Supplemental Guide:
Spinal Cord Injury Medicine

ACGME

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Milestones Supplemental Guide

This document provides additional guidance and examples for the Spinal Cord Injury 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 of Individuals with Spinal Cord Disorders **Overall Intent:** To obtain a thorough and highly relevant medical history with focus on function and other elements pertinent to spinal cord injury medicine	
Milestones	**Examples**
Level 1 *Acquires a history with a basic functional and psychosocial assessment*	● While admitting a patient, elicits a history that includes the recent traumatic spinal cord injury with paraplegia and neurogenic bowel and bladder dysfunction with associated impaired bed mobility, transfers and activities of daily living
Level 2 *Acquires a comprehensive history identifying all components of functioning, including impairments, activities, participation, and contextual factors*	● When admitting a patient with spinal cord dysfunction, identifies difficulty climbing stairs that limits the ability to access the shower on the second floor ● When admitting a patient with acute traumatic tetraplegia, elicits a history of loss of consciousness at the time of the injury when evaluating for concurrent traumatic brain injury
Level 3 *Acquires a relevant history in a prioritized fashion, integrating components of functioning*	● When admitting a patient with spinal cord dysfunction to acute rehabilitation, identifies multiple comorbidities, including a history of shoulder injury that may interfere with rehabilitation for paraplegia ● For a patient with tetraplegia and an underlying history of emphysema, takes a history that elicits dyspnea on exertion and shortness of breath as the most functionally relevant symptoms impacting activity tolerance and quality of life
Level 4 *Elicits key history, including subtleties, in a prioritized and efficient fashion across a spectrum of ages and impairments*	● Elicits the nutritional history of a 48-year-old patient who developed decreased proprioception and dysesthesias in both hands and feet to avoid missing a potential diagnosis of subacute combined degeneration due to B12 deficiency from an inadequately supplemented vegan diet. ● Elicits a history of recently increased training for a wheelchair rugby tournament in a 23-year-old patient with an eight-year history of tetraplegia as a likely contributing factor to new shoulder pain
Level 5 *Role models the effective gathering of subtle and salient history from patients across a spectrum of ages and impairments*	● Presents to the medical student class on how to take a history pertinent to spinal cord injury medicine ● Helps a more junior resident to prioritize the elements of taking a relevant functional history for wheelchair users
Assessment Models or Tools	● Chart review/audit ● Direct observation ● Multisource feedback ● Objective structured clinical examination (OSCE)
Curriculum Mapping	●
Notes or Resources	● PM&R Knowledge Now. Functional Assessment. https://now.aapmr.org/functional-assessment/. 2020. ● Textbooks

Patient Care 2: Physical Examination of Individuals with Spinal Cord Disorders **Overall Intent:** To efficiently perform a hypothesis-driven spinal cord injury medicine examination that identifies subtle or atypical findings over a spectrum of ages and impairments	
Milestones	**Examples**
Level 1 *Performs a general physical examination*	● Performs an accurate heart and lung exam in an individual with tetraplegia with new cough ● Identifies the presence of lower extremity edema and erythema that may indicate the need to evaluate for possible deep venous thrombosis
Level 2 *Performs a physical examination, including functional assessment and neurologic exam to diagnose and classify spinal cord injury*	● Assesses a patient after a spinal cord injury, including neurologic, cognitive, and musculoskeletal systems; assesses a patient's ability to perform basic bed mobility ● Includes a comprehensive neurologic evaluation to determine neurologic level of injury and degree of completeness, including sacral segment examination
Level 3 *Performs a hypothesis-driven physical examination, with identification of subtle or atypical findings*	● Identifies restricted hip range of motion to make a presumptive diagnosis of heterotopic ossification in a patient with hip pain and swelling
Level 4 *Efficiently performs a hypothesis-driven physical examination that identifies subtle or atypical findings over a spectrum of ages and impairments*	● Performs a comprehensive examination for a 12-year-old patient with C4 ASIA Impairment Scale B spinal cord injury that includes considerations for development, respiratory function, and spasticity ● Performs a comprehensive examination for a 70-year-old woman with new spinal cord compression due to metastatic breast cancer, including considerations for underlying osteoporosis and additional sites of bony metastases
Level 5 *Role models a hypothesis-driven physical examination that identifies subtle or atypical findings over a spectrum of ages and impairments*	● Leads a workshop on neurologic assessment of individuals after spinal cord injury
Assessment Models or Tools	● Chart review ● Direct observation ● OSCE ● Multisource feedback ● Simulation
Curriculum Mapping	●
Notes or Resources	● ASIA. InSTeP. https://asia-spinalinjury.org/instep/. 2020. ● ISNCSCI Algorithm. https://www.isncscialgorithm.com/Form. 2020. ● Textbooks

Patient Care 3: Medical/Surgical Management of Individuals with Spinal Cord Disorders **Overall Intent:** To develop and implement a comprehensive treatment plan that anticipates, identifies, and addresses potential complications related to spinal cord injuries and disorders over a spectrum of ages, conditions, and settings	
Milestones	**Examples**
Level 1 *Identifies and manages general medical conditions and their complications* *Identifies the need and resources for consultation*	● Identifies venous thromboembolic events as a significant medical issue for a patient on the inpatient rehabilitation service and prescribes measures for venous thromboembolic event prophylaxis ● Recognizes the need for swallowing evaluation in a patient with suspected aspiration pneumonia following cervical spine surgery
Level 2 *Identifies and manages consequences and complications of spinal cord disorders, with direct supervision* *Uses consultations to guide a treatment plan*	● Identifies evolving spasticity in an individual with spinal cord injury and prescribes appropriate management with guidance from the attending physician during rounds, taking into account the patient's medical comorbidities and potential triggers for new onset or worsening spasticity ● Adjusts bladder management based on results of urodynamic evaluation
Level 3 *Develops and implements a comprehensive treatment plan to address complications related to spinal cord disorders, with indirect supervision* *Uses appropriate consideration of patient acuity and other factors to triage, and provides consultations to other services for common conditions*	● Performs a consultation on a patient with an acute cervical spinal cord injury resulting in need for mechanical ventilation and provides a management plan for prevention of atelectasis and respiratory infections. Provides guidance for ventilator weaning and reviews the recommended plan with the attending physician for feedback ● After evaluating a patient who is being admitted to the acute rehabilitation unit for comprehensive treatment following a spinal cord injury, enters a complete order set that includes management of neurogenic bowel and bladder, preventative measures for pneumonia and atelectasis, joint contractures, skin breakdown, and deep vein thrombosis following discussion with the attending physician
Level 4 *Independently develops and implements a comprehensive treatment plan that anticipates, identifies, and addresses complications related to spinal cord disorders* *Provides consultations to other services for complex and unusual conditions across a spectrum of impairments and conditions*	● Independently initiates a management plan for a patient with a sacral pressure injury that addresses cleansing, debridement, and dressing of the wound, and attends to specialized support surfaces and positioning to manage tissue loads as well as nutrition and other systemic factor; provides patient education to reinforce preventive measures for worsening or recurrence of pressure injury ● Identifies and manages an epidural abscess in an intravenous drug user and implements preventative measures to minimize secondary complications

Level 5 *Role models the development and implementation of a comprehensive treatment plan, including appropriate consideration of emerging treatments*	● Is observed by a more junior resident while educating a patient on the safety and evidence for emerging treatments and technologies being developed for individuals with spinal cord injury ● Leads a workshop on emerging treatments for motor recovery after spinal cord injury
Assessment Models or Tools	● Chart review ● Chart stimulated recall ● Direct observation ● Multisource feedback ● OSCE ● Simulation ● Written or oral examinations
Curriculum Mapping	●
Notes or Resources	● Paralyzed Veterans of America. Publications: Clinical Practice Guidelines. https://pva.org/research-resources/publications/clinical-practice-guidelines/. 2020. ● Textbooks

