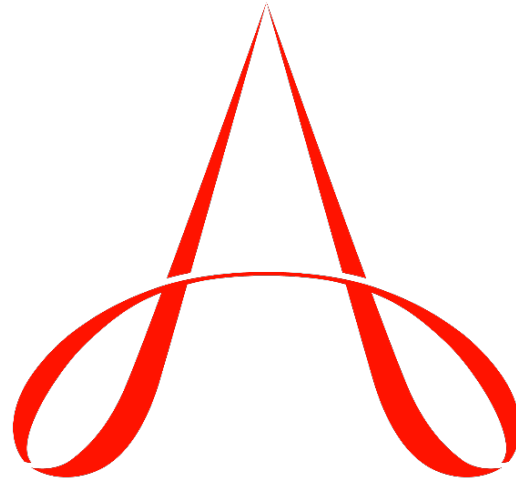




Supplemental Guide: Sports Medicine



ACGME

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Milestones Supplemental Guide

This document provides additional guidance and examples for the Sports 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 and Physical Examination: Medical and Musculoskeletal	
Overall Intent: To use all available resources to obtain a comprehensive patient history and to perform a respectful and complete physical exam appropriate to the context of the visit	
Milestones	Examples
<p>Level 1 <i>Obtains appropriate medical history</i></p> <p><i>Performs basic medical examination</i></p> <p><i>Performs basic musculoskeletal examination</i></p>	<ul style="list-style-type: none"> ● For a complaint of shortness of breath, obtains appropriate head, eyes, ears, nose, and throat exam; cardiac history; and pulmonary history ● Performs head, eyes, ears, nose, and throat exam; cardiac exam; and pulmonary exam for complaint of shortness of breath ● For quadriceps pain performs a basic hip, thigh, and knee exam
<p>Level 2 <i>Obtains detailed history of sports-related medical condition or injury</i></p> <p><i>Performs specific organ-based medical examination for common sports medicine conditions</i></p> <p><i>Performs joint-specific musculoskeletal examination with special testing</i></p>	<ul style="list-style-type: none"> ● Obtains history of current and past concussions ● Performs a neurologic exam on an athlete for a concussion ● Performs a Lachman’s test to assess for a possible anterior cruciate ligament (ACL) tear
<p>Level 3 <i>Obtains advanced history of sports-related medical condition or injury, with guidance</i></p> <p><i>Performs medical examination for complex or high-risk sports medicine conditions, with guidance</i></p> <p><i>Performs regional musculoskeletal examination for complex or high-risk sports musculoskeletal conditions, with guidance</i></p>	<ul style="list-style-type: none"> ● Identifies disordered eating as a predisposing factor for bony stress injury ● Palpates the neck and performs neurological exam to assess for cervical injury ● Assesses for more proximal leg injury in the setting of ankle fracture
<p>Level 4 <i>Independently obtains complex history of common and complex conditions</i></p> <p><i>Independently performs complex examinations of common and complex conditions</i></p>	<ul style="list-style-type: none"> ● Assesses risk factors that impact bone health in an athlete with a stress fracture ● Independently completes an on-field assessment of an injured athlete

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<p><i>Independently performs regional musculoskeletal and functional examination for common and complex sports musculoskeletal conditions</i></p>	<ul style="list-style-type: none"> ● Performs gait evaluation and limb alignment assessment for a patient with patellofemoral pain syndrome and recognizes how gluteus medius weakness and pes planus contribute to the pain
<p>Level 5 <i>Serves as a role model for techniques to obtain subtle and sensitive information from patients and their families</i></p> <p><i>Serves as a role model for efficiently performing problem-based examination</i></p> <p><i>Serves as a role model for performance of regional musculoskeletal examination for common and complex sports musculoskeletal conditions</i></p>	<ul style="list-style-type: none"> ● Demonstrates how to elicit critical details regarding disordered eating behaviors relevant to the diagnosis ● Shows other learners how to identify pertinent substance use issues ● During a didactic session, teaches others how to perform a concise lumbar back exam with minimal patient position changes ● Teaches others how to perform a complete shoulder examination and how scapular mechanics impact the shoulder
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Case-based discussions ● Direct observation ● Medical record (chart) audit ● Multisource feedback ● Precepting encounter ● Simulation
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● American Academy of Family Physicians. Musculoskeletal and Sports Medicine. https://www.amssm.org/Content/pdf%20files/FELLOW_INFO/FAMILY_MED.pdf. 2021.

Patient Care 2: Medical Management: Differential Diagnosis, Diagnostic Testing, Interpretation of Data, and Treatment Planning Overall Intent: To perform medical management through a differential diagnosis and treatment planning	
Milestones	Examples
<p>Level 1 <i>Develops a basic differential diagnosis pertinent to common medical conditions</i></p> <p><i>Orders and interprets diagnostic testing for common medical conditions</i></p> <p><i>Generates a basic treatment plan for common medical conditions</i></p>	<ul style="list-style-type: none"> ● For a patient with chest pain, fellow identifies musculoskeletal, cardiac, pulmonary, or gastrointestinal etiologies ● Orders and interprets electrocardiogram (EKG), x-ray, labs, and advanced imaging for a patient with chest pain ● Develops treatment plan for a patient with mononucleosis and discusses return-to-play considerations
<p>Level 2 <i>Develops a basic differential diagnosis pertinent to sports medicine conditions</i></p> <p><i>Orders and interprets diagnostic testing for common sports medicine conditions</i></p> <p><i>Generates a basic treatment plan for common sports medicine conditions</i></p>	<ul style="list-style-type: none"> ● Develops a differential diagnosis for a rash in a wrestler ● Orders and interprets lab work for a cross-country runner with decreased performance ● Generates a treatment and return to wrestling plan for a patient with tinea gladiatorum
<p>Level 3 <i>Develops a comprehensive differential diagnosis based upon history and physical examination findings, with guidance</i></p> <p><i>Orders and interprets diagnostic testing for complex sports medicine conditions, with guidance</i></p> <p><i>Generates and modifies a treatment plan for complex sports medicine conditions, with guidance</i></p>	<ul style="list-style-type: none"> ● Develops a comprehensive differential diagnosis for a cross-country runner with fatigue and decreased performance ● Orders and interprets spirometry to evaluate exercise-induced bronchospasm versus vocal cord dysfunction in a cross-country runner ● Generates and modifies treatment plan for exercise-induced laryngeal obstruction in a cross-country runner
<p>Level 4 <i>Independently develops a comprehensive differential diagnosis pertinent to patient-specific factors</i></p> <p><i>Independently interprets and applies diagnostic testing to treatment and management</i></p>	<ul style="list-style-type: none"> ● Develops a differential diagnosis for syncope in a master’s level Paralympic cyclist ● Independently interprets lab work for relative energy deficiency in sports (RED-S) and initiates a treatment plan

<p><i>Independently generates and modifies individualized treatment plans pertinent to patient-specific factors</i></p>	<ul style="list-style-type: none"> ● Generates and modifies treatment plan for master’s-level athlete with persistent concussion symptoms
<p>Level 5 <i>Serves as a resource or role model for the evaluation and management of complex conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Presents a lecture at a state conference on the evaluation and management of concussion in sports
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Appropriate test ordering criteria ● Direct observation ● Faculty observation and evaluations ● Medical record (chart) audio ● Oral or written examination ● Objective structured clinical exam (OSCE) ● Presentation evaluation
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● American College of Radiology. ACR Appropriateness Criteria. https://www.acr.org/Clinical-Resources/ACR-Appropriateness-Criteria. 2021. ● American Medical Society for Sports Medicine (AMSSM). AMSSM Publications and Position Statements. https://www.amssm.org/Publications.php. 2021. ● Choosing Wisely. https://www.choosingwisely.org/. 2021. ● UpToDate. https://www.uptodate.com/contents/search. 2021.

Patient Care 3: Musculoskeletal Conditions	
Overall Intent: To develop a differential diagnosis, order and interpret appropriate imaging, and develop treatment plans for a variety of musculoskeletal conditions	
Milestones	Examples
<p>Level 1 <i>Develops a basic differential diagnosis pertinent to common musculoskeletal conditions</i></p> <p><i>Orders and interprets diagnostic testing for common conditions</i></p> <p><i>Generates a basic treatment plan for common musculoskeletal conditions</i></p>	<ul style="list-style-type: none"> ● Evaluates a patient with knee pain and identifies common causes, such as osteoarthritis, ligamentous tear, patellofemoral syndrome, etc. ● Orders knee x-rays with appropriate views for given differential diagnosis, and reads and identifies basic pathology, such as osteoarthritis and obvious fractures ● Evaluates a patient with an arthritic flare and suggests physical therapy as first line treatment
<p>Level 2 <i>Develops a basic differential diagnosis pertinent to uncommon musculoskeletal conditions</i></p> <p><i>Orders and interprets diagnostic testing for complex musculoskeletal conditions</i></p> <p><i>Generates a basic treatment plan for uncommon musculoskeletal conditions</i></p>	<ul style="list-style-type: none"> ● Evaluates a patient with knee pain after twisting injury while skiing and develops appropriate differential diagnosis, such as ACL tear, tibial plateau fracture, etc. ● Evaluates a patient with knee pain, orders x-ray, notes boney lesion, and orders magnetic resonance imaging (MRI) appropriately to further characterize ● For an ACL tear, includes physical therapy and consideration of surgery in treatment plan
<p>Level 3 <i>Develops a comprehensive differential diagnosis based upon history and physical examination findings, with guidance</i></p> <p><i>Orders and interprets diagnostic testing for common and complex conditions, with guidance</i></p> <p><i>Generates and modifies a treatment plan for complex conditions, with guidance</i></p>	<ul style="list-style-type: none"> ● Evaluates a patient with polyarthralgias and develops a differential diagnosis that includes osteoarthritis, rheumatoid arthritis, reactive arthritis, and altered biomechanics ● Evaluates a patient with a chronically painful, swollen shoulder and orders an x-ray; independently interprets the x-ray as showing a joint effusion and erosions, and orders an MRI with and without contrast to rule out malignancy ● When MRI returns and shows concern for pigmented villonodular synovitis, modifies the plan and refers the patient to orthopedic oncology
<p>Level 4 <i>Independently develops a comprehensive differential diagnosis pertinent to patient-specific factors</i></p> <p><i>Independently interprets and applies diagnostic testing to treatment and management</i></p>	<ul style="list-style-type: none"> ● Independently evaluates a patient with rapid onset hip pain and develops a differential diagnosis that includes fracture, transient synovitis, and septic joint (with concern for bacteremia due to patient’s poor dentition) ● Performs an ultrasound guided arthrocentesis on said patient to evaluate the synovial fluid and adjust treatment plan accordingly

