new approaches such as telecommunication and distanced socializing to build and maintain relationships that offer peer emotional support ● When important future personal or religious events are anticipated, works with program leadership to develop a plan that balances personal and professional responsibilities ● Leads a resident committee to address inefficiencies in the EHR ● Advocates with hospital leadership as a Well-Being Committee leader to provide educational interventions and mental health services to address experiences of shame during residency education
Assessment Models or Tools	● Direct observation ● Group interview or discussions for team activities ● Individual interview

	● Institutional online training modules ● Reflective writing ● Self-assessment and personal learning plan ● Semi-annual evaluation
Curriculum Mapping	●
Notes or Resources	● This subcompetency is not intended to evaluate a resident's well-being. Rather, the intent is to ensure that each resident has the fundamental knowledge of factors that impact well-being, the mechanism by which those factors impact well-being, and available resources and tools to improve well-being. ● ACGME. "Well-Being Tools and Resources." https://dl.acgme.org/pages/well-being-tools-resources. 2020. ● ACP. Physician Well-Being and Professional Fulfillment. https://www.acponline.org/practice-resources/physician-well-being-and-professional-fulfillment. 2020. ● Thomas LR, Ripp JA, West CP. Charter on Physician Well-being. *JAMA*. 2018;319(15):1541-1542. doi:10.1001/jama.2018.1331 ● Hicks PJ, Schumacher D, Guralnick S, Carraccio C, Burke AE. Domain of competence: personal and professional development. *Acad Pediatr*. 2014;14(2 Suppl):S80-97. https://www.sciencedirect.com/science/article/abs/pii/S187628591300332X. 2020. ● Journal of Graduate Medical Education. Hot Topics: Remediation. https://jgme.org/page/hottopics/remediation. 2020 ● Journal of Graduate Medical Education. Hot Topics: Resident Well-Being. https://jgme.org/page/hottopics/resident_well_being. 2020. ● Local resources, including Employee Assistance ● American College of Physicians. Know Your Colleagues, Know Yourself: Checking in on Mental Health.; 2019. https://www.acponline.org/about-acp/about-internal-medicine/career-paths/residency-career-counseling/impower/know-your-colleagues-know-yourself-checking-in-on-mental-health ● American College of Physicians. Physician Well-being for Residents and Fellows. 2019. https://www.acponline.org/meetings-courses/acp-courses-recordings/acp-leadership-academy/acp-leadership-academy-webinars/physician-well-being-for-residents-and-fellows ● Bynum WE 4th, Artino AR Jr, Uijtdehaage S, Webb AMB, Varpio L. Sentinel Emotional Events: The Nature, Triggers, and Effects of Shame Experiences in Medical Residents. *Acad Med*. 2019;94(1):85-93. ● American College of Physicians. Imposter Syndrome: break on through to the other side.; 2019. https://www.acponline.org/about-acp/about-internal-medicine/career-

	paths/residency-career-counseling/impower/imposter-syndrome-break-on-through-to-the-other-side ● Hu YY, Ellis RJ, Hewitt DB, et al. Discrimination, abuse, harassment, and burnout in surgical residency training. *N Engl J Med*. 2019;381(18):1741-1752. ● Cook AF, Arora VM, Rasinski KA, Curlin FA, Yoon JD. The prevalence of medical student mistreatment and its association with burnout. *Acad Med*. 2014;89(5):749-754.

