

UNIVERSITY OF ROCHESTER ALLERGY/IMMUNOLOGY & RHEUMATOLOGY DIVISION
CURRICULUM IN ALLERGY AND CLINICAL IMMUNOLOGY

TRAINING PROGRAM MISSION STATEMENT

The mission of the University of Rochester Allergy/Clinical Immunology fellowship program is to prepare specialists to provide expert medical care for patients with allergic and immunologic disorders, and to serve as consultants, educators, and physician scientists in allergic or hypersensitivity disorders, autoimmunity, immunodeficiency, and other immune-mediated disorders.

OVERALL GOALS AND OBJECTIVES

A. Providing state-of-the-art clinical training in allergy and immunology. Emphasis will be placed on atopic disorders, such as asthma, rhinitis, sinusitis, drug allergy, urticaria and dermatitis, but this will be balanced with experiences in immune deficiency and autoimmune disease.

B. Developing a solid foundation in basic immunology to understand and manage clinical disorders. This is intended to provide the base for careers in academic medicine and clinical practice.

The goal for the fellows in Allergy-Immunology residency program is to become a competent, certifiable practitioner in the subspecialty of allergy immunology as measured by competency in 6 areas outlined by the ACGME.

1. Patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

- History taking and physical examination skills
- Medical record keeping skills
- Problem solving ability
- Differential diagnosis
- Treatment plan
- Clinical judgment
- Patient communication skills, patient education
- Competent performance of procedures
- Humanistic qualities

2. Medical knowledge about established and evolving biomedical, clinical, and cognate (eg, epidemiological and social-behavioral) sciences and the application of this knowledge to patient care.

- Basic science knowledge
- Clinical knowledge
- Knowledge and clinical application of current literature

3. Practice-based learning and improvement that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements in patient care.

- Analysis and modification of clinical practice in systematic manner
- Use of information technology and resources to improve patient care
- Demonstration of self directed learning

- 1st year intermediate skill level
 - 2nd year able to formulate desensitization schedule and identify appropriate
- oral challenges for foods and drugs
 - 1st year - intermediate skill level
 - 2nd year - proficiency for drug challenges and skills commensurate with practicing A&I specialist in regards to food
- pulmonary function testing and methacholine challenge
 - 1st year proficiency in interpreting simple spirometry and novice-intermediate skill level at performance of methacholine challenge
 - 2nd year - proficiency in interpreting simple spirometry, intermediate skill level at performance of methacholine challenge, and proficient at interpretation of methacholine challenge
- immunotherapy
 - 1st year demonstrates intermediate skill level in writing IT prescription
 - 2nd year – complete proficiency in writing IT prescription
- IVIG therapy
 - 1st year – demonstrates intermediate skill level in dosing IVIG and knowledge of adverse effects
 - 2nd year - demonstrates skill level commensurate with the practicing allergist in dosing IVIG and knowledge of adverse effects
- Immunomodulatory therapy
 - 1st year – demonstrates intermediate skill level in dosing, potential indications, and adverse effects of immunomodulatory agents
 - 2nd year – demonstrates intermediate-proficient skill level in dosing, potential indications, and adverse effects of immunomodulatory agents
- Patch testing
 - 1st year – demonstrates intermediate skill level in performance and interpretation of patch testing
 - 2nd year - demonstrates intermediate-proficient skill level in performance and interpretation of patch testing
- g. Preventive health services
 - Recommend appropriate vaccinations
- h. Work within a team
 - Make appropriate referrals for specialists including ENT, Dermatology, Gastroenterology, and Pulmonary
 - Appropriate use of asthma educators, social workers, pharmacists, and other health professionals

2. Medical Knowledge

a. Investigatory and analytic thinking

- Actively participate in the design and/or implementation of a clinical or basic research project
- Present research project and updates at A & I Research Conference
 - 1st year - research topics identified and research proposal present at teaching conferences
 - 2nd year
 - Completes research project to satisfaction of research mentor