<p><i>Independently generates and modifies individualized treatment plans pertinent to patient-specific factors</i></p>	<ul style="list-style-type: none"> ● Discusses the need for imaging with a patient, but modifies imaging and treatment plan based on patient's wish to contain costs due to lack of insurance
<p>Level 5 <i>Serves as a resource or role model for the evaluation and management of complex musculoskeletal conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Holds a complex case conference which details pertinent history and physical, discusses typical and atypical differential diagnosis, and outlines subtleties in medical decision making
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Case-based discussions ● Medical record (chart) audit ● Multisource feedback ● Precepting encounters ● Simulation
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● American Medical Society for Sports Medicine (AMSSM). AMSSM Publications and Position Statements. https://www.amssm.org/Publications.php. 2021. ● McKeag DB, Moeller JL. <i>ACSM's Primary Care Sports Medicine</i>. 2nd ed. Lippincott Williams & Wilkins; 2007. ISBN:978-0781770286. ● Mellion MB, Walsh WM, Madden C, Putukian M, Shelton GL. <i>The Team Physician's Handbook</i>. 3rd ed. Hanley & Belfus; 2001. ISBN:978-1560534419. ● UpToDate. https://www.uptodate.com/contents/search. 2021.

Patient Care 4: Training Room, Team or Individual Sporting Event, and Mass Participation Events Medical Coverage Overall Intent: To provide medical coverage in training rooms and at sporting or mass participation events	
Milestones	Examples
<p>Level 1 <i>With direct supervision, participates in training room medical coverage</i></p> <p><i>With direct supervision, participates in team or individual sporting event coverage</i></p> <p><i>With direct supervision, participates in mass participation event medical coverage</i></p>	<ul style="list-style-type: none"> ● Attends high school training room with attending to help with pre-participation physicals ● Administers concussion testing for an athlete with attending guidance while at a high school football game ● Assesses a sprained ankle with the attending in a medical tent at a local marathon
<p>Level 2 <i>With indirect supervision, participates in training room medical coverage</i></p> <p><i>With indirect supervision, participates in team or individual sporting event coverage</i></p> <p><i>With supervision immediately available, participates in mass participation event medical coverage</i></p>	<ul style="list-style-type: none"> ● Conducts concussion evaluations of athletes in training room while the attending is conducting cardiac evaluations ● Evaluates a possible ACL tear on the sideline at a soccer game while the attending is in the training room ● Acts as the leader of a medical tent at a local marathon with the attending present
<p>Level 3 <i>With supervision available, provides training room medical coverage</i></p> <p><i>With supervision available, provides team or individual sporting event coverage</i></p> <p><i>With supervision available, provides mass participation event medical coverage</i></p>	<ul style="list-style-type: none"> ● Evaluates high school athlete in training room for ankle sprain and discuss exam and treatment plan with attending by phone ● Evaluates a basketball player with potential fracture and discusses how to obtain radiographs with attending ● Assesses a collapsed athlete on a marathon course while attending is providing care at the medical tent
<p>Level 4 <i>Independently provides training room medical coverage</i></p> <p><i>Independently provides team or individual sporting event coverage</i></p>	<ul style="list-style-type: none"> ● Follows up with multiple athletes in training room and appropriately discusses one with a possible ACL tear with orthopaedic surgery ● Reduces a shoulder dislocation on the sideline and organizes appropriate follow-up

<p><i>Independently provides mass participation event medical coverage</i></p>	<ul style="list-style-type: none"> • While treating a collapsed athlete in the medical tent at a local marathon, recognizes the need for additional care and appropriately coordinates transition of care to emergency medical services (EMS) and the emergency room (ER)
<p>Level 5 <i>Develops policies for and supervises training room medical coverage</i></p> <p><i>Serves as a resource or role model in the community for implementing care at team or individual sporting events</i></p> <p><i>Organizes mass participation event medical coverage</i></p>	<ul style="list-style-type: none"> • Develops plan with athletic trainers to improve efficiency of pre-participation physicals • Develops an emergency action plan for cervical spine injuries at high school football games and role models appropriate spine boarding techniques • Serves as a medical director for a local race and coordinates medical staff and supplies required for the event
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> • Direct observation • Multisource feedback from athletic trainers, coaches, event staff, etc. • Oral or written self-reflection • Simulation
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> •
<p>Notes or Resources</p>	<ul style="list-style-type: none"> • American Academy of Pediatrics. Preparticipation Physical Evaluation (PPE). https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Pages/PPE.aspx. 2021. • American College of Sports Medicine (ACSM). Mass participation event management for the team physician: A consensus statement. <i>Med Sci Sports Exerc.</i> 2004;36(11):2005-2008. https://journals.lww.com/acsm-msse/Fulltext/2004/11000/Mass_Participation_Event_Management_for_the_Team.26.aspx. 2021. • Consortium for Health and Military Performance (CHAMP). Marine Corps Marathon (MCM): Exercise Associated Collapse Algorithms. https://champ.usuhs.edu/sites/default/files/2020-03/mcmalgorithms2011.pdf. 2021. • Drezner JA, O'Connor FG, Harmon KG, et al. AMSSM position statement on cardiovascular preparticipation screening in athletes: Current evidence, knowledge gaps, recommendations and future directions. <i>Curr Sports Med Rep.</i> 2016;15(5):359-375. https://journals.lww.com/acsm-csmr/Fulltext/2016/09000/AMSSM_Position_Statement_on_Cardiovascular.15.aspx. 2021. • Sideline preparedness for the team physician: Consensus statement. <i>Med Sci Sports Exerc.</i> 2001;33(5):846-849. https://journals.lww.com/acsm-

[msse/Fulltext/2001/05000/Sideline Preparedness for the Team Physician A.27.aspx](https://msse.fulltext/2001/05000/Sideline%20Preparedness%20for%20the%20Team%20Physician%20A.27.aspx).
2021.

Patient Care 5: Diagnostic and Therapeutic Musculoskeletal Ultrasound Overall Intent: To perform diagnostic ultrasound and ultrasound guided injections	
Milestones	Examples
<p>Level 1 <i>Describes indications for diagnostic ultrasound and fundamental principles of ultrasound</i></p> <p><i>Describes indications, contraindications, risks, and benefits of ultrasound-guided injections</i></p>	<ul style="list-style-type: none"> ● Decides to use in-clinic ultrasound to dynamically assess a patient with snapping hip ● Counsels patient on the importance of ultrasound to perform an intraarticular hip injection to avoid neurovascular injury
<p>Level 2 <i>Demonstrates appropriate set-up and scanning technique, and adjusts ultrasound settings for image optimization</i></p> <p><i>Demonstrates appropriate equipment and patient set-up, and ultrasound-guided injection technique</i></p>	<ul style="list-style-type: none"> ● While assessing a patient’s wrist, appropriately positions patient and ultrasound to improve comfort, chooses a linear probe with a small footprint, and adjusts depth, focus, and gain to improve image quality ● With an ultrasound guided knee injection, appropriately positions the patient to ensure comfort and optimized ergonomics, gathers injection supplies, chooses an appropriate probe based on body habitus, and adjusts depth, focus, and gain for image optimization; demonstrates proper injection technique
<p>Level 3 <i>With guidance, performs diagnostic ultrasound; acquires, labels, and saves ultrasound images; and generates a report</i></p> <p><i>With guidance, performs ultrasound-guided injections with appropriate needle visualization; acquires, labels, and saves ultrasound images; and generates a procedure note</i></p>	<ul style="list-style-type: none"> ● With attending guidance, recognizes a rotator cuff tear and visualizes it in two planes, saves pictures, and appropriately labels the images, and documents the findings ● With attending guidance, visualizes the glenohumeral joint and appropriately directs the needle under visualization to avoid the labrum and ensure intracapsular placement before injecting medication
<p>Level 4 <i>Independently performs diagnostic ultrasound; acquires, labels, and saves ultrasound images; and generates a report</i></p> <p><i>Independently performs ultrasound-guided injections with appropriate needle visualization; acquires, labels, and saves ultrasound images; and generates a procedure note</i></p>	<ul style="list-style-type: none"> ● Uses ultrasound in training room to diagnose an anterior talo-fibular ligament (ATFL) tear and generates a formal report ● With attending present, performs a carpal tunnel injection with direct needle visualization, avoiding the ulnar and radial artery, and appropriately delivers medication around the median nerve and generates a report
<p>Level 5 <i>Serves as a resource to others in performance of diagnostic ultrasound</i></p>	<ul style="list-style-type: none"> ● Teaches a regional musculoskeletal diagnostic ultrasound evaluation to medical students and appropriately corrects their technique to optimize images

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<p><i>Serves as a resource to others in performance of ultrasound-guided injections</i></p>	<ul style="list-style-type: none"> ● Leads a musculoskeletal ultrasound injection course for learners and corrects their technique to improve their injection skills
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback from athletic trainers, coaches, event staff, etc. ● Oral or written self-reflection ● Simulation/Cadaver lab
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● AMSSM. Sports Ultrasound. https://www.amssm.org/SportsUltrasound.php. 2021. ● Jacobson JA. <i>Fundamentals of Musculoskeletal Ultrasound (Fundamentals of Radiology)</i>. 3rd ed. Philadelphia, PA: Elsevier; 2017. ISBN:978-0323445252. ● Malanga G, Mautner K. <i>Atlas of Ultrasound-Guided Musculoskeletal Injections (Atlas Series)</i>. 1st ed. McGraw-Hill Education; 2014. ISBN:9780071769679. ● Peck E. <i>Outpatient Ultrasound-Guided Musculoskeletal Techniques</i>. Elsevier; 2016. ISBN:9780323459860.