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication **Overall Intent:** To deliberately use language and behaviors to form constructive relationships with patients, to identify communication barriers including self-reflection on biases, and minimize them in the doctor-patient relationships; organize and lead communication around shared decision making	
Milestones	**Examples**
Level 1 *Uses language and non-verbal behavior to demonstrate respect and establish rapport*	● Controls tone and nonverbal responses, and asks questions to invite patient/family participation ● Accurately communicates residents' role in the health care system to patients/families
Level 2 *Establishes and maintains a therapeutic relationship using effective communication behaviors in straightforward encounters* *Identifies common barriers to effective communication*	● Explains rationale for not prescribing antibiotics for acute bronchitis while conveying empathy for patient's symptoms ● Recognizes a patient who does not understand a treatment plan by using teach-back ● Recognizes a patient cannot hear without a hearing aid ● Avoids medical jargon when talking to patients and makes sure communication is at the appropriate level to be understood by the patient
Level 3 *Establishes and maintains a therapeutic relationship using effective communication behaviors in challenging patient encounters* *Identifies complex barriers to effective communication*	● Circles back with patient frustrated about not being allowed to eat or drink (i.e., NPO) all day when there are delays in procedure schedules ● Discusses non-opioid pain management plan with patient who was previously on chronic opioids by a previous physician for chronic low back pain ● Recognizes that bias may impact communication with a patient with substance abuse disorder requiring pain medication
Level 4 *Establishes and maintains therapeutic relationships using shared decision making, regardless of complexity* *Mitigates communication barriers*	● Practices shared decision making with a patient with dementia and family to determine outpatient diabetes A1c target range ● Arrange a multidisciplinary team meeting with a patient with metastatic malignancy and family specifically inviting team members with different viewpoints to ensure all options are available to the patient ● Works with staff members to obtain a hearing aid for a hearing impaired inpatient ● Proactively arranges for interpreter at bedside during rounds ● Requests pharmacist to create a table for medication administration for home at discharge ● Voluntarily attends bias reduction training ● Recognizes that mispronouncing a patient's name especially of a different ethnicity might be experienced as a microaggression, apologizes to the patient, and seeks to correct the mistake

Level 5 *Coaches others in developing and maintaining therapeutic relationships and mitigating communication barriers* *Models the mitigation of communication barriers*	● Provides guidance to a junior learner about how to re-establish a therapeutic relationship after it has been breached ● Shares how they will use perspective taking as a method to reduce the impact of bias on patient care
Assessment Models or Tools	● Communication checklist ● Direct observation ● Self-assessment including self-reflection exercises ● Standardized patients or structured case discussions
Curriculum Mapping	●
Notes or Resources	● ACP. Patient Priorities Care. https://www.acponline.org/clinical-information/clinical-resources-products/patient-priorities-care. 2020. ● Laidlaw A, Hart J. Communication skills: an essential component of medical curricula. Part I: Assessment of clinical communication: AMEE Guide No. 51. *Med Teach*. 2011;33(1):6-8. https://www.tandfonline.com/doi/full/10.3109/0142159X.2011.531170. 2020. ● Makoul G. Essential elements of communication in medical encounters: the Kalamazoo consensus statement. *Acad Med*. 2001;76(4):390-393. https://journals.lww.com/academicmedicine/Fulltext/2001/04000/Essential_Elements_of_Communication_in_Medical.21.aspx. 2020. ● Makoul G. The SEGUE Framework for teaching and assessing communication skills. *Patient Educ Couns*. 2001;45(1):23-34. https://www.sciencedirect.com/science/article/abs/pii/S0738399101001367?via%3Dihub. 2020. ● Symons AB, Swanson A, McGuigan D, Orrange S, Akl EA. A tool for self-assessment of communication skills and professionalism in residents. *BMC Med Educ*. 2009;9:1. https://bmcmededuc.biomedcentral.com/articles/10.1186/1472-6920-9-1. 2020. ●

