

RHEUMATOLOGY FELLOWSHIP CURRICULUM OREGON HEALTH AND SCIENCE UNIVERSITY

I. Mission

The subspecialty of rheumatology includes evaluation and treatment of a wide array of inflammatory, non-inflammatory, and degenerative diseases that affect the musculoskeletal and other organ systems. The purpose of our rheumatology training program is to train fellows to be accomplished practitioners and consultants in the rheumatic diseases; to encourage their professional development and scholarly pursuits that ensure they remain current in the field of rheumatology and immunology throughout their careers; and to foster their interest in contributing to future advancement of the field.

During the course of their training, fellows will participate in the following activities. Specific educational goals and objectives are outlined as are methods of acquisition, assessment, and feedback.

II. Outpatient Continuity Clinics at OHSU and the PVAMC

Description

A significant portion of the rheumatology fellows' clinical training is conducted under the direct supervision of the University and PVAMC faculty in the outpatient clinical setting. Fellows have continuity clinics across the 2-year training program during which they have primary responsibility for patient evaluation, treatment, and follow-up. These clinics include 2 half-day clinics at the University, Tuesday mornings or afternoons and Thursday mornings under the supervision of Dr. Atul Deodhar, Dr. Pascale Schwab, and Dr. Leslie Kahl. In addition, the fellows participate in a one-half day continuity clinic at the VA on Monday afternoons under the supervision of Dr. Cong-Qiu Chu and Dr. Kenneth Scalapino.

The goals and objectives of these clinical activities overlap. These clinics are at the core of the fellows' clinical training allowing competencies to be acquired on a continuum, over the 2 years of training. During these clinics the fellows will independently evaluate new and follow-up patients with a broad scope of rheumatic diseases, present their findings, outline a differential diagnosis, generate a plan of treatment, and perform procedural skills fundamental to the practice of rheumatology, all under the close supervision of the rheumatology faculty. The fellows will also have the opportunity to follow patients over time, reassess the success or failure of their treatment interventions, and be involved closely with the care of their patients. They will act as their patients' advocates and assist their patients in dealing with all aspects of their rheumatologic condition, including the emotional and socioeconomic impact. A timeline of goals and objectives around core competencies is outlined below.

Participants

First and second year fellows

Location

OHSU rheumatology clinic /PPV 4
PVAMC rheumatology clinic /8C

Time

Tuesday AM or PM OHSU

Thursday AM OHSU
Monday PM PVAMC

Instructional Materials/Methods

Independent learning

Textbook of rheumatology (Kelley or Hochberg)

www.uptodate.com

Literature search- pubmed/ovid

ACR reading list www.rheumatology.org

Reflective learning, self-evaluations

Didactic conferences

Weekly core clinical conference covering spectrum of rheumatology curriculum

Weekly rheumatology grand rounds incorporating clinicopathologic case conferences led by fellows or other faculty members

Weekly radiology conference

Annual meetings (ACR, NW Rheumatism, Sunriver Musculoskeletal update course)

Patient centered teaching

Musculoskeletal exam

Procedures

Clinical care and decision making

Radiology reading

Evaluations/Feedback

Immediate verbal feedback

Formal twice a year E*value based evaluations

360 evaluations from staff, patients

Focused observations by faculty

In-service exam, yearly

Goals and Objectives

Year 1 Months 1-6

Educational Goals

The goal for the first six months of training is to provide a structured environment in which new rheumatology fellows can begin to develop the basic skills of the rheumatology subspecialist. In terms of knowledge, the focus during this initial period is on background medical knowledge in immunology and autoimmune disease and basic clinical care of the most common rheumatic diseases and essential core knowledge required to properly evaluate and triage rheumatologic emergencies. In clinical care, the focus is on development of the basics of the rheumatology history, musculoskeletal exam, appropriate use of laboratory testing, fundamentals of joint aspiration and injection, and routine use of common anti-inflammatory and anti-rheumatic drugs.

Objectives

Medical Knowledge

At the end of the first six months, the fellow should be able to:

A. Describe the clinical features and appropriate initial evaluation of patients with rheumatoid arthritis, osteoarthritis, infectious arthritis, crystal-induced arthritis, systemic lupus

erythematosis, and the spondyloarthropathies.

B. Demonstrate a basic understanding of rheumatologic tests, including ANA and subsets, RF, antiphospholipid antibodies, cryoglobulins, ESR, CRP, CCP, C3, C4, CH50, ANCA, HLA B27, Lyme ELISA and immunoblot.

C. Recognize rheumatologic emergencies: including infection in the immunocompromised host, septic arthritis, active connective tissue disease and vasculitis with impending organ system damage, scleroderma renal crisis, and ischemic necrosis of digits.

D. Understand the pharmacology of corticosteroids, nonsteroidal anti-inflammatory drugs, methotrexate, hydroxychloroquine, sulfasalazine, leflunomide, TNF inhibitors, IL-1 inhibitors, abatacept, rituximab, tocilizumab, tofacitinib.

Patient Care

At the end of the first six months, the fellow should be able to:

A. Understand principles and demonstrate competency in obtaining a clinical history and relevant review of systems for patients presenting to a rheumatology clinic.

B. Understand principles and demonstrate competency in performing and interpreting the examination of the structure and function of all axial and peripheral joints, periarticular structures, peripheral nerves and muscles.

