

Allergy-Immunology Rotation Educational Goals & Objectives

The Allergy-Immunology rotation will provide the resident with an opportunity to develop skills in the prevention, evaluation and management of allergic and immunologic conditions. As the scope of allergic and immunologic disorders is quite broad, the focus of this rotation will be on the approach to conditions commonly seen in primary care, such as allergies, asthma, dermatitis, rhinitis, and urticaria. The resident will gain additional exposure in such rotations as Dermatology, Infectious Disease, Pulmonology, and Rheumatology. The resident will also learn the management of emergent conditions, such as anaphylaxis, angioedema, hypersensitivity reactions, and status asthmaticus, and become familiar with skin testing, immunotherapy, and pulmonary function testing. Finally, the resident will understand appropriate indications for allergy and immunology referral.

Faculty will facilitate learning in the 6 core competencies as follows:

Patient Care and Procedural Skills

- I. All residents must be able to provide compassionate, culturally-sensitive care for their patients with allergic and immunologic conditions.
 - PGY1s should recognize the social and economic impact of allergic and immunologic conditions on patients and their families.
 - PGY2s should understand when to seek consultation and be able to formulate specific questions for allergy and immunology referral.
 - PGY3s should be able to coordinate input from multiple consultants, for example dermatology, ophthalmology, otolaryngology, and pulmonology with allergy-immunology, and manage conflicting recommendations.
- II. Residents will demonstrate the ability to take a history focused on symptom severity, exposures/triggers, prior treatments, vaccinations, family and social history, and medications.
 - PGY1s should be able to differentiate between stable and emergent symptoms and elicit personal, environmental, and occupational triggers for symptoms.
 - PGY2s will independently obtain the above information and identify barriers to patient compliance and care.
 - PGY3s should be able to independently obtain the above details for patients with complex medical histories and multiple comorbid conditions.
- III. Residents should be able to perform an appropriately-targeted physical exam.
 - PGY1s should be comfortable with performing and documenting a normal exam of the eyes, ears, nose, throat, lungs, and skin.
 - PGY2s should be able to characterize abnormal exam findings common in allergic disease and asthma
 - PGY3s should be able to independently perform a complete exam and understand the sensitivity and specificity of physical findings.
- IV. Residents will understand the indications, contraindications, complications, limitations, and interpretation of the following procedures, and become competent in their safe and effective use:

- peak expiratory flow rate (PEFR)
- spirometry

Medical Knowledge

- I. Residents will understand basic scientific principles involved in allergic and immunologic disease, including:
 - the role of T and B lymphocytes, cytokines, immunoglobulins, mast cells, and complement in the immune response
 - the classification of immune-mediated damage (Type I-V)
 - the pathophysiology of primary/secondary immunodeficiency syndromes
 - the wheal and flare response
 - the pathophysiology involved in airway obstruction
 - immunization principles in adults

- II. All residents will learn an approach to the evaluation and management of life-threatening conditions, such as anaphylaxis, angioedema, and status asthmaticus.

- III. PGY1s will become skilled in the timely triage of and approach to common presenting complaints, including:
 - Adverse reactions to drugs, foods, latex, and other triggers
 - Anosmia
 - Cough
 - Dyspnea
 - Earache/plugging
 - Fatigue
 - Hives
 - Itchy eyes/nose/throat
 - Postnasal drip
 - Rash
 - Rhinorrhea
 - Seasonal symptoms or hay fever
 - Shortness of breath
 - Sneezing
 - Tearing
 - Wheezing or stridor

PGY2s should learn an approach to managing immunologic or allergic disease in the setting of pregnancy, peri-operatively, and in patients with comorbidities, such as diabetes and heart disease. PGY2s should also be familiar with the management of asthma and exercise-induced bronchospasm in athletes.

PGY3s should also understand statistical concepts, such as pretest probability, number needed to treat, etc. and their effect on diagnostic workup and treatment.

- IV. PGY2s will also develop an understanding of the pathophysiology, clinical presentation, natural history, and therapy for the following conditions:

- Allergic bronchopulmonary aspergillosis
 - Allergic conjunctivitis
 - Allergy to food, insect venom, latex
 - Asthma and triad asthma
 - Common variable immunodeficiency
 - Dermatitis – atopic, contact
 - Eczema
 - Erythema nodosum
 - Hypereosinophilia syndrome
 - Hyper-immunoglobulin E syndrome
 - Hypersensitivity reactions
 - Immunoglobulin deficiency
 - Mastocytosis
 - Nasal polyps
 - Otitis media
 - Rhinitis – allergic and nonallergic, rhinitis medicamentosa, vasomotor
 - Serum sickness
 - Sinusitis
 - Stevens-Johnson syndrome
 - Urticaria
 - X-linked agammaglobulinemia
- IV. PGY3s will gain a better understanding of the above conditions within the setting of comorbidities.
- V. Residents will understand the appropriate use of the following therapies:
- Avoidance
 - Drug desensitization
 - Elimination and challenge diets
 - Immunoglobulins
 - Immunotherapy
 - Medications
 - Antibiotics
 - Anticholinergics
 - Antihistamines
 - Beta-2 agonists
 - Epinephrine
 - Leukotriene receptor antagonists
 - Mast cell stabilizers
 - Methylxanthines
 - Steroids (inhaled, systemic, topical)
- VII. Residents will:
- be familiar with recommendations for family screening for heritable immune deficiency syndromes
 - be familiar with NIH severity index for asthma

