COLUMBIA UNIVERSITY MEDICAL CENTER

RHEUMATOLOGY FELLOWSHIP TRAINING PROGRAM

COLUMBIA UNIVERSITY
MEDICAL CENTER

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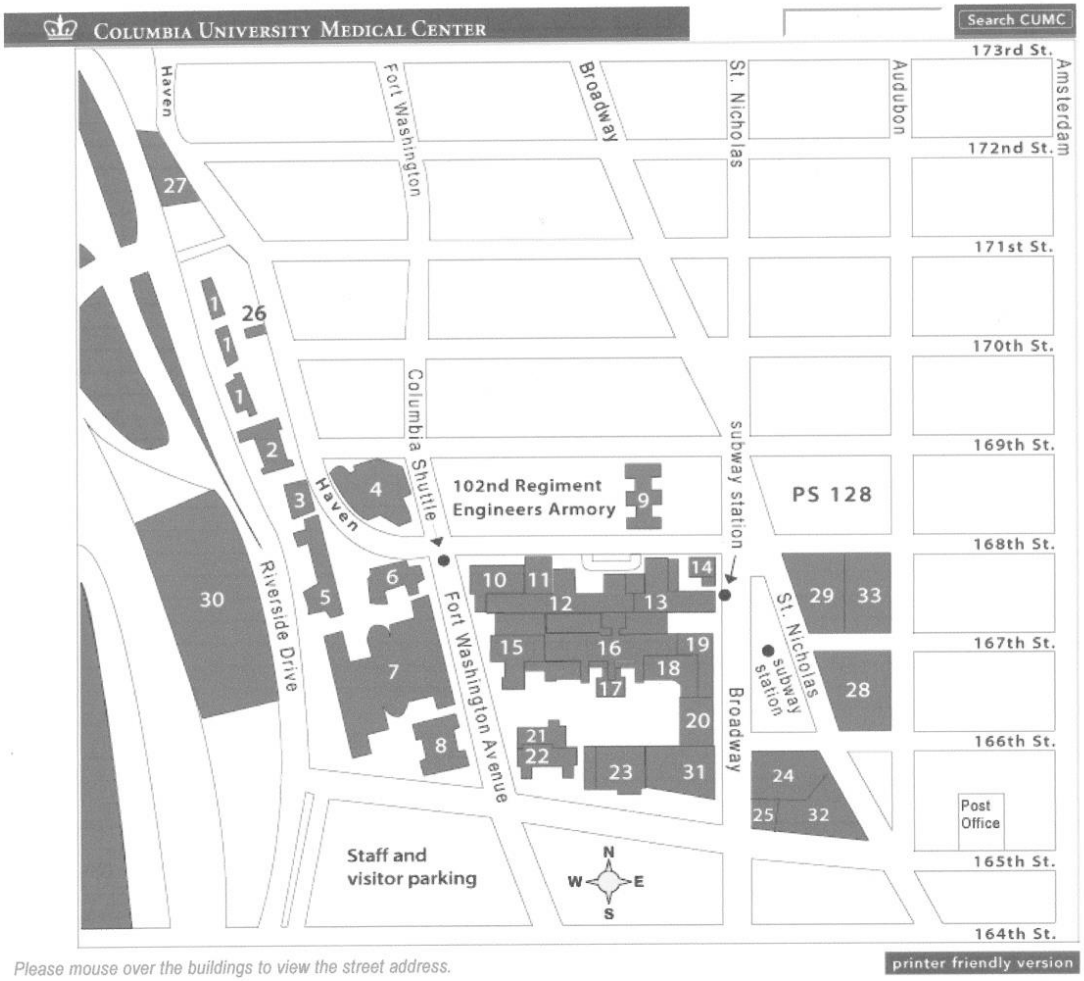

Please mouse over the buildings to view the street address.

1. **Bard Haven Towers,** 100 Haven Avenue
2. **Bard Hall Medical Student Residences,** 50 Haven Avenue
3. **The Lawrence C. Kolb Research Building,** 722 W. 168 Street
4. **Armand Hammer Building (classrooms) / Augustus C. Long Library,** 701 W. 168 Street
5. **Mailman School of Public Health,** 722 W. 168 Street
6. **The Neurological Institute of New York,** 710 W. 168 Street
7. **The Milstein Hospital Building,** 177 Fort Washington Avenue
8. **The Herbert Irving Pavilion,** 161 Fort Washington Avenue
9. **School of Nursing / Georgian Residence Building,** 617 W. 168 Street
10. **William Black Medical Research Building,** 650 W. 168 Street
11. **Alumni Auditorium,** 650 W. 168 Street
12. **College of Physicians and Surgeons,** 630 W. 168 Street
13. **School of Dental and Oral Surgery / Vanderbilt Clinic Building,** 622 W. 168 Street
14. **New York City Department of Health / Mailman School of Public Health Programs,** 600 W. 168 Street
15. **The Harkness Pavilion,** 180 Fort Washington Avenue
16. **The Presbyterian Hospital Building,** 622 W. 168 Street
17. **The Pauline A. Hartford Memorial Chapel,** 622 W. 168 Street
18. **Radiotherapy Center,** 622 W. 168 Street
19. **Children's Hospital (North),** 3959 Broadway
20. **Children's Hospital (South) / Sloane Hospital for Women,** 3959 Broadway
21. **Eye Institute Research Laboratories,** 635 W. 165 Street
22. **The Edward S. Harkness Eye Institute,** 635 W. 165 Street
23. **Service Building,** 627 W. 165 Street
24. **Mary Woodard Lasker Biomedical Research Building / University Bookstore,** 3960 Broadway
25. **Audubon NYC Building,** 3960 Broadway
26. **Residence Building,** 106 Haven Avenue
27. **Residence Administrative Building,** 154 Haven Avenue
28. **Irving Cancer Research Center,** (Under Construction)
29. **Russ Berrie Medical Science Pavilion,** 1150 Saint Nicholas Avenue
30. **The New York State Psychiatric Institute (new building),** 1051 Riverside Drive
31. **Morgan Stanley Children's Hospital Building**
32. **Future Audubon IV**
33. **Future Audubon V**

COLUMBIA UNIVERSITY MEDICAL CENTER

RHEUMATOLOGY FELLOWSHIP TRAINING PROGRAM

MISSION

The Division of Rheumatology of Columbia University College of Physicians & Surgeons offers a two-year ACGME approved fellowship program that provides comprehensive training in clinical and investigative rheumatology and related areas of basic science research. Third and fourth years of research training are available through an NIH T32 grant mechanism for qualified fellows who seek academic research careers. Currently three fellows are admitted to the program each year. The goal of the program is to prepare rheumatologists for careers in clinical practice and/or investigative rheumatology. The mission of our Rheumatology Fellowship Program is to prepare fellows to tackle the next generation's compelling clinical, scientific and public health challenges in rheumatology. As such, our primary aim is to train clinical and basic/translational investigators as well as clinician-educators in the rheumatic diseases. We aim to produce physicians who 1) are clinically competent rheumatologists, 2) are capable of working in a variety of settings, 3) possess habits of lifelong learning that enable them to build upon their knowledge, skills, and professionalism, 4) are capable of teaching the principles of clinical rheumatology to primary care physicians and medical house officers, and 5) have the option to acquire a clinical or basic investigative experience in preparation for a career in independent scientific research. The Division of Rheumatology is also committed to increasing the diversity of the rheumatology workforce and reducing health disparities through education, clinical care and cutting edge research.

OVERVIEW

Rheumatology Fellowship Goals and Objectives

- To provide training and experience in the diagnosis and management of patients with rheumatic conditions. A key component of this training involves the comprehensive understanding of the clinical findings and pathophysiology of rheumatic diseases, as well as current therapeutic principles.
- To afford the intellectual environment in the form of didactic lectures, journal clubs, research conferences, and interactive sessions for acquiring the knowledge, skills, clinical acumen, and professionalism that is vital for the practice of rheumatology.
- To offer training in an atmosphere that emphasizes outstanding clinical care delivery, and compassion for patients and their families.
- To provide this training in a pure academic environment that promotes and emphasizes basic, clinical, and translational research to ensure our trainees master the skills to remain current with the forefront of the field.
- Most importantly, to provide the foundation for training the future academic leaders, physician scientists, and clinical educators in rheumatic disease.

- The fellows are an essential part of the division and our faculty committed to training the academic leaders of tomorrow. These Columbia-trained thought leaders in rheumatology will play an essential role in bringing new ideas, energy, and perspective to a specialty whose importance will only increase as the population ages.

Rheumatology Fellowship Curriculum

The emphasis of the program's first year is on clinical proficiency; in the ensuing year(s) the focus is on clinical investigation or basic science research. A third year of research training may be offered to fellows who distinguish themselves during the program.

The goals of the first year curriculum are:

- To teach how to diagnose, treat, and manage patients with rheumatic disease.
- To teach the trainee the role of the consultant and how to effectively consult.
- To teach basic immunology and concepts for understanding the pathophysiology of autoimmune diseases in general and rheumatologic diseases in particular.
- To teach basic principles for the treatment of these diseases.
- To expose the trainee to current research in autoimmunity and rheumatology through journal clubs and grand rounds.
- To learn the fundamentals of orthopedic approach to musculoskeletal disease.
- To further our trainees' education in quality assurance, cost containment and ethics.

The goals of the second year are:

- To further the education of the trainee relevant to the diagnosis of and care and treatment of patients with rheumatic diseases.
- To further expose the trainee to current research in treatment, diagnosis, and etiology of autoimmune and rheumatologic diseases. This is accomplished through the fellow’s direct involvement in a research project in addition to continued involvement in selected patient care activities including rheumatology clinics.
- Fellows in the second years are encouraged to participate in laboratory or clinical research; opportunities for research are detailed in the Research section of this website.

For fellows that have a strong interest in developing a career in research, they may elect to do a third year.

The goals of the third/fourth year are (if accepted in T32 training program or by another funding mechanism):

- To further the education of the trainee in basic science or clinical research related to autoimmune and rheumatologic diseases. This is accomplished through the fellow's continued direct involvement in a research project.
- To provide an opportunity for the trainee to pursue additional training in research methods.
- To continue the fellow's clinical exposure to autoimmune and rheumatologic diseases through selected rheumatology continuity clinics.

During all years of the training program, fellows participate in regularly scheduled teaching exercises. These include a weekly conference covering basic pathophysiology and clinical topics, journal club, and research conferences. Fellows also attend the Lupus clinic, Special Arthritis clinic, and Faulkner General Arthritis clinic on a weekly basis.

Other outpatient rotations include EMG and pediatric rheumatology, uveitis, dermatology, and orthopedic clinics. There are also rheumatology ultrasound clinics that fellows can elect to attend as well.

GOALS AND OBJECTIVES OF MAJOR ROTATIONS OF THE FELLOWSHIP IN RHEUMATOLOGY

I. Inpatient Consultation at Columbia University Medical Center (Milstein/Allen Hospitals)

Description of Rotation

The educational purpose of inpatient consultation is to develop and refine the knowledge base and skills essential for the clinical evaluation and management of hospitalized patients with rheumatic diseases. New York Presbyterian Hospital is a 995-bed tertiary-care facility with an extremely active Emergency Department. Fellows will be responsible for in-patient, outpatient and emergency room consultations and follow-up evaluations in the Milstein and Allen Hospitals. Inpatient consultations will be referred from a) residents and attending physicians caring for patients on the medical service, including patients followed as outpatients in the Rheumatology and Lupus Clinics; b) residents and attendings caring for patients on all other hospital services (except Pediatrics) including patients followed in outpatient Rheumatology and Lupus Clinics. The fellows will consult on an average of 40-50 new patients each month; in addition, they will evaluate approximately 10 patients per month in the Emergency Department. The rheumatology fellow is the primary consultant at the Milstein or Allen Hospitals, under the supervision of a full- time faculty member in the Division of Rheumatology serving as the Attending on Service. This Fellow will consult on all patients referred from the Medical and Surgical and other inpatient services. Inpatient rounds are conducted on a daily basis. On average, there is one R3 Medical Resident and 1-2 fourth year medical students on the Milstein rotation each month.

A log of inpatient consultations should be maintained to provide a source for relocating interesting patient cases for scholarly study/publication in the future.

Interactions with other inpatient specialties

Rehabilitation: There is an inpatient rehabilitation unit to which patients are referred after joint replacement or for rehabilitation after a major illness. Fellows will continue to actively follow patients admitted to this unit. The rehabilitation unit also performs regular EMG/NCV studies.

Pathology: Fellows are expected to review all biopsies with the Pathology Department. Kidney biopsies are routinely reviewed with the renal pathologists, and bone or joint pathology is reviewed with musculoskeletal pathologists.

Neurology: Many referrals originate from the inpatient Neurology Service.

Nephrology: The Renal Division has an active interest in lupus nephritis and there will be extensive opportunity to interact with respect to management of these patients. Any patients needing renal biopsy will be discussed with the Renal Attending. In addition, a weekly conference focusing on kidney pathology will be attended by the fellows on a regular basis.

