AMERICAN ACADEMY OF FAMILY PHYSICIANS

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Recommended Curriculum Guidelines for Family Medicine Residents

Rheumatic Conditions

This document is endorsed by the American Academy of Family Physicians (AAFP).

Introduction

Each family medicine residency program is responsible for its own curriculum. The AAFP Commission on Education's Subcommittee on Graduate Curriculum has created this guide as an outline for curriculum development, and it should be tailored to the needs of the program.

Through a series of structured and/or longitudinal experiences, the curricula below will support the overall achievement of the core educational competencies defined by the Accreditation Council for Graduate Medical Education (ACGME) and provide guideposts to program requirements specific to family medicine. For updates and details, please refer to the ACGME website at www.acgme.org. Current AAFP Curriculum Guidelines may be found online at www.aafp.org/cg. These guidelines are periodically updated and endorsed by the AAFP and, in many instances, other specialty societies, as indicated on each guideline.

Preamble

Rheumatic conditions result in numerous hospitalizations and millions of lost work days annually. Each family medicine resident will encounter a significant number of rheumatic problems and should be aware of the impact of this group of diseases on patients and their families. Residents and practicing family physicians will be called upon to diagnose rheumatologic conditions that affect multiple organ systems, and residents should be trained to provide care or coordinate care provided by themselves and appropriate subspecialists. Residents should be able to perform an appropriate history and physical

examination, laboratory tests, and basic diagnostic procedures and initiate a management and therapy plan for a patient who has a rheumatic condition.

In all settings, family physicians play a very important role in the care of patients who have rheumatic conditions. They should be competent in the evaluation and management of common rheumatic conditions, providing both independent management and coordinated care with specialty-trained rheumatologists. Family physicians should be competent in assessing patient understanding of the disease and in guiding patients to use self-management skills to participate in their treatment plan.

Family medicine is a comprehensive specialty, and family physicians should continually update their clinical knowledge to learn about advances in rheumatic diagnoses and treatments. They should help guide patients in the use of appropriate disease-modifying agents and identify when physical, occupational, and rehabilitative therapies are necessary.

Patient Care

At the completion of residency, a family medicine resident should be able to:

1. Diagnose
    a. Identify risk factors for rheumatic conditions
    b. Obtain an appropriate history
        i. Timeline
        ii. What time of day symptoms are most severe
        iii. Exacerbating and alleviating factors
        iv. Family history
        v. Exposures (e.g., occupational, chemical, infectious)
        vi. Level of pain
        vii. Effect on daily life and work
    c. Perform physical exam maneuvers and observe for findings specific to rheumatic conditions
    d. Order appropriate lab tests and/or diagnostic imaging to assist in diagnosis of rheumatic conditions, taking into account pretest probabilities and likelihood that individual tests will aid diagnosis
    e. Develop an organized and hierarchical differential diagnosis based on patient symptoms and signs, including pattern of involvement
    f. Recognize urgent and emergent joint and periarticular conditions, and undertake initial emergency management (possibly including diagnostic joint aspiration) and appropriate coordination of emergency care
    g. Screen for comorbid rheumatologic and systemic conditions
    h. Use point-of-care ultrasound (POCUS) in diagnosis of rheumatic and other musculoskeletal conditions

2. Manage rheumatic conditions
    a. Offer both pharmacologic and nonpharmacologic options to minimize symptoms

and pain
   b. Determine the threshold for referral to rheumatology
   c. Perform small, medium, and large joint and periarticular injections
   d. Assess quality of life and effects on activities of daily living/instrumental activities of daily living
   e. Assess the need for workplace accommodations and/or disability
   f. Evaluate psychological effects of chronic rheumatologic conditions
   g. Discuss lifestyle and nutritional changes that can alleviate inflammation
   h. Encourage tobacco cessation
   i. Recognize urgent conditions and manage or triage appropriately (e.g., septic arthritis, acute gout)
   j. Evaluate disease progression and/or insufficient treatment/treatment failures, and adjust therapies or coordinate appropriate care

3. Perform appropriate procedures
   a. Intra-articular injections (therapeutic) and aspirations (diagnostic)
   b. Periarticular and other soft tissue injections (therapeutic)
   c. Ordering and interpretation of diagnostic aspiration results

4. Demonstrate cultural humility and awareness of disparities
   a. Be aware of higher prevalence of rheumatologic conditions in certain racial and ethnic minority groups (e.g., Black people, Indigenous people)
   b. Acknowledge chronic stress, trauma, and exposure to pollution and chemicals as risk factors for inflammatory conditions
   c. Take into account a patient's cultural background and practices when discussing lifestyle and diet changes
   d. Address any stigma surrounding certain rheumatologic conditions