Interpersonal and Communication Skills 2: Interprofessional and Team Communication **Overall Intent:** To effectively communicate with the health care team, including consultants, in both straightforward and complex situations	
Milestones	**Examples**
Level 1 *Respectfully requests and responds to a consultation* *Uses verbal and non-verbal communication that values all members of the interprofessional team*	● Responds to calls/pages in a timely fashion; says "thank you" ● Uses head nods and eye contact during communication with team members ● Uses team members names and appropriate titles ● Asks for clarification of role on team when needed ● Avoids speaking over or interrupting team members ● Uses "I" statements when expressing a point of view that may conflict with others' perspectives
Level 2 *Clearly and concisely requests and responds to a consultation* *Communicates information, including basic feedback with all interprofessional team members*	● When asking for a consult verbally, clearly states the question and summarizes the patient story ● When conveying opinion as a consultant verbally summarizes recommendations and reason for recommendations ● Focuses on the speaker (e.g., other health care team member) by actively using eye contact, posture, questioning, and summarizing of key information to ensure understanding ● Uses language that can be understood by all team members (avoiding medical jargon as appropriate) ● Avoids abbreviations that would not be understood by other health care team members ● Asks other team members (non-physician and physician) how to be a more effective team member ● Provides feedback to a medical student about how to improve oral presentation
Level 3 *Checks own and others' understanding of recommendations when providing or receiving consultation* *Facilitates interprofessional team communication to reconcile conflict and provides difficult feedback*	● After hearing or reading input from a consultant, repeats back what is heard or read and asks for verification from the consult to ensure agreement regarding the recommendations ● After providing input as a consultant, asks the receiver to repeat back what is heard or read to ensure agreement and understanding regarding the recommendations ● When faced with frustration over a nursing request (e.g., a new medication or a change in timing of administration of a medication), seeks to understand the reason the request is being made ● Provides specific examples to a team member regarding what they are doing well and should continue doing and areas for improvement
Level 4 *Coordinates recommendations from different consultants to optimize patient care*	● Coordinates with multiple consulting teams to negotiate a shared treatment plan

Adapts communication style to fit interprofessional team needs and maximizes impact of feedback to the team	● Adjusts from a supportive to a more direct communication style for a first-year resident who has not responded to the initial feedback
Level 5 *Facilitates conflict resolution between and amongst consultants when disagreement exists* *Models flexible communication strategies that facilitate excellence in interprofessional teamwork*	● Facilitates an in-person team multidisciplinary meeting among interventional radiology, pulmonology, and thoracic surgery to determine which service is best equipped to perform a lung biopsy in a complicated patient ● Leads a team meeting to discuss and resolve potentially conflicting points of view on a plan of care for a patient with infarcted bowel in metastatic cancer ● During a post-code multidisciplinary meeting, the resident leads a conversation on how the team can improve communication while attending to allemotional responses from the various team members
Assessment Models or Tools	● Direct observation ● End-of-month feedback ● Multi-source assessment ● Simulation encounters
Curriculum Mapping	●
Notes or Resources	● Dehon E, Simpson K, Fowler D, Jones A. Development of the faculty 360. *MedEdPORTAL*. 2015;11:10174. https://www.mededportal.org/publication/10174/. 2020. ● Fay D, Mazzone M, Douglas L, Ambuel B. A validated, behavior-based evaluation instrument for family medicine residents. *MedEdPORTAL*. 2007. https://www.mededportal.org/publication/622/. 2020. ● François J. Tool to assess the quality of consultation and referral request letters in family medicine. *Can Fam Physician*. 2011;57(5):574–575. https://www.cfp.ca/content/57/5/574. 2020. ● Green M, Parrott T, Crook G. Improving your communication skills. *BMJ.* 2012;344:e357. https://www.bmj.com/content/344/bmj.e357. 2020. ● Henry SG, Holmboe ES, Frankel RM. Evidence-based competencies for improving communication skills in graduate medical education: a review with suggestions for implementation. *Med Teach*. 2013;35(5):395-403. https://www.tandfonline.com/doi/full/10.3109/0142159X.2013.769677. 2020. ● Roth CG, Eldin KW, Padmanabhan V, Freidman EM. Twelve tips for the introduction of emotional intelligence in medical education. *Med Teach.* 2018:1-4. https://www.tandfonline.com/doi/full/10.1080/0142159X.2018.1481499. 2020. ● ACP. High Value Care Coordination Toolkit. https://www.acponline.org/clinical-information/high-value-care/resources-for-clinicians/high-value-care-coordination-hvcc-toolkit/high-value-care-coordination-project

