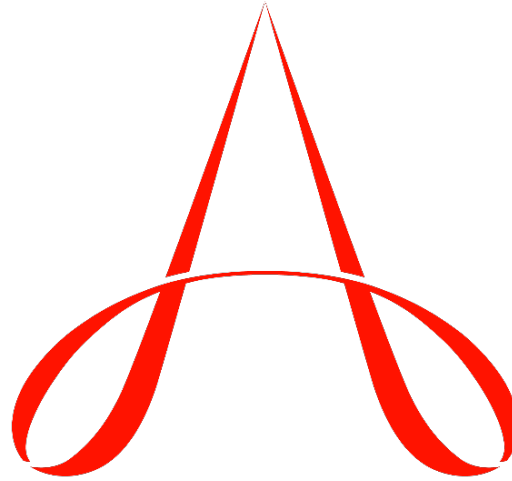




Supplemental Guide: Pediatric Rheumatology



ACGME

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TABLE OF CONTENTS

INTRODUCTION	3
PATIENT CARE	4
Gathers an Essential and Accurate Pediatric History	4
Physical Examination	7
Differential Diagnosis Development	9
Comprehensive Management Plan Development	11
Therapeutics, Including Immunomodulatory Agents	13
Procedures	15
Provides Consultative Care	17
MEDICAL KNOWLEDGE	19
Knowledge of Rheumatic Conditions	19
Basic Science of Rheumatic Conditions	20
Knowledge of Diagnostic Testing	22
SYSTEMS-BASED PRACTICE	24
Patient Safety	24
Quality Improvement	26
System Navigation for Patient-Centered Care – Coordination of Care	28
System Navigation for Patient-Centered Care – Transitions in Care	30
Population and Community Health	32
Physician Role in Health Care Systems	34
PRACTICE-BASED LEARNING AND IMPROVEMENT	36
Evidence-Based and Informed Practice	36
Reflective Practice and Commitment to Personal Growth	38
PROFESSIONALISM	40
Professional Behavior	40
Ethical Principles	43
Accountability/Conscientiousness	45
Well-Being	47
INTERPERSONAL AND COMMUNICATION SKILLS	49
Patient- and Family-Centered Communication	49
Interprofessional and Team Communication	52
Communication within Health Care Systems	54
MAPPING OF MILESTONES 1.0 TO 2.0	56
RESOURCES	59

Milestones Supplemental Guide

This document provides additional guidance and examples for the Pediatric Rheumatology 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: Gathers an Essential and Accurate Pediatric History Overall Intent: To gather an essential and accurate patient and/or caregiver history as it relates to a comprehensive evaluation of rheumatic conditions	
Milestones	Examples
Level 1 <i>Acquires a comprehensive and developmentally appropriate pediatric medical history</i> <i>Reviews available medical records</i>	• Acquires comprehensive medical history including developmentally appropriate assessments, age-appropriate activities of daily living (ADLs), and immunization history • Gathers a comprehensive social history including HEADSS (“home, education, activities/employment, drugs, suicidality, and sex”) assessment, social determinants of health, and other factors that may lead to inequities in access to care • Prioritizes both patient and caregiver history, encouraging patients to be engaged and/or advocating for their care • In a patient referred for knee pain, obtains a thorough history including all joint symptoms and review of systems • Purposefully asks the patient how the pain is impacting participation in sports • Reads available notes from the referring practitioner and any documentation completed by the patient pre-visit, confirming information with the patient and correcting discrepancies
Level 2 <i>Acquires a rheumatic history and a comprehensive pediatric medical history, including pertinent positives and negatives</i> <i>Identifies relevant findings in the medical record</i>	• Asks about reflux symptoms and exertional dyspnea in a patient referred for symptoms consistent with Raynaud’s phenomenon • Asks developmental questions that may change based on patient age; for example, in an oligoarticular presentation: 18-month-old who was walking, but has now reverted back to crawling because of stiffness or contracture, versus a teenager who requires a sexual history to assess for sexually transmitted infection (STI) • Asks about relevant associated symptoms of photosensitivity, scleral injection, visual blurring, etc. in a patient presenting with joint swelling • In a patient presenting with joint pain, asks questions to differentiate between mechanical and inflammatory causes • During consultation, extracts pertinent historical information from all primary and consultative notes, and reviews their accuracy with the patient
Level 3 <i>Integrates a tailored rheumatic history with historical subtleties, psychosocial and physical functioning</i>	• Questions the patient about psychosocial factors including mental health symptoms, stressors, and school social integration • Asks tailored questions about physical functioning, including grooming, stair use, falling, and/or arising from floor in a myositis patient versus questioning about gross and fine motor skills such as opening doors and milk jugs, buttoning, using zippers, etc. in a polyarticular juvenile idiopathic arthritis (JIA) patient

<i>Independently requests additional information to supplement available medical records</i>	• Tailors questioning of a myositis referral to include pertinent skin positive and negatives as well as assessment of proximal muscle strength and dietary habits • Discusses patient care with other pertinent care practitioners including primary care physician, occupational therapist/physical therapist, and psychotherapist, when necessary • Contacts the referral lab at an outside institution to request anti-neutrophil cytoplasmic antibodies (ANCA) test results that were pending at the time of consultation
Level 4 <i>Synthesizes the patient history with the complete medical record, supplemental information, and tailored assessment of disease activity</i>	• Acquires a comprehensive history from a patient with systemic lupus erythematosus (SLE) and depression that addresses potential disease-, pharmacologic-, and psychosocial-related causes and their effects on home, school, and/or life • Identifies and incorporates appropriate diagnostic and/or classification criteria as well as disease activity measures that are pertinent to the patient • Efficiently gathers a focused history in a timely manner from a patient with complex pain
Level 5 <i>Is identified as a role model in interpreting subtleties and recognizing ambiguities in the patient history</i>	• Is recommended for a teaching position in a medical student history-taking course • Is recommended for an evaluator position in a medical student objective structured clinical examination (OSCE) station assessing the ability to acquire a focused patient history • Aids a junior fellow in efficiently gathering a focused history in a timely manner from a patient with complex pain
Assessment Models or Tools	• Direct observation • Faculty member evaluations • Medical record (chart) audit • Multisource feedback • OSCE • Simulation
Curriculum Mapping	•
Notes or Resources	• American College of Rheumatology (ACR). "Patient History Form." https://www.rheumatology.org/Portals/0/Files/New%20Patient%20History%20Form.pdf. Accessed 2019. • ACR. "Patient History Update." https://www.rheumatology.org/Portals/0/Files/Patient%20History%20Update%20Form.pdf. Accessed 2019. • American College of Rheumatology Ad Hoc Committee on Clinical Guidelines. 1996. "Guidelines for the Initial Evaluation of the Adult Patient with Acute Musculoskeletal Symptoms." <i>Arthritis and Rheumatism</i> 39(1): 1–8. https://doi.org/10.1002/art.1780390102. • Pediatric Rheumatology International Trials Organization (PRINTO). "Joint Assessor Certificate." www.printo.it/about/joint-assessor-certificate. Accessed 2022.

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- Disease Activity Measures. "Clinical Outcome Measures in Pediatric Rheumatic Diseases in Pediatric Rheumatology.") In Petty, Ross E., Ronald M. Laxer, Carol B. Lindsley, Lucy Wedderburn, Robert Fuhlbrigge, Elizabeth D. Mellins. 2021. *Textbook of Pediatric Rheumatology*. 8th ed. Saunders Elsevier Publishing.
- pGALS (Pediatric Gait Arms Legs Spine) examination app for phone. <https://www.pmmonline.org/doctor/clinical-assessment/examination/pgals-paediatic-gait-arms-legs-spine/>.
- Starship Clinical Guidelines. "Adolescent Consultation and the HEeADSSS Assessment." <https://starship.org.nz/guidelines/adolescent-consultation/>. Accessed 2022
- Woo, Patricia R., Ronald M. Laxer, and David Sherry. 2007. *Pediatric Rheumatology in Clinical Practice*. Springer Press. ISBN-13 978-1846284205.

Patient Care 2: Physical Examination	
Overall Intent: To perform a relevant detailed physical exam pertinent to the patient presentation	
Milestones	Examples
Level 1 <i>Performs a basic age-appropriate physical examination</i>	• Performs an age- and developmentally appropriate exam in a cooperative and uncooperative patient
Level 2 <i>Performs a comprehensive physical examination, including elements specific to the rheumatic disease exam</i>	• Performs a complete skin exam in a scleroderma/morphea and/or juvenile dermatomyositis (JDM) patient • Identifies ankle edema and a heart murmur in a patient with lupus • Assesses fingernails and nail beds when appropriate • Establishes a relationship so the patient is relaxed and the physical exam can be readily performed
Level 3 <i>Performs a tailored physical examination, including advanced techniques of the rheumatic disease exam, when applicable</i>	• Performs nailfold capillaroscopy in diseases such as scleroderma, JDM, and/or SLE • Recognizes the need to examine nails for pitting as well as for psoriatic changes in a patient being evaluated for possible psoriatic arthritis • Recognizes the need to palpate peripheral pulses and listen for bruits in a patient being evaluated for possible Takayasu arteritis
Level 4 <i>Performs a tailored physical examination, including advanced techniques that elicit subtle findings of the rheumatic disease exam</i>	• Performs nailfold capillaroscopy with appropriate equipment and identifies abnormalities in a patient presenting with muscle weakness • Identifies a pericardial friction rub in a patient with lupus • Identifies neurologic findings like past pointing and change in serial sevens in a patient with concerns for neuropsychiatric lupus • Identifies diminished peripheral pulses and bruits in a patient being evaluated for possible Takayasu arteritis
Level 5 <i>Is identified as a role model for performing and interpreting a comprehensive rheumatologic physical examination</i>	• Is identified by the program director to lead a medical student musculoskeletal exam workshop
Assessment Models or Tools	• Direct observation • Faculty member evaluations • Medical record (chart) audit • OSCE • Simulation
Curriculum Mapping	•
Notes or Resources	• ACR. "Rheum2Learn: Musculoskeletal Exam Module." https://www.rheumatology.org/Learning-Center/Educational-Activities/Rheum2Learn/Musculoskeletal-Exam. Accessed 2022.

- Bickley, Lynn S. 2016. *Bates' Guide to Physical Examination and History Taking*. 12th ed. Wolters Kluwer.
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- Villaseñor-Ovies, Pablo, José Eduardo Navarro-Zarza, and Juan J. Canoso. 2020. "The Rheumatology Physical Examination: Making Clinical Anatomy Relevant." *Clinical Rheumatology* 39(3): 651–657. <https://doi.org/10.1007/s10067-019-04725-9>.