Patient Care 4: Assistive Technologies (e.g., Prosthetics and Orthotics, Adaptive Equipment, Mobility Devices, Seating Systems, Communication Technologies) **Overall Intent:** To generate a detailed prescription, in consultation with other professionals, for a full range of assistive technologies including justification and advocacy, taking into consideration the assessment of impairments, barriers, contraindications and comorbidities, and patient goals	
Milestones	**Examples**
Level 1 *Describes assistive technologies and their indications*	● Explains the general indications for manual wheelchair for an individual with complete paraplegia ● Explains the general indication for power wheelchair for an individual with complete tetraplegia
Level 2 *Evaluates patient need for common assistive technologies based on impairments*	● Identifies potential indications for power wheelchair use in an individual with paraplegia ● Justifies need for an ankle-foot orthosis to address foot drop ● Explains benefits and challenges of manual wheelchair use in an individual with tetraplegia
Level 3 *Evaluates a patient need for a full range of assistive technologies based on impairments, considering barriers, precautions, contraindications, comorbidities, and input from other professionals*	● Identifies the need for assistive technologies for a patient with co-existing traumatic brain injury, severe expressive aphasia, and visual impairment in collaboration with a speech pathologist ● Collaborates with physical and occupational therapy to adjust wheelchair and bathroom equipment for an individual with paraplegia and new onset distal femur fracture and extension splint ● Integrates wheelchair modifications to accommodate transfemoral amputation in an individual with paraplegia
Level 4 *Generates a detailed prescription, in consultation with other professionals, for a full range of assistive technologies, including justification for need*	● Collaborates with physical therapy in an evaluation for robotic-assisted ambulatory device (exoskeleton) use in an individual with paraplegia ● Prescribes an environmental control unit and adaptive equipment to a patient with cervical spinal cord injury
Level 5 *Serves as a resource to other professionals for clinical problem solving and functional challenges related to assistive technology*	● Provides specific recommendations for level of amputation and potential prosthetic limb use in an individual with dual diagnosis of incomplete tetraplegia and limb amputation
Assessment Models or Tools	● Chart review ● Direct observation ● Multisource feedback ● OSCE ● Simulation ● Written or oral examination
Curriculum Mapping	●

Notes or Resources	● Prosthetics and Orthotics courses ● Textbooks

Patient Care 5: Rehabilitation Interventions **Overall Intent:** To integrate knowledge of impairments, activity limitations, and participation restrictions to prescribe rehabilitation interventions by discipline and with appropriate precautions	
Milestones	**Examples**
Level 1 *Describes common modalities and general rehabilitation therapies by discipline*	● Explains that physical therapists can address range of motion, strength, and mobility ● Explains that speech and language pathologists can address impairment of swallow, speech articulation, language, and cognition
Level 2 *Prescribes common modalities and general rehabilitation therapies by discipline based on impairments*	● Prescribes physical therapy for range of motion and stretching for a plantar flexor contracture ● Prescribes ice for an acute muscle strain
Level 3 *Provides detailed therapy prescriptions for specific conditions with appropriate precautions*	● Prescribes serial casting by physical therapy to address a recalcitrant plantar flexor contracture, with appropriate precautions for skin monitoring
Level 4 *Integrates comprehensive knowledge of impairments, activity limitations, participation restrictions, and contextual factors to prescribe rehabilitation interventions*	● In addition to prescribing physical therapy and serial casting for a severe plantar flexor contracture, addresses activity limitations such as work and home modifications
Level 5 *Demonstrates the ability to direct and implement rehabilitation interventions in challenging clinical conditions*	● Directs the care of a patient with a severe right sided plantar flexion contracture who has coexisting peripheral vascular disease, severe leg edema, and dementia
Assessment Models or Tools	● Chart review ● Direct observation ● Multisource feedback ● OSCE ● Simulation ● Written or oral examination
Curriculum Mapping	●
Notes or Resources	● Textbooks

Medical Knowledge 1: Clinical Reasoning **Overall Intent:** To reach high-probability diagnoses with continuous re-appraisal to minimize clinical reasoning errors	
Milestones	**Examples**
Level 1 *Identifies salient elements of a patient presentation to inform clinical reasoning*	● Presents a basic clinical scenario after interviewing a patient with new onset lower limb swelling
Identifies diagnostic studies for common medical conditions	● Appropriately orders diagnostic studies for evaluation of suspected heterotopic ossification
Describes common causes of clinical reasoning error	● Describes tendency to be overly influenced by one piece of information (anchor bias)
Level 2 *Develops a prioritized differential diagnosis for common presentations of spinal cord disorders and associated conditions*	● Presents a comprehensive and prioritized differential for acute onset lower limb swelling
Identifies diagnostic studies for conditions seen in spinal cord disorders practice	● Appropriately orders x-rays for evaluation of lower limb swelling after fall during a transfer from manual wheelchair to toilet
Identifies types of clinical reasoning errors within patient care, with guidance	● When asked by an attending, recognizes own anchor bias in a clinical scenario
Level 3 *Develops a prioritized differential diagnosis for complex and uncommon presentations of spinal cord disorders and associated conditions*	● Describes the benefits and challenges of surgical versus conservative fracture management in individuals with spinal cord injury
Prioritizes the sequence and urgency of diagnostic testing	● Recognizes that a patient with new bowel and bladder incontinence and weakness requires urgent imaging
Demonstrates a structured approach to identifying clinical reasoning errors	● Describes own cognitive reasoning process and identifies where clinical reasoning bias can have an impact
Level 4 *Synthesizes information from a variety of sources to reach high-probability diagnoses over a spectrum of ages and conditions*	● Understands the pre-test probability of a spinal cord injury survivor having venous thromboembolism in the setting of acute hypoxia, uses all available information to create a prioritized differential for hypoxia, and identifies the potential for anchor bias, recency bias, and premature closure

Considers diagnostic testing based on cost effectiveness, patient burden, and likelihood that results will influence clinical management *Anticipates and accounts for errors and biases with continuous re-appraisal to minimize clinical reasoning errors*	● Considers the advantages and disadvantages of diagnostic testing in carpal tunnel syndrome including considerations of cost-effectiveness and next step in management ● In a patient with prior history of narcotic use disorder and chronic back pain presenting with acute back pain and radiculopathy, does not discount new pain indicating possible cauda equina syndrome
Level 5 *Role models effective and efficient clinical reasoning, evaluation, and diagnosis across the spectrum of ages and conditions* *Role models identification of cost-effective diagnostic testing across a range of conditions* *Coaches others to minimize clinical reasoning errors*	● Coordinates with orthopedic surgery team the potential benefits of a transfemoral amputation versus transtibial amputation in an individual with spinal cord infarction and peripheral vascular disease ● Educates referring primary care providers of limitations of routine urinalysis and urine culture as part of routine annual evaluation for an individual with spinal cord dysfunction ● Helps student to identify and reduce clinical reasoning errors
Assessment Models or Tools	● Chart review ● Data about practice habits ● Direct observation ● Online modules ● OSCE ● Quality improvement process ● Written/oral examination
Curriculum Mapping	●
Notes or Resources	● Embedded electronic health record (EHR) tools ● Guidelines (e.g. AANEM, low back pain) ● The Society to Improve Diagnosis in Medicine. Inter-Professional Consensus Curriculum on Diagnosis and Diagnostic Error. https://www.improvediagnosis.org/competency-summary-list/. 2020. ● The Society to Improve Diagnosis in Medicine. Driver Diagram. https://www.improvediagnosis.org/wp-content/uploads/2018/10/Driver_Diagram_-_July_31_-_M.pdf. 2020. ● The Society to Improve Diagnosis in Medicine. Assessment of Reasoning Tool. https://www.improvediagnosis.org/art/. 2020.