- Accept responsibility for continuity of patient care
 - Respect patient's privacy and autonomy
 - b. Ethically sound practice
 - Consistently demonstrate high standards of ethical behavior
 - c. Sensitivity
 - Demonstrate respect for the dignity of patients and colleagues as persons
 - Demonstrate sensitivity to individuals regardless of age, culture, disabilities, ethnicity, gender and sexual orientation
6. Systems-Based Practice
- a. Knowledge of practice and delivery systems
 - Participate in quality management meetings for Asthma or Allergy Clinic
 - Possess basic economic and business knowledge
 - b. Practice cost-effective care
 - Demonstrate knowledge of formulary medications for asthma and allergic diseases
 - Know the costs for different tier level asthma/allergy medications
 - Ask patients how they pay for their medications
 - c. Advocate for patients within the health care system
 - Work to assure access to allergy & immunology clinics for patients in need of specialty care
 - Work to provide other consultative services for allergy/immunology patients with other medical needs
 - d. Quality programs
 - Fellows will participate in the immunotherapy quality program
 - Fellows will participate in the desensitization quality program

TEACHING AND EVALUATION OF CORE COMPETANCE

It is expected that fellows will already be will trained in terms of interpersonal and communications skill and professionalism. These core competencies will be evaluated and remedial action taken when appropriate.

1. Interpersonal and communication skills.
 - Patient questionnaire.
 - 360° evaluation.
2. Professionalism.
 - Patient questionnaire.
 - 360° evaluation.

Practice- and System-based learning as they relate to Allergy and Clinical Immunology will be new and continuing areas for learning. As fellows face identify and solve problems relevant to these competencies, they will record their efforts as a portfolio which will be reviewed with them during their semi-annual evaluation.

3. Practice-based learning and improvement.
 - Portfolio.
4. Systems-based learning.
 - Portfolio.

effects of chronic disease. Fellows will also learn the scientific method and basic statistics, the principles and techniques of clinical immunology laboratory techniques.

The fellow will also develop an understanding of the design, implementation and interpretation of research studies including methodology, critical interpretation of published data, and the responsible use of informed consent.

The fellow will continue to develop communication skills with patients, peers and other health care personnel. He will continue to develop qualities of professionalism and humanistic skills including integrity, compassion, and respect for patients, peers and other health care personnel.

Upon successful completion of training, the fellow will be able to perform as a consultant in allergy and clinical immunology providing an expert opinion in the diagnosis and management of allergic diseases and immune-mediated conditions.

2. Ability to Work in a Variety of Settings

It is essential for an Allergist/clinical immunologist to be able to work in a variety of settings both as a primary care physician and as a consultant. Those settings include inpatient facilities, outpatient clinics, and subacute facilities. In order to achieve this goal, the fellow will evaluate, treat and follow, either as a primary care provider or as a consultant, patients in the ambulatory clinic, the acute inpatient setting, the emergency department, and the intensive care setting.

3. Life-Long Learning

Clinically competent physicians must be life-long learners. This is necessary for the acquisition, critical analysis, synthesis and reassessment of knowledge, skills and professionalism. In order to achieve this goal, the fellow will demonstrate independent study habits in the acquisition of clinical and research knowledge and skills through attendance, presentation and participation in Unit and Department educational conferences as well as regional and national professional scientific conferences. They will also gain experience in teaching junior fellows, residents, medical students and health care professionals in formal teaching sessions, on rounds, and in the clinic.

SPECIFIC OBJECTIVES OF THE TEACHING PROGRAM

1. Clinical Competence

- a. Fellows will possess a basic core of knowledge and technical skills necessary to be an expert in the clinical manifestations, clinical presentations, pathophysiology, and management of allergic and immune-mediated diseases and conditions.
- b. Fellows will possess an understanding of the design, implementation and interpretation of basic and clinical research studies. They will possess the ability to critically review the literature.
- c. Fellows will possess communication, professionalism and humanistic skills necessary to interact with patients, peers, and health care professionals.