C. Understand the indications for and demonstrate competence in arthrocentesis. The fellow should understand the anatomy, precautions and potential sequelae of arthrocentesis and demonstrate competency in obtaining synovial fluid from large diarthrodial joints and bursae, with adequate informed consent.

D. Understand the principles and interpretation of results of synovial fluid analysis and be able to use a polarized microscope to examine synovial fluid to diagnose crystalline arthropathy, including gout and calcium pyrophosphate deposition disease.

E. Develop a system for evaluating and interpreting radiographs of normal joints and bones and begin to read and interpret abnormal radiographs of these structures.

F. Use the basic principles of decision analysis, demonstrate understanding and begin to develop competency in the indications for and the interpretation of results from laboratory tests and procedures to establish a diagnosis of a rheumatologic disease. including: 1.) Specific laboratory tests (including, but not limited to) erythrocyte sedimentation rate, C-reactive protein, other acute phase response proteins (e.g. ferritin), rheumatoid factor, anti-cyclic citrullinated peptides, antinuclear antibodies, anti-dsDNA, anti-SSA (anti-Ro), anti-SSB (anti-La), anti-U1RNP, anti-Sm, anti-topoisomerase I (Scl-70), anti-Jo-1, anti-PM-Scl, anti-histone antibodies, anti-neutrophil cytoplasmic antibodies (including anti-myeloperoxidase and anti-proteinase-3), cryoglobulins, complement component levels, CH50, serum protein electrophoresis, serum immunoglobulin levels, LE preparation, RPR, lupus anticoagulant assays, anti-cardiolipin antibodies, HLA typing (e.g. HLA-B27), ASO and other streptococcal antibody tests, Lyme serologies, serum and urine urate levels, circulating immune complexes, lymphocyte subset and function data, anti-cellular antibodies (e.g. Coombs' test, neutrophil antibodies and anti-platelet antibodies).

G. Demonstrate the ability to construct a differential diagnosis in patients presenting with signs and symptoms related to rheumatologic diseases that includes the most common and probable possibilities, and to outline further testing necessary to establish the correct diagnosis.

H. Apply knowledge of clinical pharmacology to selection and use of anti-inflammatory and anti-rheumatic medications, including:

1. Nonsteroidal anti-inflammatory drugs

2. Glucocorticoids: topical, intra-articular, and systemic

3. Disease modifying anti-rheumatic drugs:

a. Oral agents: methotrexate, antimalarials, sulfasalazine, leflunomide

b. Parenteral biological response modifiers including inhibitors of TNF, IL 1 and

other cytokines and immune based therapies such as anti-CD20 and CTLA-4 Ig.

4. Immunomodulatory and cytotoxic drugs: azathioprine, cyclophosphamide, mycophenolate mofetil, cyclosporine, tacrolimus
5. Hypouricemic drugs: allopurinol, probenecid, febuxostat, pegloticase
6. Antibiotic therapy for septic arthritis, Lyme disease
- I. Recognize rheumatologic emergencies, including infection in the immunocompromised host, septic arthritis, active connective tissue disease and vasculitis with impending organ system damage, and ischemic necrosis of digits.
- J. Understand appropriate indications for surgical and orthopedic consultation in the common acute and chronic rheumatic and musculoskeletal diseases, such as degenerative joint disease, rheumatoid arthritis, and the common tendinopathies, entrapment neuropathies and traumatic injuries.
- K. Demonstrate understanding in the pre- and post-operative management of the surgical patient, including:
 1. Indications for surgical and orthopedic consultation in acute and chronic rheumatic diseases
 2. Perioperative evaluation, appropriate referral and medication adjustments.
 3. Rehabilitation of the rheumatic disease patient after a surgical or orthopedic procedure, as well as aspects of postoperative medical management pertaining to the rheumatologic condition.
- L. Understand pain assessment and pain management, including:
 1. Non-pharmacological modalities of pain management including exercise, cognitive behavioral therapy
 2. Pharmacological therapy including:
 - a. Immunosuppressive and anti-inflammatory management of underlying rheumatic disorder.
 - b. Analgesic agents including acetaminophen, nonsteroidal anti-inflammatory agents and narcotic analgesics.
 - c. Antidepressants
 - d. Investigational uses of approved drugs such as gabapentin, pregabalin
- M. Demonstrate the ability to construct and implement an appropriate treatment plan for the care of a patient with common rheumatologic problems, including osteoarthritis, rheumatoid arthritis, gout and the spondyloarthropathies, integrating the prescribing of medications, counseling, rehabilitative medicine, and, when necessary, surgical or other consultation. The fellow should be able to explain the rationale and the risks/benefits for the treatment plan.

Practice-based Learning and Improvement

At the end of the first six months, the fellow should be able to:

- A. Begin to incorporate feedback into improvement of clinical activity, including information obtained from patients, instructors and from the medical literature.
- B. Demonstrate the use of reflective learning using the electronic and print medical literature to gain expertise in the management of patients and by communicating learned concepts to peers.
- C. Begin identifying a practice improvement project with the help of a faculty member.

