



## Asthma/Allergy Curriculum

NGMC- Family Medicine Residency Program  
Gainesville, Ga

PGY: 2

### Description of Rotation:

This is a four-week block experience with direct supervision by allergists. Supplemental longitudinal learning in the FMP supervised by Family Physician Faculty is also expected. Residents will see patients with asthma, as well as those with a variety of other allergic conditions, in both inpatient and outpatient settings.

### Overall Goals of Asthma/Allergy Rotation:

Residents will learn to provide evidence-based, compassionate, comprehensive care for adult and pediatric patients suffering with both acute and chronic allergic conditions. They will be skilled in identifying conditions which require assistance from specialists for management. They will develop technical skills necessary to evaluate and diagnose patients with these conditions and the knowledge to provide appropriate treatment for them.

### Patient Care Objectives and Competencies

- PC-1: Cares for Acutely ill or injured patients in urgent and emergent situations in all settings.
- PC-2: Cares for patients with chronic conditions.
- PC-3: Partners with the patient, family, and community to improve health through disease prevention and health promotion.
- PC-4: Partners with the patient to address issues of ongoing signs, symptoms, or health concerns that remain over time without clear diagnosis despite evaluation and treatment, in a patient-centered, cost-effective manner.

### Objectives:

- Be able to demonstrate knowledge of the diagnosis, treatment, and prevention of allergic and immunologic conditions (including, but not limited to, rhinitis, asthma, urticaria, anaphylaxis, immunodeficiency, and hypersensitivity reactions) by taking care of such patients appropriately.
- Be familiar with the performance and interpretation of spirometry and skin testing.
- Be able to discuss diagnostic, therapeutic, and preventive strategies for allergic and immunologic conditions with the patient and his or her family in a compassionate, effective manner.
- Demonstrate respect and sensitivity to patients and their families. Accept constructive feedback and provide constructive feedback to others.
- Be familiar with the appropriate application of evidence-based guidelines regarding allergic and immunologic conditions. Acknowledge gaps in personal knowledge and expertise, and appropriately ask for feedback.
- Appropriately utilize allergy and immunology consultation and be familiar with established reporting processes for allergies and allergic reactions. Demonstrate understanding of how individual disease burden, health care resources, and costs impact patients, families, populations, and the health care system.



### Medical Knowledge Objectives and Competencies

- MK-1: Demonstrate medical knowledge of sufficient breadth and depth to practice family medicine.
- MK-2: Applies critical thinking skills in patient care.

#### **Objectives:**

In the appropriate setting, the resident should demonstrate the ability to apply knowledge of:

- Biochemical and histological basis of the immune response, including the role and function of: a. T and B lymphocytes b. Cytokines c. IgE immunoglobulins d. Mast cells e. Complement
- Classification scheme of immune damage a. Type I (anaphylactic/immediate, late phase, and dual reactions) b. Type II (cytotoxic reactions) c. Type III (Arthus reaction) d. Type IV (delayed) e. Type V (antireceptor)
- Pathophysiology, identification, and treatment of primary and secondary immunodeficiency syndromes
- Asthma, including the following:
  - Definition of asthma, and ability to understand and use the National Institutes of Health (NIH) asthma classification and severity index
  - Impact on quality of life and cost for both the individual and society
  - Defined strategies to reduce impairment and risk
  - Major pathologic factors in airway obstruction:
  - Inflammatory mucosal edema
    - Smooth muscle-mediated bronchoconstriction
    - Sputum secretions
    - Airway remodeling
  - Triggers of asthma symptoms
  - Infection
    - Irritants, including tobacco smoke and environmental pollutants
    - Exercise
    - Allergens
    - Drugs
    - Gastroesophageal reflux disease (GERD)
    - Acute emotional stress
  - Triggers of inflammation, such as allergens, occupational exposure, and infection
  - Diagnosis and differential diagnosis of asthma, including the following:
  - Appropriate history and physical examination
    - Allergy evaluation
    - Pulmonary function testing
    - Bronchoprovocation challenge testing (e.g., methacholine, exercise)