2. Ability to Work in a Variety of Settings

- a. Fellows will be able to function as both a primary care physician and a consultant in Allergy/Clinical Immunology.

ENT outpatient clinic
Dermatology outpatient clinic
Pediatric Pulmonary rotation

B. Goals and Objectives for Rotations

Goals and Objectives Adult and Pediatric Outpatient Rotation Goals & Objectives (including Continuity Clinic)

1. Outpatient management of children and adults with asthma
 - a. Understand the immunologic and pathologic basis of asthma.
 - b. Understand the criteria for the diagnosis of asthma.
 - c. Demonstrate the ability to obtain a history pertinent to the diagnosis and management of asthma.
 - d. Demonstrate the ability to categorize asthmatic patients by severity according to the National Asthma Education and Prevention Program guidelines:
<http://www.nhlbi.nih.gov/health/prof/lung/index.htm#asthma>
 - e. Know the differential diagnosis of asthma including asthma mimics such as vocal cord dysfunction.
 - f. Understand the factors that may exacerbate asthma and how to address them.
 - g. Develop and demonstrate the ability to interpret and utilize pulmonary function tests in the diagnosis and management of asthma.
 - h. Be conversant with and understand the indications for the different categories of medications used in asthma.
 - i. Document critical asthma history items in all verbal and written communications: asthma severity, medications, symptoms, and risk factors.
 - j. Develop familiarity with the EPR-3 guidelines for asthma management:
<http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm>
 - k. Write and explain to the patient their asthma action plan
2. Diagnosis and management of children and adults with sinusitis
 - a. Understand the anatomical, pathological and microbiological basis of sinusitis particularly as it relates to the pediatric patient population.
 - b. Read the Joint Council on Asthma, Allergy and Immunology Practice Parameters for the Diagnosis and Management of Sinusitis:
<http://www.aaaai.org/professionals/resources/pdf/sinusitis2005.pdf>
 - c. Demonstrate the ability to medically manage sinusitis.
 - d. Understand the indications for the surgical management of sinusitis.
3. Diagnosis and management of children and adults with rhinitis
 - a. Read the Joint Council on Asthma, Allergy and Immunology Practice Parameters on Rhinitis: <http://www.aaaai.org/professionals/resources/pdf/rhinitis1998.pdf>
 - b. Demonstrate the ability to diagnose allergic rhinitis, non-allergic rhinitis, vasomotor rhinitis and aspirin sensitive rhinitis.
 - c. Develop appropriate skills for diagnosis and management of allergic rhinitis.
 - d. Understand medical management of allergic rhinitis, including use of topical steroids, antihistamines, anti-leukotriene agents, cromolyn sodium, and decongestants.
 - e. Understand the immunology of immunotherapy and the manufacture, testing, and standardization of allergen extracts.
 - f. Appropriately prescribe allergen immunotherapy for treatment of rhinitis.
4. Diagnosis and management of children and adults with food allergy
 - a. Understand the different types and different pathophysiologies of food allergy.
 - b. Take elements of history relevant to classify/diagnose adverse reactions versus allergic reactions to foods.

9. Leadership and communication skills to coordinate the care of a child or an adult with an allergic or immunologic disorder.

1. Develop skills to coordinate a multidisciplinary care to inpatients with immunologic and allergic diseases, incorporating issues of nursing, pharmacy, social work and occupational therapy.
2. Recognize conditions requiring consultations from other specialty services.
3. Provide letters to the referring physicians to communicate the diagnostic findings and management recommendations related to the allergic and immunologic diseases.