Systems-based Practice

At the end of the first six months, the fellow should be able to:

A. Understand the rheumatologist's role as a consultant in the care of patients with rheumatic disease as well as when to consult other health professionals (physiatrist, nurse practitioner, visiting nurse, physical therapist, occupational therapist, podiatrist, social worker, vocational rehabilitation counselor, psychologist, others) in the outpatient rehabilitation of patients with rheumatic diseases.

B. Become familiar with the two hospital-based systems in which they see patients (OHSU, PVAMC); including administration, insurance, economics, personnel, ethical aspects, formulary and quality assurance care issues relating to their practice of rheumatology in these systems and the strengths and weaknesses of these systems. Contrast these systems with the Indian Health Systems of care delivery to which they will be exposed on a quarterly basis.

C. Demonstrate a commitment to the practice of appropriate evidence-based cost-conscious patient care.

D. Learn to become effective advocates for their patients in a variety of needs, such as dealing with prior authorizations for medications, filing disability claims, etc.

E. Be able to identify problem areas in patient care, educational or research arenas and formulate a plan to address the issues.

Interpersonal and Communications Skills

At the end of the first six months, the fellow should be able to:

A. Demonstrate the ability to effectively interact and communicate with staff, colleagues and peers. Consistently present patient histories and physical exams in a clear and logical manner, outline a synopsis of the data collected, and formulate a concise differential diagnosis.

B. Gain experience in writing consultations and letters to referring physicians.

C. Work to clearly explain benefits and risks of treatment to their patients.

D. Obtain informed consent for procedures and treatments from their patients in a professional and clear manner.

E. Use effective teaching skills with colleagues and patients.

Professionalism

By the end of the first six months, the fellow should routinely display the following attributes of professionalism. It is expected that these behavioral traits will be maintained throughout the training period and beyond throughout the fellow's career as a rheumatologist.

A. Demonstrate understanding of the importance of patient primacy by:

1. Placing the interest of the patient above their own interest.

2. Respecting patient privacy.

3. Providing autonomy to their patients to decide upon treatment once all treatment options and risks have been outlined for them.

4. Providing and obtaining key elements of informed consent in an understandable manner or therapeutic interventions and clinical research endeavors.

5. Giving equitable care to all patients.

6. Treating all patients with respect regardless of race, gender and socioeconomic background.

B. Demonstrate accountability and responsibility by:

1. Following through on duties and clinical tasks.
 2. Demonstrating timeliness in required activities, in completing medical records and in responding to patient and colleague calls.
 3. Exhibiting regular attendance and active participation in divisional and departmental training activities and scholarly endeavors.
 4. Striving for excellence in care and/or scholarly activities as a rheumatologist.
 5. Working to maintain personal physical and emotional health and demonstrates an understanding of and ability to recognize physician impairment in self and colleagues.
- C. Demonstrate humanistic qualities and altruism by:
1. Exhibiting empathy and compassion in patient/physician interactions.
 2. Being sensitive to patient needs for comfort and encouragement.
 3. Displaying courtesy and respect in interactions with patients, staff and colleagues.
 4. Maintaining the welfare of their patients as their primary professional concern.
- D. Demonstrate ethical behavior by:
1. Demonstrating integrity in reporting back key clinical findings to supervising physicians.
 2. Being trustworthy in following through on clinical questions, laboratory results, and other patient care responsibilities.
 3. Learning to recognize and address actual and potential conflicts of interest.

Year 1 Months 7-12

Educational Goals

The goal for the second six months of training is for fellows to expand their basic rheumatology skills and to assume greater independence in medical decision making and the overall management of their patients. In terms of knowledge, the focus during this period is on more detailed knowledge of the more complicated and/or less common autoimmune diseases, including the vasculitides, systemic lupus erythematosus, scleroderma and related connective tissue disease, and the inflammatory myopathies. In clinical care, the focus expands to emphasize more varied treatment approaches for the common rheumatic and musculoskeletal conditions, recognition and treatment of the less common and unusual rheumatic conditions and comprehensive patient management including the use of allied health professionals and other components of the health care delivery system.

Objectives

Medical Knowledge

By the end of the first year of training, the fellow should demonstrate a working knowledge of:

- A. The systemic connective tissue diseases, spondyloarthropathies, vasculitides, infectious arthropathies, inflammatory myopathies, bone and cartilage disorders, the metabolic, endocrine, and hematologic disease associated rheumatic disorders, the hereditary rheumatic syndromes, and the common nonarticular and regional musculoskeletal disorders, as well as a wide range of miscellaneous rheumatic disorders delineated in the ACR Core Curriculum.
- B. Basic immunology, including the anatomy and cellular elements of the immune system, immune and inflammatory mechanisms, and mechanisms of cellular interactions, immunomodulation and immunoregulation. This is covered in a didactic form during the yearly summer immunology course.
- C. The anatomy and biology of musculoskeletal tissues.

- D. The biologic rationale, methods for performing, and utility/limitations of specific laboratory tests used in rheumatology.
- E. The pharmacology of the entire range medications used in rheumatology practice.
- F. Methods of rehabilitation including indications, precautions and contraindications, potential side effects, and costs.