Patient Care 6: Sports Medicine Procedures	
Overall Intent: To perform the indicated procedure on all appropriate patients (including those who have multiple comorbidities, poorly defined anatomy, high risk for pain, or procedural complications); to take steps to avoid potential complications and recognize the outcome and/or complications resulting from the procedure	
Milestones	Examples
<p>Level 1 <i>Identifies indications and potential complications for common procedures</i></p> <p><i>Identifies proper equipment set-up and relevant anatomy for procedures</i></p>	<ul style="list-style-type: none"> ● Identifies appropriate anatomy in order to perform the procedures ● After evaluating a patient with a stable distal fibular fracture, ascertains there is no medial malleolar, proximal fibular, or base of fifth metatarsal pain; identifies the need for splint stabilization or casting as appropriate ● Applies a well-padded posterior short-leg fiberglass splint
<p>Level 2 <i>Assesses indications, risks, benefits, and alternatives, and obtains informed consent for common procedures</i></p> <p><i>Performs common therapeutic procedures, with supervision</i></p>	<ul style="list-style-type: none"> ● When caring for a patient with a facial laceration, discusses the benefits of laceration repair and the risk of scarring or infection, and obtains the patient’s consent for a specific method ● Performs intra-articular knee injection, with guidance from the attending on needle trajectory
<p>Level 3 <i>Assesses indications, risks, and benefits, and weighs alternatives for advanced procedures</i></p> <p><i>Independently performs common therapeutic procedures; performs advanced procedures with supervision</i></p>	<ul style="list-style-type: none"> ● After evaluating a patient with severe tendinopathy, discussed the risks and benefits of percutaneous tenotomy ● While performing an ultrasound-guided hip injection, ensures that local vascular structures have been identified and that the needle trajectory will avoid said structures ● Requires guidance to prepare for platelet-rich plasma injection for tendinopathy
<p>Level 4 <i>Counsels patients on the indications, risks, benefits, and alternatives for common and advanced procedures</i></p> <p><i>Independently performs advanced procedures</i></p>	<ul style="list-style-type: none"> ● Discusses option of intra-articular steroid injection, hyaluronic acid injection, and genicular nerve ablation for a patient with knee osteoarthritis ● Provides guidance to patient on medical intervention versus physical therapy or exercise prescription ● Independently performs a nerve hydrodissection procedure
<p>Level 5 <i>Serves as a resource for counseling patients on the indications, risks, benefits, and alternatives for common and advanced procedures</i></p>	<ul style="list-style-type: none"> ● Develops patient handouts for intra-articular injections performed in the office

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<i>Teaches common and advanced procedures</i>	<ul style="list-style-type: none"> • Teaches platelet-rich plasma injection techniques in the simulation center to other learners; performs rare procedures as needed • Participates in peer-review processes that evaluate procedural competence
Assessment Models or Tools	<ul style="list-style-type: none"> • Clinical evaluations • Direct observation • Multisource evaluations • Oral cases • Procedural labs • Simulation exercises
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • American College of Emergency Physicians. Ultrasound Guidelines: Emergency, Point-of-Care, and Clinical Ultrasound Guidelines in Medicine. https://www.acep.org/patient-care/policy-statements/ultrasound-guidelines-emergency-point-of--care-and-clinical-ultrasound-guidelines-in-medicine/. 2021. • Hughes PG, Crespo M, Maier T, Whitman A, Ahmed R. Ten tips for maximizing the effectiveness of emergency medicine procedure laboratories. <i>J Am Osteopath Assoc</i>. 2016;116(6):384-390. https://pubmed.ncbi.nlm.nih.gov/27214775/. 2021. • RRC Advanced procedure list can be used for additional Level 5 examples

Medical Knowledge 1: Science of Sports Medicine	
Overall Intent: To integrate and apply medical knowledge throughout the full scope of sports medicine	
Milestones	Examples
Level 1 <i>Demonstrates basic knowledge of the science of sports medicine</i>	<ul style="list-style-type: none"> • Describes different types of muscle fibers and how these change with different types of exercise including aerobic/anaerobic training
Level 2 <i>Demonstrates advanced knowledge of the science of sports medicine</i>	<ul style="list-style-type: none"> • Describes how cardiovascular and respiratory parameters (e.g., VO₂ max) change with aging
Level 3 <i>Synthesizes and applies knowledge of the science of common sports medicine conditions</i>	<ul style="list-style-type: none"> • Demonstrates knowledge of using eccentric strength training to treat tendinopathies
Level 4 <i>Synthesizes and applies knowledge of the science of complex sports medicine conditions</i>	<ul style="list-style-type: none"> • Demonstrates knowledge of underlying connective tissue diseases (e.g., Ehlers-Danlos syndrome) and how this impacts muscle/tendon healing and exercise recommendations
Level 5 <i>Publishes peer-reviewed work related to the science of sports medicine</i>	<ul style="list-style-type: none"> • Co-authors a peer-reviewed article on exercise physiology
Assessment Models or Tools	<ul style="list-style-type: none"> • Clinical case discussion • Direct observation • Oral or written examination
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • ACSM. ACSM's Guidelines for Exercise Testing and Prescription. 10th ed. Philadelphia, PA: Wolters Kluwer; 2018. ISBN:978-1496339072. • National Strength and Conditioning Association, Baechle TR, Earle RW. <i>Essentials of Strength Training and Conditioning</i>. 3rd ed. Champaign, IL: Human Kinetics; 2008. ISBN:978-0736058032. • Thompson WR. <i>ACSM's Clinical Exercise Physiology</i>. Lippincott Williams & Wilkins; 2019. ISBN:978-1975154295.

Medical Knowledge 2: Medical Issues in Sports Medicine Overall Intent: To synthesize and apply knowledge to the management of sports-related medical problems	
Milestones	Examples
<p>Level 1 <i>Demonstrates basic knowledge of pathophysiology of medical conditions in sports medicine</i></p> <p><i>Demonstrates basic knowledge of return-to-play guidelines for medical conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Understands how nutritional deficiencies from eating disorders effect bone health ● Understands National Collegiate Athletic Association (NCAA) guidelines on return to play for various rashes in wrestling
<p>Level 2 <i>Demonstrates advanced knowledge of pathophysiology of medical conditions in sports medicine</i></p> <p><i>Demonstrates advanced knowledge of return-to-play guidelines for medical conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Understands of pathophysiology of sickle cell trait and how it can lead to sudden death in sport ● Understands guidelines for return-to-play after heat injury
<p>Level 3 <i>Synthesizes and applies knowledge of pathophysiology, evaluation, and diagnostic testing for management of common medical conditions in sports medicine</i></p> <p><i>Synthesizes and applies knowledge of return-to-play guidelines for common medical conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Describes the pathophysiology, evaluation, and diagnostic testing needed for the management of exercise-induced bronchospasm ● Implements return-to-learn and return-to-play guidelines for a patient with a concussion
<p>Level 4 <i>Synthesizes and applies knowledge of pathophysiology, evaluation, and diagnostic testing for management of complex medical conditions in sports medicine</i></p> <p><i>Synthesizes and applies knowledge of return-to-play guidelines for complex medical conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Describes the pathophysiology, evaluation, and diagnostic testing needed for the management of syncope in the athlete ● Implements return-to-play progression for athletes after syncope
<p>Level 5 <i>Publishes/presents peer-reviewed original scientific work to advance the medical</i></p>	<ul style="list-style-type: none"> ● Publishes a peer-reviewed journal article on infectious disease in sports

<p><i>knowledge related to medical conditions in sports medicine</i></p> <p><i>Develops return-to-play protocols for medical conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Develops a return-to-play protocol for an athlete with new onset insulin dependent diabetes
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Checklists ● Clinical case discussion ● Direct observation ● Medical record (chart) audit ● Multisource feedback from athletic trainers, coaches, etc. ● Oral or written self-reflection
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● American Academy of Pediatrics. Preparticipation Physical Evaluation (PPE). https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Pages/PPE.aspx. 2021. ● American Medical Society for Sports Medicine (AMSSM). AMSSM Publications and Position Statements. https://www.amssm.org/Publications.php. 2021.