Patient Care 3: Differential Diagnosis Development	
Overall Intent: To develop prioritized differential diagnoses	
Milestones	Examples
Level 1 <i>With supervision, identifies the key features of the clinical presentation to form a differential diagnosis</i>	Identifies joint pain, swelling, and decreased range of motion as key features of an inflammatory arthritis, but needs help from the attending to list JIA, septic joint, and reactive arthritis on the differential
Level 2 <i>Independently formulates a broad differential diagnosis for typical disease presentations</i>	Recognizes autoimmune, infectious, post-infectious, and malignant causes of inflammatory arthritis and the typical pattern of symptoms seen in these conditions
Level 3 <i>Independently formulates a prioritized differential diagnosis for typical disease presentations</i>	- Recognizes that oligoarticular JIA is more likely than Lyme disease in a toddler girl who has never travelled to an endemic area and presents with chronic right knee arthritis - Recognizes that JIA enthesitis subtype is a more common diagnosis in teenagers with hip pain or heel pain than in young patients with symmetric polyarthritis
Level 4 <i>Independently formulates a prioritized differential diagnosis with consideration of typical and atypical disease presentations</i>	- Recognizes that patient-reported weakness could be the presenting symptom of a patient with bone pain due to chronic nonbacterial osteomyelitis or JIA rather than true weakness due to an inflammatory myopathy - Recognizes that thrombocytopenia in a patient with polyarthritis is an atypical presentation of JIA and requires a broad systemic differential which includes SLE, hemophagocytic lymphohistiocytosis (HLH), and malignancy - Recognizes recurrent erysipelas-like erythema and swelling of ankles without fever as a possible presentation of Familial Mediterranean Fever
Level 5 <i>Independently formulates a prioritized differential diagnosis with consideration of newly recognized and emerging conditions</i>	- Recognizes IgG4-related disease as a potential cause of parotitis in a patient without obvious features of Sjogren syndrome, sarcoidosis, or lymphoma - Recognizes that pulmonary hemorrhage in association with hypocomplementemia could be the presentation of COPA syndrome in addition to other rheumatologic conditions
Assessment Models or Tools	- Direct observation - Case-based discussions - Faculty member evaluations - Medical record (chart) audit - OSCE - Simulation
Curriculum Mapping	
Notes or Resources	- ACR. "National Guidelines." https://www.rheumatology.org/. Accessed 2019. - Gillispie, Miriah, Eyal Muscal, Jennifer Rama, Carla Falco, and Amanda Brown. 2018. "Pediatric Rheumatology Curriculum for the Pediatrics Resident: A Case-Based Approach

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Accessed 2020

- Petty, Ross E., Ronald M. Laxer, Carol B. Lindsley, Lucy Wedderburn, Robert Fuhlbrigge, Elizabeth D. Mellins. 2021. *Textbook of Pediatric Rheumatology*. 8th ed. Saunders Elsevier Publishing.

Patient Care 4: Comprehensive Management Plan Development Overall Intent: To develop and implement comprehensive management plans for patients with rheumatic conditions	
Milestones	Examples
Level 1 <i>With supervision, develops a management plan</i>	• After discussion with preceptor, recommends sending a complete lupus work-up in a teenage girl with malar rash, a family history of lupus, and a high titer anti-nuclear antibody (ANA) • After discussion with a preceptor, develops an evaluation plan to investigate etiologies for anterior uveitis as well as lab work needed to start immunosuppression
Level 2 <i>Independently recognizes disease acuity and develops a management plan</i>	• Recognizes that a patient with lupus and positive antiphospholipid antibodies with new onset chest pain and dyspnea needs urgent evaluation • Recommends that the primary team send a stat hemoglobin level for a patient with granulomatosis with polyangiitis who has worsening cough and a new oxygen requirement
Level 3 <i>Independently develops a prioritized management plan, incorporating disease activity measures, when applicable</i>	• Considers a rising Systemic Lupus Erythematosus Disease Activity Index (SLEDAI) score in a patient with lupus with worsening fatigue as an indication to escalate treatment • Prioritizes renal screening over pulmonary function testing in a patient with pedal edema in a new diagnosis lupus
Level 4 <i>Independently develops and implements a prioritized management plan with consideration of acuity and complexity of disease</i>	• Prioritizes obtaining a swallow study in a patient with newly diagnosed juvenile dermatomyositis who has been coughing with meals • Attempts to taper steroids faster in a patient with coexisting type 2 diabetes
Level 5 <i>Independently formulates and implements a prioritized management plan for patients with newly recognized and emerging conditions</i>	• Initiates targeted treatment for a newly discovered autoinflammatory syndrome, after review of the literature • Considers bone marrow transplant for a patient with systemic JIA with refractory macrophage activation syndrome requiring multiple hospitalizations • Obtains cytokine panel for a patient with autoinflammatory disease refractory to other treatments
Assessment Models or Tools	• Direct observation • Case-based discussion • Faculty member evaluations • Medical record (chart) audit • OSCE • Simulation
Curriculum Mapping	•
Notes or Resources	• ACR. "Clinical Practice Guidelines." https://www.rheumatology.org/Practice-Quality/Clinical-Support/Clinical-Practice-Guidelines. Accessed 2021.

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| | <ul style="list-style-type: none">• European Alliance of Associations for Rheumatology (EULAR). “EULAR Recommendations: Recommendations for Management.” https://www.eular.org/recommendations_management.cfm. Accessed 2022.• Petty, Ross E., Ronald M. Laxer, Carol B. Lindsley, Lucy Wedderburn, Robert Fuhlbrigge, Elizabeth D. Mellins. 2021. <i>Textbook of Pediatric Rheumatology</i>. 8th ed. Saunders Elsevier Publishing. |
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Patient Care 5: Therapeutics, Including Immunomodulatory Agents Overall Intent: To develop and implement therapeutic plans, taking into consideration a patient's comorbid conditions and risk for adverse events	
Milestones	Examples
Level 1 <i>Identifies indications and common adverse effects of medications used to treat patients with rheumatic conditions, with supervision</i>	• Identifies that methotrexate can cause liver toxicity • Identifies that long-term use of hydroxychloroquine can cause retinopathy • Identifies methotrexate as a common initial therapy for polyarticular JIA
Level 2 <i>Prescribes and monitors medications used in patients with common rheumatic conditions</i> <i>Evaluates for factors that may alter therapeutic recommendations, such as comorbidities, immunization status, and sexual history</i>	• Checks for liver enzyme abnormalities prior to starting methotrexate and monitors over time • Recommends a screening eye exam for patient taking hydroxychloroquine • Inquires about contraceptive use in a patient prior to starting and while taking methotrexate • Obtains vaccine records prior to starting an immunosuppressive medication
Level 3 <i>Prescribes, monitors, and assesses the response to pharmacotherapy used in the management of patients with common rheumatic conditions</i> <i>Individualizes initial treatment plans based on patient factors and modifies treatment plans over time as necessary</i>	• Starts a biologic medication in a JIA patient whose arthritis is not controlled on maximal methotrexate • Counsels a sexually active patient of childbearing potential who is not using contraception about the risk profiles of various treatment options and offers safer alternatives for a high-risk patient
Level 4 <i>Integrates best available evidence to prescribe, monitor, and assess the response to pharmacotherapy used in the management of patients with common and complex rheumatic conditions</i> <i>Identifies subtle indications for modification of a treatment plan, including patient factors, response, and tolerance</i>	• In a patient who failed mycophenolate mofetil for induction in Class IV lupus nephritis, based on literature review, discusses with patient and caregivers the recommendation to use cyclophosphamide, and addresses risks for infection, cytopenia, bladder toxicity, malignancy, and infertility • For a patient with well-controlled lupus nephritis on mycophenolate mofetil who is experiencing chronic diarrhea, changes treatment to the equivalent dose of mycophenolic acid
Level 5 <i>Incorporates emerging therapeutics and/or novel uses for existing therapeutics into a care plan for patients with complex rheumatic conditions</i>	• Starts a Janus kinase (JAK) inhibitor in a patient with refractory dermatomyositis
Assessment Models or Tools	• Direct observation at bedside

Supplemental Guide for Pediatric Rheumatology

	• OSCE • In-training exam • Medical record (chart) audit • Multisource feedback • Case-based discussion • Simulation
Curriculum Mapping	•
Notes or Resources	• ACR. "Medication Guidelines." https://www.rheumatology.org/Learning-Center/Medication-Guides. Accessed 2022. • CARRA. "Consensus Treatment Plans." https://carragroup.org/research/consensus-treatment-plans/. Accessed 2022. • EHR-specific medication guides • Medication specific package inserts/websites • Petty, Ross E., Ronald M. Laxer, Carol B. Lindsley, Lucy Wedderburn, Robert Fuhlbrigge, Elizabeth D. Mellins. 2021. <i>Textbook of Pediatric Rheumatology</i>. 8th ed. Saunders Elsevier Publishing.

Patient Care 6: Procedures	
Overall Intent: To recognize the indications, obtain consent, and perform procedures for patients with rheumatic conditions	
Milestones	Examples
Level 1 <i>Identifies indications for joint aspirations and injections, and discusses principles of informed consent</i>	● In a patient with acute febrile monoarthritis, recognizes the importance of joint aspiration for synovial fluid analysis and understands the risks and benefits of the procedure ● Under supervision, explains the risks and benefits of the procedure and obtains consent/assent from the patient and caregiver
Level 2 <i>Performs common joint injections and aspirations with direct supervision, including independently discussing risks and benefits, obtaining informed consent, identifying anatomic landmarks, and demonstrating aseptic technique</i>	● After independently obtaining informed consent, identifies anatomic landmarks and performs a knee aspiration and injection under direct supervision
Level 3 <i>Performs common joint aspirations and injections with indirect supervision</i>	● With minimal faculty guidance, performs a tibiotalar joint steroid injection in a patient with a longstanding ankle effusion
Level 4 <i>Independently performs common joint aspirations and injections</i>	● Independently identifies the indications for and performs an intraarticular steroid injection of a wrist (If required by the institution, the attending may be present, but because of the fellow's skills, the attending's assistance and/or coaching is not required)
Level 5 <i>Independently performs complex joint aspirations or injections, including unusual sites, anatomic abnormalities, or incorporating imaging guidance</i>	● Independently performs a sacroiliac joint injection with ultrasound guidance ● Independently performs multiple joint injections in a single visit (If required by the institution, the attending may be present, but because of the fellow's skills, the attending's assistance and/or coaching is not required)
Assessment Models or Tools	● Direct observation ● Faculty member evaluations ● OSCE ● Simulation
Curriculum Mapping	●
Notes or Resources	● In this Milestone, "independently" refers to the fellow's ability to perform the complete procedure without guidance or additional feedback. It is recognized that a faculty member or other supervisor may be in the room. ● Fellows are expected to be able to recognize the indications for sonographic imaging. Given current variability of ultrasound training and availability in pediatric rheumatology fellowship programs, interpretation and performance of ultrasound imaging is not a requirement.