Pulmonary: The Division of Pulmonary Medicine organizes a weekly conference on Interstitial Lung Disease which focuses on diagnosis, review of pertinent lung pathology, and clinical management of patients who frequently manifest rheumatic diseases in addition to interstitial lung disease.

Fellow Supervision

In the course of fulfilling their inpatient responsibilities, fellows will develop and refine their ability to clinically evaluate and treat acutely ill patients with rheumatic diseases. Under the supervision of members of the Division of Rheumatology faculty, fellows will learn to assess the need for hospitalization, formulate a differential diagnosis, and develop an appropriate strategy for diagnostic evaluation and treatment. Fellows will be expected to obtain patient histories, perform physical examinations, formulate a differential diagnosis and follow the patient's progress throughout the hospitalization. Fellows will be regularly called upon to perform arthrocenteses and, in addition to acquiring the practical skill, they will learn to appreciate the indications, contraindications and potential complications of the procedure, as well as the interpretation and clinical application of the findings. Fellows will be taught to compose consultation and follow up notes that are concise and facilitate communication with referring physicians. They will be expected to communicate with and teach medical housestaff that are the primary caregivers for each patient. They will be expected to review medical literature pertinent to their patients' problems, to periodically prepare analytic literature reviews on clinical topics, and present such reviews.

The Goals and Objectives of the Inpatient Consultation rotation are:

Months 1-6

Medical Knowledge:

1. Understand the differential diagnosis of inflammatory arthritis.

2. Understand the differential diagnosis of fever with arthritis.

3. Recognize rheumatologic emergencies and the complexities of patients ill with rheumatologic disease.

4. Understand the use of laboratory tests used in evaluation of rheumatologic diseases: RF, anti-CCP, ANA, ANA subsets, anti-DNA, ANCA, urinalysis, CPK, complement, cryoglobulins.

5. Understand the pharmacology and use of immunosuppressives, corticosteroids, narcotic analgesics and NSAIDs.

Patient care:

1. Obtain a comprehensive history and physical examination and present to the attending in logical fashion. Differentiation between regional joint disorders and systemic diseases should be recognized. Exam elements for specific joints should include understanding findings of instability, deformity, inflammation, repair, proliferative synovitis and effusion. Similarly, spinal radicular distribution should be understood (e.g. EHL is supplied by L5).

2. Review all imaging studies to be able to present to the attending the positive and negative findings of the investigation.

3. Examine all synovial fluids obtained and be able to estimate WBC and differential and also begin to differentiate MSU and CPPD crystals (latter with polarized microscopy).

4. Demonstrate skill in aspiration/injection of shoulders and knees to point where could be independent in performing these.

Practice based learning and improvement:

1. Interact with the attending on rounds to discern why a particular course of action is taken.

Look up literature/other information to support treatment decisions.

2. Prepare for patient case conference by addressing (through the literature) particular clinical questions and problems encountered.

Systems based learning:

1. Develop an understanding of how to function as a consultant to a great many different services in the hospital.

2. Learn how to effectively consult physical medicine/rehabilitation.

3. Determine cost-effectiveness of alternative proposed interventions.

4. Identify problems in delivery of optimal patient care and propose corrective actions.

Interpersonal communication skills:

1. Demonstrate the ability to interact with patients in an empathic and understandable manner and to reliably and accurately communicate the patient's and their family's views and concerns to the attending.

2. Develop rapport with other members of the consult team as well as with services requesting consultation.

3. Write an effective consultation note – addressing both the requested information as well as pertinent discussion of other rheumatologic issues the patient may have.

Professionalism:

1. Be prompt for rounds; if time appointed for rounds does not allow sufficient time for information review, attempt to reschedule a later time.

2. Demonstrate the understanding of the importance of patient primacy, patient privacy, patient autonomy, informed consent, and equitable respect and care to all.

3. Demonstrate humanistic qualities in interactions with patients, staff and colleagues.

4. Demonstrate ethical behavior by reporting back to the team key clinical findings, by following through on clinical questions, laboratory testing and other patient care issues, and recognizing potential conflicts of interest.

Months 7-12

All of the above noted goals should be continually improved upon over time. In addition, the following can be achieved over time.

Medical knowledge:

1. Understand bone and joint anatomy and how it pertains to the physical examination.

2. Understand immunopathophysiology that leads to abnormalities detected by rheumatologic lab testing (e.g. RF, ANA, etc.).

3. Understand the pharmacology of the entire range of medications used in rheumatologic practice. Particular attention should be placed on drug-drug interactions and possible adverse effects of medications used.

4. Understand the complexities of patients admitted with active SLE, scleroderma, vasculitis.

5. Understand potential complications of rheumatologic patients admitted for surgical procedures.

Patient Care:

1. Demonstrate an understanding and competency in the indications and interpretation of imaging and laboratory studies (including pathologic specimens).

2. Demonstrate competency in arthrocentesis of small joints (in addition to large joints); be able to demonstrate aspiration/injection of knee and shoulder to other practitioners.

3. Demonstrate competency in synovial fluid analysis, being able to consistently identify

MSU and CPPD crystals.

4. Demonstrate the ability to reassess the patient over time and alter the treatment plan accordingly.

Practice-based learning and improvement:

1. Self-evaluation of practice by searching and retrieving appropriate medical literature and applying this information to the care of the patient.

Systems-based practice:

1. Learn how to transition ongoing rheumatologic care from the inpatient to outpatient practice with careful attention to costs of medications and testing, availability of outpatient agencies and arranging optimal time and place of follow up appointments.

Interpersonal and communication skills:

1. The fellow should be the primary communicator for the consultation team for both written and verbal information. This includes: a) clearly delineating risk benefit and consent concerns to the patient, b) teaching other trainees, c) communicating recommendations to the physicians requesting consultation.

Months 13-24

When consultation is provided as a second year fellow, it is expected the above goals have been accomplished. During 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. In addition, the trainee should become an effective teacher and a consultation team leader; being able to set the tone for the operation of the consultation team.

II. Arthritis Clinic

Description

1. Arthritis Clinic #1, located on the second floor in the Herbert Irving Pavilion, meets on Thursday afternoons and is a general arthritis clinic with a long tradition, having been instituted in the 1930's. The clinic runs for 4 hours and fellows will see an average of 5-8 patients per session. All records are kept in Electronic Medical Record format. At each session there are 1-3 residents or medical students from the Internal Medicine residency program or medical school, respectively. Patients with the full range of rheumatologic illnesses are seen. Faculty members of the Division of Rheumatology, in scheduled rotation, will be the designated teaching attendings. These attendings will provide supervision to the fellows and also be available for resident and medical student teaching and mentoring for the entire duration of the clinic session.

2. Arthritis Clinic #2 meets on Tuesday afternoons in the same space. The general features of the clinic are the same. The supervising attendings are Drs. Kapoor and Nickerson, who are available to supervise and teach the fellows. As with the Thursday clinic, a wide variety of rheumatologic problems are referred to this clinic. Typically this will be where the fellows follow patients with vasculitis, myositis, and other related systemic autoimmune diseases.

Fellow supervision

In the outpatient setting, the fellows will perform a history and physical examination of the patient. An attending will review the detailed case presentation and formulation, and then examine each patient with the fellow. They will then review the formulation and management plan and sign the chart. Procedures such as joint aspiration, injection and capillaroscopy performed during the visit will occur under the supervision of the attending until such time as the fellows are able to perform procedures independently (after three adequate supervised procedures). Fellows will write all orders for biologic agents (e.g. infliximab) and cytotoxic agents (e.g. cyclophosphamide) under the supervision of the clinic attending.

The Goals and Objectives of the Arthritis Clinic rotation are:

1. To provide rheumatology fellows the opportunity to enhance their knowledge of the pathophysiology, clinical features, diagnosis and treatment of musculoskeletal disorders, including both systemic inflammatory as well as degenerative subtypes of arthritis, through supervised patient care in an outpatient setting.

2. To enable fellows to become competent in the continuity of care of patients with musculoskeletal diseases, and to recognize how to diagnose and treat various disease manifestations and their comorbidities.

3. To enable fellows to diagnose and prevent those disease-related and treatment-related complications that lead to long term morbidity such as deconditioning, osteoporosis, infections, and cardiovascular disease. This necessarily entails focused attention to preventive health issues.

4. To enable fellows to enhance their interpersonal and communication skills in dealing with the complex cultural, social, emotional and economic burden of serious chronic musculoskeletal illnesses.

5. To instruct fellows on important systems-based practice issues, including both internal and external systems that contribute to the enhancement or detraction of the health care of patients with chronic arthritis; this also entails the practice of evidence-based cost effective care.

6. To develop practice-based learning skills to help manage the complex diagnostic and therapeutic challenges exhibited by patients with chronic arthritic conditions.

7. To involve fellows in ongoing research studies in various systemic inflammatory musculoskeletal disorders, including basic laboratory studies, clinical outcome studies involving therapeutic infusions of biological agents, and research ethics such as the informed consent process.

Anticipated Curricular Progress:

Year 1: Fellows should acquire comprehensive knowledge of the pathophysiology and clinical features of diverse musculoskeletal conditions, methods applicable to the diagnosis and evaluation of disease activity, and pertinent therapies and their side effects. Fellows will also have experiential knowledge of the impact of these chronic illnesses on patients and their families, the impediments to providing optimal health care for this patient population, and the systems available to help eradicate these issues. These skills utilize all of the general competencies.

Year 2: Fellows should demonstrate independent and comprehensive management decision-making in the longitudinal continuity care of patients. This care focuses on the potential long- term sequelae of arthritic disease, the multidisciplinary care required to address issues of care, and the psychosocial support systems needed by these patients.

III. Lupus Clinic

Description

Lupus Clinic meets on Wednesday morning on the second floor in the Herbert Irving Pavilion. This clinic is designated as both a clinical and research clinic. All medical records are kept in an Electronic Medical Record format. Drs. Askanase and Geraldino are the supervisory attendings. The fellows will see their patients on a regular basis and will be responsible for their ongoing management. A database will be established and all fellows will be taught how to perform SLE

scoring assessments (SLEDAI), and appropriate patients will be referred for clinical trials. This will also allow the fellows to obtain experience with the mechanisms and ethics of clinical trial recruitment. The high incidence and severity of SLE in this largely Black and Hispanic population provides trainees with a rich opportunity to see and treat patients with this complicated disease. Medical residents and medical students also rotate through this clinic. Second-year fellows continue to participate in their continuity clinics.

Fellow supervision

In the outpatient setting, the fellows will perform a history and physical examination of the patient. An attending will review the detailed case presentation and formulation, and then examine each patient with the fellow. They will then review the formulation and management plan and sign the chart. Procedures such as joint aspiration, injection and capillaroscopy performed during the visit will occur under the supervision of the attending until such time as the fellows are able to perform procedures independently (after three adequate supervised procedures). Fellows will write all orders for biologic agents (e.g. belimumab) and cytotoxic agents (e.g. cyclophosphamide) under the supervision of the clinic attending.

The Goals and Objectives of the Lupus Clinic rotation are:

1. To provide rheumatology fellows the opportunity to supplement their medical knowledge of the pathophysiology, clinical features, diagnosis and treatment of SLE and its various subtypes as well as related autoimmune connective tissue diseases through supervised patient care in an outpatient setting.

2. To enable fellows to become competent in continuity of care of patients with SLE, and to recognize how to diagnose and treat disease manifestations as well as other comorbid illnesses.

3. To enable fellows to diagnose and prevent those disease-related and treatment-related complications that lead to long term morbidity such as osteonecrosis, osteoporosis, infections, and cardiovascular disease.

4. To enable fellows 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.

5. To instruct fellows on important systems-based practice issues, including both internal and external systems that contribute to the enhancement or detraction of the health care of SLE patients; this also entails the practice of evidence-based cost effective care.

6. To develop practice-based learning skills to help manage the complex diagnostic and therapeutic challenges manifested in SLE patients.

7. To involve fellows in ongoing research studies in SLE, including basic laboratory studies, clinical

outcome studies involving therapeutic infusions of biological agents, and research ethics such as the consent process.

Anticipated Curricular Progress

Year 1: Fellows should acquire comprehensive knowledge of the pathophysiology and clinical features of SLE, methods applicable to the diagnosis and evaluation of disease activity, and pertinent therapies and their side effects. Fellows will also have experiential knowledge of the impact of these chronic illnesses on patients and their families, the impediments to providing optimal health care for this patient population, and the systems available to help eradicate these issues. These skills utilize all of the general competencies.

Year 2: Fellows should demonstrate independent and comprehensive management decision-making in the longitudinal continuity care of SLE patients. This care necessarily focuses on the multisystem involvement of the disease, the multidisciplinary care required to address issues of care, and the psychosocial support systems needed by these patients.