Patient Care

In addition to the objectives defined above for the first six months, by the end of the first year of training, fellows should be able to:

- A. Know and identify articular and extraarticular manifestations that are associated with specific rheumatic diseases.
- B. Demonstrate understanding and competency in the assessment and interpretation of:
 - 1. Radiographs of diseased joints, bones, periarticular structures and prosthetic joints
 - 2. Bone densitometry
- C. Demonstrate understanding and competency in the indications for and the interpretation of results from laboratory tests and procedures to establish a diagnosis of a rheumatologic disease including:
 - 1. Computed tomography, and magnetic resonance imaging of joints, bones and periarticular structures.
 - 2. Biopsy specimens including histochemistry and immunofluorescence of tissues relevant to the diagnosis of rheumatic diseases: skin, synovium, muscle, nerve, bone (e.g. metabolic bone disease), minor salivary gland, artery, kidney and lung.
 - 3. Radionuclide scans of bones and joints.
 - 4. Arteriograms (conventional and MRI/MRA) for patients with suspected or confirmed vasculitis.
 - 5. Computed tomography of lungs and paranasal sinuses.
 - 6. Magnetic resonance imaging of the central nervous system (brain and spinal cord).
 - 7. Electromyograms and nerve conduction studies
 - 8. Schirmer's test
- D. Demonstrate competence in arthrocentesis of small joints and bursae and injection of soft tissue structures.
- E. Demonstrate the ability to identify physical impairment; relate the impairment to the observed functional deficits; prescribe appropriate rehabilitation (physical therapy, occupational therapy) to achieve goals to improve the defined impairment.
- F. Demonstrate a working knowledge of experimental therapies, such as plasmapheresis, intravenous immunoglobulin, myeloablative therapy and immune reconstitution including stem cell transplantation, as well as biologic agents in development; including dosing, pharmacokinetics, metabolism, mechanisms of action, side effects, drug interactions, compliance issues, costs, and use in patients including fertile, lactating, and pregnant women.
- G. Understand the unique challenges of counseling and treating reproductive age patients with rheumatic disease. Maintain a current understanding of the risks of pregnancy on disease activity, fetal viability, and patient morbidity and mortality. Demonstrate the capacity to educate both female and male patients on the relative risks of medications on fertility and the teratogenicity of anti-rheumatic medications. Understand the evaluation and treatment of unstable pregnant and postpartum rheumatologic patients.
- H. Understand the indications for and costs of laboratory testing, diagnostic procedures, and therapies used in the management of rheumatic diseases.
- I. Demonstrate the ability to continuously reassess the patient over time and following initiation of new therapies, and to appropriately alter the treatment plan as directed by disease activity and medication side-effects.

Practice-based Learning and Improvement

In addition to the objectives defined above for the first six months, by the end of the first year of training, fellows should be able to self-evaluate their clinical practice by searching, retrieving, and interpreting peer-reviewed medical literature relevant to rheumatic diseases and applying study and case report conclusions to the care of individual patients.

Fellows will begin collecting and analyzing the data and working towards completing the practice improvement project they have identified.

Systems-based Practice

In addition to the objectives defined above for the first six months, by the end of the first year of training, fellows should be able to:

- A. Demonstrate the ability to educate patients about outside resources which might be of assistance to their physical, emotional and financial well being. Examples include the Arthritis Foundation self help groups, Lupus Foundation support groups and pharmaceutical company-initiated financial aid programs.
- B. Know the local costs of medications they prescribe, rheumatologic lab tests they order and commonly used diagnostic tests and procedures.
- C. Demonstrate the ability to develop strategies to overcome systematic problems they have identified.
- D. Know how different health care delivery systems and federal and state health finance programs affect the management of patients with rheumatic diseases.

Interpersonal and Communications Skills

In addition to the objectives defined above for the first six months, by the end of the first year of training, fellows should be able to:

- A. Demonstrate the ability to write consultations and letters to referring physicians.
- B. Demonstrate the ability to clearly explain benefits and risks of treatment to their patients.
- C. Demonstrate the ability to present cases and literature reviews to peers in conference type of setting.

Year 2 Months 1-12

Educational Goals and Objectives

During the second year of training fellows are expected to consolidate the clinical training and education obtained during the first year to become independent practitioners of rheumatology. These skills are honed in their weekly continuity clinic where they care for patients that by this time they know well, as well as additional new patients. Areas of medical knowledge and patient care in which they wish to obtain additional education are addressed via ongoing attendance at didactic conferences and via self-directed learning.

Inpatient Consultation at the University/VA

Description of Rotation

This rotation provides trainees the opportunity to evaluate acutely ill patients in various hospital units for the presence of rheumatic diseases as part of a subspecialty consultation team. The educational purpose of inpatient consultation is for the fellow to develop and refine the knowledge base and skills essential for the clinical evaluation and management of hospitalized patients with rheumatic diseases. A wide variety of patients will be seen at both the University and VA and will be referred from various services including Internal Medicine, intensive care units, Obstetrics and Gynecology, Surgical subspecialties, Transplantation, Neurology, and Psychiatry. The fellow will work under the direct supervision of a faculty member and will actively be engaged in the teaching of residents and medical students on the team.