10. Continuity Clinic Long-Term Follow Up

1. Each fellow will have their own dedicated panel of patients that they will have primary responsibility for during the duration of their fellowship.
2. Patients seen on an inpatient basis will be transferred to the fellow's clinic that saw the patient in the hospital where outpatient care is warranted.
3. Develop appropriate communication skills with primary care as well as other sub-specialist providers to successfully manage complex allergy-immunology patient.
4. Each fellow will be responsible for taking overnight call for their own clinic patients and addressing any acute issues that arise.
5. Faculty back-up will be available at all times for difficult cases or questions that cannot be answered by the fellow.

11. Procedures - For the following procedures learn the principles, indications, methods, and interpretation, then perform and document competency

- a. Spirometry – competent 1st year
- b. Assessment of bronchial hyper-reactivity – competent 2nd year
- c. Peak flow meters – competent 1st year
- d. Epicutaneous prick testing and intradermal skin testing for aeroallergens and venoms – competent 1st year
- e. Prescribing immunotherapy – competent 1st year
- f. Epicutaneous prick testing and intradermal skin testing for medications – competent 1st year
- g. Desensitization for medication allergies – competent 2nd year
- h. Epicutaneous prick testing for food allergies – competent 1st year
- i. Patch testing for contact dermatitis – competent 2nd year
- j. Testing for physical urticaria – competent 1st year
- k. Rhinoscopy – competent 2nd year
- l. Skin punch biopsy – competent 2nd year
- m. Open and blinded food challenge – competent 2nd year
- n. Prescription and manufacture of allergy extracts – competent 2nd year
- o. Management of allergy immunotherapy including – competent 2nd year
- p. Prescribe and supervise the administration of IVIG – competent 2nd year

Goals and Objectives URM Adult/Pediatric Inpatient Allergy Immunology Consult Service

1. Drug Allergy

- a. Perform the appropriate history and physical exam for those patients suspected of having an adverse reaction to medication.
- b. Recognize and perform the suitable diagnostic procedures for those patients with suspected adverse reaction to medication including prick testing and intradermal skin testing.
- c. Create and supervise relevant graded challenges or desensitization protocols for antibiotics in the appropriate patient.
- d. Understand and if possible carry out desensitization to aspirin
- e. Evaluate and carry out desensitization protocols for chemotherapeutics in collaboration with the hematology/oncology service.

Goals and Objectives Inpatient Rheumatology Consult Service

1. Learn appropriate indications for Rheumatology consultation.
2. Develop familiarity with diagnosis and management of vasculitis, including Wegener's granulomatosis, microscopic polyangiitis, Churg-Strauss disease, urticarial vasculitis, Kawasaki's disease, Takayasu's disease, Giant cell arteritis, Behcet's disease.
3. Develop familiarity with diagnosis and management of systemic autoimmune disease, including systemic lupus erythematosus, Sjogren's disease, rheumatoid arthritis, scleroderma, and myositis.
4. Understand theories of pathophysiology and immunology related to vasculitis and systemic autoimmune disease.
5. Learn indications for, major toxicities of, and immunomodulatory effects of immunosuppressive agents including cyclophosphamide, mycophenolate mofetil, tacrolimus, azathioprine, methotrexate.
6. Learn indications for, major toxicities of, and immunomodulatory effects of biologic agents including TNF inhibitors (etanercept, adalimumab, infliximab) anti-T cell agents (abatacept) anti-B cell agents (rituximab) and IVIG.
7. Learn interpretation of serologic assays of immune functioning, including ELISA and immunofluorescence assays for autoantibodies, tests of the complement system, and acute phase reactants.

Goals and Objectives ENT Rotation

1. Learn appropriate indications for ENT consultation in patients with allergic and immunologic diseases.
2. Become facile with evaluation, including history-taking and physical examination, of patients with symptoms related to the ear, nose and throat.
3. Develop familiarity with rhinoscopic evaluation of the upper airway.
4. Learn anatomy of the sinuses and upper airway.
5. Be able to interpret radiographic studies, including Xrays, CT scans, and MRI of the head and neck and understand their role in the diagnosis of patients with allergic and immunologic diseases.
6. Learn surgical management of ear, nose, and throat disorders in patients with allergic and immunologic diseases.