- Monitoring of symptoms using peak flow meters
- Appropriate use of preventive measures, such as avoidance of triggers and immunotherapy
- Ability to complete and implement an asthma action plan
- Medical treatment of asthma
- Beta-2 agonists
  - Steroids (both inhaled and systemic)
  - Mast cell stabilizers
  - Leukotriene receptor antagonists
  - Anticholinergics
  - Methylxanthines
- Identification and management of status asthmaticus
- Management of asthma in patients who have concurrent medical conditions (pregnancy, diabetes, heart disease) and preoperatively
- Management of asthma in the athlete, including evaluation and management of exercise-induced bronchospasm
- Factors in compliance, such as:
- Education
  - Avoidance of environmental triggers
  - Early intervention of social and behavioral components
- Rhinitis, including the following:
  - Symptoms, signs, and pathophysiology of the following:
    - Seasonal allergic rhinitis
    - Perennial allergic rhinitis
    - Perennial nonallergic rhinitis
    - Vasomotor rhinitis
    - Rhinitis medicamentosa
  - Triggers
    - Inhalant allergens (household, outdoor environmental)
    - Irritants
    - Physiologic factors
    - Endocrinologic factors
    - Occupational agents
  - Appropriate use of diagnostic testing, such as nasal smears, skin testing, and in vitro testing (radioallergosorbent test [RAST])
    - Management



- Environmental
- Pharmacotherapy
  - Antihistamines
  - Sympathomimetics
  - Mast cell stabilizers
  - Steroids (inhaled and systemic)
  - Anticholinergics iii. Immunotherapy
- Associated conditions
  - Sinusitis
  - Orthodontics
  - Otitis media, serous otitis media, nasal polyps, anosmia, allergic conjunctivitis
  - Sleep disorders
- Adverse reactions to drugs, foods, and biologicals
- Drugs
  - Classification: toxicity, intolerance, side effects, allergic, interactions, genetic, idiosyncratic
    - Diagnosis: history, physical examination, skin testing
    - Management: pharmacotherapy of acute reactions, avoidance, therapeutic desensitization
- Foods
  - Classification: toxicity, intolerance, physiologic reactions, genetic, allergic, additives, dermal allergy
  - Diagnosis: history, physical examination, in vitro testing, elimination diet, challenge diet
- Dermatitis
  - Etiology and pathophysiology of allergic contact dermatitis and atopic dermatitis
  - Distribution and clinical characteristics used in diagnosis of various types of dermatitis
  - Patch testing
  - Management: avoidance, environmental control, soaks and baths, lubricants, steroids, antipruritic drugs, diet
- Anaphylaxis
  - Precipitating factors: stinging insects, latex, pharmaceuticals
  - Pathophysiology
  - Signs and symptoms: skin, respiratory, gastrointestinal tract, cardiovascular
  - Diagnosis
  - Treatment: epinephrine, fluids, antihistamines, steroids, vasopressors, endotracheal intubation
  - Prevention



- Patient education: anaphylactic kit, sting avoidance, sources of allergens
  - Indications for venom immunotherapy
  - Knowledge of epinephrine delivery systems
- Urticaria and angioedema
  - Classification
  - Most common causes of acute urticaria versus angioedema
    - Recurrent acute urticaria
    - Chronic urticaria
    - Hereditary angioedema
  - Wheal and flare response
  - Immunologic and nonimmunologic mechanisms
  - Diagnosis
  - Management: environmental, diet, antihistamines, sympathomimetics, steroids.

**Skills:** In the appropriate setting, the resident should demonstrate the ability to independently perform or appropriately refer the following skills:

- Appropriately performing and interpreting pulmonary function tests
- Peak expiratory flow rate (PEFR) versus symptomatic monitoring. PEFR is not considered superior to symptomatic monitoring but is still recommended for patients who have difficulty recognizing symptoms (e.g., patients on beta blockers, patients who have diabetes and neuropathy)
- Spirometry, including measurements of forced expiratory volume (FEV), particularly forced expiratory volume in one second (FEV<sub>1</sub>), forced vital capacity (FVC), and FEV/FVC ratio and response to bronchodilator administration
- Flow volume loops
- Exercise challenge testing
- Appropriately ordering and interpreting the following: a. Skin testing i. Puncture or prick testing ii. Intradermal iii. Interfering conditions and medications b. In vitro testing i. IgE assay techniques ii. Methods of reporting iii. Interpretation, sensitivity, and specificity
- Counseling patients and their families about the proper techniques to avoid environmental triggers for allergic conditions
- Conducting a comprehensive history and physical examination, with special emphasis on the diagnosis and management of allergic and immunologic conditions
- Integrating factors in the patient's family, home, and general lifestyle into the diagnostic and therapeutic process
- Demonstrating an awareness of over-the-counter products and proper utilization of these products versus the need for prescription medications
- Consulting with physicians and other health care professionals, including critically evaluating and selectively using consultant advice, and integrating management in critical care situations
- Using local and national reporting systems for allergic reactions to pharmaceutical agents