Medical Knowledge 2: Traumatic and Non-Traumatic Spinal Cord Disorders **Overall Intent:** To identify the epidemiology, etiology, anatomy, pathophysiology, secondary conditions and complications, and therapeutic and diagnostic options for traumatic and non-traumatic spinal cord disorders	
Milestones	**Examples**
Level 1 *Describes basic spine and spinal cord anatomy*	● Describes the primary ascending and descending tracts of the spinal cord white matter ● Describes the location of the spinal cord, conus medullaris and cauda equina within the vertebral column and explains the difference between vertebral levels and spinal cord segment levels
Demonstrates basic knowledge of common spinal cord disorders and associated complications	● Discusses the etiologies of traumatic and non-traumatic spinal cord disorders ● Describes features of paralysis resulting from upper motor neuron injury of the cervical spinal cord
Level 2 *Demonstrates knowledge of pathophysiology of spinal cord disorders, and the effects of the injury or disorder on specific body systems*	● Describes pathophysiology, prevention, and management of autonomic dysreflexia ● Differentiates between reflexic and areflexic bowel and upper- and lower-motor neuron bladder dysfunction and describes differences in management
Describes prevention and management of secondary conditions and complications, including expected effects and contraindications of treatment	● Discusses indications for spasticity management and lists common interventions and their side effects ● Describes the effects of spinal cord injury or disorder on respiratory function based on a patient's level of injury; discusses interventions for managing respiratory secretions
Level 3 *Synthesizes and applies knowledge of common spinal cord disorders, secondary conditions, treatment options, and complications*	● Demonstrates knowledge of tracheostomy and ventilator management to develop a comprehensive ventilator care and weaning plan ● Creates a differential diagnosis for new onset weakness in a patient with chronic traumatic spinal cord injury and develops a diagnostic plan to identify syringomyelia and peripheral nerve injuries
Demonstrates knowledge of the continuum of spinal cord disorder care, including acute care, initial rehabilitation, and post-discharge follow-up	● Discusses techniques to immobilize the spine in the pre-hospital and acute management of a patient with spinal cord injury and describes indications for surgical fixation
Level 4 *Synthesizes and applies knowledge required to diagnose and treat complex and uncommon spinal cord conditions and complications*	● Identifies patients with tetraplegia who may be appropriate for tendon and nerve transfers based on understanding of indications and criteria for patient selection and discusses post-surgical management and complications of these procedures ● Applies understanding of the effects of spinal cord disorders on pregnancy and delivery in counseling a pregnant woman with transverse myelitis

Delineates a spinal cord injury-specific health maintenance and management program across the lifespan and spectrum of impairments and disorders	● Understands acute and long-term effects of coexisting traumatic brain injury and spinal cord injury to develop a management plan for a patient with dual diagnosis during initial rehabilitation and post-discharge follow-up
Level 5 *Serves as an expert resource to health care professionals regarding spinal cord disorders and sequelae*	● Serves as an invited panelist at a regional or national conference ● First author for a book chapter or peer review article on spinal cord disorders
Assessment Models or Tools	● Assessment of presentation ● Case-based discussion ● Didactic sessions ● In-training examination
Curriculum Mapping	●
Notes or Resources	● ASIA. InSTeP. https://asia-spinalinjury.org/instep/. 2020. ● Journals ● Paralyzed Veterans of America. Publications: Clinical Practice Guidelines. https://pva.org/research-resources/publications/clinical-practice-guidelines/. 2020. ● Textbooks

Medical Knowledge 3: Functional Outcomes and Interventions **Overall Intent:** To understand and apply information related to functional expectations and prognosis in the care, counseling, and treatment planning of individuals with traumatic and non-traumatic spinal cord injuries	
Milestones	**Examples**
Level 1 *Demonstrates basic knowledge of spinal cord disorders on various aspects of function*	● Describes the anticipated functional goals and level of assistance for activities of daily living following a spinal cord injury based on level of injury
Level 2 *Demonstrates knowledge of functional outcome, prognosis, and interventions based on impairment and classification*	● Integrates degree of spinal cord injury completeness into the consideration of short- and long-term functional outcomes
Level 3 *Integrates knowledge of functional goals and prognosis into an individualized treatment plan*	● Describes the expected impact of therapeutic interventions such as electrical stimulation, standing, and locomotor training on neurologic and functional recovery following spinal cord injury ● Uses current neurologic status, time since injury, and anticipated function to appropriately prescribe durable medical equipment
Level 4 *Demonstrates knowledge of functional outcome and prognosis based on advanced treatments and technology, including controversial or emerging interventions*	● Considers the role of tendon transfer surgery for individuals with tetraplegia following a cervical spinal cord injury ● Describes the potential benefits, risks, and contraindications of evolving therapeutic interventions such as exoskeletal ambulation systems and epidural spinal cord stimulation
Level 5 *Serves as an expert resource regarding functional outcomes in spinal cord disorders*	● Participates as an expert for local spinal cord injury support group to discuss emerging technology and interventions following spinal cord injury ● Helps to identify and select new technology and equipment to enhance the therapy options available for individuals with spinal cord injury at their institution
Assessment Models or Tools	● Assessment of presentation ● Case-based discussion ● Didactic sessions ● Direct observation ● Written examination
Curriculum Mapping	●
Notes or Resources	● Journals ● Paralyzed Veterans of America. Publications: Clinical Practice Guidelines. https://pva.org/research-resources/publications/clinical-practice-guidelines/. 2020. ● Textbooks

Systems-Based Practice 1: Patient Safety **Overall Intent:** To engage in the analysis and management of patient safety events, including relevant communication with patients, families, and health care professionals	
Milestones	**Examples**
Level 1 *Demonstrates knowledge of common patient safety events* *Demonstrates knowledge of how to report patient safety events*	● Has basic knowledge of the potential for a medication error and how to report one if it occurs
Level 2 *Identifies system factors that lead to patient safety events* *Reports patient safety events through institutional reporting systems (simulated or actual)*	● Identifies and reports a medication error, along with system factors contributing to that issue
Level 3 *Participates in analysis of patient safety events (simulated or actual)* *Participates in disclosure of patient safety events to patients and their families (simulated or actual)*	● Prepares for morbidity and mortality presentations, joining a root cause analysis group ● Reviews a patient safety event and communicates with patient/family
Level 4 *Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)* *Discloses patient safety events to patients and their families (simulated or actual)*	● Collaborates with a team to lead the analysis of a patient safety event and can competently communicate with patients/families about those events
Level 5 *Actively engages teams and processes to modify systems to prevent patient safety events* *Role models or mentors others in the disclosure of patient safety events*	● Competently assumes an active role at the departmental or institutional level for patient safety initiatives, possibly even being the person to initiate action or call attention to the need for action
Assessment Models or Tools	● Chart or other system documentation by fellow ● Direct observation at bedside or in meetings ● Documentation of quality improvement (QI) or patient safety project processes or outcomes

	● E-module multiple choice tests ● Multisource feedback ● Portfolio ● Simulation
Curriculum Mapping	●
Notes or Resources	● Institute of Healthcare Improvement. http://www.ihi.org/Pages/default.aspx. 2020.

Systems-Based Practice 2: Quality Improvement (QI) **Overall Intent:** To develop an understanding of QI principles and engage in QI activities	
Milestones	**Examples**
Level 1 *Demonstrates knowledge of basic quality improvement methodologies and metrics*	● Has basic knowledge of QI principles and strategies, but has not yet participated in such activities
Level 2 *Describes quality improvement initiatives*	● Is aware of improvement initiatives within their scope of practice
Level 3 *Participates in quality improvement initiatives*	● Participates in a QI activity to improve patient hand-offs
Level 4 *Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project*	● Initiates a QI project with the use of a standardized template for hand-offs and analyzes the results
Level 5 *Creates, implements, and assesses quality improvement initiatives at the institutional or community level*	● Competently assumes an active role at the departmental or institutional level for QI initiatives, possibly even being the person to initiate action or call attention to the need for action
Assessment Models or Tools	● Documentation of QI or patient safety project processes or outcomes ● E-module multiple choice tests ● Multisource feedback ● Portfolio ● Simulation
Curriculum Mapping	●
Notes or Resources	● American Academy of Physical Medicine and Rehabilitation. Guideline Resource. https://www.aapmr.org/quality-practice/evidence-based-medicine/clinical-practice-guidelines/guideline-resources. 2020. ● ABPMR. Resources for the Self-Directed PIP. https://www.abpmr.org/MOC/PartIV/SelfDirected. 2020. ● Institute of Healthcare Improvement. http://www.ihi.org/Pages/default.aspx. 2020.