Medical Knowledge

In the appropriate setting, a family medicine resident should demonstrate the ability to apply knowledge of the following:

1. Anatomy and physiology of the normal musculoskeletal system and the immunologic processes that contribute to the pathogenesis of rheumatic disease

2. A focused history for joint and soft tissue symptoms, a complete musculoskeletal examination, and functional assessment

3. Use of laboratory and imaging modalities, including:
   a. Indications for ordering serologic rheumatologic testing, including antinuclear antibody (ANA), cyclic citrullinated peptide (CCP), and rheumatoid factor, with a focus on pretest probability to aid in diagnostic decision-making
   b. Indications for arthrocentesis and interpretation of results
   c. Indications for tissue biopsy and interpretation of results
   d. Indications for arthroscopy

4. Clinical presentation, diagnostic criteria, and initial treatment for various rheumatic conditions, with special emphasis on common conditions such as:
    a. Arthralgia/arthritis
        i. Osteoarthritis (OA), including primary and secondary
        ii. Rheumatoid arthritis (RA) with manifestations of articular, extra-articular, and juvenile forms
        iii. Spondyloarthritis
            1. Ankylosing spondylitis
            2. Reactive arthritis (including the subset formerly known as Reiter syndrome)
            3. Psoriatic arthritis (spondyloarthritis associated with psoriasis)
            4. Spondyloarthritis associated with inflammatory bowel disease
            5. Peripheral spondyloarthritis
            6. Juvenile-onset spondyloarthritis
        iv. Infections that cause direct and indirect forms of arthritis
            1. Acute rheumatic fever
            2. Subacute bacterial endocarditis
            3. Post-dysenteric
            4. Parvovirus B19
        v. Crystal-induced arthropathies
            1. Gout
            2. Corticosteroid injection-induced crystal arthropathy
            3. Calcium pyrophosphate deposition disease (“pseudogout”)
            4. Hydroxyapatite deposition
        vi. Neoplasms that cause arthropathies
        vii. Drug-induced
    b. Connective tissue disorders
        i. Lupus erythematosus (LE) with various presentations (including systemic, discoid, and drug-induced)
        ii. Systemic sclerosis (“scleroderma”) with various presentations (including limited cutaneous systemic sclerosis, CREST syndrome, diffuse cutaneous systemic sclerosis, systemic sclerosis sine scleroderma, and systemic sclerosis with overlap syndrome)
        iii. Polymyositis and dermatomyositis and their relationship to connective tissue disorders, as distinguished from drug-induced myositis
        iv. Sjögren syndrome (primary and secondary)
        v. Polymyalgia rheumatica
        vi. Antiphospholipid syndrome
        vii. Adult-onset Still disease
        viii. Relapsing polychondritis
        ix. Inclusion body myositis
    c. Vasculitis
        i. Large vessel vasculitis
            1. Takayasu arteritis
            2. Giant cell (formerly temporal) arteritis
        ii. Medium vessel vasculitis
            1. Polyarteritis nodosa

2. Kawasaki disease

iii. Small vessel vasculitis
1. Antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis
   - Microscopic polyangiitis
   - Granulomatosis with polyangiitis (formerly Wegener granulomatosis)
   - Eosinophilic granulomatosis with polyangiitis (formerly Churg-Strauss syndrome)
2. Immune complex small vessel vasculitis
   - Anti-glomerular basement membrane (GBM) disease (formerly Goodpasture syndrome)
   - Cryoglobulinemic vasculitis
   - IgA vasculitis (formerly Henoch-Schönlein purpura)
   - Hypocomplementemic urticarial vasculitis (anti-C1q vasculitis)
   - Serum sickness and serum sickness-like reactions

iv. Vasculitides that affect variable vessels (variable-vessel vasculitis)
1. Behçet syndrome
2. Cogan syndrome

v. Single organ vasculitis (including primary central nervous system vasculitis and cutaneous vasculitis)

vi. Vasculitis associated with systemic disease (e.g., systemic lupus erythematosus [SLE], RA, relapsing polychondritis)

vii. Vasculitis associated with other primary medical conditions (including hepatitis C virus-associated cryoglobulinemic vasculitis, hepatitis B virus-associated polyarteritis nodosa, hydralazine-associated ANCA-associated vasculitis, and vasculitis associated with hematologic and solid organ neoplasms)

