# University of Michigan Health System
# Internal Medicine Residency

## Rheumatology Curriculum: Consultation Service

## Ann Arbor VA Hospital or University Hospital

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### ***Rotation Goals and Educational Purpose***

Rheumatology encompasses diagnosis and treatment of a broad range of disorders that involve the musculoskeletal system and which often have an immunologic basis. These disorders are often accompanied by an array of laboratory phenomena that may support or refute a considered diagnosis, but are almost never diagnostic. Rheumatology is therefore a discipline that demands excellence in the arts of clinical diagnosis and multimodal therapeutics. Most patients with rheumatic disorders are encountered and managed in the clinic. Of the learning objectives listed below, many may be best learned in an outpatient setting. However, hospitalized patients for whom a rheumatology consult is requested also present a challenging array of problems, ranging from regional complaints unrelated to the acute hospitalization to complex multisystem dysfunction for which a unifying diagnosis seems elusive.

The general internist needs to have competency in the initial diagnosis and management of acute arthritis and musculoskeletal disorders and in the long-term care of systemic rheumatic disorders. He or she must also be proficient in monitoring the effects of anti-inflammatory, immunosuppressive, and cytotoxic drugs.

Since what you learn depends so much on what you see, house officers rotating through rheumatology consult service must realize that they may not encounter every facet of these learning objectives on their rotation. However, since what you see depends to some extent on how hard you look, this list might guide the evaluation of patients encountered on a rheumatology rotation.

This rotation is elective for residents at the HO1 and HO2/3 levels.

## ***Rotation Competency Objectives***

In supplement to the University of Michigan Longitudinal Learning Objectives, the following provide an overview of the knowledge, skills, and behaviors promoted in this rotation.

**I.** Patient Care – By completion of the rotation, residents should be able to:

a. History & Physical examination:

i. Elicit history, temporal course, pattern, severity, and functional impact of:

1. Systemic symptoms (fever, weight loss, sweats)
2. Joint pain, swelling,morning stiffness/gel phenomenon, locking/instability
3. Fatigue and/or sleep disturbance
4. Raynaud's phenomenon
5. Sicca complex (dry eyes, mouth)
6. Mucocutaneous abnormalities: alopecia, rash, photosensitivity, ulcers
7. Jaw claudication
8. Muscle pain and/or weakness
9. Hypercoagulability: previous thromboses, pregnancy morbidity/mortality
10. Neuropathic symptoms (peripheral and central)

ii. Identify and recognize severity of “classic” physical findings:

1. Periarticular abnormalities: Bursal tenderness/effusion, tendon tenderness/swelling/tear, ligamentous laxity
2. Joint abnormalities: Crepitus, bony enlargement, deformity, subluxation/dislocation, restriction of motion, synovial thickening, joint effusion, joint warmth
3. Muscle atrophy, muscle weakness (proximal versus distal)
4. Cutaneous signs: alopecia, periungual erythema/abnormal nailfold capillaries, malar (butterfly) rash, clubbing, digital ulcers, discoid lupus rash, facial scleroderma, generalized scleroderma, Gottron's papules, heliotrope rash, keratoderma blennorrhagica, livedo reticularis, nail pitting, nasal ulcers, oral ulcers, palmar erythema, palpable purpura, psoriasis, sclerodactyly, splinter hemorrhages, subcutaneous nodules, telangectasias, tophi

iii. Perform a complete screening musculoskeletal examination

b. Procedures

i. Radiology - Appropriately request and interpret, understanding the indications for and limitations of: X-rays ("inflammatory" vs. "degenerative" changes, marginal erosions, chondrocalcinosis, osteopenia), ultrasound, MRI, CT, angiography (cerebral, visceral, limb)

ii. Arthrocentesis

iii. Soft tissue injection (e.g. bursae, tendon sheaths)

iv. Nailfold capillary microscopy

c. Medical decision making and patient management:

i. Formulate a systematic approach to the patient with multisystem or regional complaints who may have a rheumatic diagnosis.