Systems-Based Practice 3: System Navigation for Patient-Centered Care **Overall Intent:** To effectively navigate the health care system, including the interdisciplinary team and other care providers; to adapt care to a specific patient population to ensure high-quality patient outcomes	
Milestones	**Examples**
Level 1 *Demonstrates knowledge of care coordination*	● Identifies the members and describes the roles of the interprofessional/interdisciplinary team, including other specialty physicians, nurses, consultants, social workers, case managers, and therapists
Identifies key elements for safe and effective transitions of care and hand-offs	● Lists the essential components of an effective sign-out and care transition including sharing information necessary for successful on-call/off-call transitions
Demonstrates knowledge of population and community health needs and disparities	● Identifies components of social determinants of health and how they impact the delivery of patient care
Level 2 *Coordinates care of patients in routine clinical situations, effectively using the roles of interprofessional team members*	● Coordinates with interprofessional team members for routine cases, but requires supervision to ensure all necessary referrals and testing are made
Performs safe and effective transitions of care/hand-offs in routine clinical situations	● Performs a routine case sign-out but still needs direct supervision to identify and appropriately triage cases or calls (priority versus non-priority case or call) and anticipatory guidance
Identifies specific population and community health needs and inequities for the local population	● Knows which patients are at high risk for specific health outcomes related to health literacy concerns, cost of testing or therapy, socioeconomic status, religion, culture, ethnicity, and family support
Level 3 *Coordinates care of patients in complex clinical situations effectively collaborating with members of the interprofessional teams*	● Develops a comprehensive treatment plan in coordination with consultants from other medical specialties, physical therapists, speech pathology
Performs safe and effective transitions of care/hand-offs in complex clinical situations	● Coordinates a complex discharge from an acute inpatient rehabilitation with home health agency, pharmacy, acute care team, and primary care physician
Uses local resources effectively to meet the needs of a patient population and community while minimizing health care inequities	● Identifies a discount pharmacy close to where the patient lives
Level 4 *Role models effective coordination of patient-centered care among different professions and specialties*	● Role models and 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

Role models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems and settings *Participates in changing and adapting practice to provide for the needs of specific populations*	● Models an efficient hand-off to the rehab team, and coordinates and prioritizes consultant input for a specific diagnosis to ensure the patient gets appropriate follow-up ● Identifies patient populations at high risk for poor health care outcomes due to health disparities and inequities, and implements strategies to improve care
Level 5 *Analyzes the process of care coordination and leads in the design and implementation of improvements* *Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes* *Leads innovations and advocacy in partnership with populations and communities experiencing health care inequities*	● Works with hospital or ambulatory site team members or leadership to analyze care coordination in that setting, and takes a leadership role in designing and implementing changes to improve the care coordination ● Develops a validated tool to improve safe and effective transitions of care ● Designs a social determinants of health curriculum to help others learn to identify local resources and barriers to care. ● Advocates for and initiates a telehealth clinic
Assessment Models or Tools	● Case management quality metrics and goals mined from EHRs ● Chart review ● Direct observation (including discussion during rounds, case work-up and case presentations) ● Lectures/workshops on social determinants of health or population health with identification of local resources ● Multisource feedback ● Review of sign-out tools, use and review of checklist
Curriculum Mapping	●
Notes or Resources	● Centers for Disease Control (CDC). Population Health Training in Place Program (PH-TIPP). https://www.cdc.gov/pophealthtraining/whatis.html. 2020. ● Skochelak SE, Hawkins RE, Lawson LE, Starr SR, Borkan J, Gonzalo JD. *AMA Education Consortium: Health Systems Science*. Elsevier; 2016.

Systems-Based Practice 4: Physician Role in Health Care Systems **Overall Intent:** To understand the physician's 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 complex health care system, including the various venues for post-acute care*	● Identifies that post-acute care may include acute inpatient rehabilitation facility, skilled nursing facility, and long-term acute care hospital
Describes basic health payment systems (e.g., government, private, public, uninsured care) and practice models	● Names systems and providers involved in test ordering and payment
Identifies basic knowledge domains for effective transition to practice (e.g., information technology, legal, billing and coding, financial, personnel)	● Recognizes that Medicare, Medicaid, Veterans Affairs (VA), and commercial third-party payers are different payment systems
Level 2 *Describes how components of a complex health care system are interrelated, and how this impacts patient care*	● Understands how improving patient satisfaction improves patient adherence and remuneration to the health system; does not yet consistently think through clinical redesign to improve quality; does not yet modify personal practice to enhance outcomes
Delivers care with consideration of each patient's payment model (e.g., insurance type)	● Applies knowledge of health plan features, including formularies and network requirements in patient care situations
Demonstrates use of information technology required for medical practice (e.g., electronic health record, documentation required for billing and coding)	● Uses hospital EHR to write notes meeting basic requirements for billing
Level 3 *Discusses how individual practice affects the broader system (e.g., length of stay, readmission rates, clinical efficiency)*	● Understands that extended length of stay impacts the ability of other patients to have an inpatient bed and increases costs
Engages with patients in shared decision making, informed by each patient's payment models	● Uses shared decision making and adapts the choice of the most cost-effective testing depending on the relevant clinical needs
Describes core administrative knowledge needed for transition to practice (e.g., contract	● Understands state law concerning requirements for malpractice insurance and consequences for noncompliance

negotiations, malpractice insurance, government regulation, compliance)	
Level 4 *Navigates the various components of the complex health care system to provide efficient and effective patient care and transitions of care* *Advocates for patient care needs (e.g., community resources, patient assistance resources) with consideration of the limitations of each patient's payment model* *Analyzes individual practice patterns and professional requirements in preparation for independent practice*	● Works collaboratively with other services to identify patient assistance resources ● Advocates for a customized wheelchair to prevent downstream costs and complications ● Recognizes the need in practice to set aside time for "New Patient" slots in busy clinical practice setting
Level 5 *Advocates for or leads systems change that enhances high value, efficient, and effective patient care, and transitions of care* *Participates in health policy advocacy activities* *Educates others to prepare them for transition to practice*	● Works with community or professional organizations to advocate for no smoking ordinances ● Develops processes to decrease opioid prescribing for one or more clinical services ● Explains requirements for billing and coding to residents
Assessment Models or Tools	● Chart review/audit of patient care ● Direct observation ● Patient satisfaction data
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. ● AHRQ. Major Physician Measurement Sets. https://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/physician/measurementsets.html. 2020. ● Dzau VJ, McClellan M, Burke S, et al. Vital directions for health and health care: priorities form a national academy of medicine initiative. *JAMA*. 2017;317(14):1461-1470. https://jamanetwork.com/journals/jama/fullarticle/10.1001/jama.2017.1964. 2020. ● The Kaiser Family Foundation. Health Reform. https://www.kff.org/topic/health-reform/. 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 and use available evidence*	● Identifies the clinical problem and obtains the appropriate evidence-based guideline for the patient
Level 2 *Locates and applies the best available evidence, integrated with patient preference, to the care of straightforward patients*	● Asks the appropriate questions of the patient in order to elicit preferences for disease management/treatment and incorporates their wishes into clinical care based on evidence-based guidelines
Level 3 *Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients*	● Obtains and applies evidence in the care of complex patients when there is relative agreement in what the evidence suggests
Level 4 *Critically appraises and applies evidence, even in the face of uncertainty and conflicting evidence, to guide care tailored to the individual patient*	● Assesses the primary literature to answer a specific clinical question ● Assesses the primary literature to address a unique patient when the evidence is unclear or emerging ● Is aware of novel therapeutic techniques or new evidence that challenges current guidelines, and demonstrates the ability to appropriately apply this information
Level 5 *Coaches others to critically appraise and apply evidence for complex patients, and/or participates in the development of guidelines*	● Formally teaches others how to find and apply best practice or develops, independently or as a part of a team, thoughtful clinical guidelines
Assessment Models or Tools	● Case based assessment ● Direct observation ● Journal Club ● Oral or written examination ● Research portfolio
Curriculum Mapping	●
Notes or Resources	● 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. ● U.S. National Library of Medicine. PubMed Tutorial. https://www.nlm.nih.gov/bsd/disted/pubmedtutorial/cover.html. 2020. ● Various journal submission guidelines