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| | <ul style="list-style-type: none">● Online resources● Textbooks● Workshops● ACR. 2019. “2019 Rheumatologic Ultrasound (RhUS) Curriculum Supplement to the American College of Rheumatology 2015 Core Curriculum Outline.” https://www.rheumatology.org/Portals/0/Files/Rhumatologic-Ultrasound-Curriculum-Supplement.pdf. Accessed 2019.● USSONAR Training and Membership https://ussonar.org/. Accessed 2022.● Widener, Benjamin B., Amy Cannella, Linett Martirossian, Eugen Y. Kissin. 2020. “Modern Landscapes and Strategies for Learning Ultrasound in Rheumatology.” <i>Rheumatic Diseases Clinics of North America</i> 46(1): 61–71. doi: 10.1016/j.rdc.2019.09.002. |
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Patient Care 7: Provides Consultative Care Overall Intent: To provide integrated and comprehensive consultative care for patients in the inpatient and outpatient settings	
Milestones	Examples
Level 1 <i>Respectfully receives a consultation request, clarifies the clinical question, and performs initial consultation</i> <i>With supervision, recognizes disease acuity</i>	- Introduces self when receiving consult by phone and respectfully agrees to see the patient, conveys recommendations, and advises the team when the patient will be seen - When consulted to evaluate for a rheumatologic disease, further clarifies with the team about concerns that the patient may have lupus - Confirms with attending that an outpatient referred by phone for new onset joint swelling and fever should be seen urgently
Level 2 <i>Performs a consultation and provides initial recommendations, with guidance</i> <i>Independently recognizes disease acuity</i>	- Consults on an inpatient with new onset proteinuria and hypertension and recommends labs to evaluate for lupus and vasculitis - Schedules a same-day appointment for a new patient with proteinuria, a purpuric rash, and chronic sinusitis concerning for vasculitis
Level 3 <i>Performs consultation and verifies understanding and implementation of recommendations with the primary team</i> <i>Recognizes disease acuity and prioritizes management steps</i>	- Reviews consult recommendations, discusses the rationale, and answers questions from team members caring for a patient admitted with new polyarthritis - Follows up to make sure the labs are sent - Advises primary team to monitor for signs of macrophage activation syndrome in a patient with suspected systemic JIA
Level 4 <i>Integrates recommendations from different members of the health care team and effectively conveys consultative assessment and rationale to all health care team members</i> <i>Mobilizes resources to provide care in high-acuity situations</i>	- Discusses plans for evaluation and potential therapeutic options with the pulmonologist concurrently consulting on an inpatient with scleroderma and progressive dyspnea; contacts the primary team to provide integrated recommendations - Coordinates a renal biopsy for a newly diagnosed lupus patient with significant proteinuria - Coordinates with support services to obtain anakinra prior to discharge
Level 5 <i>Is identified as a role model for the provision of consultative care across the spectrum of disease complexity and acuity</i>	- Collaborates with others to lead an interdisciplinary committee creating a protocol to facilitate consultation for osteoporosis management in patients admitted with hip fragility fracture - Establishes a multidisciplinary clinic with neurology and psychiatry to evaluate patients with suspected inflammatory brain disease - Leads discussion in a multidisciplinary care conference for a critically ill child who has lupus
Assessment Models or Tools	Direct observation

	• Faculty member evaluations • Medical record (chart) audit • Multisource feedback • OSCE • Simulation
Curriculum Mapping	•
Notes or Resources	• Chen, Debbie C., Eli M. Miloslavsky, Ariel S. Winn, and Jakob I. McSparron. 2018. "Fellow as Clinical Teacher (FACT) Curriculum: Improving Fellows' Teaching Skills During Inpatient Consultation." <i>MedEdPortal</i>. 14: 10728. https://doi.org/10.15766/mep_2374-8265.10728. • François, José. 2011. "Tool to Assess the Quality of Consultation and Referral Request Letters in Family Medicine." <i>Canadian Family Physician</i>. 57(5): 574-575. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3093595/. • Goldman, Lee, Thomas Lee, Peter Rudd. 1983. "Ten Commandments for Effective Consultations." <i>Archives of Internal Medicine</i> 143(9): 1753–1755. doi:10.1001/archinte.1983.00350090131022. • Michael, Sarah H., Steven Rougas, Xiao C. Zhang, and Brian Clyne. 2019. "A Content Analysis of the ACGME Specialty Milestones to Identify Performance Indicators Pertaining to the Development of Residents as Educators." <i>Teaching and Learning in Medicine</i>. 31: 424-433. DOI: 10.1080/10401334.2018.1560298. • Podolsky, Anna, David T. Stern, and Lauren Peccoralo. 2015. "The Courteous Consult: A CONSULT Card and Training to Improve Resident Consults." <i>Journal of Graduate Medical Education</i> 7(1): 113-7. doi: 10.4300/JGME-D-14-00207.1. https://www.ncbi.nlm.nih.gov/pubmed/26217436. • Ryan, Michael S., Bennett Lee, Alicia Richards, Robert A. Perera, Kellen Haley, Fidelma B. Rigby, Yoon Soo Park, Sally A. Santen. 2021. "Evaluating the Reliability and Validity Evidence of the RIME (Reporter-Interpreter-Manager-Educator) Framework for Summative Assessments Across Clerkships." <i>Academic Medicine: Journal of the Association of American Medical Colleges</i> 96(2): 256–262. https://doi.org/10.1097/ACM.00000000000003811. • Serling-Boyd, Naomi, and Eli M. Miloslavsky. 2020. "Enhancing the Inpatient Consultation Learning Environment to Optimize Teaching and Learning." <i>Rheumatic Disease Clinics of North America</i> 46(1): 73-83. doi: 10.1016/j.rdc.2019.09.003.

Medical Knowledge 1: Knowledge of Rheumatic Conditions Overall Intent: To demonstrate and apply broad and deep knowledge of pediatric rheumatic conditions	
Milestones	Examples
Level 1 <i>Identifies key features of common rheumatic conditions</i>	Recognizes prolonged morning stiffness as a feature of inflammatory arthritis
Level 2 <i>Demonstrates broad knowledge of common rheumatic conditions</i>	- Evaluates for muscle weakness in a patient presenting with malar rash - Applies treatment guidelines to a patient presenting with proliferative lupus nephritis
Level 3 <i>Demonstrates knowledge of less common rheumatic conditions as well as common rheumatic conditions associated with higher complexity</i>	- Ensures that a patient with linear scleroderma of the face also undergoes ophthalmologic and dental evaluations as well as brain magnetic resonance imaging (MRI) - Identifies risk of amyloidosis and need to treat with colchicine in a patient with familial Mediterranean fever
Level 4 <i>Integrates knowledge of the pathogenesis, epidemiology, clinical expression, treatments, and prognosis of a broad range of rheumatic conditions</i>	- Recognizes that a complement deficiency may cause a monogenic form of lupus in a preschool-aged boy - Gives a comprehensive lecture on juvenile arthritis ranging from pathogenesis to treatment guidelines - Chooses abatacept over an anti-tumor necrosis factor (TNF) agent in treating a patient with lupus and significant arthritis
Level 5 <i>Pursues and integrates new and emerging knowledge of the pathogenesis, epidemiology, clinical expression, treatments, and prognosis of rheumatic conditions</i>	Pursues and integrates knowledge of emerging treatment modalities for a patient with various myositis-specific antibodies
Assessment Models or Tools	- Assessment of case presentations - Direct observation - Faculty member evaluations - In-training exam - Multisource feedback - Scholarly activity
Curriculum Mapping	
Notes or Resources	- Curran, Megan L., Kristen Hayward, and Jay Mehta. 2020. "Online Resources for Enhancing Clinical Knowledge and Skills." <i>Rheumatic Diseases Clinics of North America</i> 46(1): 37–60. doi: 10.1016/j.rdc.2019.09.011. - Petty, Ross E., Ronald M. Laxer, Carol B. Lindsley, Lucy Wedderburn, Robert Fuhlbrigge, Elizabeth D. Mellins. 2021. <i>Textbook of Pediatric Rheumatology</i>. 8th ed. Saunders Elsevier Publishing.

Medical Knowledge 2: Basic Science of Rheumatic Conditions Overall Intent: To demonstrate and apply broad and deep basic science knowledge of rheumatic conditions	
Milestones	Examples
Level 1 <i>Demonstrates basic knowledge of anatomy, genetics, immunology, and pharmacology pertaining to general pediatrics</i>	• Describes the basic anatomy and function of lymph nodes • Understands and describes the major components of innate and adaptive immune system
Level 2 <i>Demonstrates basic knowledge of anatomy, genetics, immunology, and pharmacology pertaining to rheumatic conditions</i>	• Describes the role of innate and adaptive immunity in the pathogenesis of a rheumatologic diagnosis • Describes the association between spondyloarthropathies and HLA-B27 • Describes the anatomy and function of a joint
Level 3 <i>Demonstrates in-depth knowledge of anatomy, genetics, immunology, and pharmacology pertaining to rheumatic conditions</i>	• Describes the importance of a second signal for T-cell stimulation and how blocking co-stimulation is a mechanism of action of a rheumatic medication • Discusses with attending sending a genetic analysis for NLRP3 gene mutation in a child with suspected cryopyrin-associated periodic syndrome
Level 4 <i>Integrates knowledge of anatomy, genetics, immunology, and pharmacology into the management of a broad range of rheumatic conditions</i>	• Recognizes the need to assess for hypogammaglobulinemia in a patient receiving a B-cell-depleting agent and when immunoglobulin replacement therapy would be indicated • Understands the immunologic consequences of rheumatic therapies and anticipates possible need for <i>Pneumocystis jirovecii</i> pneumonia (PJP) prophylaxis
Level 5 <i>Integrates recent research into understanding of the interface between rheumatic conditions, genetics, and immunology</i>	• Uses recent literature on new autoinflammatory diseases to diagnose a patient • Obtains cytokine levels based on recent literature to assess for flare versus macrophage activation syndrome in a patient with systemic JIA
Assessment Models or Tools	• Assessment of case presentations and journal club • Direct observation • Faculty member evaluations • In-training exam • OSCE • Scholarly activity
Curriculum Mapping	•
Notes or Resources	• Abbas, Abdul K., Andrew H. Lichtman, and Shiv Pillai. 2019. <i>Basic Immunology: Functions and Disorders of the Immune System</i>. 6th ed. Elsevier Publishing. • American Board of Pediatrics. "Pediatric Rheumatology Content Outline." https://www.abp.org/sites/public/files/pdf/content-outline-rheum-updated.pdf. Accessed 2022.

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Medical Knowledge 3: Knowledge of Diagnostic Testing Overall Intent: To demonstrate and apply broad and thorough knowledge of diagnostic testing in patients with suspected rheumatic conditions	
Milestones	Examples
Level 1 <i>Identifies common diagnostic testing and indications for patients being evaluated for rheumatic conditions</i>	Identifies that an ANA should be sent when a patient with a malar rash and arthritis presents to clinic
Level 2 <i>Explains the rationale, risks, and benefits for common diagnostic testing in patients being evaluated for rheumatic conditions</i>	Understands the utility of obtaining HLA-B27 testing in the context of inflammatory back pain, but recognizes that this test is not specific
Level 3 <i>Integrates value and test characteristics into diagnostic strategies in patients with rheumatic conditions</i>	- Compares and contrasts the value and test characteristics of muscle biopsy versus imaging methods in a patient with suspected juvenile dermatomyositis - Recognizes the clinical utility of autoantibody testing in a patient with a positive ANA and no signs or symptoms of lupus on exam
Level 4 <i>Integrates and reconciles information, including non-specific and/or conflicting diagnostic test results, to form a cohesive evaluation</i>	Confirms a diagnosis of lupus in a patient with hypocomplementemia, positive ANA, positive dsDNA, leukopenia, and MPO antibody after a renal biopsy demonstrates lupus nephritis rather than pauci-immune glomerulonephritis
Level 5 <i>Is identified as an expert in testing strategies and in the selection and interpretation of complex, new, or emerging tests</i>	Participates in an international consensus workgroup to determine best practices for use of genetic testing in suspected autoinflammatory diseases
Assessment Models or Tools	- Assessment of case presentations - Direct observation - Faculty member evaluations - In-training exam - Multisource feedback - OSCE - Scholarly activity
Curriculum Mapping	
Notes or Resources	- ACR. "Core Curriculum Outline for Rheumatology Fellowship Programs." https://www.rheumatology.org/Portals/0/Files/Core-Curriculum-Outline.pdf. Accessed 2020. - Choosing Wisely. "Choosing Wisely: When to Question Tests, Procedures or Treatment for Rheumatologic Diseases." https://www.choosingwisely.org/choosing-wisely-when-to-question-tests-procedures-or-treatment-for-rheumatologic-diseases/. Accessed 2019.