Medical Knowledge 3: Musculoskeletal Issues in Sports Medicine	
Overall Intent: To synthesize and apply knowledge to the management of sports-related musculoskeletal injuries	
Milestones	Examples
<p>Level 1 <i>Demonstrates basic knowledge of musculoskeletal conditions, including prevention and treatment</i></p> <p><i>Demonstrates basic knowledge of return-to-play guidelines for musculoskeletal conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Describes pathophysiology and treatment options for overuse injuries such as tenosynovitis ● Identifies the biomechanics of injury in ankle sprains which informs return-to-play plan
<p>Level 2 <i>Demonstrates advanced knowledge of musculoskeletal conditions, including prevention and treatment</i></p> <p><i>Demonstrates advanced knowledge of return-to-play guidelines for musculoskeletal conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Describes pathophysiology and treatment options for overuse injuries such as tendinopathy ● Identifies the specific indications for return to play after ACL tear
<p>Level 3 <i>Synthesizes and applies knowledge of pathophysiology, evaluation, and diagnostic testing to management of common sports medicine-related musculoskeletal injuries</i></p> <p><i>Synthesizes and applies knowledge of return-to-play guidelines for common musculoskeletal conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Demonstrates advanced knowledge of how biomechanics of injury can be used to formulate a treatment plan and applies to exercise prescription ● Implements return-to-play protocols for overuse injury such as iliotibial friction band syndrome, jumper's knee, patellofemoral pain syndrome, etc.
<p>Level 4 <i>Synthesizes and applies knowledge of pathophysiology, evaluation, and diagnostic testing to management of complex sports medicine-related musculoskeletal injuries</i></p> <p><i>Synthesizes and applies knowledge of return-to-play guidelines for complex musculoskeletal conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Uses advanced knowledge of biomechanics of injury to treatment and prevention of ACL tears in female basketball athletes ● Works in conjunction with athletic trainers and coaches during rehabilitation and return-to-play of post-surgical athlete
<p>Level 5 <i>Publishes/presents peer-reviewed original scientific work to advance the medical knowledge related to pathophysiology,</i></p>	<ul style="list-style-type: none"> ● Publishes a peer-review article

<p><i>evaluation, and diagnostic testing to management of sports medicine-related musculoskeletal injuries</i></p> <p><i>Develops return-to-play protocols for musculoskeletal conditions in sports medicine</i></p>	<ul style="list-style-type: none"> ● Develops mild traumatic brain injury return-to-play protocol ● Develops stress fracture return-to-play protocol
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Clinical case discussion ● Direct observation ● Medical record (chart) audit ● Multisource feedback (athletic trainers, coaches) ● Oral or written self-reflection
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● McKeag DB, Moeller JL. <i>ACSM's Primary Care Sports Medicine</i>. 2nd ed. Lippincott Williams and Wilkins; 2007. ISBN:978-0781770286. ● Mellion MB, Walsh WM, Madden C, Putukian M, Shelton GL. <i>The Team Physician's Handbook</i>. 3rd ed. Hanley and Belfus; 2001. ISBN:978-1560534419.

Systems-Based Practice 1: Patient Safety and Quality Improvement (QI)	
Overall Intent: To engage in the analysis and management of patient safety events, including relevant communication with patients, families, and health care professionals; to conduct a QI project	
Milestones	Examples
<p>Level 1 <i>Demonstrates knowledge of common patient safety events</i></p> <p><i>Demonstrates knowledge of how to report patient safety events</i></p> <p><i>Demonstrates knowledge of basic quality improvement methodologies and metrics</i></p>	<ul style="list-style-type: none"> ● Lists patient misidentification or medication errors as common patient safety events ● Describes how to report errors in your environment (e.g., online reporting, hotlines) ● Describes the Plan, Do, Study, Act (PDSA) Cycle for QI
<p>Level 2 <i>Identifies system factors that lead to patient safety events</i></p> <p><i>Reports patient safety events through institutional reporting systems (simulated or actual)</i></p> <p><i>Describes local quality improvement initiatives (e.g., community vaccination rate, infection rate, smoking cessation)</i></p>	<ul style="list-style-type: none"> ● Identifies patient hand-offs from one provider to another as a high-risk time for medical errors ● Understands how mental and physical fatigue can result in medical errors and patient safety events ● Reports lag times for x-ray reporting causing patient safety concerns ● Summarizes local high school football practice contact limitations to decrease total head impact exposures and reduce concussion rates in practices
<p>Level 3 <i>Participates in analysis of patient safety events (simulated or actual)</i></p> <p><i>Participates in disclosure of patient safety events to patients and their families (simulated or actual)</i></p> <p><i>Participates in local quality improvement initiatives</i></p>	<ul style="list-style-type: none"> ● Prepares for morbidity and mortality presentations ● Communicates with patients/families about adverse events such as misdiagnosis, wrong site, or wrong medication administration, with the assistance of the attending ● Participates in project identifying root cause of delay in starting physical therapy to improve patient care
<p>Level 4 <i>Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)</i></p>	<ul style="list-style-type: none"> ● Collaborates with a team to conduct root cause analysis of a medical error and can effectively communicate with patients/families about those events

<p><i>Discloses patient safety events to patients and their families (simulated or actual)</i></p> <p><i>Demonstrates skills required to identify, develop, implement, and analyze a quality improvement project</i></p>	<ul style="list-style-type: none"> ● Recognizes that the wrong hip was imaged due to an incorrect order and immediately communicates this error to the patient ● Participates in the completion of a QI project to improve communications or outcomes within the practice, including assessing the problem, articulating a broad goal, developing a Specific, Measurable, Attainable, Relevant, Time-based (SMART) objective plan, and monitoring progress and challenges
<p>Level 5 <i>Actively engages teams and processes to modify systems to prevent patient safety events</i></p> <p><i>Role models or mentors others in the disclosure of patient safety events</i></p> <p><i>Designs, implements, and assesses quality improvement initiatives at the institutional or community level</i></p>	<ul style="list-style-type: none"> ● Assumes a leadership role at the departmental or institutional level for patient safety ● Develops protocols to reduce errors ● Conducts a simulation for disclosing patient safety events ● Initiates and completes a QI project to improve outcomes in collaboration with the county health department or hospital or clinic administration and shares results with stakeholders
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● E-module multiple choice tests ● Medical record (chart) audit ● Portfolio review ● Reflection ● Simulation
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● American Academy of Family Physicians. Basics of Quality Improvement. https://www.aafp.org/practice-management/improvement/basics.html. 2021. ● American Board of Family Medicine. Performance Improvement. https://www.theabfm.org/continue-certification/performance-improvement. 2021. ● Agency for Healthcare Research and Quality (AHRQ). Quality and Patient Safety. https://www.ahrq.gov/professionals/quality-patient-safety/index.html. 2021. ● AHRQ. TeamSTEPPS. https://www.ahrq.gov/teamstepps/index.html. 2021. ● Institute for Healthcare Improvement (IHI). http://www.ihl.org/Pages/default.aspx. 2021. ● The Joint Commission. https://www.jointcommission.org/. 2021. ● World Health Organization. Patient Safety. https://www.who.int/patientsafety/en/. 2021.

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; to adapt care to a specific patient population to ensure high-quality patient outcomes	
Milestones	Examples
<p>Level 1 <i>Demonstrates knowledge of care coordination</i></p> <p><i>Identifies key elements for safe and effective transitions of care and hand-offs</i></p> <p><i>Demonstrates knowledge of population and community health needs and inequities</i></p>	<ul style="list-style-type: none"> ● For a patient, identifies members of the health care team: athletic trainer, physical therapist, physician, home health nurse, and social workers ● Lists the essential components of a structured tool such as I-PASS (Illness severity, Patient summary, Action list, Situation awareness and contingency planning, Synthesis by receiver) for sign-out and care transition and hand-offs ● Identifies that patients in rural areas may have different needs than urban patients
<p>Level 2 <i>Coordinates care of patients in routine clinical situations, effectively using the roles of interprofessional team members</i></p> <p><i>Performs safe and effective transitions of care/hand-offs in routine clinical situations</i></p> <p><i>Identifies specific population and community health needs and inequities in the local population</i></p>	<ul style="list-style-type: none"> ● Coordinates care of patients between primary care physicians and the sports medicine physician; primary care sports medicine and the athletic trainer; the sports medicine team and coaching staff; and event medical staff and local EMS/hospitals ● Uses a structured tool such as I-PASS for transitions of care between sports medicine physicians in the training room ● Identifies that certain populations will not have access to EKG/echocardiogram screening ● Identifies alternative options for those who do not have insurance coverage or transportation to physical therapy
<p>Level 3 <i>Coordinates care of patients in complex clinical situations, effectively using the roles of interprofessional team members</i></p> <p><i>Performs safe and effective transitions of care/hand-offs in complex clinical situations</i></p> <p><i>Uses local resources effectively to meet the needs of a patient population and community</i></p>	<ul style="list-style-type: none"> ● Works with the social worker or athletic trainer to coordinate care ● Uses a structured tool such as I-PASS for transitions of care between the sports medicine team and the orthopedic team ● Refers patients to pharmaceutical discount cards to help them afford medications
<p>Level 4 <i>Role models effective coordination of patient-centered care among different disciplines and specialties</i></p>	<ul style="list-style-type: none"> ● Leads team members in approaching consultants to review cases/recommendations and arranges radiology rounds for the team