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Professional 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, families and caregivers (i.e., reflective mindfulness); and develop clear objectives and goals for improvement in some form of a learning plan	
Milestones	**Examples**
Level 1 *Accepts responsibility for professional development* *Identifies and/or acknowledges gaps between expectations and actual performance* *Actively seeks opportunities to improve*	● Acknowledges need to improve ● Begins to seek ways to determine where improvements are needed and makes some specific goals that are reasonable to execute and achieve
Level 2 *Demonstrates openness to verbal feedback and other performance data* *Analyzes and reflects on the factors that contribute to performance gaps* *Designs and implements a learning plan, with assistance*	● Able to summarize feedback received ● Increasingly able to identify performance gaps in terms of diagnostic skills and daily work ● Asks faculty members about performance and opportunities for improvement ● Uses feedback with a goal of improving communication skills with peers/colleagues, staff members, and patients the following week ● Improves from prior feedback ● Drafts goals for learning plan but needs to use mentor feedback for effective implementation
Level 3 *Intermittently seeks and incorporates verbal feedback and other performance data with humility and adaptability* *Analyzes, reflects on, and institutes behavioral changes to narrow performance gaps* *Independently designs and implements a learning plan*	● Takes input from peers/colleagues and supervisors to gain complex insight into personal strengths and areas to improve ● Acts on input and is appreciative and not defensive ● Documents goals in a more specific and achievable manner, such that attaining them is reasonable and measurable ● Uses multiple sources of data to inform goals and plan
Level 4 *Consistently seeks and incorporates verbal feedback and other performance data with humility and adaptability*	● Consistently identifies ongoing gaps and chooses areas for further development

Uses data to measure the effectiveness of the learning plan to address performance gaps and modifies it when necessary	● Uses multiple sources of data to evaluate the success of past learning plan and define next steps
Level 5 *Role models consistent incorporation of verbal feedback and other performance data* *Coaches others on reflective practice, including the design and implementation of learning plans*	● Encourages other learners on the team to consider how their behavior affects the rest of the team ● Provides effective feedback for others regarding learning plans
Assessment Models or Tools	● Direct observation ● Multisource feedback ● Peer feedback ● Review of learning plan
Curriculum Mapping	●
Notes or Resources	● 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.

Professionalism 1: Ethical Practice **Overall Intent:** To understand ethical principles, apply them in clinical practice, and use appropriate resources for managing ethical dilemmas	
Milestones	**Examples**
Level 1 *Approaches clinical care and educational duties with actions consistent with core ethical principles*	● Discusses the basic principles underlying ethics (beneficence, nonmaleficence, justice, autonomy) and professionalism (professional values and commitments), and how they apply in various situations (informed consent process) ● Obtains informed consent for procedures
Level 2 *Demonstrates consistent application of ethical principles in routine clinical practice, such as informed consent, surrogate decision making, advance directives, confidentiality, error reporting and disclosure, and stewardship of limited resources*	● Uses ethical principles to analyze straightforward situations ● When obtaining informed consent for a procedure, consistently gives patients the information necessary to understand the scope and nature of potential risks and benefits of the procedure in order to make a decision, and follows the patients' wishes ● Acknowledges a medical error, and provides the patient an explanation of the error and its consequences without deception or non-disclosure
Level 3 *Recognizes tensions between conflicting ethical principles in complex situations and seeks appropriate guidance to help resolve ethical dilemmas*	● Analyzes conflicts (or perceived conflicts) between patients/providers/staff members or between professional values ● Requests an ethics consult for care of a patient with brain injury and spinal cord injury whose family's decisions for medical care do not seem in line with the patient's previously documented wishes ● Analyzes difficult real or hypothetical ethics case scenarios or situations, and recognizes the underlying ethical principles and any potential tensions between them ● Uses shared decision making and educates patients to improve compliance with recommended treatment, but respects the competent patient's right to refuse treatment, even if it is medically indicated
Level 4 *Manages ethical dilemmas using appropriate resources, as needed, to facilitate resolution (e.g., ethics consultations, literature review, risk management/legal consultation)*	● Participates in creation of a behavioral plan to address a patient's verbal abuse of staff members with ethically appropriate enforceable consequences for inappropriate behaviors, in consultation with the ethics team and with engagement of the patient as much as feasible; facilitates communication about the plan to promote consistency of response within the rehabilitation team ● Develops and coordinates a care plan for an individual with high cervical spinal cord injury in an intensive care unit (ICU) requiring mechanical ventilation who wishes to withdraw life support; the plan includes consultation of appropriate medical and spiritual services and supports the patient's decision in a respectful and dignified manner
Level 5 *Serves as a resource for others to resolve complex ethical dilemmas*	● Identifies and seeks to address system-wide factors or barriers to promoting a culture of ethical practice through participation in a work group, committee, or task force ● Serves as the fellow member of the IRB or Ethics Committee
Assessment Models or Tools	● Direct observation

	● Global 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) ● Simulation
Curriculum Mapping	●
Notes or Resources	● American Medical Association. Ethics. https://www.ama-assn.org/delivering-care/ama-code-medical-ethics. 2020. ● Kirschner KL. Ethical-legal issues in physiatrics. *PMR*. 2009;1(1):81. https://onlinelibrary.wiley.com/doi/full/10.1016/j.pmrj.2008.12.003. 2020.

Professionalism 2: Professional Behaviors **Overall Intent:** To recognize and address lapses in professional behavior, demonstrate professional behaviors, and use appropriate resources for minimizing potential professionalism lapses	
Milestones	**Examples**
Level 1 *Identifies professionalism lapses in oneself and others* *Describes when and how to appropriately report lapses*	● Identifies and describes potential triggers for professionalism lapses, describes when and how to appropriately report professionalism lapses, and outlines strategies for addressing common barriers to reporting
Level 2 *Demonstrates professional behavior in routine situations* *Takes responsibility for one's own professionalism lapses when applicable and identifies contributing factors*	● Demonstrates professional behavior in routine situations and can acknowledge a lapse without becoming defensive, making excuses, or blaming others ● Displays respect for patients and expects the same from others ● Apologizes for the lapse and takes steps to make amends ● Articulates strategies for preventing similar lapses in the future
Level 3 *Anticipates situations that may trigger professionalism lapses* *Takes remedial action to address lapses when applicable*	● Recognizes that when getting calls late at night, it is important to be respectful to the caller ● Apologizes to the nurse after a tense exchange in response to a call
Level 4 *Demonstrates professional behavior across situations and settings* *Proactively intervenes to prevent lapses*	● Analyzes difficult real or hypothetical professionalism case scenarios or situations, recognizes own limitations, and consistently demonstrates professional behavior ● Actively and consistently seeks to consider the perspectives of others to prevent lapses
Level 5 *Coaches others when their behavior fails to meet professional expectations* *Addresses system issues to minimize potential for professionalism lapses*	● Coaches more junior resident who is frequently late to rounds ● Identifies and seeks to address system-wide factors or barriers to promoting a culture of professional behavior through participation in a work group, committee, or task force
Assessment Models or Tools	● Direct observation ● 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	● ABIM Foundation. American Board of Internal Medicine. Medical professionalism in the new millennium: a physician charter. *Annals of Internal Medicine*. 2002;136(3):243-246. https://annals.org/aim/fullarticle/474090/medical-professionalism-new-millennium-physician-charter. 2020. ● ABPMR. Demonstrating Professionalism. https://www.abpmr.org/MOC/PartI/ProfessionalismDefinition. 2020. ● Bynny RL, Paauw DS, Papadakis MA, Pfeil S, Alpha Omega Alpha. *Medical Professionalism Best Practices: Professionalism in the Modern Era.* Menlo Park, CA: Alpha Omega Alpha Honor Medical Society; 2017. http://alphaomegaalpha.org/pdfs/Monograph2018.pdf. 2020. ● Levinson W, Ginsburg S, Hafferty FW, Lucey CR. *Understanding Medical Professionalism*. 1st ed. New York, NY: McGraw-Hill Education; 2014. https://accessmedicine.mhmedical.com/book.aspx?bookID=1058. 2020.

