

Facilities & resources

<i>Teaching hospitals</i>	UT Bowld Hospital, Regional Medical Center (The MED) of Shelby County & City of Memphis, & Veterans Affairs Medical Center (VAMC), all within a 4-block area in downtown Memphis, adjacent to or on the university campus. See http://www.utmem.edu/Internal/medcenter.html for more information.
<i>Study space</i>	Coleman A318. Access to computers, online resources, diverse educational media, digital photography, scanner, and LCD projection
<i>Ambulatory clinics</i>	VAMC (1 st floor, Building 5); Medplex (4th floor, Ambulatory Care Center); 920 Madison, Suite 300 (UT Medical Group; UTMG); and LeBonheur Children's Medical Center (LBCMC; Physicians Office Building). In general, adult patients without health insurance and/or limited financial resources are seen at the Medplex Clinic (Shelby County). Faculty practices are located at 7945 Wolf River Blvd., Suite 120, in Germantown TN.
<i>Imaging facilities and full-service labs</i>	Teaching hospitals and hospital-based clinics. Plain-film radiography and limited labs are available on-site at non-hospital-based ambulatory sites; patients or their blood samples are referred off-site for tests not available on site. Rehabilitation facilities are available at UT Bowld and at 930 Madison (ambulatory clinic of University Therapists). Resources for specialized tests (e.g., electromyography, nerve conduction velocity) are available within teaching and affiliated hospitals.
<i>Polarizing microscopes</i>	1 st floor Pathology Lab, VAMC; 1 st floor, Building 5, VAMC; and 920 Madison, Suite 300.
<i>Consultations</i>	Available with all specialists, including orthopedic surgery, within teaching hospitals and Medplex. Radiologists available at all inpatient and ambulatory sites. Physical and occupational therapists available within teaching hospitals. University Therapists, the UT physical and occupational therapy faculty practice, is located at 930 Madison. <i>Electives</i> provide further opportunities for the PGY4-5 Resident to interact closely with radiologists, orthopedic surgeons, neurologists, and therapists.

Specific program content

Clinical Experience

Residents gain experience in the diagnosis and management of the entire spectrum of rheumatic and musculoskeletal diseases, and diseases with rheumatologic and musculoskeletal manifestations. University rheumatologists staff the inpatient consult service and ambulatory clinics.

Consultations with all specialists and allied health professionals are available. Residents experience pediatric consultative and continuity of care during the 6 mo. Ambulatory Pediatrics rotation with the pediatric rheumatologist on faculty. The inpatient Pediatric Consult Service is available as an elective.

Ambulatory Medicine Experience

The PGY4 Resident attends four half-day clinics weekly. Continuity of care occurs in the VA Follow-up, UTMG, and Medplex Clinics. Consultative care for new patients occurs in the VA Consultation, UTMG, and Medplex Clinics. The PGY4 Resident spends 6 mo. on Ambulatory Pediatrics, in which he/she provides both continuity and consultative care to pediatric patients with rheumatologic complaints. The PGY5 Resident attends two half-day clinics weekly, with the option to add a third clinic as part of his/her clinical research project. Both Residents work up 1-2 new patients and/or 4-8 return patients per half-day UTMG and Medplex Clinics. In the VA Follow-up Clinic, Residents see 7-9 return patients per half-day clinic and 2-3 new patients in the VA Consultation Clinic. The Gerwin Metabolic Bone Resident spends additional time in Dr. Carbone's private clinics (Metabolic Bone and Arlington Developmental Center). Her clinics are available to all as electives.

Core Curriculum

Residents gain experience in the diagnosis and management of the entire spectrum of rheumatic and musculoskeletal diseases, and systemic diseases with rheumatologic and musculoskeletal manifestations. Consult <http://www.rheumatology.org/training/readinglist/readinglist.html> for a suggested reading list.

Core clinical topics:	Core basic science topics:
<ul style="list-style-type: none"> • Diffuse connective tissue disease (e.g., undifferentiated & mixed connective tissue disease, overlap syndromes) • Rheumatoid arthritis, adult-onset Still disease • Systemic, discoid, subacute cutaneous, & drug-induced lupus erythematosus • Scleroderma (localized, systemic, CREST, induced) & eosinophilic syndromes (fasciitis, myalgic syndrome) • Sjögren syndrome • Inflammatory myositis, including polymyositis, dermatomyositis, inclusion body myositis; metabolic myopathies, including primary & secondary diseases • Spondyloarthropathies, ankylosing spondylitis, Reiter, psoriatic, inflammatory bowel disease, acne-associated, SAPHO syndrome • Vasculitis, including polymyalgia rheumatica & temporal arteritis, systemic necrotizing, Takayasu, Wegener & ANCA-associated, Churg-Strauss, Behcet, hypersensitivity, cryoglobulinemia, Cogan • Crystal-induced arthritides, including monosodium urate, calcium pyrophosphate dihydrate, basic calcium phosphate, calcium oxalate • Osteoarthritis (primary & secondary), DISH • Regional musculoskeletal pain syndromes, & acute & chronic musculoskeletal pain syndromes, including entrapment neuropathies, & reflex sympathetic dystrophy • Nonarticular rheumatic diseases, including fibromyalgia, psychogenic rheumatism, chronic pain, & axial & regional syndromes • Nonsurgical, exercise-related (sports) injury • Metabolic bone disease, including osteoporosis, osteomalacia, renal osteodystrophy, & Paget disease • Joint & soft tissue infections, including bacterial, mycobacterial, spirochetal, viral, fungal, parasitic • Pain management • Joint surgery, including arthroscopy, arthrodesis, joint replacement, synovectomy, osteotomy, spine 	<ul style="list-style-type: none"> • Anatomy & biology of joints, tendons, ligaments, connective tissue cells & components, bone, muscle, & blood vessels • Immunology, including anatomy & cellular elements of the lymphoid system, immune & inflammatory mechanisms (including antigens, superantigens, MHC, B & T cell receptors, complement & kinin systems), cellular interactions & immunomodulation (activation, cytokines, inflammatory mediators), immune responses, & immunoregulation • Purine & pyrimidine metabolism, including uric acid, purine pathway enzymes • Test-performance characteristics, including sensitivity, specificity, & predictive value • Biomechanics of bones, joints, & muscles • Research principles in basic & clinical investigation, including epidemiology, controlled trials, outcomes research, health status, disease activity, quality of life assessment, & bioethics • Research techniques, including ELISA, RIA, immunoblots, immunofluorescence, PCR,