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| | <ul style="list-style-type: none">• Curran, Megan L., Kristen Hayward, and Jay Mehta. 2020. "Online Resources for Enhancing Clinical Knowledge and Skills." <i>Rheumatic Diseases Clinics of North America</i> 46(1): 37–60. doi: 10.1016/j.rdc.2019.09.011.• Petty, Ross E., Ronald M. Laxer, Carol B. Lindsley, Lucy Wedderburn, Robert Fuhlbrigge, Elizabeth D. Mellins. 2021. <i>Textbook of Pediatric Rheumatology</i>. 8th ed. Saunders Elsevier Publishing. |
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Systems-Based Practice 1: Patient Safety	
Overall Intent: To engage in the analysis and management of patient safety events, including relevant communication with patients, patients' families, and health care professionals	
Milestones	Examples
Level 1 <i>Demonstrates knowledge of common patient safety events</i> <i>Demonstrates knowledge of how to report patient safety events</i>	• Lists medication dosing errors or incorrect allergies included in the system as common patient safety events • Lists "patient safety reporting system" or "patient safety hotline" as ways to report safety events
Level 2 <i>Identifies system factors that lead to patient safety events</i> <i>Reports patient safety events through institutional reporting systems (simulated or actual)</i>	• Identifies an outdated weight in the electronic health record (EHR) as the cause of a dosing error • Identifies that the EHR has a maximum dose/duration for a steroid that typically goes beyond that dose/duration • Identifies that stress dose steroids were not given to a patient because the patient was not identified in EHR as taking long-term steroids or at risk for adrenal insufficiency • Reports dosing using the appropriate reporting mechanism
Level 3 <i>Participates in analysis of patient safety events (simulated or actual)</i> <i>Participates in disclosure of patient safety events to patients and families (simulated or actual)</i>	• Participates in department morbidity and mortality presentations • Participates in root cause analyses (mock or actual) • With the support of an attending or risk management team member, participates in the disclosure of an injection into the incorrect joint to a patient's caregiver
Level 4 <i>Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)</i> <i>Discloses patient safety events to patients and families (simulated or actual)</i>	• Leads a simulated or actual root cause analysis related to an injection into the wrong joint and develops action plan that includes signs to remind fellows to properly use marking, ultrasound, image guidance, and time out to prevent future errors • Following consultation with risk management and other team members, independently discloses a joint injection error to a patient's family
Level 5 <i>Actively engages teams and processes to modify systems to prevent patient safety events</i>	• Leads a multidisciplinary team to develop order sets to prevent errors with ordering diagnostic tests

<i>Role models or mentors others in the disclosure of patient safety events</i>	• Conducts a simulation demonstrating techniques and approaches for disclosing patient safety events • Teaches a course during fellowship orientation about the fellow's role in prevention and disclosure of patient safety events
Assessment Models or Tools	• Case-based discussion • Direct observation • E-module multiple choice tests • Guided reflection • Medical record (chart) audit • Multisource feedback • Portfolio • Simulation
Curriculum Mapping	•
Notes or Resources	• American Board of Pediatrics (ABP). "Entrustable Professional Activities for Subspecialties: Rheumatology." https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2021. • ABP. "EPA 14 for General Pediatrics." https://www.abp.org/sites/public/files/pdf/gen_peds_epa_14.pdf. Accessed 2021. • Guralnick, Susan, Stephen Ludwig, and Robert Englander. 2014. "Domain of Competence: Systems-Based Practice." <i>Academic Pediatrics</i>. 14(2 Suppl): S70-S79. https://doi.org/10.1016/j.acap.2013.11.015. • Institute for Healthcare Improvement. http://www.ihl.org/Pages/default.aspx. Accessed 2020. • Singh, Ranjit, Bruce Naughton, John S. Taylor, Marlon R. Koenigsberg, Diana R. Anderson, Linda L. McCausland, Robert G. Wahler, Amanda Robinson, and Gurdev Singh. 2005. "A Comprehensive Collaborative Patient Safety Residency Curriculum to Address the ACGME Core Competencies." <i>Medical Education</i> 39(12): 1195-204. DOI: 10.1111/j.1365-2929.2005.02333.x.

Systems-Based Practice 2: Quality Improvement Overall Intent: To understand and implement quality improvement methodologies to improve patient care	
Milestones	Examples
Level 1 <i>Demonstrates knowledge of basic quality improvement methodologies and metrics</i>	• Describes fishbone diagram • Describes components of a “Plan-Do-Study-Act” cycle
Level 2 <i>Describes local quality improvement initiatives (e.g., community vaccination rate, infection rate, smoking cessation)</i>	• Describes clinic initiatives to improve adherence to pneumococcal immunization guidelines for immunosuppressed patients
Level 3 <i>Participates in local quality improvement initiatives</i>	• Participates in an ongoing interdisciplinary project to improve medication reconciliation • Collaborates on a project to improve adherence to recommended frequency of uveitis screening examinations
Level 4 <i>Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project</i>	• Identifies that a large proportion of immunosuppressed rheumatology patients are under-immunized for pneumococcal disease based on EHR review; develops and implements a quality improvement project to improve vaccination rates within a practice site, that includes engaging the care team, articulating a broad goal, developing a SMART (Specific, Measurable, Attainable, Realistic, Time-bound) goal, collecting and analyzing data, and monitoring progress and challenges • Considers team bias and social determinants of health in patient population when developing a quality improvement project
Level 5 <i>Creates, implements, and assesses quality improvement initiatives at the institutional or community level</i>	• Initiates and completes a quality improvement project in collaboration with adolescent medicine practitioners to improve teratogenic medication counseling throughout the hospital and shares results through a formal hospital-wide presentation
Assessment Models or Tools	• Direct observation • E-module multiple choice test • Poster or other presentation
Curriculum Mapping	•
Notes or Resources	• American Board of Pediatrics. “Entrustable Professional Activities for Subspecialties: Rheumatology.” https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • Guralnick, Susan, Emily Fondahn, Alpesh Amin, and Edward A. Bittner. 2021. “Systems-Based Practice: Time to Finally Adopt the Orphan Competency.” <i>Journal of Graduate Medical Education</i> 13(2 Suppl): 96-101. doi: 10.4300/JGME-D-20-00839.1. Epub 2021 Apr 23. PMID: 33936541; PMCID: PMC8078067. • Institute for Healthcare Improvement. http://www.ihl.org/Pages/default.aspx. Accessed 2020. • Institution-wide curriculum

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Systems-Based Practice 3: System Navigation for Patient-Centered Care – Coordination of Care Overall Intent: To effectively navigate the health care system, including the interdisciplinary team and other care practitioners; to adapt care to a specific patient population to ensure high-quality patient outcomes	
Milestones	Examples
Level 1 <i>Lists the various interprofessional individuals involved in the patient's care coordination</i>	• Identifies the team members and roles as part of the team for a patient with lupus, including pediatric rheumatologist, pediatric nephrologist, clinic nurses, and social worker • Identifies the roles of the members of the medical home team for a complex care patient
Level 2 <i>Coordinates care of patients in routine clinical situations, incorporating interprofessional teams with consideration of patient and family needs</i>	• Coordinates same-day outpatient follow up with rheumatology and pulmonology, as well as pulmonary function testing, for a patient newly diagnosed with vasculitis who lives eight hours from the hospital • Helps to coordinate injection teaching by clinic nurse for a newly diagnosed patient with JIA starting methotrexate • Identifies access to care and insurance coverage as social determinants of health
Level 3 <i>Coordinates care of patients in complex clinical situations, effectively utilizing the roles of interprofessional teams, and incorporating patient and family needs and goals</i>	• Arranges urgent social work evaluation for a patient seen in clinic for lupus follow up who reports active suicidal ideation and asks clinic nurse to escort the patient and caregivers to the emergency department • Works to coordinate with social worker, school staff, and caregiver to obtain accommodations for a patient returning to school after a prolonged hospitalization
Level 4 <i>Coordinates interprofessional, patient-centered care among different disciplines and specialties, actively assisting families in navigating the health care system</i>	• Calls nephrologist to arrange urgent referral for a non-English-speaking family whose daughter has lupus with a sharp rise in serum creatinine and urine protein/creatinine ratio, and contacts family through interpreter services to discuss the plan • Recognizes the need for and coordinates a multidisciplinary team/family meeting to include appropriate subspecialists, physical therapist/occupational therapist, child life, mental health resources, chaplain services, the primary care physician, etc.
Level 5 <i>Coaches others in interprofessional, patient-centered care coordination</i>	• Leads a discussion in new fellow orientation explaining roles of team members and available resources, ensuring inclusion of discussion on health care disparities
Assessment Models or Tools	• Direct observation and entrustable professional activities • Medical record (chart) audit • Multisource feedback • OSCE • Review of discharge planning documentation
Curriculum Mapping	•
Notes or Resources	• American Academy of Pediatrics (AAP). "Medical Home Care Coordination Resources." https://www.aap.org/en/practice-management/medical-home/tools-and-resources-for-medical-home-implementation/medical-home-care-coordination-resources/. Accessed 2020.

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Systems-Based Practice 4: System Navigation for Patient-Centered Care – Transitions in Care Overall Intent: To effectively navigate the health care delivery system during transitions of care to ensure high-quality patient outcomes	
Milestones	Examples
Level 1 <i>Uses a standard template for transitions of care/hand-offs</i>	• Reads verbatim from a templated hand-off but lacks context when signing out a patient
Level 2 <i>Adapts a standard template, recognizing key elements for safe and effective transitions of care/hand-offs in routine clinical situations</i>	• Uses a standardized hand-off for a stable patient, consistently verbalizes a basic understanding of active problems, and provides basic contingency plans • Discusses a discharge of a patient with lupus from the hospital with the primary care physician and provides a problem list, clinical course, and action items to be followed up as an outpatient
Level 3 <i>Performs safe and effective transitions of care/hand-offs in complex clinical situations, and ensures closed-loop communication</i>	• Uses a standardized hand-off when transferring a patient to the emergency department from clinic, with direct communication of clinical reasoning, problems warranting a higher level of care, and status of completed/planned interventions; solicits read-back and confirms/uses specific resources and timeline for transfer to occur • Provides hand-off to resident team with clearly written instructions for patient requiring a scheduled admission for cyclophosphamide with bladder irrigation care
Level 4 <i>Performs and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems, including transitions to adult care</i>	• Seeks out colleagues proactively to follow up on test results that are expected to return during a vacation week; provides specific instructions and contingency plans • Seeks out appropriate adult general and subspecialty practitioners to facilitate the transition of a 20-year-old patient with complex health care needs to adult care; ensures a thorough hand-off, including the patient's cultural preferences and social needs, to the identified new adult practitioners
Level 5 <i>Coaches others in improving transitions of care within and across health care delivery systems to optimize patient outcomes</i>	• Designs and implements standardized hand-off workshops for medical students prior to the start of their clinical rotations • Develops and implements a process for rheumatology clinic to improve the transition from pediatrics to adult medicine
Assessment Models or Tools	• Direct observation • Templated hand-off assessment checklist • Multisource feedback • OSCE/Simulation • Review of sign-out tools, use and review of checklists
Curriculum Mapping	•
Notes or Resources	• American Board of Pediatrics. "Entrustable Professional Activities for Subspecialties: Rheumatology." https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022.