**Topics to cover in rotation:**

MK Topic	On-Line Resource
Asthma	<a href="http://www.aafp.org/afp/2006/1201/p1901.html">http://www.aafp.org/afp/2006/1201/p1901.html</a>
Dehydration	<a href="http://www.aafp.org/afp/2009/1001/p692.html">http://www.aafp.org/afp/2009/1001/p692.html</a>
Gastroenteritis	<a href="http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5216a1.htm">http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5216a1.htm</a>
Neonatal Fever	<a href="http://www.emedicine.com/ped/topic2698.htm">http://www.emedicine.com/ped/topic2698.htm</a>
Otitis Externa	<a href="http://www.aafp.org/afp/2001/0301/p927.html">http://www.aafp.org/afp/2001/0301/p927.html</a>
Otitis Media	<a href="http://www.aafp.org/afp/2007/1201/p1650.html">http://www.aafp.org/afp/2007/1201/p1650.html</a>
Pharyngitis	<a href="http://www.aafp.org/afp/2004/0315/p1465.html">http://www.aafp.org/afp/2004/0315/p1465.html</a>
Pneumonia	<a href="http://www.aafp.org/afp/20040901/899.html">http://www.aafp.org/afp/20040901/899.html</a>
RSV	<a href="http://www.aafp.org/afp/20040115/325.html">http://www.aafp.org/afp/20040115/325.html</a>
Sinusitis	<a href="http://www.aafp.org/afp/1998/1115/p1795.html">http://www.aafp.org/afp/1998/1115/p1795.html</a>

**Interpersonal and Communication Skills Objectives and Competencies**

- C-1: Develop meaningful, therapeutic relationships with patients and families.
- C-2: Communicates effectively with patients, families, and the public.
- C-3: Develops relationships and effectively communicates with physicians, other health professionals, and health care teams.
- C-4: Utilizes technology to optimize communication

**Objectives:** The resident should demonstrate attitudes that encompass:

- Understanding of the personal and societal impact of allergic and immunologic conditions
- Awareness of the importance of coordinating care between family physicians and allergy/immunology subspecialists to provide optimal patient care
- Recognition of the importance of family, community, and environmental factors in the prevention and treatment of allergic and immunologic conditions
- Willingness to be accessible to and accountable for his or her patients
- Be able to discuss diagnostic, therapeutic, and preventive strategies for allergic and immunologic conditions with the patient and his or her family in a compassionate, effective manner.

**Practice Based Learning and Improvement Objectives and Competencies:**

- PBLI-1: Locates, appraises, and assimilates evidence from scientific studies related to the patients' health problems
- PBLI-2: Demonstrates self-directed learning
- PGLI-3: Improves systems in which the physician provides care

**Objectives:**

- Be familiar with the appropriate application of evidence-based guidelines regarding allergic and immunologic conditions. Acknowledge gaps in personal knowledge and expertise, and appropriately ask for feedback.
- Lifelong learning and contribution to the body of knowledge about allergic and immunologic conditions



### Professionalism Objectives and Competencies:

- PROF-1: Completes a process of professionalization
- PROF-2: Demonstrates professional conduct and accountability
- PROF-3: Improves systems in which the physician provides care

#### **Objectives:**

1. Demonstrate respect and sensitivity to patients and their families. Accept constructive feedback and provide constructive feedback to others.

### Systems Based Practice Objectives and Competencies

- SBP-1: Provides cost-conscious medical care
- SBP-2: Emphasizes patient safety
- SBP-3: Advocates for individual and community health
- SBP-4: Coordinates team-based care

#### **Objectives:**

- Appropriately utilize allergy and immunology consultation and be familiar with established reporting processes for allergies and allergic reactions. Demonstrate understanding of how individual disease burden, health care resources, and costs impact patients, families, populations, and the health care system.