IV. Inpatient and Outpatient Consultation at the James J. Peters Veterans Affairs Medical Center (JJP VAMC)

Description

The goal of the Rheumatology rotation at the JJP VAMC is to train physicians in the field of Rheumatology through a combination of practical and didactic experiences in the setting of an academic VA medical center. This experience would expose fellows to a unique population of patients with classic rheumatologic diseases. The JJP VAMC would also provide a significant number of opportunities to perform arthrocentesis and intraarticular joint injections. Additional research opportunities through the VA would also be available to fellows, which will also enhance their training in the rheumatologic and autoimmune diseases.

The rheumatology fellows will be taking care of patients in the adult rheumatology outpatient clinics and inpatient consultative service at the JJP VAMC, with continuous supervision provided by CUMC and VAMC rheumatologists. First year fellows will participate in both inpatient and outpatient care of adult rheumatology patients, and will rotate through Dermatology clinics as well. All clinical activities of fellows, including all clinical encounters and procedures, will be continuously supervised by an attending physician.

Fellows will be given the opportunity to attend didactic activities at Columbia University Medical Center while on their tour of duty at the JJP VAMC. Fellows may be required to participate in the instruction of residents, interns, and medical students in Internal Medicine and its subspecialties at the JJP VAMC.

Fellow supervision, goals and objectives, and anticipated curricular progress are as described

above in other rotations.

During the first year, fellows will spend a total of 4 months at the James J. Peters Veterans Affairs Medical Center, rotating through the outpatient clinics and also seeing inpatient consults.

Signing In

Every day that you work at the VA, you must sign in two (2) different ways:

- Log onto windows with YOUR account.
- Then log onto CPRS, the EMR system of the VA. A note on a specific patient will electronically signify your attendance.
- You must physically be at the VA and make your presence known to one of the attendings. You or one of the attendings must initial the attendance sheet.
- At the end of each month, the attendance sheet will be signed, attesting to its accuracy. It will then be submitted to the VA GME office and Rion Mahabal (rm2800@columbia.edu).
- If you have any issues signing in electronically, see Mintie Indar-Maraj in Room 7A11 at the VA (Mintie.Indar-Maraj@va.gov).
- Please make sure to keep your credentials active and ensure that you have completed the VHA mandatory training prior to your onsite arrival. Expect to spend 2-3 hours completing this training.

COMPREHENSIVE BASIS OF A COMPETENCY-BASED CURRICULUM IN RHEUMATOLOGY AT COLUMBIA UNIVERSITY MEDICAL CENTER

I. Medical Knowledge

The subspecialty of rheumatology includes a wide array of autoimmune, inflammatory, and connective tissue diseases that affect the musculoskeletal and other organ systems. A working knowledge of the basic and clinical sciences that relate to musculoskeletal and rheumatic disease is fundamental to the practice of rheumatology. Understanding of normal and pathogenic processes of the immune system form the basis of reliable diagnosis and the development and use of an increasingly sophisticated range of immunomodulatory treatments for the rheumatic diseases. Similarly, knowledge of the basis for and use of laboratory tests of immune activity is a principal asset of the practicing rheumatologist. Rheumatology fellows must also have a practical understanding of the approaches and modalities used by other specialists and allied health professionals for the treatment of rheumatic diseases in order to manage the care of their patients effectively. The fellowship program will teach and emphasize the cognitive skills that are necessary to apply this detailed knowledge to problem solving for the diagnosis, treatment, and research, of the rheumatic diseases.

Definition

Medical knowledge refers to the understanding of established and evolving biomedical, clinical, and cognate sciences, and to the application of this knowledge to patient care.

Essential Components:

Basic Sciences

A. Anatomy and biology of musculoskeletal tissues: for each tissue, understand the embryology, development, biochemistry and metabolism, structure, function, and classification.

1. Connective tissue cells and components: fibroblasts, collagens, proteoglycans, elastin, matrix glycoproteins
2. Joints and ligaments: diarthrodial joints, fibrocartilaginous joints, intervertebral discs, synovium, cartilage
3. Bone: development, structure, cellular basis of turnover and remodeling, hormonal and cytokine regulation
4. Muscle and tendons
5. Blood vessels

B. Immunology

1. Anatomy and cellular elements of the immune system.
    a. Lymphoid organs: gross and microscopic anatomy, structure and function.
    b. Organization of the immune system: innate and adaptive immune systems.
    c. Specific cells: for each cell type, understand the ontogeny, structure, phenotype, function, and major activation markers/receptors.
        i. Lymphocytes: T cells and B cells (naive, memory, activated, regulatory).
        ii. Antigen presenting cells: dendritic cells, monocytes and macrophages.
        iii. Natural killer cells.
        iv. Neutrophils and eosinophils.
        v. Other cells: NKT cells, mast cells, endothelial cells, platelets, fibroblasts.
2. Immune and inflammatory mechanisms
    a. Antibody structure and genetic basis of antibody diversity.
    b. Receptor/ligand interactions: activating and inhibiting receptors, signal transduction, complement receptors, Fc receptors, toll-like receptors, adhesion molecules.
    c. Molecular basis of T cell antigen recognition and activation.
    d. B cell receptors: structure, function, antigen binding, effector functions.
    e. Antigens: types, structure, processing, presentation, and elimination.
    f. Major histocompatibility complex: structure, function, nomenclature, and immunogenetics.
    g. Major immune cell signaling pathways.
    h. Complement/Kinin systems: structure, function, and regulation.
    i. Acute phase reactants and enzymatic defenses.
3. Cellular interactions and immunomodulation
    a. Cellular activation and regulation: for each cell type, understand mechanisms of activation and suppression of function (e.g. T cell:B cell interactions via CD28:CD80/86).
    b. Cytokines: for each cytokine, understand the origin, structure, effect, site of action, metabolism, regulation, and gene activation.
    c. Immune cell trafficking; adhesion molecules, chemokines.
    d. Inflammatory mediators: for each mediator, understand the origin, structure, effect, site of action, metabolism, and regulation.
4. Immune responses
    a. Antibody-mediated: opsonization, complement fixation, and antibody dependent cellular cytotoxicity.
    b. Cell-mediated: cells and effector mechanisms in cellular cytotoxicity and granuloma formation.
    c. IgE-mediated: acute and late - phase reactions
    d. Mucosal immunity: interactions between gut and bronchus-associated lymphoid tissue and secretory IgA
    e. Innate immune responses: natural killer cells, pattern recognition, interaction with adaptive responses

f. Pathologic immune responses: Immune complex-mediated (physicochemical properties and clearance of immune complexes), graft versus host response, abnormal apoptosis

5. Immunoregulation
    a. Tolerance: mechanisms of central and peripheral tolerance, including clonal selection, deletion, and anergy
    b. Cell-cell interactions: help and suppression. Understand the collaboration among cells for control of the immune response.
    c. Idiotype networks: inhibition and stimulation
    d. Purine and uric acid metabolism.
        i. Purine: biochemistry, synthesis, and regulation
        ii. Uric acid: origin, elimination, and physicochemical properties
        iii. Crystals: factors affecting formation, induction of inflammation
        iv. Purine pathway enzyme deficiencies and immunodeficiency: ADA, PNP

C. Biomechanics of bones, joints, and muscles: understand the principles of kinesiology of peripheral/axial joints and gait and how alterations in biomechanics contribute to musculoskeletal disorders.

D. Neurobiology of Pain

1. Peripheral afferent nociceptive pathways
2. Central processing of nociceptive information
3. Mechanisms of action of drugs used for the treatment of neuropathic pain.
4. Biopsychosocial model of pain

<u>Clinical Sciences</u>

A. Rheumatic Diseases

For each disease, understand the epidemiology, genetics, natural history, and clinical expression including clinical subtypes, pathology, and disease pathogenesis.

1. Rheumatoid Arthritis.
2. Seronegative spondyloarthritidies: ankylosing spondylitis, reactive arthritis, psoriatic arthritis, inflammatory bowel disease-associated arthritis, arthritis associated with acne and other skin diseases, SAPHO syndrome, and undifferentiated spondyloarthritis.
3. Lupus erythematosus: systemic, discoid, and drug-related; antiphospholipid antibody syndrome, including primary APLS.
4. Scleroderma: diffuse and limited systemic sclerosis, localized syndromes, chemical/drug-related.
5. Other systemic connective tissue diseases: eosinophilic fasciitis, eosinophila-myalgia syndrome, Sjögren's syndrome, polymyositis and dermatomyositis, relapsing polychondritis, relapsing panniculitis, erythema nodosum, adult-onset Still's disease, overlap syndromes including mixed connective tissue disease, undifferentiated connective

tissue disease.

6. Vasculitic syndromes: polyarteritis nodosa, Wegener's granulomatosis and other ANCA-associated diseases, giant cell arteritis/polymyalgia rheumatica, Takayasu's arteritis, Behcet's disease, hypersensitivity and small vessel angiitis, cryoglobulinemia, and Cogan's syndrome.
7. Infectious and reactive arthritides
    a. Infectious arthritides: bacterial (nongonococcal and gonococcal), mycobacterial, spirochetal (syphilis, Lyme), viral (HIV, hepatitis B, parvovirus, other), fungal, parasitic
    b. Whipple's disease
    c. Reactive arthritides: acute rheumatic fever, arthritis associated with subacute bacterial endocarditis, intestinal bypass arthritis, post-dysenteric arthritides, postimmunization arthritis, other colitic-associated arthropathies
8. Metabolic, endocrine, and hematologic disease associated rheumatic disorders
    a. Crystal-associated diseases: monosodium urate monohydrate (gout), calcium pyrophosphate dihydrate deposition disease, basic calcium phosphate (hydroxyapatite), calcium oxalate
    b. Endocrine-associated diseases: rheumatic syndromes associated with diabetes mellitus, acromegaly, hyperparathyroidism, hypoparathyroidism, hyperthyroidism, hypothyroidism, Cushing's disease
    c. Hematologic-associated diseases: rheumatic syndromes associated with hemophilia, hemoglobinopathies, angioimmunoblastic lymphadenopathy, multiple myeloma
9. Bone and cartilage disorders
    a. Osteoarthritis - primary and secondary osteoarthritis, chondromalacia patellae
    b. Metabolic bone disease: osteoporosis, osteomalacia, bone disease related to renal disease
    c. Paget's disease of bone
    d. Avascular necrosis of bone: idiopathic, secondary causes, osteochondritis dissecans
    e. Others: transient osteoporosis, hypertrophic osteoarthropathy, diffuse idiopathic skeletal hyperostosis, insufficiency fractures
10. Hereditary, congenital, and inborn errors of metabolism associated with rheumatic syndromes
    a. Disorders of connective tissue: Marfan's syndrome, osteogenesis imperfecta, Ehlers-Danlos syndromes, pseudoxanthoma elasticum, hypermobility syndrome, others
    b. Mucopolysaccharidoses
    c. Osteochondrodysplasias: multiple epiphyseal dysplasia, spondylepiphyseal dysplasia
    d. Inborn errors of metabolism affecting connective tissue: homocystinuria, ochronosis
    e. Storage disorders: Gaucher's disease, Fabry's disease, Farber's lipogranulomatosis
    f. Immunodeficiency: IgA deficiency, complement component deficiency, SCID and ADA deficiency, PNP deficiency, others
    g. Autoinflammatory syndromes including familial Mediterranean fever, Muckle- Wells Syndrome, tumor necrosis factor receptor-associated periodic syndromes (TRAPS).

h. Others: hemachromatosis, hyperlipidemic arthropathy, myositis ossificans progressiva, Wilson's disease, others

11. Nonarticular and regional musculoskeletal disorders
    a. Fibromyalgia
    b. Myofascial pain syndromes
    c. Axial syndromes: low back pain, spinal stenosis, intervertebral disc disease and radiculopathies, cervical pain syndromes, coccydynia, osteitis condensans ilii, osteitis pubis, spondylolisthesis/spondyolysis, discitis
    d. Regional musculoskeletal disorders: in addition to bursitis, tendinitis, or enthesitis occurring around each joint, the fellow should be familiar with other disorders occurring at each specific joint site (e.g., shoulder-rotator cuff tear, adhesive capsulitis, impingement syndrome; wrist ganglions; trigger fingers and Dupuytren's contractures; knee synovial plicaes, internal derangements, cysts; hallux rigidus, heel pain, and metatarsalgia; TMJ syndromes; costochondritis.
    e. Biomechanical/anatomic abnormalities associated with regional pain syndromes: scoliosis and kyphosis, leg length discrepancy, foot deformities
    f. Overuse rheumatic syndromes: occupational, sports, recreational, performing artists
    g. Sports medicine: injuries, strains, sprains, nutrition, female athlete, medication issues
    h. Entrapment neuropathies: thoracic outlet syndrome, upper extremity entrapments, lower extremity entrapments
    i. Other: reflex sympathetic dystrophy, erythromelalgia
12. Neoplasms and tumor-like lesions
    a. Benign
        i. Joints: loose bodies, fatty and vascular lesions, synovial osteochondromatosis, pigmented villonodular synovitis, ganglions
        ii. Tendon sheaths: fibroma, giant cell tumor, nodular tenosynovitis
        iii. Bone: osteoid osteoma, others
    b. Malignant
        i. Primary: synovial sarcoma, others
        ii. Secondary: leukemia, myeloma, metastatic malignant tumors
        iii. Malignancy-associated rheumatic syndromes: carcinomatous polyarthritis, palmoplantar fasciitis, Sweet's syndrome
13. Muscle diseases
    a. Inflammatory: polymyositis, dermatomyositis, inclusion body myositis
    b. Metabolic
        i. Primary: glycogen storage diseases, lipid metabolic disorders, myoadenylate deaminase deficiency, mitochondrial myopathies
        ii. Secondary: nutritional, toxic, endocrine disorders, electrolyte disorders, drug- induced
    c. Muscular dystrophies
    d. Myasthenia gravis

14. Miscellaneous rheumatic disorders
    a. Amyloidosis: primary, secondary, hereditary
    b. Raynaud's disease
    c. Charcot joint
    d. Remitting seronegative symmetrical synovitis with pitting edema
    e. Multicentric reticulohistiocytosis
    f. Plant thorn synovitis
    g. Intermittent arthritides: palindromic rheumatism, intermittent hydrarthrosis
    h. Arthritic and rheumatic syndromes associated with: sarcoidosis, scurvy, pancreatic disease, chronic active hepatitis, primary biliary cirrhosis, drugs, and environmental agents
    i. Rheumatic disease in the geriatric population
    j. Rheumatic disease in the pregnant patient
    k. Rheumatic syndromes in dialysis patients

B. Pediatric rheumatic diseases

Rheumatic diseases such as systemic lupus erythematosus, scleroderma syndromes, systemic vasculitides, and enteropathic arthritides, are similar in pathogenesis, presentation, clinical course, and treatment, in both adults and children. It is specifically the other diseases with specific aspects of pathogenesis and management that are unique to children that are included in this section.