Goals and Objectives Dermatology Rotation

1. Learn appropriate indications for Dermatology consultation in patients with allergic and immunologic diseases.
2. Become facile with evaluation, including history-taking and physical examination, of patients with symptoms related to the skin.
3. Learn appropriate diagnosis and management of contact dermatitis and atopic dermatitis.
4. Know the indications for and be able to interpret results of patch testing for contact dermatitis.
5. Read practice parameter on management of atopic dermatitis:
http://www.aaaai.org/professionals/resources/pdf/atopic_derm2004.pdf
6. Know the differential diagnosis of atopic dermatitis and typical presentation in children and adults.
7. Understand pathophysiology and immunology of atopic dermatitis.
8. Learn the indications for and typical findings of skin biopsy in the evaluation of patients with allergic and immunologic diseases of the skin.

1. **ALLERGY/IMMUNOLOGY AND RHEUMATOLOGY CLINICAL CONFERENCE:** The conference is held weekly. Fellows and residents rotating on the service with the guidance of the faculty prepare the presentations. Conference has four different formats: Case Conference, Multidisciplinary Conference, Geriatric Conference and Grand Rounds. Through these Conferences, the fellow will gain knowledge about patients of all ages from children to elderly adults. They will also care for patients from all socioeconomic groups. They will discuss patients with a wide variety of diagnoses including anaphylaxis, asthma, atopic dermatitis, contact dermatitis, drug allergy, food allergy, immunodeficiency, rhinitis, sinusitis, stinging insect hypersensitivity, urticaria and angioedema, bronchopulmonary aspergillosis, eosinophilic disorders, hypersensitivity pneumonitis, mastocytosis, ocular allergies, occupational lung disease, connective tissue diseases (CTD), rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), scleroderma (PSS), polymyositis (PM), dermatomyositis (DM), seronegative spondyloarthropathies, vasculitis, and systemic diseases with rheumatic manifestations. These conferences will provide an opportunity for the fellow to integrate medical problems with health promotion as well as cultural, socioeconomic, ethical, occupational, environmental and behavioral issues.

- a. Case Conference

Educational Goals of Case Conference

- (1) Provide an opportunity to learn about specific diseases including but not limited to anaphylaxis, asthma, atopic dermatitis, contact dermatitis, drug allergy, food allergy, immunodeficiency, rhinitis, sinusitis, stinging insect hypersensitivity, urticaria and angioedema, bronchopulmonary aspergillosis, eosinophilic disorders, hypersensitivity pneumonitis, mastocytosis, ocular allergies, occupational lung disease, connective tissue diseases (CTD), rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), scleroderma (PSS), polymyositis (PM), dermatomyositis (DM), seronegative spondyloarthropathies, vasculitis, and systemic diseases with rheumatic manifestations. Provide an opportunity to learn about the risks, benefits, contraindications and necessary monitoring of pharmacotherapy (including anti-histamines, glucocorticoids and other anti-inflammatory drugs, leukotriene inhibitors, antibiotics, IVIG, biologic response modifiers, cytotoxic drugs, immunosuppressive drugs), allergen avoidance and immune interventions (allergen immunotherapy, desensitization, immunization).
- (2) Provide an opportunity to develop a differential diagnosis and therapeutic plan in complicated patients by drawing upon the experience of multiple allergist/clinical immunologists.
- (3) Provide an opportunity for self-study through critical review of the literature.
- (4) Provide an opportunity for the application of the data obtained from a critical review of the literature to patient evaluation and treatment.
- (5) Provide an opportunity for developing teaching and presentation skills.
- (6) Provide an opportunity to review histologic specimens with a pathologist.