Participants/Time

6 months at OHSU and 6 months at the PVAMC over the 24 months of training

Instructional Materials/Methods

Independent learning

Textbook of rheumatology (Kelley's or Hochberg)

www.uptodate.com

Literature search- pubmed/ovid

ACR reading list www.rheumatology.org

Reflective learning, self-evaluations

Didactic conferences

Weekly core clinical rheumatology conference

Weekly rheumatology grand rounds and clinicopathologic case conferences led by fellows or other faculty members

Annual meetings (ACR, NW Rheumatism, Sunriver Musculoskeletal update course)

Patient centered teaching

Musculoskeletal exam

Procedures

Clinical care and decision making

Feedback

Immediate verbal feedback

Formal twice a year E*value based evaluations

Focused observations

The goals and objectives of the inpatient consultation rotation are essentially the same as those of the outpatient clinic experience. Additional goals and objective specific to inpatient care are listed below.

Goals

-Learn to clearly identify the question being asked by the referring team.

-Learn how to gather a complete rheumatologic history, perform a musculoskeletal examination in bed bound patients, confirm validity of patient's relevant past medical history by obtaining and reviewing primary data whenever possible, and review/summarize pertinent information from the chart, including radiology, laboratory, and pathology data on complex patients with long hospitalizations.

-Review diagnostic studies critically and meet with radiologist and pathologist to gain complete understanding of results and their interpretation.

-Learn how to formulate a thoughtful assessment and differential diagnosis and articulate

- recommendations to the referring service based on data gathered and differential diagnosis.
- Learn to communicate with primary team effectively as well as with other consultants or ancillary services involved in the care of the patient.
 - Expand the ability to interact with patients in an empathetic and understandable manner and to reliably and accurately communicate the patient's and their family's views and concerns to the rest of the team.
 - Develop the ability to teach basic principles of rheumatology to the residents and students involved in the care of the patient.
 - Learn how to review the literature to provide evidenced-based advice to the team taking care of the patient.
 - Understand aspects important in the transition of patients with rheumatic diseases from the inpatient to the outpatient setting.
 - Understand implications of rheumatologic condition and their potential impact on the hospitalization.
 - Potential inpatient scenarios
 - Acute monoarthritis requiring joint aspiration and interpretation
 - Acute polyarthritis requiring admission due to failure to function
 - Multisystem dysfunction possibly due to autoimmune illness
 - Known rheumatic disease patients admitted for exacerbation of their disease or for non-rheumatic diagnoses such as infection, heart disease, or surgery

Objectives

Medical Knowledge

- Outlined in details in outpatient rotation

Patient Care

- Become proficient at evaluating multisystem dysfunction and advising on work up to assess for possible underlying rheumatologic disease.
- Be capable of outlining indications and relative contra-indications for joint aspirations/injections in hospitalized patients especially in the setting of a blood stream infection, immune deficiency, anti-coagulation, post-operative state.
- Manage corticosteroids dosage in patients with rheumatic diseases in the peri-operative period.
- Recognize scleroderma renal crisis and advise on treatment
- Demonstrate proficiency in evaluating and treating systemic vasculitis or other life/organ threatening rheumatic diseases requiring hospitalization, high dose immunosuppression, plasmapheresis etc.

Systems based learning

- Effectively use the electronic medical record system to obtain information and enter notes, orders, etc.
- Understand the indications for continued hospitalization vs. home discharge

Practice based learning

- Participate in morbidity and mortality conferences discussing cases in which the inpatient rheumatology service was involved
- Present cases managed on the inpatient service at weekly clinicopathologic conferences, identify questions needing further literature review, and communicate teaching points

Interpersonal Skills/Communications

- Effectively communicate with primary team, other consulting services, ancillary services, nursing staff, and patient and patient's family to ultimately benefit the patient

Professionalism

- Outlined in details in Outpatient Rotation

Lupus/Scleroderma Clinic

Description of Lupus/Scleroderma Clinic

The Lupus/Scleroderma Clinic is held every Friday AM at the University clinic under the supervision of Dr. Leslie Kahl. The patients in this panel have either been followed for a substantial number of years at the University or are newly referred by community primary care physicians or for second opinions by community rheumatologists. This clinic provides the fellows with a rich experience and grows their ability to manage these complex patients. This clinic builds on their basic knowledge acquired during encounters with these types of patients early in the first fellowship either on the inpatient consult service or in their continuity panels.

Participants/Time

Faculty: Dr Leslie Kahl

Location: OHSU

Time: Friday AM

First year fellow for 6 months

Instructional Materials specific to this activity

Independent learning

Dubois's Lupus Erythematosus Textbook

www.uptodate.com

Review articles and other research articles as appropriate

Goals:

- Allow rheumatology trainees to enhance their medical knowledge of the pathophysiology, clinical features, diagnosis and management of SLE, lupus overlaps, scleroderma and autoimmune connective tissue diseases, through supervised patient care in an outpatient setting.
- Enable trainees to become competent in the longitudinal care of patients with SLE and scleroderma to recognize how to diagnose and manage disease flares, emergencies (lupus nephritis and cerebritis, scleroderma renal crisis and digit ischemia), other comorbid illnesses and the side effects of medications.
- Enable trainees to diagnose and prevent those disease-related and treatment-related complications that lead to long term morbidity such as avascular necrosis, osteoporosis, and cardiovascular disease in lupus as well as pulmonary hypertension, interstitial lung disease, and GI dysmotility.
- Enable trainees to enhance their interpersonal and communication skills in dealing with the complex cultural, social, emotional and economic burden of a serious chronic illness such as SLE and scleroderma.
- Instruct trainees on the important systems-based practice issues including the internal and external systems that contribute to the betterment or detriment of the health care of these SLE and scleroderma patients and the practice of evidence-based cost effective care.
- Develop practice-based learning skills in the trainees to help deal with the complicated diagnostic and therapeutic challenges SLE and scleroderma patients present.
- Involve trainees in ongoing research studies in SLE and scleroderma, including laboratory studies of aberrant immune function, clinical outcome studies including therapeutic infusion studies with new biological agents, research ethics, and the consent process.