d. Regional rheumatic pain syndromes
i. Bursitis (affecting anatomic and adventitial bursae)
ii. Tendinitis, tendinosis, and other tendinopathies
iii. Low back pain
iv. Costochondritis
v. Chondromalacia patellae
vi. Nerve compression syndromes
1. Peripheral nerve entrapment (e.g., carpal tunnel and Guyon canal syndromes)
2. Radiculitis and radiculopathy
3. Spinal stenosis

vii. Raynaud phenomenon
viii. Complex regional pain syndrome

e. Common pediatric rheumatic conditions
i. Systemic juvenile idiopathic arthritis (formerly juvenile rheumatoid arthritis)
ii. Kawasaki disease (see 4.c.ii.2 above)
iii. IgA vasculitis (formerly Henoch-Schönlein purpura, see 4.c.iii.2 above)

f. Other
i. Osteopenia and osteoporosis
ii. Osteomalacia and rickets
iii. Paget disease of bone

iv. Avascular necrosis
v. Panniculitis, including subtypes (includes entity formerly called Weber-Christian disease):
    1. Inflammatory, including:
        - Erythema nodosum
        - Lipodermatosclerosis/sclerosing panniculitis
        - Lupus panniculitis
        - Erythema induratum
    2. Infection
    3. Trauma
    4. Deposition, including calciphylaxis
    5. Enzymatic destruction
    6. Malignancy
vi. Sarcoidosis
vii. Fibromyalgia
viii. Myofascial pain syndrome and dysfunction
ix. Myalgic encephalomyelitis/chronic fatigue syndrome

5. The indications, contraindications, potential side effects, and laboratory monitoring parameters of various pharmacologic agent classes used
    a. Analgesic medications (including nonsteroidal anti-inflammatory drugs [NSAIDs], acetaminophen, specific COX-2 inhibitors, tramadol, and opioids)
    b. Disease-modifying agents
        i. Nonbiologic agents: methotrexate, hydroxychloroquine, sulfasalazine, leflunomide
        ii. Biologic agents: tumor necrosis factor (TNF)-alpha inhibitors, interleukin inhibitors, JAK/other kinase inhibitors, and other biologic agents
    c. Corticosteroids, both local and systemic
    d. Uricosuric agents for prevention of gouty attacks and the use of abortive agents in acute attacks
    e. Tetracyclines in the treatment of rheumatoid arthritis
    f. Medications used in the prevention and treatment of osteoporosis
        i. Bisphosphonates, oral and injectable
        ii. Selective estrogen receptor modulators
        iii. Denosumab (RANK ligand inhibitor)
        iv. Estrogen/progestin therapy
        v. Parathyroid hormone (PTH)/parathyroid hormone-related protein (PTHrP) analogs

6. The use of rehabilitation services for joint mobilization and physical conditioning, and modalities for different stages of rheumatic conditions to promote function and prevent physical disability

7. A multidisciplinary approach that utilizes expert resources (including a rheumatologist, a physiatrist, physical and occupational therapists, an orthopedic surgeon, and a mental health care professional) for optimal patient care

8. Integrative and/or alternative therapies and modalities available for rheumatic conditions (including supplements, manipulation therapy, and acupuncture)

9. Disability prevention, including appropriate general health maintenance (e.g., vaccinations, weight management, nutrition and exercise counseling), with attention to managing other comorbid medical conditions

10. Self-management and education for pediatric patients and patients with intellectual disabilities about treatment and follow-up with health care professionals

Interpersonal and Communication Skills

At the completion of residency, a family medicine resident should be able to:

- Hear and understand patient symptoms and the impact those symptoms have on the patient, their ability to function, and their family and community
- Provide patient education and answer questions about rheumatologic conditions
- Appreciate and communicate the impact of chronic rheumatologic conditions on a patient's quality of life
- Assess patient's social and family support
- Actively form a partnership with the patient, the patient's family, and any consulting physicians
- Demonstrate sensitivity toward cultural values and beliefs related to diagnosis and management
- Support patients through any changes in lifestyle and daily functioning, including inability to continue with previous jobs or tasks

Systems-Based Practice

At the completion of residency, a family medicine resident should be able to:

- Utilize a multidisciplinary approach in managing patients with rheumatologic conditions (e.g., rheumatology, physiatry, physical therapy, occupational therapy)
- Coordinate care with specialists and consultants (e.g., rheumatologist, physiatrist/physical medicine and rehabilitation specialist, physical and occupational therapists)
- Optimize treatment plans based on knowledge of community programs, the patient's financial resources, and feasibility of treatments
- Discuss preventive medicine for those at risk of developing rheumatologic conditions due to modifiable (e.g., tobacco use) and nonmodifiable (e.g., family history) risk factors