1. Diagnose the rheumatic diseases that occur primarily in children, and know how they differ from the same, or similar, disease in adults.
    a. Systemic juvenile rheumatoid arthritis (Still's Disease)
    b. Pauciarticular juvenile rheumatoid arthritis
    c. Polyarticular juvenile rheumatoid arthritis
    d. Juvenile spondyloarthropathy
    e. Juvenile dermatomyositis
    f. Kawasaki Disease
    g. Henoch-Schonlein Purpura
    h. Acute rheumatic fever
    i. Neonatal lupus syndrome
    j. Hereditary periodic fever syndromes, e.g., Muckle-Wells syndrome

2. Know the major sequelae or life-threatening complications of rheumatic diseases that occur primarily in children:
    a. Systemic onset JRA
        i. Macrophage activation syndrome
    b. Pauciarticular JRA
        i. Chronic uveitis
    c. Juvenile dermatomyositis
        i. GI vasculitis
        ii. Calcinosis

    d. Kawasaki Disease
        i. Aneurysms of coronary and other arteries
    e. Henoch-Schonlein Purpura
        i. GI- intussusception, intestinal infarction
        ii. Renal - chronic nephritis
    f. Neonatal lupus syndrome
        i. Congenital heart block
3. Know the appropriate treatments of the above childhood rheumatic disorders, and complications of treatment.
4. Recognize non-rheumatic disorders in children that can mimic rheumatic diseases:
    a. Infectious or post-infectious syndromes
        i. Septic arthritis and osteomyelitis
        ii. Transient synovitis of the hip
        iii. Post-infectious arthritis and arthralgia
        iv. Post-viral myositis
    b. Orthopedic conditions
        i. Legg-Calve-Perthes Disease and other avascular necrosis syndromes
        ii. Slipped capital femoral epiphysis
        iii. Spondylolysis and spondylolisthesis
        iv. Patellofemoral syndrome
    c. Non-rheumatic pain
        i. Benign limb pains of childhood ("growing pains")
        ii. Benign hypermobility syndrome
        iii. Pain amplification syndromes including reflex sympathetic dystrophy
    d. Neoplasms
        i. Leukemia
        ii. Lymphoma
        iii. Primary bone tumors (especially osteosarcoma and Ewing's sarcoma)
        iv. Tumors metastatic to bone (especially neuroblastoma)
    e. Bone and cartilage dysplasias, and inherited disorders of metabolism
5. Know aspects of rheumatic disease and treatments specific to children:
    a. Disease effects on growth
        i. Accelerated or decelerated growth of limbs or digits affected by arthritis
        ii. Altered growth of mandible in TMJ arthritis
        iii. Short stature and failure to thrive
    b. Regular surveillance for uveitis in JRA
    c. Drugs
        i. FDA approved drugs for childhood rheumatic diseases
        ii. Drug metabolism and dosing different from adults
    d. Child-specific side effects of chronic corticosteroid treatment
        i. Growth retardation
        ii. Delay of puberty
    e. Physical and occupational therapy

i. Exercises
ii. Splinting

f. Psychosocial and developmental issues
i. Peer and sibling interaction
ii. Family adjustment
iii. School accommodations for disability
iv. School and recreational activities
v. Transition to adulthood
vi.

C. Therapeutic modalities and strategies

1. Pharmacology: for each medication, understand the dosing, pharmacokinetics, metabolism, mechanisms of action, side effects, drug interactions, compliance issues, costs, and use in specific patient populations, such as renal insufficiency and including fertile, lactating, and pregnant women.
   a. Nonsteroidal anti-inflammatory drugs
   b. Glucocorticoids: topical, intraarticular, systemic
   c. Systemic antirheumatic drugs: antimalarials, sulfasalazine, gold compounds, methotrexate, D-penicillamine
   d. Cytotoxic drugs: azathioprine, cyclophosphamide, chlorambucil
   e. Immunomodulatory drugs: cyclosporine, mycophenolate mofetil, tacrolimus
   f. Biologic agents
   g. Hypouricemic drugs: allopurinol, sulfinpyrazone, probenecid
   h. Antibiotic therapy for septic joints
   i. Narcotic and non-narcotic analgesics
   j. Tricyclics and other agents used for pain modulation
   k. Anticholinergics and non-pharmacologic agents used for the treatment of sicca symptoms
   l. Others: apheresis, ionizing radiation

2. Rehabilitation and disability issues
   a. Methods of rehabilitation: for each method, understand principles, mechanism of action, indications, precautions and contraindications, potential side effects, and costs.
   b. Importance of multidisciplinary approaches to rehabilitation and pain control. Appropriate use of and referral/prescription to rehabilitation specialists and pain clinics.
   c. Exercise: range of motion, strengthening, conditioning, and stretching
      i. Rest and splinting
      ii. Modalities and hydrotherapy: ultrasound, TENS iontophoresis, spa therapy
      iii. Joint protection and energy conservation techniques
      iv. Adaptive equipment and assistive devices
      v. Job site/home evaluation and adaptation

vi. Footwear and orthotics
vii. Acupuncture and other alternative modalities
viii. Nutritional issues

d. Demonstrate understanding of specific rehabilitative techniques/modalities and what modification of these techniques are needed depending on the patient's disease (e.g. osteoarthritis, myositis, etc.), location of symptoms (e.g. back, shoulder, etc.) and other related issues.
e. Psychosocial aspects of disability: understand the impact that the following factors have on the overall therapy of a patient with rheumatic disease and demonstrate knowledge of what can be done to assist a patient in these areas.
    i. Psychological and emotional factors including sexuality
    ii. Economic and vocational issues: vocational rehabilitation, costs of therapy and monitoring
    iii. Disability determination: impairment vs disability, evaluation and measurement, social security disability, workmen's compensation, other
    iv. Compliance issues

3. Surgical management
    a. For each procedure, the fellow should possess a working knowledge of indications, preoperative evaluation and medication adjustments, contraindications, complications, postoperative management, and expected outcome.
        i. Bone biopsy
        ii. Arthroscopy
        iii. Synovectomy of tendons and joints
        iv. Entrapment neuropathy release
        v. Osteotomies: hip, knee
        vi. Arthrodesis: wrist, other
        vii. Spine surgery: radiculopathy, stenosis, and instability
        viii. Reconstructive surgery of hand and foot
        ix. Total joint replacement: hip, knee, shoulder, other
        x. Specific surgical management problems:
            1. Rheumatoid arthritis patient
            2. Infected joint: arthroscopy vs. arthrotomy
            3. Infected prosthetic joint
            4. Ankylosing spondylitis patient
            5. Pediatric rheumatic disease patient
            6. Prevention and treatment of deep venous thrombosis vii Perioperative antirheumatic medication management
4. Complementary and alternative medical practices: diet, nutritional supplements, antimicrobials, acupuncture, chiropractic, topicals, homeopathic remedies, venoms, others

Diagnostic Testing

A. Laboratory tests: for each test, understand the biologic rationale, methods for performing, and utility/limitations of specific laboratory tests including but limited to:

1. Erythrocyte sedimentation rate, C-reactive protein, and other acute phase reactants
2. Rheumatoid factors and cryoglobulins
3. Anti-cyclic citrullinated peptide antibodies
4. Antinuclear antibodies and subtype specificities including anti-dsDNA, anti-Smith, anti-U1 RNP, anti-centromere antibodies, and anti-histone antibodies;
5. Antiribosomal P, anti-topoisomerase 1, and anti-synthase antibodies including anti- Jo-1
6. Anti-neutrophil cytoplasmic antibodies including specificities for neutrophil granule constituents [anti-PR3, anti-myeloperoxidase]
7. Antiphospholipid antibodies including RPR, lupus anticoagulant, anticardiolipin and beta-2-glycoprotein I antibodies
8. Antibodies to formed blood elements including direct and indirect Coombs testing, anti-platelet antibodies, anti-granulocyte antibodies
9. Assays for complement activity (CH50) and components of the complement cascade
10. Serum immunoglobulin levels, Serum protein electropheresis and immunofixation electrophoresis
11. HLA typing
12. ASO and other streptococcal antibody tests
13. Serologic and PCR tests for Lyme disease, HIV, Hepatitis B, Hepatitis C, parvovirus and other infectious agents
14. Serum and urine measurements for uric acid
15. Iron studies including ferritin
16. Flow cytometry studies for analysis of lymphocyte subsets and function
17. Specific genetic testing

B. Diagnostic imaging techniques: understand the basic underlying principles and technical considerations in the use of plain radiographs, computed tomography, magnetic resonance imaging, ultrasonography and radionuclide scanning of bones, joints, and periarticular and vascular structures.

C. Synovial fluid analysis: cell count and differential, crystal identification, viscosity, protein, glucose, and other special stains/analyses

D. Test-performance characteristics: principles of sensitivity, specificity, and predictive value

Research Principles

A. Principles and methods of epidemiological research

1. Definitions of incidence and prevalence

2. Basic biostatistics: including major methods of comparative analysis, types of error, likelihood ratios
3. Methods of health services research
    a. Measurement of health and functional status (HAQ, SF36, etc.).
    b. Quality of life measurements/assessments
    c. Components of cost analysis (direct costs, QALY, etc.)

B. Principles of clinical research

1. Major study designs and the limitations and biases associated with each
2. Diagnostic criteria and assessment of disease activity
    a. Objective assessments, e.g. DAS28, SLEDAI
    b. Composite indices (ACR20, DAS, WOMAC, etc.)
    c. Damage and functional indices (e.g. HAQ)
3. Clinical trials
    a. Major design types
    b. Definitions and uses of clinical trial Phases
    c. Roles of principal investigator, sponsors, study coordinators, monitors, IRB. C. Evidence-based medicine: Data analysis, biostatistics, meta-analysis and medical informatics

C. Laboratory techniques

1. Serologic: ELISA, RIA, RID, nephelometry, immunoblots, protein electrophoresis, circulating immune complex assays.
2. Cellular: lymphocyte proliferation, flow cytometry.
3. Histochemistry and immunofluorescence of biopsied tissues.
4. Molecular: Northern, Southern and Western blot analysis polymerase chain reaction; gene sequencing; genomics techniques (SNP, RFLP analysis, microarray techniques)
5. Hybridoma and monoclonal antibody production
6. Transgenic and gene knock-out animals

D. Bioethics of clinical and basic research

E. Critical literature review

<u>Methods for Acquisition</u>

The fund of knowledge obtained through this curriculum should serve as the foundation for understanding the pathogenesis, diagnosis, and treatment of the rheumatic diseases. The methods and resources for acquiring the body of medical knowledge include, but are not limited to:

- Didactic teaching - conferences, lectures, or discussions
- Independent reading - recommended textbooks, journal articles and internet based

research and study
- Clinical laboratory experience
- Research experience
- Attendance at regional and national meetings and conferences

Performance Markers

The fellow is expected to know and apply basic and clinical science relevant to rheumatology and should demonstrate an analytic and investigatory approach to clinical situations.

Basic Science – The fellow should be able to demonstrate understanding of anatomy, basic immunology, cell biology and metabolism pertaining to the rheumatic diseases in both didactic and clinical settings.

Clinical Science – The fellow demonstrates understanding of pathogenesis, epidemiology, clinical expression, treatments and prognosis of the full range of rheumatic and musculoskeletal disease in both didactic and clinical settings.