Professionalism 3: Accountability **Overall Intent:** To take responsibility for one's own actions and the impact on patients and other members	
Milestones	**Examples**
Level 1 *Responds promptly to requests or reminders to complete responsibilities*	● Responds quickly to reminders from program administrator to complete work hour logs ● Completes clinic notes on the day of service after gentle prompting from attending ● Performs patient hand-off to the on-call resident after being reminded to do so ● Completes evaluations of peers and attendings when reminded by program administrator
Level 2 *Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations*	● Completes work hour logs without prompting from program administrator ● Completes appropriately detailed clinic notes on the day of service without prompting from attending ● Completes patient hand-off to the on-call resident at the pre-designated time ● Submits required evaluations on time without requiring reminders
Level 3 *Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations*	● Completes all work on the inpatient rehabilitation service prior to leaving town ● Notifies attending of multiple competing demands on call, appropriately triages tasks, and asks for assistance from other learners or faculty members, if needed
Level 4 *Proactively implements strategies to ensure the needs of patients, teams, and systems are met in a timely manner*	● Advises other learners how to manage their time in completing patient care tasks and escalates to communicating with program director if a problem requires a system-based approach and/or needs addressing at a higher administrative level ● Takes responsibility for potential adverse outcomes and professionally discusses these concerns with the interprofessional team
Level 5 *Coaches others to optimize timely task completion*	● Sets up a meeting with the nurse manager to streamline patient discharges ● Leads team to find solutions to a problem that has been identified
Assessment Models or Tools	● Compliance with deadlines and timelines ● Direct observation ● Mentor and program director observations ● Multisource feedback ● Self-evaluations and reflective tools ● Simulation
Curriculum Mapping	●
Notes or Resources	● Code of conduct from fellow/resident institutional manual ● Donnon T, Al Ansari A, Al Alawi S, Violato C. The reliability, validity, and feasibility of multisource feedback physician assessment: A systematic review. *Acad Med*. 2014;89(3):511-516. https://journals.lww.com/academicmedicine/fulltext/2014/03000/The_Reliability,_Validity,_and_Feasibility_of.34.aspx. 2020.

	● Fornari A, Akbar S, Tyler S. Critical synthesis package: assessment of professional behaviors (APB). *MedEdPORTAL.* 2014;10:9902. https://www.mededportal.org/publication/9902. 2020. ● Mueller PS. Incorporating professionalism into medical education: The Mayo Clinic experience. *Keio J Med*. 2009;58(3)133-143. https://www.jstage.jst.go.jp/article/kjm/58/3/58_3_133/_article. 2020. ● Mueller PS. Teaching and assessing professionalism in medical learners and practicing physicians. *Rambam Maimonides Med J*. 2015;6(2):e0011. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4422450/. 2020. ● Wilkinson TJ, Wade WB, Knock LD. A blueprint to assess professionalism: Results of a systematic review. *Acad Med*. 2009;84(5):551-558. https://journals.lww.com/academicmedicine/fulltext/2009/05000/A_Blueprint_to_Assess_Professionalism__Results_of.8.aspx. 2020.

Professionalism 4: Patient Care Etiquette with Patients of All Abilities **Overall Intent:** To attend to the comfort and dignity of all patients regardless of any impairment or disability	
Milestones	**Examples**
Level 1 *Recognizes the need to respect the dignity of all patients regardless of impairments or disabilities*	● Understands that all patients should be treated with respect, with due attention to their comfort and dignity, regardless of disability
Level 2 *Demonstrates specific elements of verbal and physical communication that reflect respect for people with impairments or disabilities*	● Sits at the level of a patient using a wheelchair for conversation ● Treats the wheelchair as part of the user's personal space ● Talks directly to the person with a disability and not through their caregiver or companion ● Uses language that emphasizes the individual person and not just the disability when referring to the patient ("a person with paraplegia," not "a paraplegic") ● Adjusts pillows and blanket if needed after examination, and replaces the call button or wheelchair so it is accessible to the patient if moved during patient examination ● Identifies self and makes the patient aware verbally before making physical contact with a patient with neuromyelitis optica who is blind
Level 3 *Proactively maintains the patient's comfort and dignity during history taking and physical examination for a patient with mild impairments or disabilities*	● Takes care to avoid causing discomfort to the patient while testing active range of motion of an inflamed shoulder joint ● Approaches a patient with coexisting traumatic brain injury and a right visual field defect from the patient's left (functioning) side in order to not startle them
Level 4 *Proactively maintains the patient's comfort and dignity during history taking and physical examination for a patient with severe impairments or disabilities*	● Turns a patient with multiple sclerosis and dense hemiplegia with ease during physical examination without pulling on the weak arm, keeps the weak arm supported at all times during the turn, and appropriately uses techniques such as bending the opposite knee or crossing the patient's ankles in the direction of the turn to facilitate the movement; controls any spasms provoked by the movement by exerting gentle pressure on the spastic limb
Level 5 *Serves as a role model and as a resource for others by coaching them in behaviors and actions that optimize the comfort, dignity, and respect of people with impairments or disabilities*	● Is recognized as a role model for demonstrating patient care etiquette in clinical interactions and selected to teach a workshop on optimal techniques to examine patients with different disabling conditions
Assessment Models or Tools	● Direct observation ● Global evaluation ● Mentor and program director observations ● Multisource feedback ● Oral or written self-reflection ● Simulation
Curriculum Mapping	●

Notes or Resources	● Sabharwal S. Assessment of competency in positioning and movement of physically disabled patients. *Acad Med*. 2000;75(5):525. https://journals.lww.com/academicmedicine/Fulltext/2000/05000/Assessment_of_Competency_in_Positioning_and.47.aspx. 2020. ● Sabharwal S. Objective assessment and structured teaching of disability etiquette. *Acad Med*. 2001;76(5):509. https://journals.lww.com/academicmedicine/Fulltext/2001/05000/Objective_Assessment_and_Structured_Teaching_of.38.aspx#pdf-link. 2020. ● United Spinal Association. *Disability Etiquette: Tips on Interacting with People with Disabilities.* New York, NY: United Spinal Association. https://www.unitedspinal.org/pdf/DisabilityEtiquette.pdf. 2020.