- Identify and address any financial, logistical, and circumstantial barriers or obstacles to care
- Communicate with pharmacy and/or explore other available resources (e.g., GoodRx, patient assistance programs) if a patient requires expensive treatment
- Provide referrals to any relevant local or virtual support groups

Practice-Based Learning and Improvement

At the completion of residency, a family medicine resident should be able to:

- Use self-directed and case-based learning to augment knowledge and remain up to date regarding conditions, diagnostic approaches, and therapeutic modalities
- Practice lifelong learning and allow each patient to provide insight and feedback about their journey navigating their condition
- Keep up to date with and provide appropriate screening for comorbid multi-system conditions
- Use each patient's symptoms, situation, and course to modify "illness prescriptions" for rheumatologic conditions
- Optimize treatment plans to align with each patient's values, needs, resources, and abilities
- Seek out and offer community resources that would be of use to a patient

Professionalism

At the completion of residency, a family medicine should be able to:

- Demonstrate sensitivity and compassion toward patients whose lives are affected by their rheumatologic conditions
- Retain knowledge of the multifactorial and biological nature of these diseases (i.e., do not present them as diseases caused by misinformed choices)
- Provide timely support and advice to those whose work, family, and personal lives are affected by their condition
- Provide reasonable, appropriate recommendations for lifestyle and work modifications, including temporary disability, if appropriate
- Help patients navigate treatment, understanding that treatment plans can be complicated and difficult to follow

Implementation

This curriculum guideline serves as a framework describing competencies for family medicine residents to achieve. A curriculum on rheumatic/rheumatologic conditions

should not be focused only on a single rotation. Rather, it should be utilized in a longitudinal manner, incorporating ambulatory and hospital management of rheumatic conditions. Some concentration of this material during a given rotation (e.g., musculoskeletal medicine, orthopedic surgery, pain medicine) may be particularly useful.

Family medicine residents will diagnose and care for numerous patients with a variety of rheumatic conditions during their residency and in practice after residency. Therefore, family medicine residents must learn about these conditions longitudinally during residency, which requires residency faculty to remain reasonably up to date on terminology, diagnosis, and management of a variety of conditions, particularly those that are most common in primary care. All residents should have opportunities to see, manage, and treat patients with rheumatologic conditions and practice hands-on skills, including physical exams and relevant procedures. Rheumatology is as rapidly changing as other domains in medicine, so faculty will also need to be able to look up information in the moment while precepting and working with residents.

To facilitate longitudinal learning, didactic presentations and workshops should also adhere to and utilize this curriculum guideline to ensure continued learning about common rheumatic conditions. Workshops and small-group settings might provide training in examination techniques and interpretation, injection and aspiration techniques, trigger point injections, osteopathic or other manipulation for therapy, and other procedures.

It is important for residents to practice patient-centered medicine as their medical knowledge grows and to appreciate the significant biopsychosocial impact that rheumatologic conditions can have on individuals and their families. Importantly, they should be aware of and sensitive to disparities in the prevalence and management of rheumatologic conditions, with patients in certain racial and ethnic minority groups and patients of lower socioeconomic status disproportionately affected.

Resources

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Stuart MR, Lieberman JA. *The Fifteen Minute Hour: Therapeutic Talk in Primary Care*. 5th ed. Radcliffe; 2015.

Website Resources

American Family Physician (*AFP*) by Topic: Arthritis and Joint Pain. www.aafp.org/pubs/afp/topics/by-topic.arthritis-and-joint-pain.html

Centers for Disease Control and Prevention. Arthritis. www.cdc.gov/arthritis/

Organizations

Arthritis Foundation. www.arthritis.org

National Institute of Arthritis and Musculoskeletal and Skin Diseases. www.niams.nih.gov

Mobile Apps

CORE: Clinical Orthopedic Exam (Clinically Relevant Technologies). http://clinicallyrelevant.com/core-clinical-orthopedic-exam/

RAVE Mobile (DKBmed LLC). https://play.google.com/store/apps/details?id=com.dkbmed.ravemobile&hl=en_GB

RheumaHelper (Modra Jagoda). www.rheumaHelper.com

Rheumatologic Diseases @PoCare (@Point of Care™). https://apps.apple.com/us/app/rheumatologic-diseases-poc/id1251067402

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