<p><i>Role models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems, including outpatient settings</i></p> <p><i>Participates in changing and adapting practice to provide for the needs of specific populations</i></p>	<ul style="list-style-type: none"> ● Prior to going on vacation, proactively informs the covering physician about a plan of care for patients with outstanding testing or follow-up needs ● Helps design a clinic process to prescribe controlled substances when needed
<p>Level 5 <i>Analyzes the process of care coordination and leads in the design and implementation of improvements</i></p> <p><i>Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes</i></p> <p><i>Leads innovations and advocates for populations and communities with health care inequities</i></p>	<ul style="list-style-type: none"> ● Leads a team to evaluate and improve medication management and distribution within the training room environment ● Develops a protocol to improve transitions to rehabilitation ● Leads development of telehealth diagnostic services for rural patients with musculoskeletal pain
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Medical record (chart) audit ● Multisource feedback ● Objective structured clinical examination ● Portfolio review ● Quality metrics and goals mined from electronic health records (EHR)
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● American Academy of Family Physicians. The EveryONE Project TOOLKIT. https://www.aafp.org/patient-care/social-determinants-of-health/everyone-project/eop-tools.html. 2021. ● Centers for Disease Control and Prevention. Population Health Training in Place Program (PH-TIPP). https://www.cdc.gov/pophealthtraining/whatis.html. 2021. ● IHI. IHI Open School Online Courses. http://www.ihl.org/education/IHIOpenSchool/courses/Pages/default.aspx. 2021. ● Phillips RL Jr, Pugno PA, Saultz JW, et al. Health is primary: Family medicine for America's health. <i>Ann Fam Med</i>. 2014;12(Suppl 1):S1-S12. https://www.annfammed.org/content/12/Suppl_1/S1.long. 2021.

- Skochelak SE, Hawkins RE, Lawson LE, Starr SR, Borkan JM, Gonzalo JD. *AMA Education Consortium: Health Systems Science*. 1st ed. Philadelphia, PA: Elsevier; 2016. ISBN:9780702070372.
- Spector ND, Starner AJ, Allen AD, Bale JF, Bismilla Z. I-PASS handoff curriculum: Core resident workshop. *MedEdPORTAL*. 2013;9.
https://www.mededportal.org/doi/10.15766/mep_2374-8265.9311. 2021.
- University of California, San Francisco. Center for Excellence in Primary Care.
<https://cepc.ucsf.edu/>. 2021.

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
<p>Level 1 <i>Identifies key components of the complex health care system</i></p> <p><i>Describes basic health payment systems (including government, private, public, uninsured care) and practice models</i></p> <p><i>Identifies basic knowledge domains for effective transition to independent practice</i></p>	<ul style="list-style-type: none"> ● Articulates the sports medicine physicians role in coordinating all the aspects of medical care for a mass participation event (EMS, medical tents, triage, etc.) ● Understands the impact of health plan coverage on prescription drugs for individual patients ● Identifies that notes must meet coding requirements
<p>Level 2 <i>Describes how components of a complex health care system are interrelated, and how this impacts patient care</i></p> <p><i>Delivers care with consideration of each patient's payment model</i></p> <p><i>Demonstrates use of information technology required for medical practice</i></p>	<ul style="list-style-type: none"> ● Explains that improving patient satisfaction impacts patient adherence and payment to the health system ● Takes into consideration patient's prescription drug coverage when choosing medications ● Recognizes that appropriate documentation can influence the severity of illness determination
<p>Level 3 <i>Discusses how individual practice affects the broader system</i></p> <p><i>Engages with patients in shared decision-making, informed by each patient's payment models</i></p> <p><i>Describes core administrative knowledge needed for transition to independent practice</i></p>	<ul style="list-style-type: none"> ● Ensures that patient has an appropriately scheduled follow-up appointment to monitor progress ● Discusses risks and benefits of pursuing advanced imaging taking into consideration indications and guidelines and patient deductibles and insurance benefits ● Understands malpractice coverage and limits as it applies to providing medical care outside of the clinic with sports teams or events ● Understands the core elements of employment contract negotiation
<p>Level 4 <i>Manages various components of the complex health care system to provide efficient and effective patient care and transitions of care</i></p>	<ul style="list-style-type: none"> ● Ensures proper documentation required for insurance authorization for physical therapy

<p><i>Advocates for patient care needs</i></p> <p><i>Analyzes individual practice patterns and prepares for professional requirements to enter independent practice</i></p>	<ul style="list-style-type: none"> • Works collaboratively to improve patient assistance resources for a patient with limited resources • Proactively compiles procedure log in anticipation of applying for hospital privileges
<p>Level 5 <i>Advocates for or leads systems change that enhances high-value, efficient, and effective patient care and transitions of care</i></p> <p><i>Participates in health policy advocacy activities</i></p>	<ul style="list-style-type: none"> • Works with community or professional organizations to advocate for policies such as personal protective equipment (PPE) and concussion which would improve outcomes of recreational, elementary school, high school, collegiate and elite athletes • Improves informed consent process for non-English-speaking patients requiring interpreter services
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> • Direct observation • Knowledge based content testing • Medical record (chart) audit • Multisource feedback • QI metrics/practice data
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> •
<p>Notes or Resources</p>	<ul style="list-style-type: none"> • AHRQ. Measuring the Quality of Physician Care. https://www.ahrq.gov/talkingquality/measures/setting/physician/challenges.html. 2021. • AHRQ. Major Physician Measurement Sets. https://www.ahrq.gov/talkingquality/measures/setting/physician/measurement-sets.html. 2021. • The Commonwealth Fund. Health System Data Center. http://datacenter.commonwealthfund.org/?_ga=2.110888517.1505146611.1495417431-1811932185.1495417431#ind=1/sc=1. 2021. • Dzau VJ, McClellan MB, McGinnis M, et al. Vital directions for health and health care: Positions from a National Academy of Medicine Initiative. <i>JAMA</i>. 2017;317(14):1461-1470. https://jamanetwork.com/journals/jama/fullarticle/2612013. 2021. • IHI. IHI Open School Online Courses. http://app.ihio.org/lmsspa/#/6cb1c614-884b-43ef-9abd-d90849f183d4. 2021. • The Kaiser Family Foundation. Topic: Health Reform. https://www.kff.org/health-reform/. 2021.

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 <i>Demonstrates how to access, categorize, and analyze clinical evidence</i>	<ul style="list-style-type: none"> ● Identifies evidence-based guidelines for osteoporosis screening at United States Preventive Services Task Force (USPSTF) website
Level 2 <i>Articulates clinical questions and elicits patient preferences and values to guide evidence-based care</i>	<ul style="list-style-type: none"> ● In a patient with a high-risk stress fracture, identifies and discusses potential evidence-based treatment options, and solicits patient perspective ● Explains why a screening test should not be performed
Level 3 <i>Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients</i>	<ul style="list-style-type: none"> ● Obtains, discusses, and applies evidence for the treatment of a patient with high-risk stress fracture and coexisting Relative Energy Deficiency in Sports (RED-S) ● Understands and appropriately uses clinical practice guidelines in making patient care decisions while eliciting patient preferences
Level 4 <i>Critically appraises and applies evidence, even in the face of uncertainty and conflicting evidence, to guide care tailored to the individual patient</i>	<ul style="list-style-type: none"> ● Accesses the primary literature to identify resistance training as opposed to pharmacological intervention for fragility fracture prevention
Level 5 <i>Coaches others to critically appraise and apply evidence for complex patients, and/or collaboratively develops evidence-based decision-making tools</i>	<ul style="list-style-type: none"> ● Leads clinical teaching on application of best practices in critical appraisal of athletic screening for cardiac health ● As part of a team, develops a protocol for concussion evaluation and management
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Medical record (chart) audit ● Oral or written examination ● Presentation evaluation ● Research portfolio
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● AHRQ. Guidelines and Measures. https://www.ahrq.gov/gam/index.html. 2021. ● Fortin AH, Dwamena FC, Frankel RM, Smith RC. <i>Smith's Patient Centered Interviewing: An Evidence-Based Method</i>. 4th ed. New York, NY: McGraw Hill; 2018. ISBN:978-0071760003. ● Guyatt G, Rennie D, Meade MO, Cook DJ. <i>Users' Guides to the Medical Literature</i>. 3rd ed. New York, NY: McGraw Hill; 2015. ISBN:978-0071590389. ● Institutional IRB guidelines ● Mayo Clinic. Mayo Clinic Shared Decision Making National Resource Center https://shareddecisions.mayoclinic.org/. 2021.