1. Elicit historical clues to the presence of systemic inflammation as detailed above (e.g. fevers, sweats, weight loss, fatigue, stiffness).
2. Examine the patient's musculoskeletal system and identify sites of abnormality as detailed above for cardinal signs of inflammation, weakness, or impaired movement.
3. Elicit historical clues and physical exam evidence of patterns of end-organ dysfunction that suggest specific rheumatic diseases.
4. Collect and interpret data pertaining to a systemic inflammatory state, and to assess severity of any end organ dysfunction.
5. Choose and interpret appropriate immunologic tests to support or refute a considered diagnosis.
6. Choose appropriately from available imaging and tissue-sampling modalities to diagnose and monitor disease.

ii. Diagnose "classic" systemic rheumatic diseases, including:
1. rheumatoid arthritis
2. systemic lupus erythematosus
3. Sjögren's syndrome
4. polymyositis/dermatomyositis
5. polymyalgia rheumatica
6. scleroderma (limited or systemic)
7. systemic vasculitidies (polyarteritis nodosa, granulomatosis with polyangiitis [Wegener's granulomatosis], Henoch-Schonlein purpura, temporal arteritis, Takayasu's arteritis, cryoglobulinemia)
8. spondyloarthropathies (ankylosing spondylitis, reactive arthritis, psoriatic arthritis, inflammatory bowel disease-associated arthritis)
9. Gout and pseudogout
10. Septic arthritis and bursitis
11. Central pain processing disorders (fibromyalgia)

iii. If encountered, diagnose "classic" regional rheumatic disorders. Regional rheumatic disorders are the emphasis of the separate ambulatory rheumatology elective, but the following may be seen on the inpatient consultation service:
1. Shoulder: rotator cuff dysfunction; adhesive capsulitis
2. Elbow: olecranon bursitis
3. Hip: greater trochanteric pain syndrome, sacroiliac dysfunction, meralgia paresthetica, ischiogluteal bursitis
4. Knee: Baker's cyst, quadriceps/patellar tendinopathy
5. Ankle: Achilles tendinopathy/rupture, retrocalcaneal bursitis, posterior tibial/peroneal tendinopathy
6. Back: myofascial strain, radiculopathy, spinal stenosis, scoliosis/kyphosis

iv. Recognize musculoskeletal manifestations of non-rheumatic diseases
1. Diabetes
2. Thyroid disease
3. Hepatitis C, HIV
4. Malignancy and/or treatment thereof

v. Assess functional limitation for patients with rheumatic disease: ROM, pain, weakness, impacts on ADLs, IADLs, and function in the workplace.
vi. Initiate management for the "classic" rheumatic diseases listed above.
    1. Selection and rationale for use of NSAIDs, steroids, immunomodulatory medications
    2. Appropriate clinical and laboratory monitoring of patients on immunosuppressives
vii. Recognize and initiate management of common complications and/or co-morbidities in patients with classic rheumatic disorders:
    1. systemic lupus erythematosus with: fever, glomerulonephritis, cytopenias, nervous system involvement, or thrombosis (aterial or venous)
    2. rheumatoid arthritis with: infection, pulmonary impairment, or precipitous decline in functional status
    3. polymyositis/dermatomyositis with: worsening muscle weakness. respiratory complaints, profound impairment and/or critical visceral involvement
    4. scleroderma with: gastrointestinal complaints interfering with adequate nutrition, respiratory complaints, hypertension, renal crisis, or acute peripheral vascular compromise
    5. vasculitis with: declining renal function, end-organ ischemia, or infectious complications
viii. Recognize the indications, and refer patients appropriately for muscle biopsy, minor salivary gland biopsy, EMG/NCT, arthroscopy, or peripheral (sural) nerve biopsy

**II.** Medical Knowledge – By completion of the rotation, residents should be able to:

a. Pharmacology: Discuss the indications, usage, and major side effects of drugs commonly used to manage rheumatic disorders:
    i. non-steroidal anti-inflammatory drugs (NSAIDs) and acetaminophen
    ii. corticosteroids (oral, IV, intraarticular)
    iii. anti-malarials
    iv. sulfasalazine
    v. antimetabolites (azathioprine, methotrexate, leflunomide, mycophenolate mofetil)
    vi. cytotoxic agents (cyclophosphamide, chlorambucil)
    vii. biologic agents (TNF blockers, rituximab, abatacept, anakinra, tocilizumab)
    viii. hypouricemic agents (probenecid, allopurinol, febuxostat, pegloticase)
    ix. colchicine
b. Clinical pathology: Reflect knowledge sufficient for basic interpretation of pertinent laboratory studies
    i. Routine urinalysis, blood counts and exam of peripheral smear, chemistries reflecting kidney and liver function/injury, muscle enzymes