Objectives of Case Conference

- (1) Fellows will learn about specific diseases including but not limited to anaphylaxis, asthma, atopic dermatitis, contact dermatitis, drug allergy, food allergy, immunodeficiency, rhinitis, sinusitis, stinging insect hypersensitivity, urticaria and angioedema, bronchopulmonary aspergillosis, eosinophilic disorders, hypersensitivity pneumonitis, mastocytosis, ocular allergies, occupational lung disease, connective tissue diseases (CTD), rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), scleroderma (PSS), polymyositis (PM), dermatomyositis (DM), seronegative spondyloarthropathies, vasculitis, and systemic diseases with rheumatic manifestations. Fellows will learn about the risks, benefits, contraindications and necessary monitoring of use pharmacotherapy (including anti-

Objectives of Multidisciplinary Conference

- (1) Fellows will learn about specific diseases including but not limited to anaphylaxis, asthma, atopic dermatitis, contact dermatitis, drug allergy, food allergy, immunodeficiency, rhinitis, sinusitis, stinging insect hypersensitivity, urticaria and angioedema, bronchopulmonary aspergillosis, eosinophilic disorders, hypersensitivity pneumonitis, mastocytosis, ocular allergies, occupational lung disease, connective tissue diseases (CTD), rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), scleroderma (PSS), polymyositis (PM), dermatomyositis (DM), seronegative spondyloarthropathies, vasculitis, and systemic diseases with rheumatic manifestations in a didactic setting and will draw upon the experience of other allergist/clinical immunologists.
- (5) Fellows will learn about the risks, benefits, contraindications and necessary monitoring of use nonsteroidal anti-inflammatory drugs, disease-modifying drugs, biologic response modifiers, glucocorticoids, and cytotoxic drugs in a didactic setting and will draw upon the experience of other allergist/clinical immunologists/rheumatologist.
- (6) Fellows will draw upon the experience of other allergist/clinical immunologists/rheumatologist to develop skills in formulating an appropriate differential diagnosis and treatment plan.
- (7) Fellows will develop the skills necessary for life-long learning and teaching.
- (8) Fellows will develop the skills necessary for life-long continuous quality improvement.
- (9) Fellows will gain experience in the interpretation of histologic specimens.

Methods of Teaching for Multidisciplinary Conference

Multidisciplinary Conference is held once per month and is a morbidity and mortality conference. Although named multidisciplinary Conference, cases presented and discussed include any allergic or rheumatologic disease or any systemic disease with allergic or rheumatologic manifestation. During this conference a very complex case in which there is a diagnostic and treatment dilemma is presented by a fellow or faculty member. This is followed by a multidisciplinary discussion which includes all relevant specialists who were involved in the case, review of pathologic specimens, and a review of the pertinent literature focusing on evidence-based medicine.

Evaluation of Multidisciplinary Conference

- (1) Evaluation of the Fellow: An evaluation form will be completed at the end of each conference by attendees (see attached). The fellow will be evaluated Semi-annually through verbal feedback gathered by the Program Director from the faculty. Residents who complete an Allergy/Immunology and Rheumatology elective will provide feedback on the fellow's effectiveness as a teacher. Semi-annually, the Program Director will review with the fellow his evaluation forms and verbal feedback.
- (2) Evaluation of the Multidisciplinary Conference: Semi-annually, the Program Director will elicit verbal feedback from faculty and fellows. At the end of the year the fellows will complete an anonymous evaluation of the program.

c. geriatric conference

Educational Goals of Geriatric Conference

- (1) Provide an opportunity to learn about specific diseases including but not limited to anaphylaxis, asthma, atopic dermatitis, contact dermatitis, drug allergy, food allergy, immunodeficiency, rhinitis, sinusitis, stinging insect hypersensitivity, urticaria and angioedema, bronchopulmonary aspergillosis, eosinophilic disorders, hypersensitivity pneumonitis, mastocytosis, ocular allergies, occupational lung disease, connective tissue diseases (CTD), rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), scleroderma (PSS), polymyositis (PM), dermatomyositis (DM), seronegative spondyloarthropathies,

effectiveness as a teacher. Semi-annually, the Program Director will review with the fellow his or her evaluation forms and verbal feedback.