- US National Library of Medicine. PubMed Tutorial. <https://www.nlm.nih.gov/bsd/disted/pubmedtutorial/cover.html>. 2021.
- U.S. Preventive Services Task Force. <https://www.uspreventiveservicestaskforce.org/>. 2021.
- Various journal submission guidelines

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; reflects 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 the form of a personal learning plan	
Milestones	Examples
<p>Level 1 <i>Accepts responsibility for personal and professional development by establishing goals</i></p> <p><i>Identifies the factors that contribute to gap(s) between expectations and actual performance</i></p> <p><i>Acknowledges there are always opportunities for self-improvement</i></p>	<ul style="list-style-type: none"> ● Identifies personal goals and meets with advisor to discuss ● Is aware that inadequate sleep may adversely impact performance ● Attends and engages in didactic sessions and supplemental readings
<p>Level 2 <i>Demonstrates openness to performance data (feedback and other input) to inform goals</i></p> <p><i>Self-reflects and analyzes factors that contribute to gap(s) between expectations and actual performance</i></p> <p><i>With prompting, designs and implements a learning plan</i></p>	<ul style="list-style-type: none"> ● Increasingly able to identify performance gaps in terms of diagnostic skills and daily work using feedback and supplied performance metrics ● After working with an attending for a week, asks the attending about performance and opportunities for improvement ● Uses feedback to improve communication skills with peers/colleagues, staff members, and patients the following week
<p>Level 3 <i>Intermittently seeks additional performance data, with adaptability and humility</i></p> <p><i>Self-reflects, analyzes, and institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance</i></p> <p><i>Independently creates and implements a learning plan</i></p>	<ul style="list-style-type: none"> ● Takes input from peers/colleagues and supervisors to gain complex insight into personal strengths and areas to improve ● Self-reflects and is appreciative, not defensive, of others' input ● Seeks out and engages in activities targeted at practice areas requiring improvement
<p>Level 4 <i>Consistently seeks performance data, with adaptability and humility</i></p> <p><i>Challenges assumptions and considers alternatives in narrowing the gap(s) between expectations and actual performance</i></p>	<ul style="list-style-type: none"> ● Habitually makes a learning plan for each rotation, seeks out data on personal clinical performance ● Consistently identifies ongoing gaps and chooses areas for further development

<i>Uses performance data to measure the effectiveness of the learning plan and, when necessary, improves it</i>	<ul style="list-style-type: none"> ● Consistently seeks out and engages in evidence-based activities targeted at practice areas requiring improvement identified by external sources as well as self-reflection
<p>Level 5 Leads performance review processes</p> <p><i>Coaches others on reflective practice</i></p> <p><i>Facilitates the design and implementing learning plans for others</i></p>	<ul style="list-style-type: none"> ● Actively discusses learning goals with supervisors and colleagues; may encourage other learners on the team to consider how their behavior affects the rest of the team ● Serves as a role model for self-reflection and effective self-directed learning ● Demonstrates emotional intelligence and cognitive reframing skills
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Review of learning plan ● Self-reflection ● Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● Burke AE, Benson B, Englander R, Carraccio C, Hicks PJ. Domain of competence: Practice-based learning and improvement. <i>Acad Pediatr.</i> 2014;14(2 Suppl):S38-S54. https://www.academicpedsjnl.net/article/S1876-2859(13)00333-1/fulltext. 2021. ● Grant A, McKimm J, Murphy F. <i>Developing Reflective Practice: A Guide for Medical Students, Doctors and Teachers.</i> Hoboken, NJ: Wiley-Blackwell; 2017. ISBN:978-1-119-06474-9. ● Hojat M, Veloski JJ, Gonnella JS. Measurement and correlates of physicians' lifelong learning. <i>Acad Med.</i> 2009;84(8):1066-1074. https://journals.lww.com/academicmedicine/Fulltext/2009/08000/Measurement_and_Correlates_of_Physicians_Lifelong.21.aspx. 2021. ● Kraut A, Yarris LM, Sargeant J. Feedback: Cultivating a positive culture. <i>J Grad Med Educ.</i> 2015;7(2):262-264. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4512803/. 2021. ● 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. <i>Acad Med.</i> 2013;88(10):1558-1563. https://journals.lww.com/academicmedicine/Fulltext/2013/10000/Assessing_Residents_Written_Learning_Goals_and.39.aspx. 2021. ● RJug R, Jiang XS, Bean SM. Giving and receiving effective feedback: A review article and how-to guide. <i>Arch Pathol Lab Med.</i> 2019;143(2):244-250. https://meridian.allenpress.com/aplm/article/143/2/244/64770/Giving-and-Receiving-Effective-Feedback-A-Review. 2021.

- Winkel AF, Yingling S, Jones AA, Nicholson J. Reflection as a learning tool in graduate medical education: A systematic review. *JGME*. 2017;9(4):430-439. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5559236/>. 2021.

Professionalism 1: Professional Behavior and Ethical Principles	
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
<p>Level 1 <i>Describes professional behavior and potential triggers for personal lapses in professionalism</i></p> <p><i>Describes when and how to report professionalism lapses in oneself and others</i></p> <p><i>Demonstrates knowledge of ethical principles</i></p>	<ul style="list-style-type: none"> ● Understands that fatigue can cause a lapse in professionalism ● Understands being late to clinic or sporting events has an adverse effect on patient care and professional relationships ● Articulates how the principle of “do no harm” applies to a patient who may not need a joint/tendon injection even though the training opportunity exists ● Recommends most appropriate evidence-based therapeutic agents without considering monetary gain in their counseling
<p>Level 2 <i>Demonstrates professional behavior in routine situations</i></p> <p><i>Takes responsibility for personal lapses in professionalism</i></p> <p><i>Analyzes straightforward situations using ethical principles</i></p>	<ul style="list-style-type: none"> ● Respectfully approaches a coworker who is late to clinic or a sporting event about the importance of being on time ● Notifies appropriate supervisor when a breach of Health Insurance Portability and Accountability Act (HIPAA) occurred while communicating with athletic trainers ● Identifies and applies ethical principles involved in informed consent
<p>Level 3 <i>Demonstrates professional behavior in complex or stressful situations</i></p> <p><i>Recognizes the need to seek help in managing and resolving complex professionalism lapses</i></p> <p><i>Analyzes complex situations using ethical principles</i></p>	<ul style="list-style-type: none"> ● Appropriately responds to distraught athlete (and/or family) when making difficult return-to-play decisions ● Appropriately responds to athletic trainer/director and/or coach and/or sports administrator when opinions to remove an athlete from sport differ between parties ● Prior to posting about an event on social media, reviews policies related to posting of content and seeks guidance ● Offers treatment options for an athlete with a major injury, free of bias, while recognizing own limitations, and consistently honoring the patient’s choice
<p>Level 4 <i>Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in oneself and others</i></p>	<ul style="list-style-type: none"> ● Actively considers the perspectives of others ● Models respect for patients and promotes the same from colleagues, when a patient has been waiting an excessively long time to be seen

<p><i>Recognizes and uses appropriate resources for managing and resolving dilemmas as needed</i></p>	<ul style="list-style-type: none"> ● Prior to accepting a gift from a patient, reviews hospital policies and responds per the appropriate guidelines
<p><i>Recognizes and uses appropriate resources for managing and resolving ethical issues as needed</i></p>	<ul style="list-style-type: none"> ● Recognizes and uses ethics consults, literature, risk management, and/or legal counsel in order to resolve ethical dilemmas
<p>Level 5 Mentors others in professional behavior</p> <p><i>Identifies and seeks to address system-level factors that induce or exacerbate professionalism lapses or impede their resolution</i></p> <p><i>Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution</i></p>	<ul style="list-style-type: none"> ● Coaches others when their behavior fails to meet professional expectations and creates a performance improvement plan to prevent recurrence ● Engages stakeholders to address excessive wait times in the sports medicine clinic to decrease patient and provider frustrations that lead to unprofessional behavior ● Recognizes that study staff members should obtain informed consent for a research study without the patient’s physician present to avoid coercion and implements a new policy
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback ● Oral or written self-reflection (e.g., of a personal or observed lapse, ethical dilemma, or systems-level factors) ● Simulation
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● American Board of Internal Medicine (ABIM) Foundation, American College of Physicians-American Society of Internal Medicine (ACP-ASIM) Foundation, European Federation of Internal Medicine. Medical professionalism in the new millennium: A physician charter. <i>Annals of Internal Medicine</i>. 2002;136(3):243. https://www.acpjournals.org/doi/10.7326/0003-4819-136-3-200202050-00012?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed. 2021. ● American Medical Association. Ethics. https://www.ama-assn.org/delivering-care/ama-code-medical-ethics. 2021. ● American Osteopathic Association. Physician Wellness. https://osteopathic.org/life-career/your-health-wellness/. 2021. ● Byyny RL, Papadakis MA, Paauw DS, Pfiel S, Alpha Omega Alpha. <i>Medical Professionalism Best Practices</i>. Menlo Park, CA: Alpha Omega Alpha Honor Medical

	<p>Society; 2017. https://alphaomegalpha.org/pdfs/2015MedicalProfessionalism.pdf. 2019. 2021.</p> <ul style="list-style-type: none">• Jefferson University. Jefferson Scale of Empathy. https://www.jefferson.edu/university/skmc/research/research-medical-education/jefferson-scale-of-empathy.html. 2021.• Levinson W, Ginsburg S, Hafferty FW, Lucey CR. <i>Understanding Medical Professionalism</i>. 1st ed. New York, NY: McGraw-Hill Education; 2014. ISBN:978-0071807432.• Local resources such as Resident Handbook and Medical Error reporting policies• Mueller PS. Teaching and assessing professionalism in medical learners and practicing physicians. <i>Rambam Maimonides Med J</i>. 2015;6(2):e0011. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4422450/. 2021.
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Professionalism 2: Accountability/Conscientiousness	
Overall Intent: To take responsibility for one’s own actions and the impact of these on patients and other members of the health care team	
Milestones	Examples
<p>Level 1 <i>Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations</i></p> <p><i>Responds promptly to requests or reminders to complete tasks and responsibilities</i></p>	<ul style="list-style-type: none"> ● Responds promptly to reminders from program administrator to complete work hour logs ● Timely attendance at conferences ● Completes evaluations in a timely fashion
<p>Level 2 <i>Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations</i></p> <p><i>Recognizes situations that may impact one’s own ability to complete tasks and responsibilities in a timely manner</i></p>	<ul style="list-style-type: none"> ● Notifies attending of multiple competing demands, appropriately triages tasks, and asks for assistance from other fellows or faculty members as needed ● Before going out of town, completes tasks in anticipation of lack of computer access while traveling
<p>Level 3 <i>Takes responsibility for inability to complete tasks and duties, identifies potential contributing factors, and describes strategies for ensuring timely task completion in the future</i></p> <p><i>Proactively implements strategies to ensure that the needs of patients are met</i></p>	<ul style="list-style-type: none"> ● Completes administrative tasks, documents safety modules, procedure review, and licensing requirements by specified due date ● In preparation for being out of the office, arranges coverage for assigned clinical tasks and ensures appropriate continuity of care
<p>Level 4 <i>Recognizes and addresses situations that may impact others’ ability to complete tasks and responsibilities in a timely manner</i></p> <p><i>Proactively implements strategies to ensure that the needs of teams and systems are met</i></p>	<ul style="list-style-type: none"> ● Takes responsibility for inadvertently omitting key patient information during transition of care and professionally discusses with the patient, family members, and interprofessional team as applicable ● When starting in a new clinic provides nurses and therapists with appropriate contact information should any issues arise
<p>Level 5 <i>Takes ownership of system outcomes</i></p>	<ul style="list-style-type: none"> ● Sets up a meeting with the athletic trainer/director to streamline transition of care and leads team to find solutions to the problem
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Compliance with deadlines and timelines ● Direct observation ● Fellow learning portfolio ● Multisource feedback ● Self-evaluations and reflective tools