- be able to counsel patients on avoidance of allergic/asthma triggers, the role of immunotherapy, implementation of an asthma action plan, and use of an anaphylaxis kit
- VIII. Residents will understand indications for and interpretation of laboratory and diagnostic studies relevant to the diagnosis and treatment of the above conditions, such as:
- C1 esterase testing
 - CT of lungs, sinuses
 - HIV testing
 - IgE testing
 - Immunoglobulin levels
 - Pulmonary function testing pre- and post-bronchodilator; exercise and methacholine challenge testing
 - ImmunoCAP
 - Rhinoscopy
 - Skin testing for immediate and delayed hypersensitivity (Tine/PPD, anergy panel)
 - T and B cell assay and interpretation
 - Testing for neutrophil and macrophage function
 - Theophylline level
 - Total eosinophil count

Practice-Based Learning and Improvement

- I. Residents should be able to access current clinical practice guidelines (<https://www.aaaai.org/practice-resources/statements-and-practice-parameters/practice-parameter-guidelines>) and apply evidence-based strategies to the patient care.
- II. PGY2s and PGY3s should develop progressive independence in evaluating studies in published literature, through Journal Club and independent study.
- III. All residents should learn to function as part of a team, including the primary care physician, allergist-immunologist, and clinic staff, to optimize patient care.
- IV. All residents should respond with positive changes to feedback from members of the health care team.

Interpersonal and Communication Skills

- I. PGY1s must demonstrate organized and articulate written electronic and verbal communication skills that build rapport with patients and families, convey information to other health care professionals, and provide timely documentation in the chart.
- II. PGY2s must also develop interpersonal skills to educate and counsel patients, and where appropriate, promote behavioral change.
- III. PGY3s should demonstrate leadership skills to build consensus and coordinate a multidisciplinary approach to patient care.

Professionalism

- I. All residents must demonstrate strong commitment to carrying out professional responsibilities as reflected in their conduct, ethical behavior, attire, interactions with colleagues and community, and devotion to patient care.
- II. All residents should be able to educate patients and their families in a manner respectful of gender, age, culture, race, religion, disabilities, national origin, socioeconomic status, and sexual orientation on choices regarding their care.
- III. PGY2s should be able to use time efficiently in the clinic to see patients and chart information.
- IV. PGY3s should be able to provide constructive criticism and feedback to more junior members of the team.

Systems-Based Practice

- I. PGY1s must understand policies for reporting allergic reactions in the hospital and outpatient setting.
- II. PGY2s must be able to discuss alternative care strategies, taking into account the social, economic, and psychological factors that affect patient health and use of resources.
- III. PGY2s should understand the impact of insurance status on patient access to care and be aware of the availability of case workers, counseling services, and other community resources to maximize care.
- IV. PGY3s must demonstrate an awareness of and responsiveness to established quality measures, risk management strategies, and cost of care within our system.

Teaching Methods

- I. Supervised patient care in the clinic
 - Residents will initially be directly observed with patients, to facilitate the acquisition of excellent history taking, physical exam, and procedural skills.
 - As residents become more proficient, they will interact more independently with patients and present cases to faculty.
 - For PGY1s, initial emphasis will be on diagnosis and basic management.
 - For PGY2s and PGY3s, focus will be on medical decision-making, and residents will work with supervising physicians to finalize a care plan.
- II. Conferences
 - Specialty-specific didactics
- III. Independent study
 - Journal and textbook reading
 - *Annals of Allergy, Asthma & Immunology* <http://www.annallergy.org>
 - *Annals of Internal Medicine* - In the Clinic series <https://www.acponline.org/cme-moc/online-learning-center/product/299677/annals-in-the-clinic>
 - *Journal of Allergy and Clinical Immunology* <http://www.jacionline.org/>

- *MKSAP*
- Additional reading as recommended by Attending physician
- Online educational resources
 - American Academy of Allergy, Asthma, & Immunology
<http://www.aaaai.org/home.aspx>
 - American College of Allergy, Asthma & Immunology
<http://www.acaai.org/>
 - American Family Physician
<http://www.aafp.org/afp/topicModules/viewTopicModule.htm?topicModuleId=58>
 - Clinical Otolaryngology Online (COOL) – interactive patient cases on common ENT conditions, including allergy emergency, allergic rhinitis, and rhinosinusitis <https://www.entnet.org/education/ent-exam-video-series/>
 - National Heart, Lung, and Blood Institute National Asthma Education and Prevention Program
https://www.nhlbi.nih.gov/files/docs/guidelines/asthma_qrg.pdf
 - Up To Date
 - Clinical Key

Evaluation

- I. Case and procedure logs as appropriate
- II. Attending written evaluation of resident at the end of the month, based on observations and chart review.
- III. Verbal mid-rotation individual feedback
- IV. Mini-CEX bedside evaluation tool

Rotation Structure

- I. Residents should contact the attending physician the day prior to confirm start time and location.
- II. Residents should be in clinic during their scheduled times. Residents should notify the attending physician promptly if they cannot be in clinic at their assigned time.
 - Residents will be involved in discussion of patient presentation, generation of a differential diagnosis, development of a treatment plan, and plan for patient follow up. In addition, residents will be involved in in-office procedures as is appropriate.
 - Case-based learning is most effective. Nightly reading/study should be based on patients seen during the day.
 - When seeing outpatient consults referred from another provider, the resident should understand the question asked and provide a concise answer.
- III. Residents may be asked to do focused literature searches or presentations during the course of the rotation.
- IV. Call and weekend responsibilities TBD by the attending physician.
 - Hours worked must be consistent with ACGME requirements and are subject to approval by the Program Director.

- V. Residents have specialty-specific didactics and should be excused in a timely fashion to attend.