Diagnostic Testing – The fellow displays an understanding of the biological and physical and basis of the range of diagnostic testing in rheumatology and the clinical test characteristics of these procedures.

Research Principles – The fellow should be able to:

1. Demonstrate an understanding of the essential components of clinical study design, patient assessment and data analysis.
2. Exhibit familiarity with the common experimental approaches used in laboratory, clinical and epidemiology research.
3. Exhibit familiarity with the principles of the ethical conduct of research and the ability to apply these principles in the conduct of their own research during fellowship.

Evaluation Methods

- Faculty performance rating – with regard to medical knowledge
- Formal written exam: e.g., ACR In-Training Exam
- Mentor evaluation of the fellow's research performance

II. Patient Care

The ability to provide quality patient care is the ultimate goal of clinical training in rheumatology. The fellowship program requires its fellows to obtain competence in patient care to the level expected of a new practitioner. The program will define the specific knowledge, skills, behaviors,

and attitudes required, and provide educational experiences as needed in order for the fellows to demonstrate quality patient care.

Definition

Patient Care that is compassionate, appropriate, and effective for the treatment of disease and the promotion of health.

Essential Components

The essence of being a rheumatologist is the ability to use information derived about a patient (history, physical examination, laboratory and imaging studies) along with medical knowledge to orderly synthesize a differential diagnosis, plan of further evaluation and comprehensive management for the patient with a rheumatologic problem. This may broadly be categorized under four components:

Information Gathering

A. Obtaining the history

B. Performing a careful physical examination

C. Obtaining appropriate tests, including laboratory tests, imaging studies, and others

Synthesis of Treatment Plan

Informed medical decision making based on up-to-date scientific information and clinical judgment that also accounts for patient preferences and circumstances.

Implementation of Treatment

A. Prescribing medications and rehabilitation

B. Patient education and counseling

C. Preventive medicine and proactive care

D. Therapeutic aspiration and injection

E. Utilization of allied health care professionals, including those from other disciplines

Reassessment and patient follow up

A. Assessment of treatment response

B. Recognition of treatment related adverse events

Methods for Acquisition

Learning the essentials of patient care is primarily acquired by caring for patients in the outpatient clinic as well as the inpatient (hospitalized) settings. These supervised experiences are the focus of clinical training where the fellow observes skilled clinician role models, and participates with the patient in the management of their rheumatologic problem. Situations in which facets of patient care are taught and learned include:

- Didactic teaching - conferences, lectures, or discussions
- Clinical experience in a supervised, mentored clinical setting
- Interactive case-based discussions
- Independent reading - recommended textbooks, journal articles and internet based research and study
- Attendance at regional and national clinical meetings and conferences
- Preparation of patient care portfolios

Performance Markers

<u>Information Gathering</u> - The fellow should be able to:

A. Understand principles and demonstrate competency in obtaining a clinical history, relevant review of systems, and assessing functional status of patients with rheumatic disease symptoms.

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. Additionally, the fellow should be able to identify extraarticular findings that are associated with specific rheumatic diseases.

C. Understand the indications for and costs of ordering laboratory tests, procedures to establish a diagnosis of rheumatologic disease and of different therapies used in the management of these diseases.

D. Understand the principles and interpretation of results of synovial fluid analysis and become proficient in the examination and interpretation of synovial fluid under conventional and polarized light microscopy from patients with a variety of rheumatic diseases.

E. Demonstrate understanding and competency in the assessment and interpretation of:

1. Radiographs of normal and diseased joints, bones, periarticular structures and prosthetic joints
2. Bone densitometry

F. Apply the principles of clinical epidemiology to day-to-day clinical decision making, demonstrating 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. Ultrasonography, computed tomography, magnetic resonance imaging of joints, bones and periarticular structures
2. Radionuclide scans of bones and joints
3. Arteriograms (conventional and MRI/MRA) for patients with suspected or confirmed vasculitis
4. Computed tomography of lungs and paranasal sinuses
5. Magnetic resonance imaging of the central nervous system (brain and spinal cord)
6. Electromyograms and nerve conduction studies
7. 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
8. 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-cyclical citrillunated peptides (anti-CCP), antinuclear antibodies, anti dsDNA, anti-SSA (anti-Ro), anti-SSB (anti-La), anti-U1RNP, anti-Sm, anti- topoisomerase I (anti-Scl-70), anti-Jo-1, anti-PM-Scl, antihistone antibodies, antineutrophil cytoplasmic antibodies (including anti-myeloperoxidase and anti- proteinase-3), cryoglobulins, complement component levels, CH50, serum protein electrophoresis, serum immunoglobulin levels, RPR, lupus anticoagulant assays, anticardiolipin and other antiphospholipid antibodies, HLA typing (e.g. HLA-B27), ASO, Lyme serologies, serum and urine uric acid levels, and lymphocyte subset and function data.
9. Arthroscopy
10. Schirmer's and rose Bengal tests; parotid scans and salivary flow studies

<u>Synthesis of Treatment Plan</u> - The fellow should be able to:

A. Demonstrate the ability to construct a differential diagnosis in patients presenting with signs and symptoms related to rheumatologic diseases and to outline further testing necessary to establish the correct diagnosis.

B. Demonstrate the ability to construct and implement an appropriate treatment plan for the care of a patient with a rheumatologic problem integrating the prescribing of medications (oral, injectable or infused), 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.

Implementation of Treatment - The fellow should be able to:

A. Demonstrate a working knowledge of clinical pharmacology: for each medication, understand the dosing, pharmacokinetics, metabolism, mechanisms of action, side effects, drug interactions, compliance issues, costs, and use in patients including fertile, lactating, and pregnant women.

1. Nonsteroidal anti-inflammatory drugs and adequate gastroprotection
2. Glucocorticoids: topical, intraarticular, systemic
3. Disease modifying antirheumatic drugs:
    a. historical agents such as gold compounds and penicillamine
    b. oral agents: methotrexate, antimalarials, sulfasalazine, leflunomide, tetracyclines, auranofin
    c. parenteral biological response modifiers including inhibitors of TNF, IL-1 and other cytokines and immune based therapies such as abatacept and rituximab.
4. Cytotoxic drugs: azathioprine, cyclophosphamide, chlorambucil,
5. Immunomodulators: cyclosporine, tacrolimus, mycophenolate mofetil
6. Hypouricemic drugs: allopurinol, sulfinpyrazone, probenecid
7. Antibiotic therapy for septic arthritis, Lyme disease

B. Experimental therapies: plasmapheresis, intravenous immunoglobulin, myeloablative therapy and immune reconstitution including stem cell transplantation

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

D. Understand pain assessment and pain management:

1. Methods of pain assessment including visual analog scale scores, pain questionnaires
2. Non-pharmacological modalities of pain management including exercise, cognitive behavioral therapy
3. 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

E. Understand changes required in patient management should the rheumatology patient become pregnant; this should include pre-pregnancy counseling about ramifications of becoming pregnant

on the disease process, the use of medications before and during pregnancy and in the postpartum period.

F. 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.

G. Understand indications for surgical and orthopedic consultation in acute and chronic rheumatic diseases.

H. Pre- and Post-operative Management of the Surgical Patient:

1. Understand indications for surgical and orthopedic consultation in acute and chronic rheumatic diseases.
2. Understand 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.

I. Understand complementary and unconventional medical practices: diet, nutritional supplements, antimicrobials, acupuncture, topical therapeutic agents, homeopathic remedies, venoms, and others.

Reassessment and patient follow up - The fellow should be able to demonstrate the ability to reassess the patient over time, including recognition of treatment related adverse events, and alter the treatment plan accordingly.

Evaluation Methods

- Faculty performance rating – with regard to patient care
- Chart review – for patient care, drug prescribing, or outcomes
- Clinical evaluation exercise (mini-CEX)
- Objective structured clinical examination (OSCE)
- ACGME biannual milestone evaluations
- 360 evaluations
- Portfolio review

III. Practice-based Learning and Improvement

The practice of rheumatology entails the assessment and treatment of patients with clinical disorders that are often complex with regard to the variable organ systems involved, variations in

musculoskeletal and immune system biology, and impact upon patient lifestyle and livelihood. This complexity and the rapid advances in understanding of both disease pathogenesis and treatment of the rheumatic diseases demands that the rheumatologist continually evaluate and improve the quality of their care in the context of their own clinical practice. The development of skills in self-directed, reflective learning and practice improvement will facilitate the delivery of state-of-the-art, evidence-based patient care that maximizes the likelihood for successful clinical outcomes.

Definition

Practice-based learning and improvement involves the evaluation of care provided to both individual patients as well as to groups of patients in a given practice, the appraisal and assimilation of scientific evidence relevant to clinical problems encountered, evaluations of the care provided in the context of this evidence, and effecting improvements in patient care based upon these evaluations.

Essential Components

In addition to structured learning of the basic components of medical knowledge and patient care, the rheumatologist must evaluate their knowledge base and care delivery on an ongoing basis with the goal of continually improving that care. This process includes the following components:

Independent learning

The ability to access and critically appraise appropriate information systems and sources to improve understanding of underlying pathology, assess the accuracy of diagnoses, and gauge appropriateness of therapeutic interventions for the patient population they encounter.

Self-evaluation of performance

The effective rheumatologist must engage in ongoing self-assessment activities. This includes the ability to continuously self-evaluate learning needs and to monitor practice behaviors and outcomes to ascertain whether clinical decisions and therapeutic interventions are effective, and adhere to accepted standards of care.

Incorporation of feedback into improvement of clinical activity

The ability to appropriately interpret results of clinical outcome studies, practice data, quality improvement measures, and faculty/peer feedback and evaluations and apply them to patient care

and practice behavior.

Methods for Acquisition

- Clinical experience in a supervised, mentored clinical setting
- Independent reading - recommended textbooks, journal articles and internet based research and study
- Faculty-facilitated group discussions and tutorials
- Faculty role modeling
- Interactive case-based discussions
- Systematic chart review of their own patients
- Preparation of patient care portfolios
- Presentations to peers and lay audiences
- Participation in individual or group quality improvement project

Performance Markers

Independent learning - the fellow should be able to:

A. Utilize information technology to search, retrieve, and interpret medical information relevant to the care of patients with rheumatic disease from sources such as:

1. Peer-reviewed clinical journal articles
2. Clinical case reports
3. Internet-based resources such as Up-To-Date
4. Clinical performance guidelines published by the ACR and other groups
5. Conversations with colleagues and peers
6. CME activities including attendance at national and regional meetings

B. Critically evaluate and interpret the medical literature using knowledge of clinical study methodology, statistics and methods of health services research.

C. Apply learned concepts and conclusions from studies and case reports to the care of individual patients.

D. Facilitate the learning of students and other health care professionals.

Self-evaluation of performance - the fellow should be able to use a systematic approach, such as a chart review, to analyze own practice and identify learning or practice improvement needs.

Incorporation of feedback into improvement of clinical activity - the fellow should be able to:

A. Demonstrate the ability to improve own practice based upon specific feedback and learned concepts.

B. Assess the impact of practice improvements on the care of own patients. C. Implement global quality improvement measures in own practice.

Evaluation Methods

Faculty performance rating - with regard to demonstration of reflective learning in clinical venues

Faculty Meetings - review of the fellow's presentations, portfolio-based presentations, and journal article reviews related to practice-based learning and improvement.

Portfolio review - with respect to residents' narratives of critical incidences or other experiences (usually accompanied by reflection on the event), and practice improvement.

ACGME biannual milestone evaluations

IV. Systems-based Practice

The increasing complexity and diversity of health care delivery systems presents both challenges and opportunities for the practice of rheumatology. Knowledge of the nature and variety of the external and internal systems that can impact clinical practice and the effective utilization of that knowledge to positively impact patient care is an essential skill. The fellow's competence in such systems-based practice "…includes an understanding of how their own practices affect others, and knowing how to partner with others to improve health care."

The knowledge base of systems-based practice comprises the advantages and disadvantages of different health care systems that impact on patients with rheumatic disease. Some of these include the academic system in which rheumatology fellows are training, the various private and public health care delivery systems, the governmental agencies and programs that regulate these systems, the volunteer, private and governmental agencies that are available to educate and assist patients, the bureaucracy faced by disabled patients negotiating these systems and the social and economic burden of chronic rheumatic diseases. The goal of the systems-based practice curriculum is to enhance the ability of rheumatology fellows to positively influence patient care by effectively utilizing these internal and external resources, to serve as effective advocates for their patients, and to provide cost-effective patient care. In some cases this may also mean identifying and organizing change in the local systematic problems that lead to inferior patient care.

The purpose of the systems-based practice curriculum is to clarify the components of systems-based practice, describe how and where the knowledge is acquired, set benchmarks of performance expected of the fellows, and describe the tools used to measure that performance.