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- I-PASS. “I-PASS Materials.” <https://www.ipassinstitute.com/hubfs/I-PASS-mnemonic.pdf>. Accessed 2022.
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Systems-Based Practice 5: Population and Community Health Overall Intent: To promote and improve health across communities and populations through patient care and advocacy, including public education and elimination of structural racism	
Milestones	Examples
Level 1 <i>Demonstrates awareness of population and community health needs and disparities</i>	- Identifies social determinants of health, such as poverty and structural racism - Identifies adverse childhood experiences
Level 2 <i>Identifies specific population and community health needs and disparities; identifies local resources</i>	- Screens patients for adverse childhood experiences and acknowledges social determinants of health - Discusses health disparities and identifies clinic and hospital resources, such as social workers and family navigators, to assess a patient's family's need
Level 3 <i>Uses local resources effectively to meet the needs and reduce health disparities of a patient population and community</i>	- Refers patients to social work services as indicated - Shares information about local resources and programs aimed at improving health disparities with patients
Level 4 <i>Adapts practice to provide for the needs of and reduce health disparities of a specific population</i>	- Participates in an advocacy project to improve health care access for at-risk populations - Creates a list of mental health resources for patients who screen positive for an adverse childhood experience - Creates, uses, and disseminates a list of resources for patients who need psychosocial support services in the area
Level 5 <i>Advocates at the local, regional, or national level for populations and communities with health care disparities</i>	- Attends American College of Rheumatology advocacy program and participates in longitudinal discussions with local, state, or national government policy makers to reduce health disparities in patients with rheumatic disease - Writes to legislators to improve access to care and medications for patients with rheumatic disease
Assessment Models or Tools	- Analysis of process and outcomes measures based on social determinants of health and resultant disparities - Direct observation - Medical record (chart) audit - Multisource feedback - Reflection
Curriculum Mapping	
Notes or Resources	- AAP. "Advocacy." https://services.aap.org/en/advocacy/. Accessed 2020. - ACR. "Advocating for Rheumatology." https://www.rheumatology.org/Advocacy. Accessed 2020. - American Board of Pediatrics. "Entrustable Professional Activities for Subspecialties: Rheumatology." https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. - Arthritis Foundation. "Advocacy." https://www.arthritis.org/advocate. Accessed 2022.

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Systems-Based Practice 6: Physician Role in Health Care Systems Overall Intent: To understand the physician's role in health systems science to optimize patient care delivery, including cost-conscious care	
Milestones	Examples
Level 1 <i>Engages with patients and other providers in discussions about cost-conscious care and key components of the health care delivery system</i>	• Considers elements such as cost, culture, and distance of travel for hospitalizing a patient versus closely following as an outpatient • Articulates the impact of patients coming to continuity clinic for non-emergent acute visits instead of seeking care in the emergency department • Encourages patients to utilize their medical home for consistent and comprehensive care, including vaccines, laboratory monitoring, and contraception • Considers that insurance coverage, or lack of coverage, can affect prescription drug availability/cost for individual patients • Identifies that one's own implicit biases contribute to disparities and less-than-optimal care
Level 2 <i>Identifies the relationships between the delivery system and cost-conscious care and the impact on the patient care</i>	• Considers the patient's prescription drug coverage when choosing a TNF inhibitor for treatment of juvenile arthritis • Ensures that a patient hospitalized with a lupus flare has a scheduled follow-up appointment at discharge
Level 3 <i>Discusses the need for changes in clinical approaches based on evidence, outcomes, and cost-effectiveness to improve care for patients and families</i>	• Accepts an appropriate level of uncertainty when balancing cost-conscious care by not ordering an erythrocyte sedimentation rate when it will not change management • Discusses benefits of and alternatives to pursuing MRI in the setting of non-inflammatory back pain in light of costs to patient's family and health system • Adapts plan to minimize costs and provides appropriate care for uninsured patients by signing them up for patient assistance programs through the manufacturer • Considers health care disparities in pursuit of evidence-based care
Level 4 <i>Advocates for the promotion of safe, quality, and high-value care</i>	• Works collaboratively to identify additional services for a patient with lupus and cognitive dysfunction and limited resources • Uses multi-disciplinary clinics, telemedicine, and/or outreach clinics to reduce cost and time for patients • Creates a list of clinics where adolescents can obtain long-acting reversible contraception
Level 5 <i>Coaches others to promote safe, quality, and high-value care across health care systems</i>	• Raises awareness at a systems level to promote cost-conscious care by implementing Choosing Wisely recommendations or developing a local evidence-based guideline • Educates primary care colleagues on the judicious use of rheumatologic tests
Assessment Models or Tools	• Direct observation • Medical record (chart) audit • Patient satisfaction data • Review and guided reflection on costs accrued for individual patients or patient populations with a given diagnosis

Curriculum Mapping	•
Notes and Resources	• Agency for Healthcare Research and Quality (AHRQ). “Measuring the Quality of Physician Care.” https://www.ahrq.gov/talkingquality/measures/setting/physician/index.html Accessed 2022. • AAP. Practice Management. https://www.aap.org/en/practice-management/. Accessed 2022. • American Board of Pediatrics. “Entrustable Professional Activities for Subspecialties: Rheumatology.” https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • American College of Physicians. “Newly Revised: Curriculum for Educators and Residents.” https://www.acponline.org/clinical-information/high-value-care/medical-educators-resources/newly-revised-curriculum-for-educators-and-residents-version-40. Accessed 2020. • Choosing Wisely. “American Academy of Pediatrics – Section on Rheumatology.” https://www.choosingwisely.org/societies/american-academy-of-pediatrics-section-on-rheumatology/. Accessed 2022. • The Commonwealth Fund. “State Health Data Center.” http://datacenter.commonwealthfund.org/?_ga=2.110888517.1505146611.1495417431-1811932185.1495417431#ind=1/sc=1. Accessed 2020. • Crow, Byron, Sami G. Tahhan, Curtis Lacy, Jule Grzankowski, and Juan N. Lessing. 2020. “Things We Do for No Reason™: Routine Correction of Elevated INR and Thrombocytopenia Prior to Paracentesis in Patients with Cirrhosis.” <i>Journal of Hospital Medicine</i>. 16(2): 102-104. https://doi.org/10.12788/jhm.3458. • Dzau, Victor J., Mark McClellan, Sheila Burke, Molly J. Coye, Thomas A. Daschle, Angela Diaz, William H. Frist, et al. 2017. “Vital Directions for Health and Health Care: Priorities from a National Academy of Medicine Initiative.” <i>NAM Perspectives</i>. Discussion Paper, National Academy of Medicine, Washington, DC. https://doi.org/10.31478/201703e.

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice	
Overall Intent: To incorporate evidence and apply it to individual patients and patient populations	
Milestones	Examples
Level 1 <i>Develops an answerable clinical question and demonstrates how to access available evidence, with guidance</i>	- Identifies a question such as, “What is the appropriate treatment for this patient with new polyarticular arthritis?” but needs guidance to focus it into a searchable question - Uses general medical resources such as a textbook, UpToDate, or DynaMed to search for answers - Accesses available evidence using unfiltered resources, retrieving a broad array of related information
Level 2 <i>Independently articulates clinical question and accesses available evidence</i>	- Identifies a focused, answerable question: “Among patients with new polyarticular arthritis, does initiation of early biologic therapy improve long-term clinical outcomes?” - Uses PubMed to search for the answer to a clinical question and appropriately filters results
Level 3 <i>Locates and applies the evidence, integrated with patient preference, to the care of patients</i>	- Obtains, appraises, and applies evidence to use biologic therapy to treat a patient with polyarticular arthritis and fear of needles - Evaluates and considers potential bias in clinical tools that center around social identifiers such as race, gender, and body mass index (BMI)
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>	- Seeks out and applies evidence to the care of individual patients or populations to change (or re-evaluate) their clinical practice - Explores, evaluates, and incorporates new resources into search strategies - Discusses with patients’ families if alternative options to bridge steroid therapy may be reasonable, while considering patient preferences/needs for intravenous (IV) versus subcutaneous (SQ) medication administration
Level 5 <i>Coaches others to critically appraise and apply evidence for complex patients</i>	- Provides feedback to other fellows on their ability to formulate questions, search for the best available evidence, appraise evidence, and apply that information to the care of patients - Role models and coaches others in creating efficient and effective search strategies to answer clinical questions - Participates in the development of an evidence-based clinical pathway in the EHR for new onset polyarticular arthritis
Assessment Models or Tools	- Direct observation to inform milestones and entrustable professional activities - Presentation evaluation such as journal club or case presentations - Research portfolio
Curriculum Mapping	

Notes or Resources	● American Board of Pediatrics. “Entrustable Professional Activities for Subspecialties: Rheumatology.” https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● Duke University. “Evidence-Based Practice.” https://guides.mcclibrary.duke.edu/ebm/home. Accessed 2020. ● Guyatt, Gordon, Drummond Rennie, Maureen O. Meade, and Deborah Cook. 2015. <i>Users’ Guides to the Medical Literature: A Manual for Evidence-Based Clinical Practice</i>, 3rd ed. USA: McGraw-Hill Education. https://jamaevidence.mhmedical.com/Book.aspx?bookId=847. Accessed 2020. ● Onel Karen B., Daniel B. Horton, Daniel J. Lovell, Susan Shenoj, Carlos A. Cuello, Sheila T. Angeles-Han, Mara L. Becker, et al. 2022. “2021 American College of Rheumatology Guideline for the Treatment of Juvenile Idiopathic Arthritis: Therapeutic Approaches for Oligoarthritis, Temporomandibular Joint Arthritis, and Systemic Juvenile Idiopathic Arthritis.” <i>Arthritis and Rheumatology</i> 74(4):553-569. doi: 10.1002/art.42037. PMID: 35233993. ● US National Library of Medicine. “PubMed® Online Training.” https://www.nlm.nih.gov/bsd/disted/pubmedtutorial/cover.html. Accessed 2020.
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Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth Overall Intent: To continuously improve patient care based on self-evaluation and lifelong learning	
Milestones	Examples
Level 1 <i>Participates in feedback sessions</i> <i>Develops personal and professional goals, with assistance</i>	• Attends scheduled feedback sessions • Develops a plan with faculty members to assess how often they counsel patients on teratogenic medications on pregnancy risk and screened for pregnancy • Acknowledges own implicit/explicit biases
Level 2 <i>Demonstrates openness to feedback and performance data</i> <i>Designs a learning plan based on established goals, feedback, and performance data, with assistance</i>	• Acknowledges concerns about timely note completion and works with clinic preceptor to develop methods for improvement • Develops a plan on how to improve counselling and screening of patients on teratogenic medications after an unplanned pregnancy in a patient on teratogenic medications • Devises a plan to explore biases and how they impact patient care
Level 3 <i>Seeks and incorporates feedback and performance data episodically</i> <i>Designs and implements a learning plan by analyzing and reflecting on the factors which contribute to gap(s) between performance expectations and actual performance</i>	• Requests feedback from supervisor and patients about counseling on pregnancy risk and screening for pregnancy for patients on teratogenic medications • Identifies challenges in performing diagnostic musculoskeletal ultrasound and arranges to spend more time with a certified practitioner to improve skills • Recognizes own implicit biases that affect care for adolescents with high-risk sexual behavior and takes steps to mitigate bias
Level 4 <i>Seeks and incorporates feedback and performance data consistently</i> <i>Adapts a learning plan using long-term professional goals, self-reflection, and performance data to measure its effectiveness</i>	• Initiates a quarterly chart audit to ensure appropriate counseling on pregnancy risk and screening for pregnancy in patients on teratogenic medications • Adapts learning plan to improve knowledge of pregnancy counseling and screening based on personal reflection, feedback, and patient data • Seeks out conferences to learn about anti-racism and bystander culture
Level 5 <i>Role models and coaches others in seeking and incorporating feedback and performance data</i> <i>Demonstrates continuous self-reflection and coaching of others on reflective practice</i>	• Leads a clinic discussion on opportunities to improve pregnancy counseling and screening for all patients on teratogenic medications who are cared for by the clinic • Meets with learners to review practice habits and develop their learning goals
Assessment Models or Tools	• Direct observation • Medical record (chart) audit • Review of learning plan