- (3) Evaluation of Geriatric Conference: Semi-annually, the Program Director will elicit verbal feedback from faculty and fellows. At the end of the year the fellows will complete an anonymous evaluation of the program.

Educational Goals of Grand Rounds

- (1) Provide an opportunity to participate in systematic reviews of diseases or treatments in greater depth than in Case Conference.
- (2) Provide an opportunity to learn about the risks, benefits, contraindications and necessary monitoring of therapies for less common allergic or rheumatologic diseases.
- (3) Provide an opportunity for self-study through critical review of the literature.
- (4) Provide an opportunity for the application of the data obtained from a critical review of the literature to patient evaluation and treatment for less common allergic or rheumatic diseases.
- (5) Provide an opportunity for developing teaching and presentation skills.
- (6) Provide an opportunity to draw on the experience of clinicians and researchers from other academic institutions.

Objectives of Grand Rounds

- 1) Fellows will have an opportunity to participate in systematic reviews of diseases or treatments in greater depth than in Case Conference.
- 2) Fellows will learn about the risks, benefits, contraindications and necessary monitoring of therapies for less common allergic or rheumatologic diseases in a didactic setting.
- 3) Fellows will draw upon the expertise of clinicians and researchers from other academic institutions.
- 4) Fellows will develop the skills necessary for life-long learning and teaching.

Methods of Teaching for Grand Rounds

Grand Rounds are held intermittently through the year. They consist of a scholarly review of a topic pertinent to Allergy/Immunology/Rheumatology that has not presented itself through a Case Conference or on which a more detailed review is desired. It also provides a venue for visiting clinicians and researchers to share their expertise through a scholarly presentation on a topic for which they are an expert in the field.

Evaluation of Grand Rounds

- (1) Evaluation of the Fellow: An evaluation form will be filled out at the end of each conference by attendees (see attached). The fellow will be evaluated semi-annually through verbal feedback gathered by the Program Director from the faculty. Residents who complete an Allergy/Immunology and Rheumatology elective will provide feedback on the fellow's effectiveness as a teacher. Semi-annually, the Program Director will review with the fellow his evaluation forms and verbal feedback.
- (2) Evaluation of Visiting Faculty: An evaluation form will be completed at the end of each conference by attendees.
- (3) Evaluation of Grand Rounds Conference: Semi-annually, the Program Director will elicit verbal feedback from faculty and fellows. At the end of the year the fellows will complete an anonymous evaluation of the program.

2. CASE CONUNDRUMS: The conference is held weekly and cases are presented by faculty and fellows.

Methods of Teaching for Journal Club

Journal Club will be held monthly. One to three articles, depending on length and complexity will be presented at each meeting. Fellows and faculty members will present. Articles will be chosen from Nature, Science, Cell, Journal of Clinical Investigation, Journal of Immunology, Journal of Allergy and Clinical Immunology, Arthritis and Rheumatism, New England Journal of Medicine, or Annals of Internal Medicine. Presenters will discuss and critique the techniques used, statistical analysis, results and conclusions.

Evaluation of Journal Club

- (1) Evaluation of the Fellows: Semi-annually, the Program Director will gather verbal feedback on the fellow's participation from the faculty and share it with the fellows.
- (2) Evaluation of the Faculty: Semi-annually, the Program Director will obtain feedback from the fellows and share it with the faculty. At the end of the year, the fellows will complete an anonymous evaluation of the faculty.
- (3) Evaluation of the Faculty: At the end of the year, the fellows will complete an anonymous evaluation of the program.

b. research conference

Educational Goals of Research Conference

- (1) Provide a format in which to discuss preliminary results of current research in progress at the University of Rochester.
- (2) Provide an understanding of study design and implementation.
- (3) Provide an understanding of state-of-the-art research techniques.
- (4) Provide an opportunity to increase ones fund of knowledge as it pertains to immunology and molecular biology.
- (5) Provide an opportunity for fellows to discuss their research and obtain constructive feedback regarding the interpretation of current data and direction for future studies.