Definition

Systems-based practice reflects an understanding of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Essential Components:

Systems: a concept of "systems thinking" in health care delivery

This includes an understanding of the limitations and opportunities of various types of rheumatology practices and delivery systems, practice management strategies, managed care and health insurance issues. It also comprises an ongoing analysis of the strengths and weaknesses of the local academic system, in both the inpatient and outpatient settings, and its impact on the health care delivery to rheumatic patients. In particular, efforts should be made to identify potentially correctable systematic weaknesses and medical errors due to systems failure and to develop strategies to rectify the problems (i.e. Quality Improvement projects)

Partners in health care delivery: the various providers and resources available to deliver optimal care.

The principal partners in delivering health care to rheumatic patients include providers such as nurses, physiatrists, orthopedists and allied health professionals available within the local healthcare system. Partners also include outside volunteer agencies, both locally and nationally, such as the American College of Rheumatology, the Arthritis Foundation, the disease-specific foundations (Lupus, Scleroderma, Ankylosing Spondylitis, etc.), the National Institute of Arthritis, Musculoskeletal and Skin Diseases (NIAMS). Other agencies that impact on the practice of rheumatology include the American Medical Association (AMA), the Food and Drug Administration (FDA) and the Center for Medicare and Medicaid Services (CMS).

Advocacy for the patient: the importance, opportunities and limits of patient advocacy

This advocacy might consist of assisting patients with applications for Medicaid disability, completing preauthorization documents for the use of certain medications and appealing to HMOs with respect to denial of certain treatments, benefits and claims.

Cost-effective health care: the principles of cost allocation and resource management within the external (state, national) and local systems

This includes a knowledge of the cost and availability of certain drugs (and unavailability of others) on the fellows' hospital formulary, the mechanisms by which compensation (by CMS and other carriers) is dependent upon the delivery of various levels of service to patients and the methods in

place for Quality Review of inpatient and outpatient practice patterns. The utilization of evidence-based cost-conscious strategies for the diagnosis and treatment of patients with rheumatic diseases is paramount.

Methods for Acquisition

- Clinical experience in a supervised, mentored clinical setting
- Didactic teaching - conferences, lectures, or discussions that highlight particular systems-based practice issues, including multidisciplinary conferences related to individual patients
- Faculty-facilitated group discussions and tutorials used to identify systematic problems in patient care delivery
- Independent reading specifically related to systems-based practice issues
- Preparation of patient care portfolios. Appropriate portfolio entries might include:
    - Documentation of instances of leadership in the multidisciplinary management of complicated patients, of utilization of outside resources for patient care, of patient advocacy. Participation in a project to modify the patient medical record system (electronic medical record or hard copy system).
    - Participation in a program to improve triage system in ER for patients with acute rheumatic disease.
    - Developing an outpatient system that would allow patients with acute rheumatic complaints appointments within 24 hrs.
    - Outpatient records survey for compliance with evidence-based diagnostic or therapeutic guidelines and development of strategies to correct deficiencies, e.g. laboratory monitoring of patients on DMARDs, PPD testing before TNF antagonists.
- Participation in individual or group quality improvement projects

Performance Markers

Systems: The fellow should be able to:

A. Demonstrate knowledge about how different health care delivery systems affect the management of patients with rheumatic diseases.

B. Practice management: be familiar with types of practice, equipment, insurance, economics, personnel, ethical aspects, quality assurance, and managed care issues relating to the practice of rheumatology.

C. Identify the strengths and weaknesses of the system in which they are training and practicing. They should also demonstrate the ability to develop strategies to overcome systematic problems they have identified, and/or QI projects to improve it.

D. Be familiar with the history of rheumatology, and national organizations such as the American

College of Rheumatology, the Arthritis Foundation, and the Association of Rheumatology Health Professionals.

E. Understand the influence on rheumatology of the American Medical Association, Food and Drug Administration, CMS and other governmental agencies involved in health care legislation, and peer review organizations.

Partners – The fellow should be able to utilize multiple providers and resources as needed for optimal patient care.

A. Understand the rheumatologist's role 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 and inpatient rehabilitation of patients with rheumatic diseases.

B. Demonstrate the ability to educate patients about outside resources which might be of assistance to their physical, emotional and financial well-being. Examples of these external resources include the Arthritis Foundation self-help groups, Lupus Foundation support groups and pharmaceutical company initiated financial aid programs.

Advocacy

A. The rheumatology fellow should demonstrate the ability to act as effective advocates for quality care for their patients in a variety of needs, such as dealing with insurance companies and HMO's, for preauthorizations for medications, filing disability claims, etc.

B. The fellow should demonstrate the ability to assist patients in dealing with health system complexities.

Cost effective care

A. The fellow should know the local costs of medications they prescribe, rheumatologic lab tests they order and commonly used diagnostic tests and procedures.

B. The fellow should demonstrate a commitment to the practice of appropriate evidence- based cost-conscious patient care.

Evaluation Methods

- Faculty performance rating - with regard to demonstration of effective systems-based

performance markers.
    - e.g., the fellow's performance in assembling and leading multidisciplinary health care teams in the management of inpatients (e.g. a complicated SLE patient) and outpatients (e.g. a severe rheumatoid arthritis patient). This might involve directing patient management with social work, physical and occupational therapists, rehabilitation medicine specialists, orthopedics, and/or geriatrics.
- Patient survey - with components that specifically address advocacy issues and cost effective health care delivery.
- 360 evaluations
- Portfolio review - for documentation of systems-based practice performance markers
- ACGME biannual milestone evaluations

V. Interpersonal and Communications Skills

Interpersonal and communication skills are essential for the formation of a desirable and effective physician-patient relationship. The complexity of most of the rheumatic diseases, as well as the increasingly complicated treatment regimens, requires a working partnership between patient and physician, and often between physician and the patient's family. In addition to improved patient satisfaction, confidence and understanding, such working partnerships promote medical compliance. Effective physician collegial relationships are also dependent upon these skills.

Definition

Interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and other health professionals.

Essential Components:

Gathering information

Reliable and effective communication depends upon the availability of accurate and complete information obtained from patients, their family and the complete medical record. This requires the use of effective listening and communication skills.

Understanding and incorporating patient's perspective

Such understanding impacts the ability of the physician to appreciate the functional impact of disease and the desire and ability of the patient to be an active partner in the physician's treatment efforts.

Providing Information

Communication regarding disease causation, diagnosis and treatment is only as effective as the ability of the recipient to understand the information. Effective explanation therefore requires that the physician communicate in a manner that is understandable to the listener.

Trust

Establishment of trust with patient and patient's family.

Methods of Acquisition

- Clinical experience in a supervised, mentored clinical setting
- Faculty role modeling
- Independent reading
- Faculty-facilitated group discussions and tutorials
- Interactive case-based discussions
- Systematic chart review of their own patients
- Presentations to peers and lay audiences
- Participation in quality assurance/improvement initiatives

Performance Markers

Gathering information - the fellow should be able to:

A. Use effective verbal, nonverbal, listening, questioning and explanatory skills to obtain a complete and accurate history.

B. Obtain properly informed consent.

Understanding and incorporating patient's perspective - the fellow should be able to:

A. Reliably and accurately communicate the patient's and their family's views and concerns to others.

B. Interact with patients in an empathic and understandable manner.

Providing information - the fellow should be able to:

A. Write clear and effective consultations in the medical record and in letters to referring physicians.

B. Work effectively with colleagues and peers as a member or leader of a health care team.

C. Clearly explain benefits and risks of treatment.

D. Display effective teaching skills to colleagues and patients.

Trust - the fellow should be able to create and maintain an effective therapeutic and ethically sound relationship with patients over time.

Evaluation Methods

- Faculty performance rating – with respect to communication skills and interpersonal relations
- Patient survey - with components that specifically address the fellow's interpersonal skills
- Objective structured clinical examination (OSCE)
- Clinical evaluation exercise (CEX)
- ACGME biannual milestone evaluations

VI. Professionalism

Professionalism is one of the foundations of the practice of medicine and is frequently an inherent character trait in a well-rounded physician. By virtue of their prior medical school and internal medicine training, rheumatology fellows have already attained a substantial level of professionalism, which can be refined during the fellowship training period. The range of current therapies, including biologic agents, and the complexity of many severe or life threatening rheumatic diseases that require potentially toxic chemotherapeutic agents, place rheumatology fellows in close contact with referring providers, subspecialty consultants, allied health care providers, and hospital and health insurance administrators during the care of their patients. Fellows in many programs also interact with patients from a wide range of cultural and socioeconomic backgrounds. In addition, fellows are increasingly targeted by the pharmaceutical industry in an attempt to influence prescribing habits at an early phase of their careers. A substantial level of professionalism is thus required to maintain the balance required be an effective rheumatologist. The importance that the division places upon the adherence to the principles of professionalism is emphasized by the inclusion of the article "The Developing Physician: Becoming a Professional" present in the Appendix.

Definition

Professionalism is manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to patients of diverse backgrounds.

Essential Components:

Primacy of patient interest

Placing the interest of the patient before all other external interests is the most fundamental aspect of the medical profession and forms part of the unwritten contract in the patient-physician relationship. This primacy also implies patient autonomy in the determination of treatment.

Physician autonomy in medical decision making

While an increasing array of bureaucratic, administrative and economic forces continue to limit physician autonomy, some degree of autonomy at the level of medical decision making must be preserved by the physician in order to maintain the primacy of interest.

Physician responsibility and accountability

The practice of medicine incurs responsibility and accountability to patients, colleagues, society, and self.

Humanistic qualities and altruism

Physicians should provide compassionate care and serve all patients with respect to their cultural, emotional, spiritual and social needs.

Ethical behavior

This includes being trustworthy and cognizant of conflicts of interest. Integrity as a physician and consultant rheumatologist must pervade all of the components of professionalism.

Methods for Acquisition

Professionalism can be fostered throughout the fellowship training period beginning with an emphasis on the essential components of professionalism and the specific performance goals at the beginning of the fellowship.

Faculty role modeling. A culture of professionalism in the training environment is created by mentors, role model clinicians, and a fellowship culture that demonstrates the values of

professionalism and a spirit of collegiality in placing the needs of patients first, maintaining a commitment to scholarship, helping colleagues meet their responsibilities, establishing a commitment to continuous quality improvement, and being responsive to society's healthcare needs. A commitment to professional ethics is demonstrated by establishing and maintaining a high standard of moral and ethical behavior within the clinical setting in the care of patients, in the education of residents and medical students, in conducting research, and in interacting with funding organizations.

Participation in professional activities. Fellows should be given the opportunity to participate in community service, professional organizations, and institutional committee activities.

Clinical experience in a supervised, mentored clinical setting - to provide experiential learning opportunities to observe and practice the key components of professionalism. Faculty can be encouraged to highlight pertinent professional issues with their fellows at the bedside, at weekly conferences, and in the outpatient clinic setting.

Didactic teaching - conferences, lectures, or discussions devoted to topics of professionalism. These might also include instructive case conferences using case scenarios to highlight professionalism and ethical issues.

Faculty-facilitated group discussions. Case vignettes or journal club discussions of issues of professionalism that provide the opportunity for frank discussions between faculty and fellows about these issues.

Independent reading. Reading assignments of peer reviewed publications and specialty organization publications from the AMA, ABIM, ACP, ACGME and web- based discussions on professionalism.

Performance Markers

By the end of their training, fellows should be able to demonstrate competency in the following areas:

Patient Primacy - the fellow should be able to:

A. Demonstrate responsiveness to the needs of patients that supersedes self-interest.

B. Demonstrate sensitivity and attention to the interests of own patients in formulation of treatment plans.

C. Demonstrate the ability to provide autonomy to their patients to decide upon treatment once all treatment options and risks have been outlined for them.

D. Provide and obtain key elements of informed consent in an understandable manner for therapeutic interventions and clinical research endeavors.

Physician Autonomy - the fellow should be able to demonstrate independent medical decision-making skill.

Physician accountability and responsibility including:

A. Demonstrates timeliness and reliability in clinical care of patients, including completion of medical records and in responding to patient calls and requests.

B. Reliably follows through on duties and clinical tasks, including timely response to calls from colleagues. Exhibits regular attendance and active participation in divisional and departmental training activities and scholarly endeavors.

C. Strives for excellence in care and scholarly activities as a rheumatologist.

D. Works to maintain personal physical and emotional health and demonstrates an understanding of and ability to recognize physician impairment in self and colleagues.

Humanistic qualities and altruism

A. Exhibits empathy and compassion in physician-patient interactions and is sensitive to patient needs for comfort and encouragement.

B. Is courteous and respectful in interactions with patients, staff and colleagues.

C. Treats all patients with respect regardless of race, gender, ethnic, religious or socioeconomic background.

D. Provides equitable care to all patients.

E. Demonstrates culturally competent care, which is defined here as the ability to deliver effective medical care to patients, regardless of cultural or language differences between the patient and the physician.

Ethical behavior

A. Demonstrates a commitment to ethical principles relating to provision and withholding of clinical care, confidentiality of patient information and business practices.

B. Is trustworthy in following through on clinical questions, laboratory results, and other patient care responsibilities.