Curriculum Mapping	
Notes or Resources	• American Board of Pediatrics. “Entrustable Professional Activities for Subspecialties: Rheumatology.” https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • Burke, Anne E., Bradley Benson, Robert Englander, Carol Carraccio, and Patricia J. Hicks. 2014. “Domain of Competence: Practice-Based Learning and Improvement.” <i>Academic Pediatrics</i> 14(2): S38-S54. DOI: https://doi.org/10.1016/j.acap.2013.11.018. • Lockspeiser, Tai M., Su-Ting T. Li, Ann E. Burke, Adam A. Rosenberg, Alston E. Dunbar 3rd, Kimberly A. Gifford, Gregory H. Gorman, et al. 2016. “In Pursuit of Meaningful Use of Learning Goals in Residency: A Qualitative Study of Pediatric Residents.” <i>Academic Medicine</i> 91(6): 839-846. DOI: 10.1097/ACM.0000000000001015. • Lockspeiser, Tai M., Patricia A. Schmitter, J. Lindsey Lane, Janice L. Hanson, Adam A. Rosenberg, and Yoon Soo Park. 2013. “Assessing Residents’ Written Learning Goals and Goal Writing Skill: Validity Evidence for the Learning Goal Scoring Rubric.” <i>Academic Medicine</i> 88(10): 1558-1563. DOI: 10.1097/ACM.0b013e3182a352e6.

Professionalism 1: Professional Behavior	
Overall Intent: To demonstrate ethical and professional behaviors and promote these behaviors in others and to use appropriate resources to manage professional dilemmas	
Milestones	Examples
Level 1 <i>Identifies expected professional behaviors and potential triggers for lapses</i> <i>Identifies the value and role of pediatric rheumatology as a vocation/career</i>	• Asks an attending for feedback on interactions with a challenging caregiver • Identifies the role of a pediatric rheumatologist in the multidisciplinary evaluation of a patient with fever of unknown origin
Level 2 <i>Demonstrates professional behavior with occasional lapses</i> <i>Demonstrates accountability for patient care as a pediatric rheumatologist, with guidance</i>	• Identifies that being late to clinic is a lapse in professionalism, and immediately apologizes to peers, attendings, and patients upon arrival • Completes a patient's school medication permission form in a timely manner
Level 3 <i>Maintains professional behavior in increasingly complex or stressful situations</i> <i>Fully engages in patient care and holds oneself accountable</i>	• Demonstrates caring and compassionate behaviors with patients, patients' families, colleagues, and staff members • Remains patient and kind even when navigating a challenging clinic visit after a week of call • Advocates for an individual patient's needs in a humanistic and professional manner regarding home care, medication approval, and need for care by another subspecialist
Level 4 <i>Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in self and others</i> <i>Exhibits a sense of duty to patient care and professional responsibilities</i>	• Recognizes when staff or colleagues are busy and offers support outside usual clinical role • Models respect and compassion for patients and promotes the same in colleagues by actively identifying positive professional behavior • Speaks up in the moment when observing racist/sexist behavior within the health care team and uses reporting mechanisms to address it
Level 5 <i>Models professional behavior and coaches others when their behavior fails to meet professional expectations</i> <i>Extends the role of the pediatric rheumatologist beyond the care of patients by engaging with the community, specialty, and medical profession as a whole</i>	• Discusses the need to be on time with a student learner who continues to be late, making a plan together to address the underlying issues of why the learner is late • Advocates for process improvement to help a cohort of patients, takes on larger projects to remedy a system issue that is affecting patients, and sees the opportunity to improve care as a responsibility • Develops education and/or modules on microaggressions and bias
Assessment Models or Tools	• Direct observation

	• Global evaluation • Multisource feedback • Oral or written self-reflection • Simulation
Curriculum Mapping	•
Notes or Resources	• AbdelHameid, Duaa. 2020. "Professionalism 101 for Black Physicians." <i>New England Journal of Medicine</i>. 383(5): e34. doi:10.1056/NEJMp2022773. • AAP. "Residency Curriculum: Mental Health Education Resources." https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Mental-Health/Pages/Residency-Curriculum.aspx. Accessed 2020. • American Board of Internal Medicine, ACP-ASIM Foundation, European Federation of Internal Medicine. 2007. "Medical Professionalism in the New Millennium: A Physician Charter." <i>Annals of Internal Medicine</i>. 136:243-246. http://abimfoundation.org/wp-content/uploads/2015/12/Medical-Professionalism-in-the-New-Millennium-A-Physician-Charter.pdf. Accessed 2020. • American Board of Pediatrics. "Entrustable Professional Activities for Subspecialties: Rheumatology." https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • American Board of Pediatrics. "Medical Professionalism." https://www.abp.org/content/medical-professionalism. Accessed 2020. • American Board of Pediatrics. "Teaching, Promoting, and Assessing Professionalism Across the Continuum: A Medical Educator's Guide." https://www.abp.org/professionalism-guide. Accessed 2020. • American Medical Association. "Ethics." https://www.ama-assn.org/delivering-care/ama-code-medical-ethics. Accessed 2020. • Bynny, Richard L., Douglas S. Paauw, Maxine Papadakis, and Sheryl Pfeil. 2017. <i>Medical Professionalism Best Practices: Professionalism in the Modern Era</i>. Menlo Park, CA: Alpha Omega Alpha Medical Society. https://www.alphaomegalpha.org/wp-content/uploads/2022/01/Monograph2018.pdf. ISBN: 978-1-5323-6516-4. • Domen, Ronald E., Kristen Johnson, Richard Michael Conran, Robert D. Hoffman, Miriam D. Post, Jacob J. Steinberg, Mark D. Brissette, et al. 2016. "Professionalism in Pathology: A Case-Based Approach as a Potential Educational Tool." <i>Archives of Pathology and Laboratory Medicine</i> 141: 215-219. https://doi.org/10.5858/arpa.2016-0217-CP. • Levinson, Wendy, Shiphra Ginsburg, Frederic W. Hafferty, and Catherine R. Lucey. 2014. <i>Understanding Medical Professionalism</i>. New York, NY: McGraw-Hill Education. https://accessmedicine.mhmedical.com/book.aspx?bookID=1058.

- Osseo-Asare, Aba, Lilanthi Balasuriya, Stephen J. Huot, et al. 2018. "Minority Resident Physicians' Views on the Role of Race/Ethnicity in Their Training Experiences in the Workplace." *JAMA Network Open*. 1(5): e182723. doi:10.1001/jamanetworkopen.2018.2723.
- Paul, Dereck W. Jr., Kelly R. Knight, Andre Campbell, and Louise Aronson. 2020. "Beyond a Moment - Reckoning with Our History and Embracing Antiracism in Medicine." *New England Journal of Medicine*. 383: 1404-1406. doi:10.1056/NEJMp2021812. <https://www.nejm.org/doi/full/10.1056/NEJMp2021812>.

Professionalism 2: Ethical Principles	
Overall Intent: To recognize and address or resolve common and complex ethical dilemmas or situations	
Milestones	Examples
Level 1 <i>Demonstrates knowledge of the ethical principles underlying informed consent, surrogate decision making, advance directives, confidentiality, error disclosure, stewardship of limited resources, and related topics</i>	Identifies ethical principles involved in obtaining informed consent
Level 2 <i>Applies ethical principles in common situations</i>	Articulates how the principle of “do no harm” applies to a patient who may not need a joint injection even though it could provide a learning opportunity
Level 3 <i>Analyzes complex situations using ethical principles to address conflict/controversy; seeks help when needed to manage and resolve complex ethical situations</i>	- Offers treatment options for an acutely ill patient, taking into account the patient’s cultural preferences and values, while minimizing bias, recognizing one’s own limitations, and consistently honoring the patient’s and family’s choices - Recognizes the need to involve social work in complex social and ethical situations
Level 4 <i>Manages and seeks to resolve ethical dilemmas using appropriate resources (e.g., ethics consultations, literature review, risk management/legal consultation)</i>	- Uses ethics resources to discuss end-of-life care of a child with rheumatic disease in the intensive care unit with a poor prognosis - Uses institutional resources, including social work and risk management, when a parent or patient becomes agitated and aggressive during a clinic visit - Engages the ethics committee when the caregiver declines immunosuppressive treatment in favor of dietary changes in the setting of aggressive anti-cyclic citrullinated peptide (anti-CCP) positive JIA - Recognizes that prior experiences of racism for the patient and caregiver influence their trust; consequently, is willing to defer discussion of most complex issues to the practitioner whom the family trusts more, rather than assuming a hierarchical structure
Level 5 <i>Called upon by others to consult in cases of complex ethical dilemmas; identifies and seeks to address system-level factors that induce or exacerbate</i>	Participates in the ethics consult service, providing guidance for complex cases
Assessment Models or Tools	- Direct observation - Global evaluation - Multisource feedback - Oral or written self-reflection - Simulation
Curriculum Mapping	