Objectives

Months 1-4

Medical Knowledge

- Understand the pathophysiology of lupus and scleroderma and demonstrate the ability to teach salient points of the immunopathophysiology and immunologic laboratory abnormalities associated with lupus and scleroderma
- Understand the protean manifestations of lupus and scleroderma per organ system
- Recognize and describe various cutaneous manifestations of lupus
- Recognize and manage lupus and scleroderma emergencies (eg nephritis, CNS lupus, renal crisis, TTP)
- Learn the pharmacology and demonstrate an understanding of the pharmacology of the range of medications used in lupus and scleroderma with particular attention to drug-drug interactions and possible adverse effects of medications used.

Patient care

- Demonstrate competency in obtaining a comprehensive history, detailed review of systems, and physical examination, presenting to the attending in logical fashion, formulating a differential diagnosis and treatment plan.
- Demonstrate the ability to reassess the patient over time and alter the treatment plan accordingly.
- Demonstrate an understanding and competency in the indications and interpretation of imaging and laboratory studies (including pathologic specimens).

Practice based learning and improvement

- Discuss pros and cons including cost of various treatment plans.
- Self evaluation of practice by searching and retrieving appropriate medical literature and applying this information to the care of the patient.
- Prepare for patient case conference by addressing (through the literature) particular clinical questions and problems encountered.

Systems based learning

- Develop an understanding of how to function as a rheumatologist coordinating the care of these complex patients
- Understand the obstacles to providing optimal health care for this population and the systems available to help overcome these issues
- Use and continuously improve tools in the electronic medical record system to track lupus and scleroderma specific laboratory and imaging data in order to facilitate optimal care of these complex patients.
- Demonstrate understanding of clinical indications for admission of lupus and scleroderma patients to the hospital
- Determine cost-effectiveness of alternative proposed interventions.
- Identify problems in delivery of optimal patient care and propose corrective actions.

- Assist patients' needs for financial assistance in obtaining appropriate medications and help establish need for disability benefits

Interpersonal communication skills

- Acquire first hand knowledge of the impact of these chronic illnesses on patients and their families, and utilize this knowledge to improve communication with this patient population.
- Demonstrate the ability to interact with patients and patient's family in an empathic and understandable manner.
- Demonstrate the ability to educate the patient and her/his family about the nature of these serious chronic disease
- Develop rapport with patient to ensure adherence with clinic follow-ups and necessary laboratory monitoring
- Develop ability to communicate via an interpreter as many of these patients speak English poorly and an interpreter is required
- Acquire skills required to communicate effectively and empathetically with the patient and patient's family i.e. clearly delineating risk benefit of therapies and consent and addressing concerns of the patient and patient's family
- Acquire skills required to communicate effectively with staff and consultants involved in medical care of the patient (nursing, radiology, dermatology, nephrology, neurology, social work, orthopedics and physical therapy)

Professionalism

- Keep clinic schedule on time
- Demonstrate the understanding of the importance of patient primacy, patient privacy, patient autonomy, informed consent, and equitable respect and care to all.
- Demonstrate humanistic qualities in interactions with patients, staff and colleagues.
- Demonstrate ethical behavior by reporting back and following through on clinical questions, laboratory testing and other patient care issues with the supervising attending and other physicians involved in care of patients.

Months 5-8

Trainees should be able to independently and comprehensively manage the longitudinal care of patients with SLE and scleroderma. Such care includes attention to multisystem involvement by the disease, the frequently multidisciplinary care required, and the psychological support systems needed by these patients. During this phase of the second year of fellowship, the fellow is expected to increase the depth and breadth of medical knowledge to more effectively discuss salient features of the history and physical examination, differential diagnosis, alternative plans of management and provide sound decision making rationale for the course recommended. This includes the ability to critically evaluate the medical literature and apply learned findings to individual patients.

Soft tissue injection, sports medicine and orthopedic care

Description

First Year

Portland VA Medical Center- Regional MSK clinic Dr David Smith- Tuesday PM, 6 month rotation, can be expanded if desired
OHSU, Musculoskeletal Ultrasound Clinic with Dr. Atul Deodhar- every other Wednesday PM, 4-6 month rotation

Second Year

Physical/Occupational therapy/Orthotics- elective time
Physiatry clinic/EMG-NCS -elective time
Orthopedics- elective time

Instructional material specific for this activity

Rheumatology examination and injection techniques by Doherty et al
Atlas of Human Anatomy by Netter
Human skeleton
Regional rheumatology Syllabus (Dr Smith's)
Musculoskeletal Update for Primary Care (Annual CME conference)

Feedback

Immediate verbal feedback
Formal twice a year E*value based evaluations (Dr. David Smith)
Focused observations