ii. parameters of systemic inflammation (wESR, SPEP, c-reactive protein) and the effect of acute phase response on other lab tests (e.g., CBC, iron, ferritin, complement)
iii. autoantibodies (rheumatoid factor, anti-CCP, ANA, ENAs, anti-dsDNA, ANCA, anti-PR3, anti-MPO, anti-Jo-1, anti-Scl-70)
iv. other pertinent proteins (complement components, cryoglobulins, immunoglobulins by class and subtype)
v. cerebrospinal fluid studies ("basics", myelin basic protein, oligoclonal bands, IgG index)
vi. synovial fluid findings (preliminary macroscopic characteristics, examination under polarized light microscopy with identification of monosodium urate and CPPD crystals, and cell counts)

**III.** Interpersonal and Communication Skills

a. Recognize the importance of patient education in the treatment of rheumatologic disorders.
b. Demonstrate communication skills (including listening) that support respectful, culturally competent, and patient-centered care.
c. Demonstrate verbal and nonverbal communication that compassionately recognizes the impact of chronic pain, fatigue, and cognitive disturbance on family and workplace.
d. Generate written documentation consistent with a hypothesis-generating approach to common rheumatologic conditions.

**IV.** Professionalism

a. Respectfully and compassionately respond to patients with a multitude of phenotypic expressions of rheumatologic disorders.
b. Compassionately respond to socio-behavioral and psychiatric complexities of common rheumatologic conditions.
c. Engage patients in effective informed voluntary consent for planned medical management and interventions.
d. Understand confidentiality with respect to chronic illness.
e. Actively participate in clinical care and create medical records in a timely fashion.

**V.** Practice-Based Learning and Improvement

a. Utilize information technology to enhance patient education
b. Demonstrate willingness to learn from error, use information technology to support self education, and facilitate learning of others.
c. In response to measures of quality care, personally monitor and strive to improve skills necessary for optimal management of rheumatologic patients.
d. Identify personal areas of knowledge and/or examination skills weaknesses, and seek out clinical opportunities to develop/expand them.

**VI.** Systems-Based Practice

a. Refer patients appropriately for physical and occupational therapy.

b. Appropriately consult and coordinate with non-medical services, including ophthalmologists, dentists, surgeons, and dermatologists.
c. Strive to provide cost-effective care incorporating awareness of available ancillary services.
d. Strive to assist patients navigate systems of chronic care.

## ***Teaching Methods***

**I.** Supervised Patient Care

a. Approximately 70-80% of the rotation is devoted to experiential learning through consultative management of inpatients, both at University Hospital and at the Ann Arbor VA Hospital. Patients present from a broad range of age and socioeconomic background, with a spectrum of local to quaternary care needs. Residents are under the full supervision of a faculty rheumatologist and a fellow. Residents are expected to contact the fellow each morning for newly assigned consultations. Residents should consider all supervised patient care interactions as opportunities for education. Patient-centered, case-based faculty discussions review each patient daily.
b. Residents spend 10-20% of the rotation in ambulatory rheumatology venues. A mandatory half-day weekly is spent at the Ann Arbor VA general rheumatology clinic, with full faculty and fellow supervision. A further half-day weekly may be selected from a wide range of available rheumatology clinics, based on faculty and resident clinical schedules. Residents continue to devote 10% weekly to their internal medicine continuity clinic.

**II.** Structured Didactics and Small Group Learning – attendance is mandatory unless noted. The rheumatology conference schedule, including room assignments, is available on the division's website: http://www.med.umich.edu/intmed/rheumatology/

a. Rheumatology Fellows' Core Curriculum Conference: Tuesdays @ 12 PM. Clinical presentations of common conditions, geared toward trainees.
b. Rheumatology Grand Rounds: Thursdays, 12 - 1 PM, Ford Auditorium.
c. Optional: Rheumatology Research Conference and Rheumatology Journal Club – some Fridays @ 11 AM.