	<ul style="list-style-type: none">• Simulation
Curriculum Mapping	<ul style="list-style-type: none">•
Notes or Resources	<ul style="list-style-type: none">• Code of conduct from fellow/resident institutional manual• Expectations of fellowship program regarding accountability and professionalism

Professionalism 3: Self-Awareness and Help-Seeking	
Overall Intent: To examine fellow insight and ability to monitor and address personal well-being and professional growth	
Milestones	Examples
<p>Level 1 <i>With assistance, recognizes the status of personal and professional well-being</i></p> <p><i>With assistance, recognizes limits in the knowledge/skills of oneself</i></p>	<ul style="list-style-type: none"> ● Acknowledges one’s own fatigue when pointed out by a colleague ● Recognizes that asking for help is a sign of strength, not a sign of weakness ● Accepts and exhibits positive responses to constructive feedback ● Receptive to attending physician guidance prior to seeing a patient
<p>Level 2 <i>Independently recognizes status of personal and professional well-being</i></p> <p><i>Independently recognizes limits in the knowledge/skills of oneself and the team and demonstrates appropriate help-seeking behaviors</i></p>	<ul style="list-style-type: none"> ● Identifies times when critical thinking is impaired due to fatigue ● Recognizes own symptoms of depression ● Actively seeks guidance when unsure about a clinical situation ● Schedules a review session with an attending when there are challenges understanding the management of ACL tear
<p>Level 3 <i>With guidance, proposes a plan to optimize personal and professional well-being</i></p> <p><i>With guidance, proposes a plan to remediate or improve limits in the knowledge/skills of oneself or the team</i></p>	<ul style="list-style-type: none"> ● After meeting with an advisor over concerns about increased stress in fellowship, develops a schedule for daily exercise ● Is receptive to faculty member suggestions to seek outside evaluation and/or treatment for possible learning disability ● Coordinates with advisor to schedule blocked times in clinic for lactation ● Seeks assistance to develop a learning plan for an identified gap in prioritizing treatment needs of patients with multiple comorbid conditions
<p>Level 4 <i>Independently develops a plan to optimize personal and professional well-being</i></p> <p><i>Independently develops a plan to remediate or improve limits in the knowledge/skills of oneself or the team</i></p>	<ul style="list-style-type: none"> ● After becoming a parent, adjusts time management to allow for completion of clinical work while attending to family needs ● Initiates contact with a financial planner to optimize loan repayment strategies ● After a missed diagnosis of femoral neck stress fracture, develops a workshop to review best practice for the management of this condition at noon conference
<p>Level 5 <i>Addresses system barriers to maintaining personal and professional well-being</i></p>	<ul style="list-style-type: none"> ● Works as part of a system committee to develop and administer wellness survey

<p><i>Mentors others to enhance knowledge/skills of oneself or the team</i></p>	<ul style="list-style-type: none"> ● Leads an Education Committee to develop longitudinal workshops
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Group interview or discussions for team activities ● Individual interview ● Multisource feedback ● Online training modules ● Participation in well-being programs ● Personal learning plan ● Reflection ● Self-SWOT ● Self-assessment
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● This subcompetency is not intended to evaluate a fellow’s well-being, but to ensure each fellow has the fundamental knowledge of factors that impact well-being, the mechanisms 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. 2021. ● Case Network. CoreWellness Online. http://casenetwork.com/markets/corewellness/. 2021. ● Hicks PJ, Schumacher D, Guralnick S, Carraccio C, Burke AE. Domain of competence: Personal and professional development. <i>Acad Pediatr</i>. 2014;14(2 Suppl):S80-97. https://www.academicpedsjnl.net/article/S1876-2859(13)00332-X/fulltext. 2021. ● Local resources, including Employee Assistance ● Pipas CF. <i>A Doctor’s Dozen: 12 Strategies for Personal Health and a Culture of Wellness</i>. Hanover, NH: Dartmouth College Press; 2018. ISBN:978-1512602999.

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication	
Overall Intent: To deliberately use language and behaviors to form constructive relationships with patients, identify communication barriers including self-reflection on personal biases, and minimize them in the doctor-patient relationships; organize and lead communication around shared decision making	
Milestones	Examples
<p>Level 1 <i>Uses language and non-verbal behavior to demonstrate respect and establish rapport while communicating one's own role within the health care system</i></p> <p><i>Recognizes easily identified barriers to effective communication (e.g., language, disability)</i></p> <p><i>Identifies the need to individualize communication strategies</i></p>	<ul style="list-style-type: none"> ● Introduces self and faculty members, identifies patient and others in the room, and engages all parties in health care discussion ● Identifies need for trained interpreter with non-English-speaking patients ● Uses age-appropriate language when discussing treatment options
<p>Level 2 <i>Establishes a therapeutic relationship in straightforward encounters using active listening and clear language</i></p> <p><i>Identifies complex barriers to effective communication (e.g., health literacy, cultural differences)</i></p> <p><i>Organizes and initiates communication, sets the agenda, clarifies expectations, and verifies understanding</i></p>	<ul style="list-style-type: none"> ● Avoids medical jargon and restates patient perspective when discussing medication management ● Recognizes the need for handouts with diagrams and pictures to communicate information to a patient who is unable to read ● Prioritizes chronic back pain as the primary concern for a new patient with multiple complaints at the beginning of the appointment
<p>Level 3 <i>Establishes a therapeutic relationship in challenging patient encounters</i></p> <p><i>When prompted, reflects on personal biases while attempting to minimize communication barriers</i></p> <p><i>Professionally and compassionately delivers medical information, managing the patient's/patient's family's values, goals, preferences, uncertainty, and conflict</i></p>	<ul style="list-style-type: none"> ● Acknowledges patient's request for an MRI for new onset back pain without red flags and arranges timely follow-up visit to align diagnostic plan with goals of care ● In a discussion with the faculty member, acknowledges discomfort in caring for an obese patient with knee osteoarthritis who is unable to lose weight ● Conducts a family meeting to determine a plan for retirement from contact sports due to multiple concussions

<p>Level 4 <i>Maintains therapeutic relationships, with attention to the patient's/patient's family's concerns and context, regardless of complexity</i></p> <p><i>Independently recognizes personal biases while attempting to proactively minimize communication barriers</i></p> <p><i>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</i></p>	<ul style="list-style-type: none"> ● Continues to engage with training staff and team members while prioritizing athlete's health and personal goals with respect to the athlete's sport ● Independently reflects on personal bias related to obesity in a patient with knee osteoarthritis and solicits input from faculty members about mitigation of communication barriers when counseling patient about weight loss ● Uses patient and family input to engage mental health career and develop a plan for patient with depression after not being able to return to sport
<p>Level 5 <i>Mentors others in situational awareness and critical self-reflection to consistently develop positive therapeutic relationships</i></p> <p><i>Leads or develops initiatives to identify and address bias</i></p> <p><i>Role models shared decision making in patient/patient's family communication, including situations with a high degree of uncertainty/conflict</i></p>	<ul style="list-style-type: none"> ● Leads a discussion group on personal experience of moral distress ● Develops a residency curriculum on social justice that addresses unconscious bias ● Serves on a hospital bioethics committee
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback ● Self-assessment including self-reflection exercises ● Standardized patients or structured case discussions
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● Laidlaw A, Hart J. Communication skills: An essential component of medical curricula. Part I: Assessment of clinical communication: AMEE Guide No. 51. <i>Med Teach</i>. 2011;33(1):6-8. https://www.tandfonline.com/doi/abs/10.3109/0142159X.2011.531170?journalCode=imte20. 2021. ● Makoul G. Essential elements of communication in medical encounters: the Kalamazoo consensus statement. <i>Acad Med</i>. 2001;76(4):390-393. https://journals.lww.com/academicmedicine/Fulltext/2001/04000/Essential_Elements_of_Communication_in_Medical.21.aspx. 2021.

- 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>. 2021.
- 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://www.ncbi.nlm.nih.gov/pmc/articles/PMC2631014/>. 2021.