<ul style="list-style-type: none"> • Rehabilitation therapy as it relates to rheumatology, including modalities, assistive devices, exercise, footwear & orthotics • Pediatric rheumatology, including JRA, Kawasaki, infantile PAN, neonatal lupus, dermatomyositis, acute rheumatic fever, bone & joint dysplasias • Systemic diseases with rheumatic manifestations, including endocrine- & hematologic-associated diseases. • Miscellaneous syndromes, including relapsing polychondritis, panniculitis, erythema nodosum, primary antiphospholipid syndrome, avascular necrosis, transient osteoporosis, hypertrophic osteoarthropathy, benign & malignant tumors of muscle & bone • Inherited disorders, including Marfan, osteogenesis imperfecta, Ehlers-Danlos, hypermobility, osteochondrodysplasias, homocystinuria, ochronosis, immunodeficiency • Geriatrics & aging influences • Laboratory tests: synovial analysis, acute phase reactants, autoantibodies, cryoglobulins, complement, SPEP, immunoglobulins, antibodies to coagulation components; therapeutic monitoring for drugs; diagnostic imaging (plain film, arthrography, ultrasound, CT, MRI, radionuclide, bone densitometry, arteriography); EMG, NCV; biopsies; nailfold capillaroscopy, Schirmer & rose bengal tests. 	<ul style="list-style-type: none"> • genetic mapping, gene sequencing, hybridoma & monoclonal antibodies, transgenic & knockout animals, & gene therapy • Data analysis, biostatistics, meta-analysis, medical informatics, & critical literature review
--	--

Technical and Other Skills

These include the use and relative cost of pharmacologic agents in rheumatic diseases (nonsteroidal anti-inflammatory drugs, disease-modifying drugs, biologic response modifiers, glucocorticoids, cytotoxic drugs, antihyperuricemic drugs, & antibiotics for septic joints), diagnostic aspiration and analysis of synovial fluid, and therapeutic injection of diarthrodial joints, bursae, tenosynovial structures & entheses. Arthritis patient educators teach the musculoskeletal exam to Residents, and staff attendings reinforce this in clinical settings. Residents learn differential diagnoses for rheumatologic diseases in the context of attending rounds, outpatient clinics, and formal teaching conferences. Residents learn how to order and interpret bone density measurements during a metabolic bone elective, and informally throughout the fellowship. If funds are available, the PGY5 resident can attend a national course in bone densitometry with the opportunity to become certified in reading bone density tests. Tissue biopsies, electromyograms, nerve conduction studies, and nailfold capillary microscopy are presented and discussed during conferences, and formally during electives. Indications for surgical and orthopedic consultation, including arthroscopy, are discussed formally during clinical conferences and electives, and informally in clinical settings.

Formal Instruction & Principal Teaching Methods

Daily interaction with rheumatology faculty in clinics, consultative services, and Division conferences form a major portion of teaching. Didactic lectures are listed in the Conference Table below. Resident attendance at conferences must exceed 80%. The first-year resident will give Rheumatology Grand Rounds monthly. Both residents teach the Internal Medicine residents on elective at didactic conferences and Primer Review sessions. Electives (Appendix 2) are available in metabolic bone disease, radiology, joint replacement and sports medicine (orthopedics), myopathies (neurology), and physical and occupational therapy.

Research experience and scholarly activities

Each Resident is expected to participate either in bench or clinical research during the fellowship, at least during the PGY5 year. The PGY5 year is scheduled to provide approximately 80% for research. When the Resident chooses bench research, he/she will present at Research Conference. University faculty supervise these research experiences. The Resident may elect to participate in ongoing clinical trials of rheumatic disease, as well as design his/her own clinical study.

Each resident must complete at least one quality improvement project annually and at least one scholarly activity in two years, with submission of a minimum of one manuscript to a peer-reviewed journal. Abstract submissions to regional and national meetings are strongly recommended. PGY4 Residents present monthly at Rheumatology Grand Rounds. Both Residents participate annually in lectures to allied health personnel and, in some cases, to the community through the local Arthritis Foundation chapter. Residents present at Journal Club on an approximate 6-8-week cycle.