Notes or Resources	• American Board of Pediatrics. “Entrustable Professional Activities for Subspecialties: Rheumatology.” https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • American Medical Association. “Ethics.” https://www.ama-assn.org/delivering-care/ama-code-medical-ethics. Accessed 2020. • Bynny, Richard L., Douglas S. Paauw, Maxine Papadakis, and Sheryl Pfeil. 2017. <i>Medical Professionalism Best Practices: Professionalism in the Modern Era</i>. Menlo Park, CA: Alpha Omega Alpha Medical Society. https://www.alphaomegaalpha.org/wp-content/uploads/2022/01/Monograph2018.pdf. ISBN: 978-1-5323-6516-4. • Domen, Ronald E., Kristen Johnson, Richard Michael Conran, Robert D. Hoffman, Miriam D. Post, Jacob J. Steinberg, Mark D. Brissette, et al. 2016. “Professionalism in Pathology: A Case-Based Approach as a Potential Educational Tool.” <i>Archives of Pathology and Laboratory Medicine</i> 141: 215-219. https://doi.org/10.5858/arpa.2016-0217-CP. • Levinson, Wendy, Shiphra Ginsburg, Frederic W. Hafferty, and Catherine R. Lucey. 2014. <i>Understanding Medical Professionalism</i>. New York, NY: McGraw-Hill Education. https://accessmedicine.mhmedical.com/book.aspx?bookID=1058.
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Professionalism 3: Accountability/Conscientiousness Overall Intent: To take responsibility for one's own actions and their impact on patients and other members of the health care team	
Milestones	Examples
Level 1 <i>Performs tasks and responsibilities, with prompting</i>	• Responds to reminders from program administrator to complete work hour and procedure logs • Changes habits to meet the minimum attendance requirement after being informed by the program director that too many conferences have been missed • Completes patient care tasks, including callbacks, consultations, and orders, after prompting from a supervisor
Level 2 <i>Performs tasks and responsibilities in a timely manner in routine situations</i>	• Completes administrative tasks, including licensing requirements and applying for in-training exam by specified due date • Completes routine patient care tasks, including lab result follow up, chart completion, and returning patient messages/calls, as assigned • Answers pages and emails promptly even when working remotely, with rare need for reminders • Monitors time commitments responsibly to ensure work hours are not violated
Level 3 <i>Performs tasks and responsibilities in a thorough and timely manner in complex or stressful situations</i>	• Triage tasks appropriately with multiple competing demands including care of an acutely ill patient • Seeks appropriate guidance from attending for complex situations • Seeks appropriate support from staff to manage complex clinical situations
Level 4 <i>Coaches others to ensure tasks and responsibilities are completed in a thorough and timely manner in complex or stressful situations</i>	• Gives tips on task prioritization • Aids learners in difficult, complex patient care situations • Supports patient care team members in caring for rheumatologic patients
Level 5 <i>Creates strategies to enhance others' ability to efficiently complete tasks and responsibilities</i>	• Meets with multidisciplinary team of nurses, social workers, and case managers to streamline patient discharges • Meets with staff to educate about medication counseling and triage calls
Assessment Models or Tools	• Compliance with deadlines and timelines • Direct observation • Global evaluations • Multisource feedback • Self-evaluations and reflective tools • Simulation
Curriculum Mapping	•
Notes or Resources	• American Board of Pediatrics. "Entrustable Professional Activities for Subspecialties: Rheumatology." https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022.

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| | <ul style="list-style-type: none">• Code of conduct from fellow/resident institutional manual• Expectations of fellowship program regarding accountability and professionalism |
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Professionalism 4: Well-Being	
Overall Intent: To identify resources to manage and improve well-being	
Milestones	Examples
Level 1 <i>Recognizes the importance of addressing personal and professional well-being</i>	• Acknowledges how individual response to participating in giving bad news, such as a diagnosis of severe organ-threatening disease, impacts well-being and may impact the approach to patients seen later the same day • Discusses the importance of having a mentorship team • Recognizes that personal stress may require a schedule change
Level 2 <i>Describes institutional resources that are meant to promote well-being</i>	• Identifies well-being resources such as meditation apps and mental health resources available through the program and institution • Meets with program director to discuss parental leave options when expecting a child
Level 3 <i>Recognizes institutional and personal factors that impact well-being</i>	• Identifies that a busy clinical service may be stressful and impact well-being • Identifies that working during a pandemic is unusually stressful personally and professionally • Describes the tension between professional and personal responsibilities
Level 4 <i>Describes interactions between institutional and personal factors that impact well-being</i>	• Recognizes that the current continuity clinic schedule will not allow time for a breastfeeding mother to pump and advocates for time within that clinic schedule to accommodate that need • Discusses a plan to mitigate the tension between a busy schedule and time with family • Recognizes how microaggressions from coworkers and/or faculty members are impacting performance or engagement in patient care • Recognizes how implicit bias can impact professional interactions and patient care
Level 5 <i>Coaches and supports colleagues to optimize well-being at the team, program, or institutional level</i>	• Participates in a clinician well-being committee • Leads a team debrief after a stressful, busy service week; shares personal impact of stressors on service and plans to decompress • Develops an affinity group to provide support for self and others to explore impact of microaggressions and biases • Recognizes social determinants of health and family stressors, providing resources to improve family well-being
Assessment Models or Tools	• Direct observation • Group interview or discussions for team activities • Individual interview • Self-assessment and personal learning plan
Curriculum Mapping	•
Notes or Resources	• 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.

- Accreditation Council for Graduate Medical Education. “Well-Being Tools and Resources.” <https://dl.acgme.org/pages/well-being-tools-resources>. Accessed 2022.
- American Board of Pediatrics. “Entrustable Professional Activities for Subspecialties: Rheumatology.” <https://www.abp.org/content/entrustable-professional-activities-subspecialties>. Accessed 2022.
- American Board of Pediatrics. “Roadmap to Resilience, Emotional, and Mental Health.” <https://www.abp.org/foundation/roadmap>. Accessed 2022.
- Hicks, Patricia J., Daniel Schumacher, Susan Guralnick, Carol Carraccio, and Ann E. Burke. 2014. “Domain of Competence: Personal and Professional Development.” *Academic Pediatrics*. 14(2 Suppl): S80-97. <https://doi.org/10.1016/j.acap.2013.11.017>.
- Local resources, including employee assistance programs

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication Overall Intent: To establish a therapeutic relationship with patients and caregivers, tailor communication to their needs, and effectively navigate difficult/sensitive conversations	
Milestones	Examples
Level 1 <i>Demonstrates respect and attempts to establish rapport</i> <i>Attempts to adjust communication strategies based upon patient/family expectations</i>	- Introduces self and faculty member, identifies patient and others in the room, and engages all parties in health care discussion - Interacts with the patient in a developmentally appropriate manner in an effort to set the patient at ease - Identifies that a trained interpreter is needed for patients whose preferred language is not English
Level 2 <i>Establishes a therapeutic relationship in straightforward encounters</i> <i>Adjusts communication strategies as needed to mitigate barriers and meet patient/family expectations</i>	- Prioritizes and sets an agenda based on patient, caregiver, and practitioner concerns at the beginning of the visit - Discusses the advantages of subcutaneous methotrexate over the oral route of administration while validating the patient's fear of needles, and offers support to address needle phobia
Level 3 <i>Establishes a culturally competent and therapeutic relationship in most encounters</i> <i>Communicates with sensitivity and compassion, elicits patient/family values, and acknowledges uncertainty and conflict</i>	- Prioritizes and sets an agenda based on concerns of the patient, caregivers, and practitioner at the beginning of a visit with a child with multiple chronic medical problems - Discusses sensitive topics including sexual activity, gender identity, and BMI while promoting trust, respect, and understanding - Recognizes that mispronouncing a patient's name, especially one of a different ethnicity, might be experienced as a microaggression; apologizes to the patient and seeks to correct the mistake - Acknowledges the patient's and caregivers' culturally informed view of illness and treatment, such as desire to incorporate complementary or alternative treatment methods in the patient's care - Discusses the uncertainties around response to treatment and long-term prognosis for a patient with newly diagnosed JIA
Level 4 <i>Establishes a therapeutic relationship in straightforward and complex encounters, including those with ambiguity and/or conflict</i>	- Discusses the diagnostic ambiguity of a patient's case presenting with diffuse lymphadenopathy while maintaining the patient's and caregivers' confidence in the physician - Educates the patient and caregivers about a new diagnosis of amplified musculoskeletal pain while maintaining a therapeutic alliance

<i>Uses shared decision making with patient/family to make a personalized care plan</i>	• Continues to engage parents who refuse immunizations, addressing misinformation and reviewing risks/benefits to address these concerns in a manner that engages rather than alienates the family • Engages family of a child with medical complexity along with other members of the multi-specialty care team in determining family wishes and expectations regarding pursuing invasive testing such as a brain biopsy
Level 5 Mentors others to develop positive therapeutic relationships <i>Models and coaches others in patient- and family-centered communication</i>	• Acts as a mentor for a junior resident disclosing bad news to a patient and the patient's family • Presents a case of a patient/family with a challenging therapeutic relationship and how it was successfully resolved • Develops a learning module on patient- and family-centered communication, including navigating difficult conversations
Assessment Models or Tools	• Direct observation • OSCE • Standardized patients • SPIKES protocol for delivering bad news
Curriculum Mapping	•
Notes or Resources	• American Board of Pediatrics. "Entrustable Professional Activities for Subspecialties: Rheumatology." https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • Association of American Medical Colleges MedEdPORTAL. "Anti-Racism in Medicine Collection." https://www.mededportal.org/anti-racism. Accessed 2022. • Baile, Walter F., Robert Buckman, Renato Lenzi, Gary Glober, Estela A. Beale, and Ardrzej P. Kudelka. 2000. "SPIKES - A Six-Step Protocol for Delivering Bad News: Application to the Patient with Cancer." <i>The Oncologist</i> 5(4): 302-11. doi: 10.1634/theoncologist.5-4-302. PMID: 10964998. • Benson Bradley J. 2014. "Domain of Competence: Interpersonal and Communication Skills." <i>Academic Pediatrics</i> 14(2 Suppl): S55-S65. https://doi.org/10.1016/j.acap.2013.11.016. Accessed 2020. • Laidlaw, Anita, and Jo Hart. 2011. "Communication Skills: An Essential Component of Medical Curricula. Part I: Assessment of Clinical Communication: AMEE Guide No. 51." <i>Medical Teacher</i> 33(1): 6-8. https://doi.org/10.3109/0142159X.2011.531170. • Makoul, Gregory. 2001. "Essential Elements of Communication in Medical Encounters: the Kalamazoo Consensus Statement." <i>Academic Medicine</i> 76(4): 390-393. https://journals.lww.com/academicmedicine/Fulltext/2001/04000/Essential_Elements_of_Communication_in_Medical.21.aspx#pdf-link.

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| | <ul style="list-style-type: none">• Makoul, Gregory. 2001. "The SEGUE Framework for Teaching and Assessing Communication Skills." <i>Patient Education and Counseling</i> 45(1): 23-34.
https://doi.org/10.1016/S0738-3991(01)00136-7. |
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Interpersonal and Communication Skills 2: Interprofessional and Team Communication Overall Intent: To communicate effectively with the health care team, including consultants	
Milestones	Examples
Level 1 <i>Respectfully requests a consultation, with guidance</i> <i>Identifies the members of the interprofessional team</i>	• Respectfully requests an infectious disease consult for a rheumatologic patient on immunosuppressive medications with fever, after discussing with the attending • Identifies the role of the pharmacist in determining the safety and drug interactions for a lupus patient receiving Cytoxan infusion
Level 2 <i>Clearly and concisely requests consultation by communicating patient information</i> <i>Participates within the interprofessional team</i>	• Communicates with the primary care team to verify they have received and understand the consult recommendations • Sends a message in the EHR to the dietician about a lupus nephritis patient to discuss renal diet • Describes the history of an immunosuppressed rheumatologic patient who has new persistent fevers when requesting a consult from the infectious disease team • Communicates to the social worker concerns about adherence with medical visits of a rheumatologic patient with active lupus nephritis
Level 3 <i>Formulates a specific question for consultation and tailors communication strategy</i> <i>Uses bi-directional communication within the interprofessional team</i>	• Seeks a consult with gastroenterology for a patient with abdominal pain and arthritis and asks about the need to evaluate for inflammatory bowel disease verses gastritis versus vasculitis • Contacts the inpatient team clinical care coordinator to arrange for delivery of a wheelchair to a dermatomyositis patient in rehabilitation • Responds to a query from the dietician, in a timely manner, regarding the need for high caloric formula to a rheumatologic patient with failure to thrive secondary to a high catabolic state
Level 4 <i>Coordinates consultant recommendations to optimize patient care</i> <i>Facilitates interprofessional team communication</i>	• Initiates and leads a multidisciplinary meeting to develop shared care plan for a patient with central nervous system lupus and nephritis • Leads the morning interprofessional huddle on the inpatient unit • Explains the rationale and safety of treating lupus nephritis with cyclophosphamide when adequate intravenous hydration is provided along with mesna after a nursing colleague expresses hesitance to administer cyclophosphamide in a lupus patient with hematuria because of concern about hemorrhagic cystitis • Raises concerns to attending physician regarding racial discrimination or microaggressions from a colleague as it pertains to the patient