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 <i>Respectfully requests/receives a request for consultation</i> <i>Uses language that demonstrates one values all members of the health care team</i>	<ul style="list-style-type: none"> ● Contacts orthopedic surgery and identifies the care team role and reason for consultation ● Correctly identifies individuals in the training staff members by name and role; acknowledges team approach to care for athletes
Level 2 <i>Clearly and concisely requests/responds to a request for consultation</i> <i>Communicates information effectively with all health care team members</i>	<ul style="list-style-type: none"> ● Communicates physical exam and work-up to orthopedic surgery team when requesting consultation ● Identifies reason for athletic trainer follow-up for concussion and parameters to contact the physician
Level 3 <i>Checks understanding of consult recommendations (received or provided)</i> <i>Communicates concerns and provides feedback to peers and learners</i>	<ul style="list-style-type: none"> ● Uses closed-loop communication when receiving orthopedic surgery recommendation ● Communicates concerns with a student and develops an action plan for improvement
Level 4 <i>Coordinates recommendations from different members of the health care team to optimize patient care, resolving conflict when needed</i> <i>Communicates feedback and constructive criticism to supervising individuals</i>	<ul style="list-style-type: none"> ● Develops a single plan of care for a patient with hip osteoarthritis based on recommendations from physical therapy, orthopedic surgery, and pain management ● Respectfully raises concerns about a disruptive faculty member
Level 5 <i>Role models flexible communication strategies that demonstrate one values input from all health care team members, resolving conflict when needed</i> <i>Facilitates regular health care team-based feedback in complex situations</i>	<ul style="list-style-type: none"> ● Effectively leads a training staff meeting to discuss controversial new EHR templates ● Convenes and facilitates a multidisciplinary debriefing session after a failed on-field resuscitation effort
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Medical record (chart) audit ● Multisource feedback ● Simulation

Curriculum Mapping	•
Notes or Resources	<ul style="list-style-type: none"> • Braddock CH, Edwards KA, Hasenberg NM, Laidley TL, Levinson W. Informed decision making in outpatient practice: Time to get back to basics. <i>JAMA</i>. 1999;282(24):2313-2320. https://jamanetwork.com/journals/jama/fullarticle/192233. 2021. • Dehon E, Simpson K, Fowler D, Jones A. Development of the faculty 360. <i>MedEdPORTAL</i>. 2015;11:10174. https://www.mededportal.org/doi/10.15766/mep_2374-8265.10174. 2021. • Fay D, Mazzone M, Douglas L, Ambuel B. A validated, behavior-based evaluation instrument for family medicine residents. <i>MedEdPORTAL</i>. 2007;3:622. https://www.mededportal.org/doi/10.15766/mep_2374-8265.622. 2021. • François, J. Tool to assess the quality of consultation and referral request letters in family medicine. <i>Can Fam Physician</i>. 2011;57(5):574–575. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3093595/. 2021. • Green M, Parrott T, Cook G. Improving your communication skills. <i>BMJ</i>. 2012;344:e357 https://www.bmj.com/content/344/bmj.e357. 2021. • Henry SG, Holmboe ES, Frankel RM. Evidence-based competencies for improving communication skills in graduate medical education: A review with suggestions for implementation. <i>Med Teach</i>. 2013;35(5):395-403. https://www.tandfonline.com/doi/abs/10.3109/0142159X.2013.769677?journalCode=imte20. 2021. • Lane JL, Gottlieb RP. Structured clinical observations: a method to teach clinical skills with limited time and financial resources. <i>Pediatrics</i>. 2000;105(4):973-977. https://pdfs.semanticscholar.org/8a78/600986dc5cffcab89146df67fe81aebeaecc.pdf. 2021. • Roth CG, Eldin KW, Padmanabhan V, Freidman EM. Twelve tips for the introduction of emotional intelligence in medical education. <i>Med Teach</i>. 2018;21:1-4. https://www.tandfonline.com/doi/abs/10.1080/0142159X.2018.1481499?journalCode=imte20. 2021.

Interpersonal and Communication Skills 3: Communication within Health Care Systems Overall Intent: To effectively and responsibly use and improve EHR and health systems communication	
Milestones	Examples
<p>Level 1 <i>Accurately and timely records information in the patient record</i></p> <p><i>Learns institutional policy and safeguards patient personal health information</i></p> <p><i>Communicates through appropriate channels as required by institutional policy</i></p>	<ul style="list-style-type: none"> ● Completes notes promptly with accurate data ● Adheres to HIPAA requirements by not discussing patients in common areas ● Uses only secure text messaging and email systems when including patient data
<p>Level 2 <i>Demonstrates organized diagnostic and therapeutic reasoning through notes in the patient record</i></p> <p><i>Appropriately uses documentation shortcuts; records required data in formats and timeframes specified by institutional policy</i></p> <p><i>Respectfully communicates concerns about the system</i></p>	<ul style="list-style-type: none"> ● After seeing a patient with low-back pain, the fellow documents rationale for not ordering an MRI ● Avoids inappropriate copying and pasting of notes ● Discusses the breakdown of communication between clinical staff members with appropriate individuals
<p>Level 3 <i>Uses patient record to communicate updated and concise information in an organized format</i></p> <p><i>Appropriately selects direct and indirect forms of communication based on context and policy</i></p> <p><i>Uses appropriate channels to offer clear and constructive suggestions for system improvement while acknowledging system limitations</i></p>	<ul style="list-style-type: none"> ● Documents changes in patient status in the health record outside of the daily note ● Calls the patient to communicate a concerning test result, then notifies the clinical staff members to schedule an appointment ● Communicates specific opportunities for EHR improvement to appropriate advisory committee
<p>Level 4 <i>Demonstrates efficiency in documenting patient encounters and updating record</i></p>	<ul style="list-style-type: none"> ● Completes notes and updates charts for visits on day of appointment at a practice-level volume

<p><i>Manages the volume and extent of written and verbal communication required for independent practice</i></p> <p><i>Initiates difficult conversations with appropriate stakeholders to improve the system</i></p>	<ul style="list-style-type: none"> ● Manages practice-level volume of EHR tasks in a time frame consistent with policy ● Addresses members of the team in an objective but compassionate, constructive, non-threatening manner
<p>Level 5 <i>Optimizes and improves functionality of the electronic health record within the health system</i></p> <p><i>Guides departmental or institutional communication around policies and procedures</i></p> <p><i>Facilitates dialogue regarding systems issues among larger community stakeholders (residency, institution, health care system, field)</i></p>	<ul style="list-style-type: none"> ● Serves as a resource for templates for EHR ● Participates in a task force established by the quality committee to develop a plan to improve patient safety ● Participates in training room and health system committees to develop EHR tools to communicate across or between systems
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Medical record (chart) audit ● Multisource feedback
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● 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. <i>Teach Learn Med.</i> 2017;29(4):420-432. https://www.tandfonline.com/doi/abs/10.1080/10401334.2017.1303385?journalCode=htmlm20. 2021. ● Haig KM, Sutton S, Whittington J. SBAR: A shared mental model for improving communication between clinicians. <i>Jt Comm J Qual Patient Saf.</i> 2006;32(3):167-175. https://www.ncbi.nlm.nih.gov/pubmed/16617948. 2021. ● Starmer AJ, Spector ND, Srivastava R, et al. I-PASS, a mnemonic to standardize verbal handoffs. <i>Pediatrics.</i> 2012;129(2):201-204. https://www.ipassinstitute.com/hubfs/I-PASS-mnemonic.pdf. 2021.

Sports Medicine Supplemental Guide

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: Medical and Musculoskeletal	PC1: History and Physical Examination: Medical and Musculoskeletal
PC2: Medical Management: Differential Diagnosis, Diagnostic Testing, Interpretation of Data and Treatment Planning	PC2: Medical Management: Differential Diagnosis and Treatment Planning PC3: Musculoskeletal Conditions
PC3: Team Coverage and Athletic Care: Coverage of Sporting Events, Pre-participation Physical Examinations, Training Room Coverage	PC4: Training Room and Mass Participation Events Medical Coverage PC6: Procedures
No match	PC5: Diagnostic and Therapeutic Musculoskeletal Ultrasound
MK1: Science of Sports Medicine	MK1: Science of Sports Medicine
MK2: Medical Issues in Sports Medicine	MK2: Medical Issues in Sports Medicine
MK3: Musculoskeletal Issues in Sports Medicine	MK3: Musculoskeletal Issues in Sports Medicine
SBP1: Working with Inter-professional Teams to Enhance Athletic Care and Safety	SBP1: Patient Safety and Quality Improvement
SBP2: Systems Thinking	SBP3: Physician Role in the Health Care Systems
No match	SBP2: System Navigation for Patient-Centered Care
PBLI1: Self-Directed Learning	PBLI2: Reflective Practice and Commitment to Personal Growth
PBLI2: Locate, Appraise, and Assimilate Evidence from Scientific Studies Related to the Patient's Health Problems	PBLI1: Evidence-Based and Informed Practice
PROF1: Compassion, Integrity, Accountability, and Respect for Self and Others	PROF1: Professional Behavior and Ethical Principles PROF2: Accountability/Conscientiousness
PROF2: Knowledge about and Adherence to the Ethical Principles Relevant to the Practice of Sports Medicine	PROF1: Professional Behavior and Ethical Principles
No match	PROF3: Self-Awareness and Help-Seeking
ICS1: Relationship Development, Teamwork, and Managing Conflict	ICS1: Patient- and Family-Centered Communication. ICS2: Interprofessional and Team Communication
ICS2: Information Sharing, Gathering, and Technology	ICS1: Patient- and Family-Centered Communication. ICS2: Interprofessional and Team Communication 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/>