Participants

First year fellow- Regional Rheum VA clinic, MSK US clinic
Second year fellow- Electives

Goals

- Understand joint anatomy and how a focused examination using this knowledge is critical in diagnosing regional musculoskeletal disorders
- Understand the scope of regional musculoskeletal disorder
- Understand the indications for joint aspirations and injections as well as for soft tissue injections
- Understand the musculoskeletal mechanics that may give rise to regional syndromes
- Understand the utility and role of orthotics and bracing, non-invasive treatment modalities (topical analgesia, ice/heat, TENS unit, iontophoresis, physical and occupational therapy in treating regional musculoskeletal disorders
- Understand the basics of musculoskeletal ultrasound and its utility in the diagnosis of regional musculoskeletal disorder and in directing soft tissue and joint injections
- Understand the indications for joint replacement surgeries

Objectives

Month 1-6

- Acquire a strong basic knowledge of musculoskeletal anatomy and normal musculoskeletal examination/mechanics
- Describe clinical presentation and physical findings of regional rheumatic conditions; contrast those to systemic inflammatory conditions

- Evaluate patients with regional musculoskeletal complaints, generate a differential diagnosis, obtain/interpret appropriate imaging studies, and identify patients who may benefit from joint or soft tissue injection
- Review the risks and benefits for local injection with the patient; advice regarding post injection precautions
- Learn proper sterile techniques for musculoskeletal injection/aspiration
- Perform joint aspiration/injection, tendon and bursa injection, myofascial trigger point injection, carpal tunnel injections, and analysis of synovial fluid with polarized microscope

Month 7-12

- Diagnose regional rheumatic conditions and implement treatment plan
- Demonstrate proficiency at joint aspiration and injection, tendon and bursa injection, myofascial trigger point injection, carpal tunnel injections, and analysis of synovial fluid with polarized microscope
- Review results of diagnostic imaging critically
- Refer to physical and occupational therapy for rehabilitation and assistive devices and to orthopedics for surgical interventions

Months 13-24

- Gain a better understanding of what PT, OT, prosthetics can offer to patients with rheumatic diseases and regional rheumatic conditions by spending elective time rotating through their services
- Rotate through orthopedics to gain understanding of indications for joint arthroscopic surgery, joint replacement surgery and knowing when to refer patients with various regional or systemic rheumatic conditions to orthopedics.

Pediatric Rheumatology

Location

Legacy Emanuel Hospital Outpatient Rheumatology Clinic

Duration

3-4 months

Participants

Faculty: Dr. Virginia Cartwright
Second year fellow

Instructional material specific to this activity

James T Cassidy's Textbook of Pediatric Rheumatology

Feedback

Immediate verbal feedback
Evaluation at the end of the activity

Goals

- Understand the scope of rheumatologic diseases in the pediatric population
- Understand the indications and dosing of anti-inflammatory medications, steroids, immunosuppressants in the pediatric population
- Understand the impact of juvenile onset rheumatic diseases on the children's development, physical and mental well-being, functioning in scholastic activities, and transition into adulthood

Objectives

- Communicate with the child and parent to obtain a comprehensive accurate history
- Perform musculoskeletal examination in a child, based on the child's age and development
- Order laboratory/imaging investigations pertinent to pediatric cases
- Participate in and understand treatment decisions/rationale in pediatric cases
- Outline the entire spectrum of rheumatic disease presenting in children including the most common disorders such as juvenile idiopathic arthritis, juvenile ankylosing spondylitis, juvenile dermatomyositis, myofascial pain syndrome, as well as rare conditions such as Kawasaki's, Wegener's, and Takayasu's arteritis.

Musculoskeletal Radiology

Location

OHSU radiology conference room Wednesday 1030-1100 am with musculoskeletal radiologists and rheumatology clinical faculty for 2 years.

Rheumatology approach to musculoskeletal x-ray interpretation; Quarterly to bimonthly sessions with Dr. Scalapino.

Participants

First and second year fellow

Faculty

Feedback

Informal, verbal, immediate on fellow's interpretation of radiographs

Textbook: Arthritis in Black and White, Brower et al., 2nd edition

Goals

-Review musculoskeletal radiographs of patients seen in clinic or hospital services and correlate findings with clinical history/exam

Objectives

-Name indications and pros and cons of various radiographic methods used to image the musculoskeletal system

-Recognize normal from abnormal appearance of various musculoskeletal structures on plain radiographs, CT, MRI, and nuclear scans

-Describe radiographic appearance of rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, osteoarthritis, gout, calcium pyrophosphate deposition disease.

Indian Health Services Rotation

Location

Warm Springs Indian Health Services Clinic, Warm Springs, OR
Quarterly, one entire day; departure Thursday, clinic held on Friday, return home Friday

Participants

Faculty: Dr. Atul Deodhar
First and second year fellows

Evaluation

Immediate verbal feedback
E*value evaluation
Focused observations

Goals

- To expose rheumatology fellows to a rural underserved clinic where they will participate in direct patient care
- To provide rheumatologic care to an indigent Native American community

Objectives

- To compare and contrast the presentations and manifestations of common rheumatic diseases in an indigent, rural Native American population
- To recognize the impact of socio-economic and educational factors on health outcomes in patients with arthritis
- To formulate a strategy for effectively managing patients with rheumatic diseases in a rural setting on a limited budget

Research Experience

Educational Goals

All trainees receive practical and theoretical training in the principles of research, including training in the ethical conduct of research, to enable each trainee to evaluate the scientific literature and become a critical decision-maker. Every fellow is encouraged to submit at least one abstract to a national meeting and to play a significant role in at least one paper submitted for publication.