Professionalism 5: Fellow Well-Being and Help-Seeking **Overall Intent:** To identify, use, manage, improve, and seek help for personal and professional well-being	
Milestones	**Examples**
Level 1 *Recognizes status of personal and professional well-being, with assistance*	● Describes personal well-being during semi-annual evaluation with program director or during mentor meeting with prompting
Level 2 *Independently recognizes status of personal and professional well-being and demonstrates appropriate help seeking behaviors*	● Describes employee assistance program and resident/fellow wellness program
Level 3 *With assistance, proposes, implements, and refines a plan to optimize personal and professional well-being*	● With supervision, assists in developing a personal action plan to address stress and burnout ● With the help of the program director, creates a plan to optimize work efficiency
Level 4 *Independently develops, implements, and refines a plan to optimize personal and professional well-being*	● Plans to exercise three times each week to reduce stress
Level 5 *Coaches others and addresses system barriers and facilitators to optimize personal and professional well-being*	● Assists with the formation of resident/fellow wellness programming
Assessment Models or Tools	● Direct observation ● Group interview or discussions for team activities ● Institutional online training modules ● Mentor and program director observations ● Self-assessment and personal learning plan
Curriculum Mapping	●
Notes or Resources	● This subcompetency is not intended to evaluate a fellow's well-being. Rather, the intent is to ensure that each fellow has the fundamental knowledge of factors that affect well-being, the mechanisms by which those factors affect 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. ● Busireddy KR, Miller JA, Ellison K, Ren V, Qayyum R, Panda M. Efficacy of interventions to reduce resident physician burnout: A systematic review. *Journal of Graduate Medical Education*. 2017;9(3):294-301. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5476377/. 2020. ● Local resources, including Employee Assistance

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication **Overall Intent:** To deliberately use language and behaviors to form constructive relationships with the patient and others (e.g., family and caregivers), identify communication barriers including self-reflection on personal biases, and minimize them in doctor-patient relationships; to organize and lead communication around shared decision making	
Milestones	**Examples**
Level 1 *Uses language and non-verbal behavior to demonstrate respect and establish rapport*	● Self-monitors and controls tone, nonverbal responses, and language and asks questions to invite patient/family/caregiver participation
Minimizes common barriers to effective communication (e.g., language, disability)	● Before a family meeting, adjusts the seating in the room and sits down so all participants can see and hear one another, including those using wheelchairs ● Identifies common communication barriers in patient care and uses basic services to enhance communication (e.g., interpreter services, picture boards, letter boards); avoids medical jargon and communicates at a level understandable to a layperson
Accurately communicates one's own role within the health care system	● Ensures written communication is in the appropriate language and at the appropriate reading level to be understood by the patient/family/caregiver ● Accurately communicates role as a fellow physician to patients/families/caregivers
Level 2 *Establishes a therapeutic relationship in straightforward encounters using active listening and clear language*	● Establishes a professional relationship with patients/families/caregivers, with active listening, attention to affect, and questions that explore the optimal approach to daily tasks
Minimizes complex barriers to effective communication (e.g., health literacy, cultural differences)	● With patient consent, consults pastoral services to facilitate communication between a patient and their family related to differing views of how religion impacts treatment ● Integrates auxiliary services such as child life services or cultural mediator services when appropriate
Organizes and initiates communication with the patient/patient's family by clarifying expectations and verifying understanding of the clinical situation	● Effectively leads patient/family/caregiver goal meetings in straightforward cases, with attending guidance
Level 3 *Establishes a therapeutic relationship in challenging patient encounters*	● Successfully establishes rapport with challenging patients ● Maintains and repairs a therapeutic relationship through times of conflict
When prompted, reflects on personal biases while attempting to minimize communication barriers	● Attempts to mitigate identified communication barriers, including reflection on implicit biases when prompted

With guidance, sensitively and compassionately delivers medical information, elicits the patient's/patient's family's values, goals, and preferences, and acknowledges uncertainty and conflict	● Provides information in a tailored way to meet the needs of patient/family/caregivers using written versus verbal communication, amount of information, and number of choices desired ● Elicits priorities of the patient/family/caregivers and appropriately adjusts conversations about prognosis based on these factors ● Acknowledges uncertainty in medical complexity and prognosis
Level 4 *Easily establishes therapeutic relationships, with attention to the patient/patient's family's concerns and context, regardless of complexity of the situation* *Overcomes personal biases while proactively minimizing communication barriers* *Independently, uses shared decision making to align the patient's/patient's family's values, goals, and preferences with treatment options to make a personalized care plan*	● Gains the trust of the patient and family and can redirect patient/family meetings to focus on pre-established goals if conflict arises or in challenging conversations ● Anticipates and proactively addresses communication barriers, including eliciting past experiences and preferences of patients/families/caregivers, and recognition of own implicit bias ● Engages in shared-decision-making process with the patient and family, including a recommended plan to align patient's unique goals with treatment options
Level 5 *Mentors others in developing positive therapeutic relationships* *Role models self-awareness practice while teaching a contextual approach to minimize communication barriers* *Role models shared decision making in patient/patient family communication, including those situations with a high degree of uncertainty or conflict*	● Role models and supports colleagues in self-awareness and reflection to improve therapeutic relationships with patients ● Is an example to others of leading shared decision making with clear recommendations to patients and families even in more complex clinical situations
Assessment Models or Tools	● Direct observation ● Multisource feedback ● Self-assessment including self-reflection exercises

	● Skills needed to Set the state, Elicit information, Give information, Understand the patient, and End the encounter (SEGUE) ● Standardized patients or structured case discussions
Curriculum Mapping	●
Notes or Resources	● Kirshblum SC, Botticello AL, DeSipio GB, Fichtenbaum J, Shah A, Scelza W. Breaking the news: A pilot study on patient perspectives of discussing prognosis after traumatic spinal cord injury. *J Spinal Cord Med*. 2016;39(2):155-61. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5072497/. 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.researchgate.net/publication/49706184_Communication_skills_An_essential_component_of_medical_curricula_Part_I_Assessment_of_clinical_communication_AMEE_Guide_No_511. 2020. ● Makoul G. The SEGUE Framework for teaching and assessing communication skills. *Patient Educ Couns*. 2001;45(1):23-34. https://www.researchgate.net/publication/11748796_The_SEGUE_Framework_for_teaching_and_assessing_communication_skills. 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	
Milestones	**Examples**
Level 1 *Uses respectful language that values all members of the health care team*	● Shows respect in health care team communications through words and actions ● Uses respectful communication with colleagues in allied health rehabilitation disciplines, clerical staff members, and technical staff members ● Listens to and considers others' points of view, is nonjudgmental and actively engaged, and demonstrates humility
Level 2 *Communicates information effectively with all health care team members* *Solicits feedback on performance as a member of the health care team*	● Verifies understanding of own communications within the health care team ● Demonstrates active listening by fully focusing on the speaker, making eye contact and reflecting on and summarizing the conversation ● Communicates clearly and concisely in an organized and timely manner during consultant encounters, as well as with the health care team in general
Level 3 *Checks one's own understanding and biases while listening to adapt communication style to fit team needs* *Communicates concerns and provides feedback to members of the health care team*	● Verifies own understanding of communications from staff member by restating critical values and unexpected diagnoses ● Uses teach-back or other strategies to assess understanding during consultations ● Identifies and seeks to resolve barriers to communication ● Raises concerns or provides opinions and feedback when needed to others on the team ● Respectfully provides feedback to more junior medical team members to aid their improvement
Level 4 *Coordinates recommendations and communication from different members of the health care team to optimize patient care* *Communicates feedback and constructive criticism to superiors*	● Supports the group decision making and group responsibility reflective of a collaborative interdisciplinary team model ● Adapts communication strategies in handling complex situations ● Offers suggestions to negotiate or resolve conflicts among health care team members; raises concerns or provides opinions and feedback, when needed, to superiors on the team
Level 5 *Role models self-awareness and flexible communication strategies that value input from all health care team members, resolving conflict when needed* *Facilitates regular health care team-based feedback in complex situations*	● Communicates with all health care team members, resolves conflicts, and provides feedback appropriate to any situation ● Organizes and leads a team meeting to discuss and resolve potentially conflicting points of view on a plan of care

Assessment Models or Tools	● Direct observation ● Global assessment ● Multisource feedback ● Record or chart review for professionalism and accuracy in written communications ● Simulation encounters
Curriculum Mapping	●
Notes or Resources	● Green M, Parrott T, Cook 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. ● King JC, Blankenship KJ, Schalla W, Mehta A. Rehabilitation Team Function and Prescriptions, Referrals, and Order Writing. In: Frontera WR. *DeLisa's Physical Medicine and Rehabilitation*. 5th Ed. Philadelphia, PA: Wolters Kluwer; 2010. https://musculoskeletalkey.com/rehabilitation-team-function-and-prescriptions-referrals-and-order-writing/. 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.