Level 5 <i>Maintains a collaborative relationship with referring providers that maximizes adherence to practice recommendations</i> <i>Coaches others in effective communication within the interprofessional team</i>	• Initiates discussion about starting a multi-disciplinary clinic for lupus nephritis • Collaborates and discusses appropriate role of diagnostics and therapeutics with other specialists in a multi-disciplinary clinic; models this behavior for residents • Models how to provide constructive feedback to nursing team members about appropriate triaging of patient phone calls to rheumatology clinic
Assessment Models or Tools	• Direct observation • Global assessment • Medical record (chart) audit • Multi-source feedback • Simulation
Curriculum Mapping	•
Notes or Resources	• ACAPT. "NIPEC Assessment Resources and Tools." https://acapt.org/about/consortium/national-interprofessional-education-consortium-(nipec)/nipec-assessment-resources-and-tools. Accessed 2020. • Dehon, Erin, Kimberly Simpson, David Fowler, Alan Jones. 2015. "Development of the Faculty 360." <i>MedEdPORTAL</i> 11:10174. http://doi.org/10.15766/mep_2374-8265.10174. • Fay, David, Michael Mazzone, Linda Douglas, Bruce Ambuel. 2007. "A Validated, Behavior-Based Evaluation Instrument for Family Medicine Residents." <i>MedEdPORTAL</i>. 2007. https://www.mededportal.org/doi/10.15766/mep_2374-8265.622. Accessed 2020. • François, José. 2011. "Tool to Assess the Quality of Consultation and Referral Request Letters in Family Medicine." <i>Canadian Family Physician</i> 57(5):574–575. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3093595/. Accessed 2020. • Green, Matt, Teresa Parrott, and Graham Cook. 2012. "Improving Your Communication Skills." <i>BMJ</i>. 344:e357. https://doi.org/10.1136/bmj.e357. • Henry, Stephen G., Eric S. Holmboe, and Richard M. Frankel. 2013. "Evidence-Based Competencies for Improving Communication Skills in Graduate Medical Education: A Review with Suggestions for Implementation." <i>Medical Teacher</i>. 35(5):395-403. https://doi.org/10.3109/0142159X.2013.769677. • Interprofessional Education Collaborative Expert Panel. 2011. "Core Competencies for Interprofessional Collaborative Practice: Report of an Expert Panel." Washington, D.C.: Interprofessional Education Collaborative. https://www.aacom.org/docs/default-source/insideome/ccrpt05-10-11.pdf?sfvrsn=77937f97_2. Accessed 2020. • Roth, Christine G., Karen W. Eldin, Vijayalakshmi Padmanabhan, and Ellen M. Freidman. 2019. "Twelve Tips for the Introduction of Emotional Intelligence in Medical Education." <i>Medical Teacher</i> 41(7): 1-4. https://doi.org/10.1080/0142159X.2018.1481499.

Interpersonal and Communication Skills 3: Communication within Health Care Systems Overall Intent: To effectively communicate using a variety of tools and methods	
Milestones	Examples
Level 1 <i>Records accurate information in the patient record</i> <i>Identifies the importance of and responds to multiple forms of communication (e.g., in-person, electronic health record (EHR), telephone, email)</i>	• Identifies changes made to note after attending has revised it • Documents preliminary medical decision making in the note as per discussion with attending in clinic • Documents an accurate history and physical exam in a progress note • Avoids errors in accuracy when using copy/paste/forward of notes • Understands that communication with a patient's family should be through a secure patient portal or phone
Level 2 <i>Records accurate and timely information in the patient record</i> <i>Selects appropriate method of communication, with prompting</i>	• Provides organized and accurate documentation of medical decision making and limits extraneous information • Completes clinical documentation by specified deadlines • Avoids biased or stigmatized language in notes such as "poor historian" • Calls a patient/family about critical test results rather than sending a patient portal message after discussion with attending
Level 3 <i>Concisely documents updated, prioritized, diagnostic and therapeutic reasoning in the patient record</i> <i>Aligns type of communication with message to be delivered (e.g., direct and indirect) based on urgency and complexity</i>	• Documents complex clinical thinking and planning and is concise, but documentation may not contain contingency planning • Requests additional resources and contacts the immediate supervisor when a patient begins to decompensate • Sends secure message to patient's cardiologist with non-urgent question rather than paging cardiologist on call
Level 4 <i>Documents diagnostic and therapeutic reasoning, including anticipatory guidance</i> <i>Demonstrates exemplary written and verbal communication</i>	• Documents an assessment and plan that incorporates signs and symptoms, diagnostic studies, and relevant literature; discusses second-line treatment if the first-line treatment fails • Communicates effectively and proactively with the primary care team regarding future needs of the patient, including vaccination guidance, birth control, and other preventive care measures

Level 5 <i>Models and coaches others in documenting diagnostic and therapeutic reasoning</i> <i>Coaches others in written and verbal communication</i>	• Leads orientation for first-year fellows and creates an orientation packet reviewing appropriate chart documentation • Designs note templates in the EHR for specific diseases such as Lupus that facilitate uniformity of documentation and effective communication among teams, departments, and institutions • Leads a learner workgroup about optimizing written and verbal communication in a multi-disciplinary clinic
Assessment Models or Tools	• Direct observation • Medical record (chart) audit • Multisource feedback • Simulation
Curriculum Mapping	•
Notes or Resources	• American Board of Pediatrics. "Entrustable Professional Activities for Subspecialties: Rheumatology." https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • Benson, Bradley J. 2014. "Domain of Competence: Interpersonal and Communication Skills." <i>Academic Pediatrics</i>.14(2 Suppl): S55-S65. https://doi.org/10.1016/j.acap.2013.11.016. Accessed 2020. • Bierman, Jennifer A., Kathryn Kinner Hufmeyer, David T. Liss, A. Charlotta Weaver, and Heather L. Heiman. 2017. "Promoting Responsible Electronic Documentation: Validity Evidence for a Checklist to Assess Progress Notes in the Electronic Health Record." <i>Teaching and Learning in Medicine</i>. 29(4): 420-432. https://doi.org/10.1080/10401334.2017.1303385. • Haig, Kathleen M., Staci Sutton, and John Whittington. 2006. "SBAR: A Shared Mental Model for Improving Communications Between Clinicians." <i>Joint Commission Journal on Quality and Patient Safety</i>. 32(3):167-75. https://doi.org/10.1016/s1553-7250(06)32022-3. • Starmer, Amy J., Nancy D. Spector, Rajendu Srivastava, April D. Allen, Christopher P. Landrigan, Theodore Sectish, and I-PASS Study Group. 2012. "I-Pass, a Mnemonic to Standardize Verbal Handoffs." <i>Pediatrics</i> 129.2:201-204. https://doi.org/10.1542/peds.2011-2966.

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 the subcompetencies that 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: Provide transfer of care that ensures seamless transitions	SBP4: System Navigation for Patient-Centered Care – Transitions in Care
PC2: Make informed diagnostic and therapeutic decisions that result in optimal clinical judgement	PC1: Gathers an Essential and Accurate Pediatric Rheumatologic History PC2: Physical Examination PC3: Differential Diagnosis Development PC5: Therapeutics, Including Immunomodulatory Agents MK3: Knowledge of Diagnostic Testing
PC3: Develop and carry out management plans	PC4: Comprehensive Management Plan Development PC7: Provides Consultative Care ICS1: Patient- and Family-Centered Communication
PC4: Provide appropriate role modeling	PBLI2: Reflective Practice and Commitment to Personal Growth
	PC6: Procedures
MK1: Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems	MK1: Knowledge of Rheumatic Conditions MK2: Basic Science of Rheumatic Conditions PBLI1: Evidence Based and Informed Practice
SBP1: Work effectively in various health care delivery settings and systems relevant to their clinical specialty	SBP3: System Navigation for Patient Centered Care – Coordination of Care SBP6: Physician Role in Health Care Systems
SBP2: Coordinate patient care within the health care system relevant to their clinical specialty	SBP3: System Navigation for Patient Centered Care – Coordination of Care SBP4: System Navigation for Patient-Centered Care – Transitions in Care SBP5: Population and Community Health ICS1: Patient- and Family-Centered Communications ICS2: Interprofessional and Team Communication
SBP3: Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate	SBP5: Population and Community Health SBP6: Physician Role in Health Care Systems

SBP4: Work in inter-professional teams to enhance patient safety and improve patient care quality	SBP1: Patient Safety ICS2: Interprofessional and Team Communication
SBP5: Participate in identifying system errors and implementing potential systems solutions	SBP1: Patient Safety SBP2: Quality Improvement
PBL11: Identifying strengths, deficiencies, and limits to one's knowledge and expertise	PBL11: Evidence Based and Informed Practice PBL12: Reflective Practice and Commitment to Personal Growth
PBL12: Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement	SBP2: Quality Improvement PBL12: Reflective Practice and Commitment to Personal Growth
PBL13: Use information technology to optimize learning and care delivery	PBL11: Evidence Based and Informed Practice PBL12: Reflective Practice and Commitment to Personal Growth ICS3: Communication within Health Care Systems
PBL14: Participate in the education of patients, families, students, residents, fellows, and other health professionals	SBP5: Population and Community Health PBL11: Evidence Based and Informed Practice ICS1: Patient- and Family-Centered Communications
PROF1: Professional Conduct: High standards of ethical behavior which includes maintaining appropriate professional boundaries	PROF1: Professional Behavior PROF2: Ethical Principles
PROF2: Trustworthiness that makes colleagues feel secure when one is responsible for the care of patients	PBL11: Evidence Based and Informed Practice PROF1: Professional Behavior PROF3: Accountability/Conscientiousness ICS1: Patient- and Family-Centered Communications
PROF3: Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system/environment with the ultimate intent of improving care of patients	ICS2: Interprofessional and Team Communication ICS3: Communication within Health Care Systems PROF2: Ethical Principles PROF3: Accountability/Conscientiousness
PROF4: The capacity to accept that ambiguity is part of clinical medicine and to recognize the need for and to utilize appropriate resources in dealing with uncertainty	PROF2: Ethical Principles ICS1: Patient- and Family-Centered Communication PBL11: Evidence Based and Informed Practice
	PROF4: Well-Being
ICS1: Communicate effectively with physicians, other health professionals, and health-related agencies	ICS2: Interprofessional and Team Communication ICS3: Communication within Health Care Systems
ICS2: Work effectively as a member or leader of a health care team or other professional group	ICS2: Interprofessional and Team Communication PBL12: Reflective Practice and Commitment to Personal Growth PROF3: Accountability/Conscientiousness

Supplemental Guide for Pediatric Rheumatology

ICS3: Act in a consultative role to other physicians and health professionals	PC7: Provides Consultative Care ICS2: Interprofessional and Team Communication ICS3: Communication within Health Care Systems
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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/>