Objectives of Research Conference

- (1) Fellows will remain informed about current research projects and preliminary results at the University of Rochester that are pertinent to allergy, immunology and rheumatology.
- (2) Fellows will develop expertise in study design and implementation.
- (3) Fellows will develop expertise in the application if data generated using of state-of-the-art research techniques including its limitations.
- (4) Fellows will expand their basic science fund of knowledge as it pertains to allergy, immunology and rheumatology.
- (5) Fellows will receive constructive guidance in their research endeavors.
- (6) Fellows will develop the necessary skills for effective presentation of data.

Methods of Teaching for Research Conference

Research Conference will be held monthly. Fellows will be expected to present at least yearly. During their first year, they will present their scholarly review of the existing data which is pertinent to their area of investigation as well as their hypothesis and study design. They will have the guidance of their chosen mentor with the development of the hypothesis and study design. Faculty members in the Allergy/Immunology Unit will present updates of their research projects and new preliminary data. Other faculty at the University of Rochester who are actively investigating areas of interest with application to allergy, immunology and rheumatology will also be invited to present.

Educational Goals of the Immunology Course

- (1) Provide a basic and advanced understanding of the principles of immunology including but not limited to an understanding of cellular elements of the immune system, immune and inflammatory mechanisms, cellular interactions and immunomodulation, immune responses, and immunoregulation.
- (2) Provide an understanding of the current theories of pathogenesis of immune mediated diseases.
- (3) Provide an understanding of the current research exploring the pathogenesis of immune mediated diseases.
- (4) Provide an opportunity to develop life-long learning skills.
- (5) Provide an opportunity to interpret and apply the literature as it pertains to basic immunology.

Objectives of the Immunology Course

- (1) Fellows will develop a sophisticated understanding of the principles of basic immunology.
- (2) Fellows will develop an understanding of the current knowledge regarding the pathogenesis of immune mediated diseases.
- (3) Fellows will develop the skills necessary for life-long learning.
- (4) Fellows will develop the ability to critically review the basic science literature.

Methods of Teaching in the Immunology Course

The first six months of the year are focused upon developing a solid background in basic immunology using Immunobiology: The Immune System in Health and Disease, 4th Edition by Charles Janeway (see Recommended Reading List) as well as relevant review articles. Each week, the first year fellow(s) lead(s) a discussion of the assigned chapter in Immunobiology: The Immune System in Health and Disease while the senior fellow(s) review a relevant peer reviewed article. During the second six months of the year selected advanced topics such as HIV, transplant immunology, inflammation induced bone resorption, and others are covered. This is done as a two week block with the first week dedicated to the review of recent original articles on the subject. During the second week, an invited expert on the topic leads the discussion.

Evaluation of the Immunology Course

- (1) Evaluation of the Fellow: On semi-annually basis, the Program Director will elicit verbal feedback from the faculty and will share it with the fellow.
- (2) Evaluation of the Faculty: Semi-annually the Program Director will elicit verbal feedback from the fellows and will share it with the faculty. At the end of the year, the fellows will complete an anonymous evaluation of the faculty.
- (3) Evaluation of the Immunology Course: Semi-annually the Program Director will elicit verbal feedback from the faculty and fellows. At the end of the year, the fellows will complete an anonymous evaluation of the program.

6. MEDICAL GRAND ROUNDS

Medical Grand Rounds are held weekly and offer scholarly presentations on the broad spectrum of diseases encompassed by Internal Medicine. Grand Rounds also address medical/legal issues, medical ethics, and the unique issues of aging.