Interpersonal and Communication Skills 3: Communication within Health Care Systems **Overall Intent:** To effectively communicate using a variety of methods in the context of the organization	
Milestones	**Examples**
Level 1 *Accurately documents comprehensive and current information* *Communicates using formats specified by institutional policy to safeguard patient personal health information*	● Notes are accurate and organized, but may include extraneous information ● Hospital daily progress note has updated imaging and care plan ● Accurately updates the templated form to reflect the correct review of systems and physical examination ● Ensures that all sensitive information is communicated through appropriate channels, such as patient safety reports, cell phone/pager protocols ● Includes complete documentation of a family meeting regarding advanced directives for the purposes of patient care
Level 2 *Documents clinical encounter, including reasoning, through organized notes* *Selects direct (e.g., telephone, in-person) and indirect (e.g., progress notes, text messages) forms of communication based on context, with assistance*	● Includes an organized explanation of the diagnosis and etiology of community-acquired pneumonia, and describes the plan for cultures and appropriate antibiotics in the assessment and plan ● Avoids using biased/stigmatizing language in notes; e.g., uses “declines treatment” instead of “refuses treatment” and “doesn’t use marijuana” instead of “denies use of marijuana” ● Needs to be reminded by an attending to call a clinic patient about the elevated potassium; discusses the most effective way to document the telephone encounter
Level 3 *Documents clinical encounter through concise and thorough notes* *Appropriately selects direct and indirect forms of communication based on context*	● Documents thought process, omitting extraneous information, during management of acute dyspnea in a patient with chronic heart failure and iron deficiency anemia ● Calls a patient regarding a newly identified mass on mammography and electronically communicates with clinic staff members to arrange follow-up
Level 4 *Documents clinical encounter clearly, concisely, timely, and in an organized form, including anticipatory guidance*	● Documents concise rationale of prior evaluation of weight loss and chronic diarrhea with guidance on future diagnostic work-up if there is acute worsening in a clinic note to transition a patient to an incoming intern ● Orders a stress test for a patient presenting to clinic with exertional chest pain, with a plan for cardiac catheterization of it is positive ● During the management of neutropenic patient, documents the plan for antibiotic coverage should they develop a fever

Models effective written and verbal communication	● Calls a primary care physician to discuss the follow-up plans after discharge, while a first-year resident actively observes ● Resident demonstrates for an intern how to call an oncologist to expedite follow-up for recent breast cancer diagnosis
Level 5 *Guides departmental or institutional communication policies and procedures*	● Leads a task force established by the hospital QI committee to develop a plan to improve house staff hand-offs ● Improves methods for communicating system-wide call schedules
Assessment Models or Tools	● Chart review for documented communications ● Direct observation of sign-outs, observation of requests for consultations ● End-of-month evaluation or global assessment ● Multisource feedback ● Simulation
Curriculum Mapping	●
Notes or Resources	● Bierman JA, Hufmeyer KK, Liss DT, Weaver AC, Heiman HL. Promoting responsible electronic documentation: validity evidence for a checklist to assess progress notes in the electronic health record. *Teach Learn Med.* 2017;29(4):420-432. https://www.tandfonline.com/doi/full/10.1080/10401334.2017.1303385. 2020. ● Haig KM, Sutton S, Whittington J. SBAR: a shared mental model for improving communication between clinicians. *Jt Comm J Qual Patient Saf*. 2006;32(3):167-175. https://www.jointcommissionjournal.com/article/S1553-7250(06)32022-3/fulltext. 2020. ● Starmer AJ, Spector ND, Srivastava R, et al. I-pass, a mnemonic to standardize verbal handoffs. *Pediatrics*. 2012;129.2:201-204. https://pediatrics.aappublications.org/content/129/2/201.long?sso=1&sso_redirect_count=1&nfstatus=401&nftoken=00000000-0000-0000-0000-000000000000&nfstatusdescription=ERROR%3a+No+local+token. 2020.

In an effort to aid programs in the transition to using the new version of the Milestones, the original Milestones 1.0 have been mapped to the new Milestones 2.0. Also indicated below are where the subcompetencies are similar between versions. These are not necessarily exact matches but are areas that include some of the same elements. Note that not all subcompetencies map between versions. Inclusion or exclusion of any subcompetency does not change the educational value or impact on curriculum or assessment.