C. Recognizes and addresses actual and potential conflicts of interest including pharmaceutical industry involvement in their medical education and program funding and guarding against this

influencing their current and future prescribing habits.

D. Demonstrates integrity in reporting clinical and research findings to supervisors and colleagues.

Evaluation Methods

It is very important to utilize measures that accurately evaluate professionalism. Providing feedback to the fellows will allow constructive or corrective action to be taken in the final phase of their medical education prior to embarking on their career when, although frequently proceeding without any specific supervision, they remain accountable to their patients, society, their peers and themselves.

Faculty performance rating - with regard to demonstration of professional behavior

360 evaluations – regarding professional attitudes and behavior. Fellows may also fill out self-evaluations in the sphere of professionalism and compare it to responses from others for self-reflection and self-improvement.

Portfolio review – which should include a section to include reflective entries on issues of professionalism such as difficult patient and peer encounters, conflicts of interest, and barriers to providing equitable care.

Patient survey - with components that specifically address fellow's professionalism.

ACGME biannual milestone evaluations

COLUMBIA UNIVERSITY DIVISION OF RHEUMATOLOGY SPECIFIC POLICIES, PROCEDURES, AND SUPERVISION

SICK CALL/ BACKUP CALL POLICY

In the event that a fellow is absent on a short term basis (less than two weeks) because of illness or for personal matters, another fellow in that PGY year will assume the appropriate responsibilities and commitments which would have been normally assumed by the absent fellow. If a fellow in that PGY year is unable to totally assume the allotted responsibilities, then an appropriate fellow from the other PGY year will assume responsibility.

MATERNITY LEAVE

The program allows maternity leave as mandated by University and ACGME policy (6 weeks maternity, including sick leave and 4 weeks vacation). If additional time is required this will be taken as unpaid family leave and made up at the completion of the fellowship.

VACATION

Fellows are allowed 4 weeks of paid vacation per year. Only one first year fellow may take vacation at one time, and vacation time must be taken during the Allen consult month. No vacation time is permitted while rotating at the Bronx VA. A maximum of two fellows in total may be away at one time. Vacation requests must be submitted **at least 8 weeks** in advance and approved by the Program Director. Travel/vacation plans should not be made before vacation requests have been approved. Appropriate outpatient clinics must be cancelled accordingly.

LEAVE OF ABSENCE

Family leave may be taken in accordance with University policy. The American Board of Internal Medicine stipulates that leave for any reason, including Maternity leave, must be made up at the end of the fellowship. If vacation time and leave of absence total more than 12 weeks over two years, time will need to be made up at the end of the fellowship. Any leave of absence must be arranged with the Program Director.

MOONLIGHTING

Moonlighting activities need to be approved by the Program Director and will be approved only if the resident is in good academic standing. Moonlighting activities must leave the fellows in

compliance with duty hour policies.

ON-CALL

On-call is taken 1 week at a time from outside the hospital. The fellow is expected to come in to the hospital for all emergency-related requests for evaluation. Although the fellow is expected to use his/her own judgment as to what is an emergency call, general guidelines are stipulated below. Fellows should come in to the hospital if:

1. An arthrocentesis is required.
2. The patient has rheumatic symptoms and a fever.
3. The patient has a flare of SLE.
4. A clinical decision regarding medication dosing is required (e.g., the need for steroid therapy).
5. There is an unexplained deterioration in the patient's condition.
6. The patient has an undiagnosed systemic illness.
7. A specific request is made by housestaff or attending staff for any reason.

Fellows should call the rheumatology attending-of-record for consultation as often as needed. In July and August it is expected that the fellow will speak with the attending on a daily basis. The attending should be called for any new hospital admission for the purpose of reviewing evaluation and management decisions.

CONSULTS

All urgent consults should be seen within 4 hours. If a consult is called while the fellow is in afternoon clinic, the fellow should perform consultation after clinic unless an arrangement is made specifically with the fellow-on-call. Non-urgent consult requests after 5:00 P.M. may be seen the following day.

On a clinic day, if the Milstein consult fellow receives more than 4 consults, the Milstein fellow may discuss with the Milstein consult attending if assistance from the Allen fellow is needed.

FELLOW SUPERVISION

General policy for supervision as outlined in the University policy documents.

All residents are supervised by attending staff in the in-patient and out-patient settings. In the inpatient setting fellows are supervised by an attending on service that makes bedside rounds with the fellow at least three times per week and who is available by phone at all times. Attending staff will come in to the hospital to assist the fellow as needed. Fellows are expected to call the attending as needed for follow-up patients and for any new consults as they are seen. Joint aspirations are

initially supervised by the attending until an appropriate level of skill is reached. Fellows are to keep a list of all procedures performed. Instruction on joint examination and injection techniques are given throughout the year. In the outpatient setting all fellows present all new and follow-up cases to the attendings in clinic. The attendings review charts of patients seen by fellows.

Supervision for each rotation is described in the Supervision document.

DUTY HOURS

The scheduled work week will not exceed 80 hours per week. On-call is taken 1 week at a time by beeper from outside the hospital. For our program this does not result in an excess of hours over the mandated 80 hours per week.

Work hours are monitored electronically by utilization of MedHub. Duty hours must be entered on a weekly basis in MedHub. The Division can be fined if Duty Hours and Duty Hours Surveys are not completed by the required deadlines.

FATIGUE

The existence of fatigue in fellows during the fellowship is continually monitored by the program director and the faculty. The emergence of features of fatigue will immediately be addressed by the program director in consultation with the fellow. The program's emphasis on the deleterious effect of fatigue on the educational process and its implications for patient care are highlighted by the inclusion of the article "Fellowship training, workload, fatigue and physical stress: a prospective observational study."

COLUMBIA UNIVERSITY DIVISION OF RHEUMATOLOGY
SUPERVISION OF FELLOWS

Inpatient Experience

Fellows on clinical rotations are responsible for inpatient and emergency room consultations and follow-up evaluations in the hospital; in the course of fulfilling these responsibilities they develop and refine their ability to clinically evaluate and treat acutely ill patients with rheumatic diseases. The hospital does not have designated "Rheumatology beds" so that fellows provide consultative care only. Under the supervision of a member of the Division of Rheumatology faculty assigned as the attending on service, fellows learn to assess the need for hospitalization, formulate a differential diagnosis, and develop an appropriate strategy for diagnostic evaluation and treatment.

Expectations: Fellows are expected to obtain patient histories, perform physical examinations, formulate a differential diagnosis and follow the patient's progress through the hospital course. Fellows are regularly called upon to perform arthrocenteses and, in addition to acquiring the practical skill, they learn to appreciate the indications, contraindications and potential complications of the procedure, as well as the interpretation and clinical application of the findings. Fellows are taught to compose consultation and follow up notes that are to the point and facilitate communication with referring physicians. They are expected to communicate with and teach medical housestaff that are the primary caregivers for each patient. They are expected to review medical literature pertinent to their patients' problems, to periodically prepare analytic literature reviews on clinical topics and to provide didactic and practical instruction to residents and medical students rotating through the Rheumatology Service. The fellow also assigns patients to be seen by the medical resident, reviews the history and physical findings with the resident, assists him/her in formulating a differential diagnosis and plans for evaluation and treatment, and suggests pertinent literature pertaining to the problem at hand to be read by the medical resident. Depending on the circumstances, the fellow may instruct the medical resident in the performance of necessary procedures on their patients. The medical resident presents the patient to the responsible attending, participates along with the rheumatology fellow in the subsequent discussion, and summarizes findings and recommendations in the consultation note.

Supervision: Fellows are supervised by the attending on service that makes bedside rounds and who is available by phone at all times. Attending staff will come in to the hospital to assist the fellow. Fellows are expected to call the attending as needed for follow-up patients and for any new consults as that are seen. Bedside rounds are made as necessary but no less than three times per week and as often as daily. On rounds, fellows present cases, demonstrate physical findings, and discuss management. Dosing of immunosuppressive therapies and administration of biologic therapies is monitored closely by the attending physician. Notes are read by the attending physician and countersigned. Suggestions are made by the attending regarding appropriate literature and

feedback is given after presentation of papers. Procedures are supervised by attending staff until it is deemed that the fellow is able to perform procedures independently. Usually three observed procedures are performed. All procedures are entered into the procedure log maintained by each fellow. Fellows call Dr. Kang if they are unable to contact the appropriate attending.

Outpatient Experience

There are three Rheumatology Continuity Clinics at CUMC: two General Rheumatology Clinics and one Lupus Clinic. Patients with a broad range of rheumatologic illnesses are seen, including rheumatoid arthritis, osteoarthritis, MCTD, spondyloarthritis, scleroderma and variants, myositis, fibromyalgia and soft-tissue rheumatism. The fellows follow their patients regularly and are responsible for their ongoing management. In addition, fellows attend clinics of related disciplines such as orthopedics, dermatology, pediatric rheumatology, uveitis, EMG, and others on an elective basis according to their interests.

Expectations and Supervision: In the rheumatology outpatient setting, the fellows will take a history and examine the patient. A designated preceptor for each clinic will listen to the detailed case presentation and formulation, and then examine each patient with the fellow. They will then review the formulation and management plan and sign the chart. Procedures such as joint aspiration, injection and capillaroscopy performed during the visit will occur under the supervision of the attending until such time as the fellows are able to perform procedures independently (after three adequate supervised procedures). Fellows will write all orders for biologic (e.g. infliximab, abatacept, rituximab) and cytotoxic (e.g. cyclophosphamide) agents under the supervision of the clinic attending. All fellows must present all cases to the clinic attending. In elective clinics the fellows will see patients as requested by the clinic preceptor and will participate in discussions of clinical findings and management. The fellows will have an opportunity during these clinics, not only to learn, but to teach various aspects of rheumatology to the other specialties.

Didactic Sessions

Expectations: Fellows are expected to attend all didactic sessions and to arrive on time. Fellows may have their beepers turned on. Cell phones need to be turned off. Fellows are expected to participate actively in these sessions, to ask questions, and to participate in discussions. Fellows presenting at these sessions are expected to prepare a PowerPoint presentation and be familiar with the contents of referenced papers.

Supervision: Fellows are encouraged to seek help from attendings when preparing their conferences. Multiple attendings participate at these conferences and provide immediate written and/or oral feedback. Case reports are supervised by an attending; usually this is the attending that has seen the case with the fellow.

Laboratory

Expectations: Fellows are expected to attend the laboratory according to the expectations of their mentor and are given 60-80% protected time to do this in the second year. Fellows are expected to participate in lab meetings and journal clubs. Fellows are not expected to be independent when they first arrive in the laboratory but will become more independent over time. Fellows are expected to read literature relevant to their research project. Fellows will present their research at a divisional meeting at the end of the year.

Supervision: Fellows in the laboratory have a mentor who provides guidance and supervision with respect to all laboratory procedures, experimental design, preparation of abstracts, talks and manuscripts and career decisions. All fellows in the laboratory undergo mandated training in laboratory safety.

Evaluations

Evaluations outlined in the "Evaluations" section are used by the program director to help determine the level of supervision required for each fellow and to provide feedback.

Incremental Appropriate Increase in Responsibility

It is essential that the fellows become more independent as they progress through the program. We achieve this by requiring fewer consultations for routine follow up as the fellows progress through the second year, giving them more difficult assignments for their presentations, expecting more participation in teaching of students and housestaff and expecting them to deliver a management plan that can then be approved by the attending.

COLUMBIA UNIVERSITY MEDICAL CENTER/NEW YORK PRESBYTERIAN
INSTITUTIONAL REQUIREMENTS

Resident Supervision Policy:

Supervision of the medical house staff in both inpatient and outpatient settings seeks to balance the need for appropriate attending physician supervision with the progressive responsibility and autonomy graduate medical residents must demonstrate by the conclusion of their training experience. Supervision of activities on the medical service falls under three broad categories depending upon the complexity of the clinical situation and/or training experience. For the purpose of defining the overall supervision policy, and based on HCFA and NYSDOH guidelines, supervision is defined as follows:

1) General Supervision: Supervision is furnished under the attending physician's overall direction and control, but the attending physician's presence is not required during the procedure or patient encounter.

2) Direct Supervision: Supervision is by an attending physician whose direct physical presence is either in the office suite or immediately available to furnish assistance and direction throughout the performance of a procedure or during a patient encounter. It does not mean that the attending physician must be present in the room when the procedure or encounter is taking place.

3) Personal Supervision: (also called Visual Supervision) Supervision by an attending physician who is in attendance in the room while the procedure or encounter is taking place.

Patients admitted to the hospital fall under two broad designations, "private" and "service". Private patients have an attending of record that generally has had a long history of involvement with the specific patient and assumes professional responsibility for the care of the inpatient. Service patients are assigned to one of the monthly attendings of record who then assume professional responsibility for all aspects of their inpatient care and ensure appropriate disposition upon completion of their hospital stay.