The primary sources of this training during the first year of fellowship will come from basic didactic sessions (combined with internal medicine, evidence-based workshops in clinical medicine every Friday for 4 sessions in September covering “therapy, meta-analysis, diagnosis, and testing) and weekly journal club discussions (both basic and clinical research).

In the second year of training, fellows are encouraged to participate in the Human Investigator Program at OHSU, developed and administered jointly by the Department of Medical Informatics and Clinical Epidemiology (DMICE) and the Department of Public Health and Preventive Medicine. The program is a one to two-year certificate program providing training in all phases of clinical research including epidemiologic research methods, biostatistics, evidence-based medicine, outcomes research methods, and medical informatics methods. Fellows can choose to complete the program or audit specific classes.

Early on in their first year, under the guidance of Dr. Michael Davey, fellows identify a mentor and choose either a laboratory-based or a clinical research project. This project is conducted during year two and any additional years beyond if desired, in which case the fellow may be asked to apply for additional funding. In addition to their actual research work, formal training during these years may include lab seminars and attendance at national meetings in their particular research area of emphasis.

The purpose of laboratory-based research is to provide fellows with a meaningful training experience in experimental science that is relevant to emerging concepts in immunology and rheumatology. The goals of this experience are to enable the trainee to critically evaluate new experimental data and scientific paradigms as they emerge and impact clinical practice and to prepare the trainee for a potential career in academic investigative rheumatology.

The purpose of the clinical research experience is to provide fellows with educational training in clinical research methods that are relevant to patients with rheumatic disease. The goals of this experience are to provide an exposure to clinical research and research presentation to trainees planning careers clinical practice and to prepare interested trainees for a potential career in academic rheumatology as a clinical investigator or clinician educator.

Objectives

Year 01 Months 8-12

During this period, the trainee is expected to meet with Dr. Michael Davey and research faculty to select a research mentor and outline a research project to be completed within the training period.

Year 02 Months 13-18

During this period, the trainee is expected to:

A. Begin acquiring the materials and skills necessary to complete the proposed research project, including background reading.

- B. Attend their mentor's research meetings.
- C. Attend research seminars and journal clubs broadly relevant to their proposed research.
- D. Attend courses to acquire skills necessary for the completion of the research project.

Year 02 Months 19-24

During this period, the trainee is expected to:

- A. Apply appropriate research modalities to acquire data necessary for the completion of the research project.
- B. Regularly attend and participate in their mentor's research meetings and regularly scheduled, relevant research seminars.
- C. Submit a postdoctoral fellowship application for continued research training beyond the 2-year fellowship **IF** interested in an investigative career.

Year 03 A third year of fellowship can be arranged for fellows who wish to pursue an academic career and who seek to gain in depth knowledge and experience in a particular area within rheumatology. Such an arrangement is contingent on available funding.

Table: Overview of Clinic and Didactic Schedule

(Individual schedule will vary depending on year of training and on whether it is a 1 or 2 first year fellow year)

	Monday	Tuesday	Wednesday	Thursday	Friday
Am		OHSU continuity (First year fellows, Dr Atul Deodhar)	Academics: Grand Rounds Journal Club Radiology Rounds (Fellows, Full faculty)	OHSU continuity (Dr Pascale Schwab, Dr Leslie Kahl)	OHSU Lupus Scleroderma Clinic (Second year fellow, Dr Leslie Kahl)
Pm	PVAMC Continuity (Dr Cong-Qiu Chu, Dr Kenneth Scalapino)	OHSU continuity (Second year fellows, Dr Leslie Kahl) VA Regional Rheum (First year fellow, Dr David Smith)	Emanuel Hospital Pediatric clinic (Second year fellow, Dr Victoria Cartwright) Musculo- skeletal Ultrasound Clinic (First year fellow, Dr Atul Deodhar)		Rheumatology Core Conference

Other Clinical Electives/Experiences

Electromyography and Nerve Conduction Lab

Bone Densitometry

Teaching/Speaking Opportunities

- Rheumatology weekly conference (clinicopathologic conferences)
- Rheumatology journal club
- Physician Assistant Students Lecture Series
- Resident Lecture Series
- Continuing Medical Education Program in Musculoskeletal Diseases (Sunriver, OR)
- Lecture to Medical Coders, pharmacy students

Miscellaneous

On Call responsibilities (fellow)

- Week-end call one in 4 week-ends (as long as at least 1 resident is available to take call)
- Week-day night time call from home 5pm-8am, while on OHSU consult service

Evaluation Methods

- E*value evaluations q 6 months by faculty
- 360 evaluations by clinic staff q 6 months
- Evaluation by patients q 6 months
- Self-evaluation q 6 months, reviewed with program director at semiannual meetings
- Meeting with program director(s) for summative evaluation q 6 months

Focused observations (MSK exam, communication skills, joint aspiration/injection)
In training exam, yearly (administered thru ACR)