Milestones 1.0	Milestones 2.0
PC1: Gathers and synthesizes essential and accurate information to define each patient's clinical problem(s)	PC1: History PC2: Physical Examination PC3: Clinical Reasoning
PC2: Develops and achieves comprehensive management plan for each patient	PC3: Clinical Reasoning PC4: Patient Management – Inpatient PC5: Patient Management – Outpatient
PC3: Manage patients with progressive responsibility and independence	PC4: Patient Management – Inpatient PC5: Patient Management – Outpatient
PC4: Skill in performing procedures	No match
PC5: Requests and provides consultative care	ICS2: Interprofessional and Team Communication
No match	PC6: Digital Health
MK1: Clinical knowledge	MK1: Applied Foundational Sciences MK2: Therapeutic Knowledge
MK2: Knowledge of diagnostic testing and procedures	MK3: Knowledge of Diagnostic Testing
SBP1: Works effectively within an interprofessional team	SBP2: System Navigation for Patient-Centered Care
SBP2: Recognizes system error and advocates for system improvement	SBP1: Patient Safety and Quality Improvement
SBP3: Identifies forces that impact the cost of health care, and advocates for, and practices cost effective care	SBP3: Physician Role in the Health Care Systems
SBP4: Transitions patients effectively within and across health delivery systems	SBP2: System Navigation for Patient-Centered Care
PBLI1: Monitors practice with a goal for improvement	PBLI2: Reflective Practice and Commitment to Personal Growth
PBLI2: Learns and improves via performance audit	PBLI2: Reflective Practice and Commitment to Personal Growth
PBLI3: Learns and improves via feedback	PBLI2: Reflective Practice and Commitment to Personal Growth

PBLI4: Learns and improves at the point of care	PBLI1: Evidence-Based and Informed Practice
PROF1: Has professional and respectful interactions with patients, caregivers, and members of the interprofessional team	PROF1: Professional Behavior PROF2: Ethical Principles
PROF2: Accepts responsibility and follows through on tasks	PROF3: Accountability/Conscientiousness
PROF3: Responds to each patient's unique characteristics and needs	ICS1: Patient- and Family-Centered Communication
PROF4: Exhibits integrity and ethical behavior in conduct	PROF1: Professional Behavior
ICS1: Communicates effectively with patients and caregivers	ICS1: Patient- and Family-Centered Communication
ICS2: Communicates effectively in interprofessional teams	SBP2: System Navigation for Patient-Centered Care ICS2: Interprofessional and Team Communication
ICS3: Appropriate utilization and completion of health records	PROF3: Accountability/Conscientiousness ICS3: Communication within Health Care Systems

Available Milestones Resources

Milestones 2.0: Assessment, Implementation, and Clinical Competency Committees Supplement, 2021 - *https://meridian.allenpress.com/jgme/issue/13/2s*

Milestones Guidebooks: https://www.acgme.org/milestones/resources/

- *Assessment Guidebook*
- *Clinical Competency Committee Guidebook*
- *Clinical Competency Committee Guidebook Executive Summaries*
- *Implementation Guidebook*
- *Milestones Guidebook*

Milestones Guidebook for Residents and Fellows: https://www.acgme.org/residents-and-fellows/the-acgme-for-residents-and-fellows/

- Milestones Guidebook for Residents and Fellows
- Milestones Guidebook for Residents and Fellows Presentation
- Milestones 2.0 Guide Sheet for Residents and Fellows

Milestones Research and Reports: https://www.acgme.org/milestones/research/

- *Milestones National Report*, updated each fall
- *Milestones Predictive Probability Report,* updated each fall
- *Milestones Bibliography*, updated twice each year

Developing Faculty Competencies in Assessment courses - https://www.acgme.org/meetings-and-educational-activities/courses-and-workshops/developing-faculty-competencies-in-assessment/

Assessment Tool: Direct Observation of Clinical Care (DOCC) - https://dl.acgme.org/pages/assessment

Assessment Tool: Teamwork Effectiveness Assessment Module (TEAM) - https://team.acgme.org/

Improving Assessment Using Direct Observation Toolkit - https://dl.acgme.org/pages/acgme-faculty-development-toolkit-improving-assessment-using-direct-observation

Remediation Toolkit - https://dl.acgme.org/courses/acgme-remediation-toolkit

Learn at ACGME has several courses on Assessment and Milestones - https://dl.acgme.org/