Interpersonal and Communication Skills 3: Communication within Health Care Systems **Overall Intent:** To effectively communicate using a variety of methods	
Milestones	**Examples**
Level 1 *Accurately records information in the patient record while safeguarding patient personal health information*	● Notes are accurate but may include extraneous information and can be disorganized
Demonstrates basic knowledge of appropriate channels of communication within the institution (e.g., pager callback, timely response to emails)	● Identifies institutional and departmental communication hierarchy for concerns and safety issues ● Understands how to contact members of the interprofessional team
Level 2 *Demonstrates organized and complete diagnostic and therapeutic reasoning through notes in the patient record, including appropriate modifications when using copy-and-paste function*	● Produces accurate, organized notes but may still include extraneous information ● Includes recommendations specific to spinal cord injury or disorders in consult notes
Communicates through appropriate channels as required by institutional policy (e.g., patient safety reports)	● Recognizes that a communication breakdown has happened and respectfully brings the breakdown to the attention of the appropriate individual ● Reports a patient safety event
Level 3 *Communicates clearly, concisely, in a timely manner, and in an organized written form, including anticipatory recommendations*	● Documentation is accurate, organized, concise, and includes anticipatory (if/then) guidance for common medical or functional complications of spinal cord injury or dysfunction
Appropriately selects direct (e.g., telephone, in-person) and indirect (e.g., progress notes, text messages) forms of communication based on context	● Uses appropriate communication method when sharing results needing urgent attention
Level 4 *Provides feedback to improve others' written communication*	● Provides feedback to learners who have insufficient documentation
Provides written or verbal communication that serves as an example for others to follow	● Teaches learners how to improve discharge summaries
Level 5 *Models feedback to improve others' written communication*	● Leads a task force established by the department to develop a plan to improve communication between the spinal cord injury consult team and the trauma surgery team Talks directly to a colleague about breakdowns in communication in order to prevent recurrence

Guides departmental or institutional communication around policies and procedures	● Participates in efforts to improve communication within the local environment
Assessment Models or Tools	● Chart review for documented communications ● Multisource feedback ● Observation of sign-outs, observation of requests for consultations, observation of communication of consult team recommendations to primary team
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.ncbi.nlm.nih.gov/pubmed/16617948. 2020. ● Starmer AJ, Spector ND, Srivastava R, et al. I-PASS, a mnemonic to standardize verbal handoffs. *Pediatrics*. 2012;129(2):201-204. https://ipassinstitute.com/wp-content/uploads/2016/06/I-PASS-mnemonic.pdf. 2020.

Interpersonal and Communication Skills 4: Complex Communication around Prognosis and Outcomes **Overall Intent:** To sensitively and effectively communicate with patients and their families/caregivers about serious illness, promoting shared decision making and assessing the evolving impact on all involved	
Milestones	**Examples**
Level 1 *Identifies prognostic communication as a key element for shared decision making*	● Recognizes importance of communicating prognosis to permit shared decision making does not do so independently
Level 2 *Assesses the patient's and patient's family's/caregiver's awareness and identifies preferences for receiving prognostic information*	● Using open-ended questions, determines a patient's/family's prognostic awareness and discusses patient/family preferences for how communication about prognosis should occur
Level 3 *Delivers basic prognostic information and attends to emotional responses of the patient and patient's family/caregiver*	● Consistently responds to emotion in conversations by using NURSE (Name, Understand, Respect, Support, Explore) statements and deliberate silence
Level 4 *Tailors communication of prognosis according to spinal cord injury or disorder characteristics and trajectory, patient consent, family needs, and medical uncertainty, and is able to address intense emotional response*	● Adjusts communication with family members/caregivers to address uncertainty and conflicting prognostic estimates after a spinal cord injury ● Run a family meeting with more complex emotions and family dynamics
Level 5 *Coaches others in the communication of prognostic information*	● Develops a simulation module to teach communication of prognosis
Assessment Models or Tools	● Direct observation ● Interdisciplinary team members' feedback ● OSCE ● Patient and family feedback
Curriculum Mapping	●
Notes or Resources	● Kirshblum SC, Botticello AL, DeSipio GB, Fichtenbaum J, Shah A, Scelza W. Breaking the news: A pilot study on patient perspectives of discussing prognosis after traumatic spinal cord injury. *J Spinal Cord Med*. 2016;39(2):155-61. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5072497/. 2020. ● PVA. Outcomes Following Traumatic Spinal Cord Injury: Clinical Practice Guidelines for Health-Care Professionals. https://pva-cdnendpoint.azureedge.net/prod/libraries/media/pva/library/publications/cpg_outcomes-following-traumatic-sci.pdf. 2020. ● Textbooks

To help programs transition to the new version of the Milestones, the ACGME has mapped the original Milestones 1.0 to the new Milestones 2.0. Indicated below are where the subcompetencies are similar between versions. These are not exact matches, but are areas that include similar elements. 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: History and Physical Examination of Individuals with Spinal Cord Disorders	PC1: History of Individuals with Spinal Cord Disorders PC2: Physical Examination of Individuals with Spinal Cord Disorders
PC2: Diagnostic Evaluation of Individuals with Spinal Cord Disorders	MK1: Clinical Reasoning
PC3: Medical/Surgical Management of Individuals with Spinal Cord Disorders	PC3: Medical/Surgical Management of Individuals with Spinal Cord Disorders ICS4: Complex Communication around Prognosis and Outcomes
PC4: Rehabilitation/Functional Management of Individuals with Spinal Cord Disorders	PC4: Assistive Technologies PC5: Rehabilitation Interventions
MK1: Traumatic and Non-Traumatic Spinal Cord Disorders	MK2: Traumatic and Non-Traumatic Spinal Cord Disorders
MK2: Functional Outcomes and Interventions	MK3: Functional Outcomes and Interventions PC4: Assistive Technologies
SBP1: Systems Thinking for Individuals with Spinal Cord Disorders	SBP3: System Navigation for Patient-Centered Care SBP4: Physician Role in Health Care Systems
SBP2: Patient Safety for Individuals with Spinal Cord Disorders	SBP1: Patient Safety
PBLI1: Self-Directed Learning and Teaching	PBLI2: Reflective Practice and Commitment to Personal Growth
PBLI2: Locate, Appraise, Assimilate, and Apply Evidence from Scientific Studies to Clinical Practice	PBLI1: Evidence-Based and Informed Practice
PBLI3: Quality Improvement	SBP2: Quality Improvement
PROF1: Compassion, Integrity, and Respect for Others, as well as Sensitivity and Responsiveness to Diverse Patient Populations, and Adherence to Ethical Principles	PROF1: Ethical Practice PROF4: Patient Care Etiquette with Patients of All Abilities ICS4: Complex Communication around Prognosis and Outcomes
PROF2: Professional Behaviors and Accountability to Self, Patients, Society, and the Profession	PROF2: Professional Behaviors PROF3: Accountability PROF5: Fellow Well-Being and Help-Seeking
ICS1: Relationship Management	ICS1: Patient- and Family-Centered Communication

	ICS2: Interprofessional and Team Communication ICS4: Complex Communication around Prognosis and Outcomes
ICS2: Information Gathering and Sharing	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/