All patients must be presented to and seen by their attending of record within 24 hours of admission or sooner if clinically indicated. All patients are seen daily by house staff and any substantial change in the clinical status of a patient is immediately reported to the responsible attending. When an inpatient's clinical status necessitates review by a physician, as judged by the patient, family, or nurse, the responsible intern (or covering intern) is called to evaluate the patient. If the clinical situation warrants, the intern will inform or ask for assistance from their covering second- or third-year resident. If the clinical situation is of sufficient significance, the resident (or intern) will inform the responsible attending. Any meaningful change in the condition of the patient or therapeutic plan triggers notification of the responsible attending (this includes, but is not limited to, unexpected patient death, transfer to the unit, inter-service conflicts, difficult family interactions and unresolved code status). Under this paradigm the inpatient care of patients occurs under General Supervision, with elements of the hospital stay-such as the initial presentation and follow-

up rounds-under Personal Supervision.

Inpatient situations, such as the clinical deterioration of a patient which may necessitate transfer to an ICU or unresolved diagnostic, therapeutic, or communications problems of immediate importance to a patient's condition warrant Personal Supervision by a more senior physician. When the responsible attending physician is not immediately available, the Medical Consult resident (a licensed, senior medical resident), will supervise patient care and ensure appropriate telephone consultation with the responsible attending. If the patient's condition continues to deteriorate or diagnostic, therapeutic, or communication problems cannot be resolved, then the Pulmonary or Cardiology fellow (if indicated) or either the private attending or one of the Chief Medical Residents (all board-certified general internists), will respond to the situation.

Supervision in the intensive care units relies on daily attending rounds (Personal supervision) and on the following specific guidelines:

1) All new cases to the Medical Intensive Care Unit (MICU) will be presented to the attending or Critical Care fellows within 2 hours of admission or during evening rounds (whichever is earlier). Patients are to be presented sooner if they manifest acute organ system instability despite intervention. Whenever possible it is expected that all invasive procedures be supervised by an ICU attending or a fellow. When the attendings or fellow are not available, invasive procedures will be only performed by medical residents certified to perform the planned procedure or supervised by senior residents certified to perform the procedure.

2) In the Cardiac Intensive Care Unit (CICU) any significant change in a patient's status warrants a notification of the cardiology fellow, and/or the CICU attending/private cardiologist by the CICU PGY 2 resident. All CICU patients, including new patients, will be discussed by on-call house staff at evening rounds with the CICU fellow. The CICU resident should contact directly the CICU attending in certain situations, e.g. the Cardiology fellow is engaged in a procedure or is otherwise unavailable, and/or a CICU patient has hemodynamic compromise.

The resident ambulatory experience takes place at three sites, the AIM Group Practice (located on VC2), the ACNC Broadway Clinic, and the ACNC Morgan Place Clinic. At each of these sites, house staff continuity clinic is supervised by one or more faculty attending Physicians In Charge (PICs), who are physically present in the suite where patients are cared for. The ratio of supervision is 1 PIC to 5 residents or less. All patients are discussed with the PIC, who may interview and examine the patient in the room with house staff when indicated, and who signs and stamps the medical record. This form of supervision falls under the category of Direct Supervision generally, and Personal Supervision when deemed necessary. For supervision of ambulatory patient care outside of the regularly scheduled clinic session, e.g. patients calling from home, housestaff should contact their assigned outpatient Firm attending or Firm chief (please refer to the detailed description of the Firm System on the clinic website.

NEWYORK-PRESBYTERIAN HOSPITAL GRADUATE MEDICAL EDUCATION POLICIES AND PROCEDURES

Duty Hours & Work Environment Policy:

This policy adheres to and extends the Institutional Work Hours and House Staff Work Environment Policies of the New York-Presbyterian Hospital Office of Graduate Medical Education. As an Internal Medicine Residency Program located in New York State, we must be compliant with duty hour regulations of both the ACGME and those mandated by the New York State 405 specifications. As such, the Program has taken definitive action to establish and monitor scheduled duties for house staff that are compliant with the following rules:

1) Residents and fellows must have one 24 *hour period* off *per week.*

This requirement is built in to each rotation schedule. For example, housestaff on Ward Rotations have the day off if their "pre-call" day occurs on Friday, Saturday or Sunday.

2) *Residents and fellows must have* at *least* 10 *hours* off *between shifts.*

To ensure this, resident shifts are scheduled with at least 10 hours off between shifts. Interns on ward services take 24 hour call and leave after 27 hours, thereby ensuring 10 hours off after their call day.

3) *Residents and fellows cannot exceed* 80 *hours* of *work per week, averaged over* 4 *weeks.*

Intern and Resident schedules are constructed in such a way to result in an average of less than 80 hours a week, so that> 80 hours a week violations do not occur.

4) *Residents and fellows cannot exceed* 24 *hours* of *continuous patient care duties. Up* to an *additional* 3 *hours* of *transition time used for transfer* of *patient care, rounds, and grand rounds is allowed.*

Our admission rules, which are mutually agreed upon by the Emergency Department, Bed Coordinator and the Residency Program, specifically prohibit our interns and residents from receiving admissions after 24 hours on duty. Attending Rounds are timed to allow house officers to leave after 27 hours.

5) *Moonlighting counts toward all duty hours calculations for both residents and fellows.*

Moonlighting (Supplemental Employment) is regulated by the Program's Moonlighting Policy.

Monitoring:

Two mechanisms are used by the Program for monitoring duty hours. First, house officers are required to log their hours with an on-line tool developed by our sponsoring institution, NYPH.

Second, the Program conducts internal surveys through which we collect data pertinent to the ACGME and New York State 405 Regulations on duty hours. This data is reviewed regularly by our Chief Residents, Associate Program Directors and Program Director, as well as by the Chair and the Vice-Chair for Medical Service Operations and Education of the Department of Medicine.

Work Environment:

House officers are not expected to provide support services such as intravenous access, phlebotomy, laboratory and electrocardiogram testing and patient transport on a routine basis. Under circumstances when these services are required on an urgent or emergent basis, house staff may provide these services to ensure patient safety. Call Rooms are maintained by the Sponsoring Institution, NYPH, for residents on call. These rooms are monitored for cleanliness and safety by the Hospital and the Residency Program. Notification: House staff are responsible for notifying the Residency Program when any of these conditions are not met. Several opportunities to report these issues exist:

- QA Rounds - a bimonthly meeting with residents and Program administrators
- Town Meetings and Open Rounds with the Program Director
- An on-line E-Suggestion Box for Medicine House Staff which is actively monitored by the Program's administrator
- Direct communication with program staff, the Chief Residents, Associate Program Directors, or Program Director.

To review the NYPH Institutional Work Hours and House Staff Work Environment Policies, please refer to Policies and Procedures of the New York Presbyterian Graduate Medical Education Office.

Additional information is also available at: http://infonet.nyp.org/gme/Pages/index.aspx

NEWYORK-PRESBYTERIAN HOSPITAL GRADUATE MEDICAL EDUCATION POLICIES AND PROCEDURES

OTHER PROFESSIONAL ACTIVITIES

POLICY:

Other professional activities are defined as professional and patient care activities that are external to the educational program and are not compensated, as opposed to moonlighting, which is compensated. This includes any uncompensated activity for which a medical license is required. These professional activities may be inconsistent with requirements for sufficient time for rest and restoration to promote the educational experience and safe patient care.

Housestaff members (residents/fellows) are never required to engage in other professional activities.

Individual program directors may decide if engaging in other professional activities is permitted in their programs. At all times, program directors must monitor any housestaff members engaging in any form of professional activity external to the training program to ensure that their performance is not adversely affected. A program director may withdraw permission for housestaff engaging in other professional activities at any time.

A housestaff member must submit an official request to engage in other professional activities form (located on GME web-site) to the program director. This request, if approved, will be maintained in the housestaff member's credential file. Housestaff members are advised that the professional liability coverage extended through their program may apply to professional activities within NYPH, but NOT to professional activities outside the institution.

A housestaff member must have a full and unrestricted New York State medical license to engage in professional activities external to their training program.

All professional activities are to be counted as part of each housestaff physician's work hours, which will not exceed the eighty-hour work limit. The housestaff physician must give an accurate accounting of the hours spent on other professional activities to the program director; the program director is responsible for monitoring all work hours. This policy applies to ACGME accredited programs.

Approved by GMEC: September 2008
Approved by The Medical Board: May 2010

COLUMBIA UNIVERSITY DIVISION OF RHEUMATOLOGY EVALUATION OF COMPETENCIES

Fellows are evaluated for the following competencies by:

1. Patient Care	1,2,3,4,5,7,9,11,13,14
2. Medical Knowledge	1,2,3,5,9,13,14
3. Practice-based Learning and Improvement	5,6,7,8,10,12,14
4. Interpersonal and Communication Skills	1,2,3,5,6,11,13,14
5. Professionalism	1,2,3,8,11,12,13,14
6. Systems-based Practice	1,2,12,13,14

The following evaluation tools are used:

1. Evaluation form to be filled out by the attending of the month on a monthly basis. These use global rating scores from 1-9 and also contain written comments.
2. Evaluation form to be filled out semiannually by outpatient clinic attendings.
3. Mini-CEXs will be performed by each fellow yearly observed by different outpatient clinic attendings to evaluate history taking and physical exam (see enclosed).
4. Lists of patients seen in clinic, in consultation and procedures performed will be kept by each fellow to make sure that ABIM guidelines are being met. Random chart reviews by an attending are performed on a regular basis to evaluate note keeping and management in the outpatient setting.
5. Case presentations and case overviews will be done 3-6 times per year in a Grand Rounds setting. Evaluation forms are filled out and immediate feedback is given.
6. Journal club will be presented 2 times per year and evaluation forms are filled out as above for (5).
7. Fellows will pull articles relevant to patient care and present them to the attending of the month.
8. Fellows will be evaluated for performance in the laboratory by their laboratory mentors.
9. Fellows will complete the ACR In-Training Exam (closed book).
10. Most fellows will author or coauthor a publication during their two year fellowship.
11. Evaluations submitted by relevant health care personnel as part of 360^{o} evaluation.
12. Fellows will keep a portfolio that contains presentations, literature searches, teaching activities, grant applications, course attendance etc. This will be reviewed twice yearly by the program director and will help fellows analyze areas for improvement.
13. Participation in a Rheumatology Objective Structured Clinical Examination (ROSCE) that is organized by Rheumatology Fellowship Program Directors in New York. Feedback is given immediately to all participants (see enclosed).
14. ACGME biannual milestone evaluations are submitted by the Clinical Competency Committee (CCC), which is comprised of at least 3 faculty members.

GUIDELINES FOR IMPLEMENTING THE MINI-CEX

The mini-clinical evaluation exercise (CEX) focuses on the core skills that residents demonstrate in patient encounters. It can be easily implemented by attending physicians as a routine, seamless evaluation of residents in any setting. The mini-CEX is a 15-20 minute observation or "snapshot" of a resident/patient interaction. Based on multiple encounters over time, this method provides a valid, reliable measure of residents' performance. Attending physicians are encouraged to perform one mini-CEX per resident during the rotation.

Settings to Conduct Mini-CEX:
In-patient services (CCU/ICU, Ward)
Ambulatory
ED
Other, including admission/discharge

Mini-CEX Evaluators:
Attending Physicians
Supervising Physicians
Chief Residents
Senior Residents

Forms and Rating Scale: Packet includes 10 forms; after completing form, provide "original" to program director and "copy" to resident. Nine-point rating scale is used; rating of 4 is defined as "marginal" and conveys the expectation that with remediation the resident will meet the standards for Board certification.

DESCRIPTORS OF COMPETENCIES DEMONSTRATED DURING THE MINI-CEX

Medical Interviewing Skills: Facilitates patient's telling of story; effectively uses questions/directions to obtain accurate, adequate information needed; responds appropriately to affect, non-verbal cues.

Physical Examination Skills: Follows efficient, logical sequence; balances screening/diagnostic steps for problem; informs patient; sensitive to patient's comfort, modesty.

Humanistic Qualities/Professionalism: Shows respect, compassion, empathy, establishes trust; attends to patient's needs of comfort, modesty, confidentiality, information.

Clinical Judgment: Selectively orders/performs appropriate diagnostic studies, considers risks, benefits.

Counseling Skills: Explains rationale for test/treatment, obtains patient's consent, educates/counsels regarding management.

Organization/Efficiency: Prioritizes; is timely; succinct.

Overall Clinical Competence: Demonstrates judgment, synthesis, caring, effectiveness, and efficiency.

RHEUMATOLOGY OBJECTIVE STRUCTURED CLINICAL EXAM (ROSCE)

Series of stations in a circuit, each with a predefined clinical scenario:

The players: "patient", trainee (fellow), faculty observer

- "Patient actor" has background information about his/her case
- Fellow provided with some background information as appropriate to the case, and given a task (explain a diagnosis, recommend a treatment plan etc.)
- Faculty observer has both sets of information

Specific amount of time allotted per station

- Time for encounter
- Time to complete evaluations
- Brief feedback

Evaluation forms

- Patient
- Faculty
- Pre-ROSCE evaluation of fellows by their program directors