**III.** Independent study

a. Texts and manuals
    i. *Kelly's Textbook of Rheumatology* and other e-textbooks are available online through Taubman Medical Library e-books: http://sitemaker.umich.edu/hslebooks/home.
    ii. *Rheumatology*. (recent edition) Marc C. Hochberg et al. Edinburgh; St. Louis, MO: Mosby. Available online through Taubman Medical Library e-books: http://sitemaker.umich.edu/hslebooks/home.
    iii. *Clinical Primer of Rheumatology*. (recent edition). WJ Koopman et al. Available in print versions only.
b. Core Clinical Journals

i. *Arthritis and Rheumatism* available online through Taubman Medical Library: http://www.lib.umich.edu/online-journals

c. Professional society guidelines and resources, posted on websites:
   i. American College of Rheumatology: http://www.rheumatology.org/index.asp
d. Online learning
   i. Radiology Image Bank from the American College of Rheumatology: http://images.rheumatology.org/
   ii. High Impact Rheumatology – content on the basics of rheumatology, produced by the American College of Rheumatology: http://www.rheumatology.org/education/resources/other/hir/index.asp
   iii. The Stanford 25: "Knee Exam" http://stanford25.wordpress.com/knee-exam/ and "Shoulder Exam" http://stanford25.wordpress.com/shoulder-exam/ . In addition, common rheumatologic findings are integrated in their module on "The Hand in Diagnosis" http://stanford25.wordpress.com/the-hand-in-diagnosis/. These sites provide videos and explanatory text for physical diagnosis skills.
   iv. Johns Hopkins Internet Learning Center modules, available to all Michigan residents using their ambulatory care login (click on "available modules" to see all module titles): http://www.hopkinsilc.org/
      1. Back pain
      2. Hip and knee pain

## ***Evaluation Methods***

Formative face-to-face feedback to residents by attendings occurs mid-month. Each month, attendings complete online competency-based evaluations of each resident. The evaluation is shared with the resident, is available for on-line review by the resident at his/her convenience, and is sent to the residency office for internal review. The evaluation is part of the resident file and is incorporated into semiannual performance reviews for directed resident feedback.

Residents may be asked to perform a pre/post rotation content knowledge exam, both for learner feedback and for continual assessment of the rotation's curriculum.

Residents also complete a service evaluation of the rotation faculty monthly.

## ***Rotation Schedule***

First day protocol:

1. Attend clinic at the VA every Monday morning unless formally excused. Check with the rheumatology fellowship office prior to the first Monday to ensure you understand the clinic's location and time. Contact Jill Thompson at 734 769-7100 ext. 53401 at the VA *before* Monday morning if you need assistance with VA passwords.
2. Inpatient consultation assignments and care rounds are coordinated by the rotating fellow. Contact the fellow for daily assignments. Notify him/her of your continuity clinic ½ day.

Administrative Leads:
Your principal contacts will be your fellow and consult attending; contact the administrative lead and/or the residency program office for structural questions.

- Cindy Bourke, Fellowship Coordinator, 734-936-5560 at University Hospital
- Jill Thompson, 734 769-7100 ext. 53401 at the VA

Continuity Clinic: Continue to attend general medicine continuity clinic, ½ day weekly.

Weekend duty: none. Call duty: There is no night call.

Rheumatology Clinics: Residents are encouraged to discuss available clinics to attend if the consult service is unusually light.

Rheumatology Consultation Service (VA or UH Based for Consults)

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| AM | 8 – 12:30 PM<br><br>VA General Rheuma-tology Clinic [mandatory] | 8 – 10:30 Consults<br><br>10:30 – 11:30 Morning Report<br><br>11:30 – 12 Consults | 8 – 10:30 Consults<br><br>10:30 – 11:30 Morning Report<br><br>11 – 12:30 Consults | 8 – 10:30 Consults<br><br>10:30 – 11:30 Morning Report<br><br>11 – 12 Consults | 8 – 10:30 Consults<br><br>10:30 – 11:30 Morning Report<br><br>11- 12 Consults |
| PM | 12:30 - 1:30 Residency Noon Conference<br><br>1:30 – Consults | 12 – 1 Rheumatology Core Curriculum Conference (or 12:30 - 1:30 Intern Report)<br><br>1 (1:30 interns ) - Consults | 12:30 - 1:30 Residency Noon Conference (or 12-1 monthly patient safety conference)<br><br>1:30 – Consults | 12 – 1 Rheumatology Grand Rounds (Ford Auditorium)<br><br>1 – Consults | 12 – 1 Internal Medicine Grand Rounds<br><br>1 – Consults |