





<p>undifferentiated acutely and severely ill patients.</p> <ul style="list-style-type: none"> <li>• Manage patients as a consultant to other physicians.</li> </ul>	<ol style="list-style-type: none"> <li>3. Provide appropriate preventive care and teach patient regarding self-care.</li> <li>4. With supervision, manage patients with common clinical disorders seen in the practice of inpatient and ambulatory Allergy/Immunology.</li> <li>5. With minimal supervision, manage patients with common and complex clinical disorders seen in the practice of Allergy/Immunology.</li> <li>6. Independently manage patients with a broad spectrum of clinical disorders seen in the practice of general Allergy/Immunology.</li> <li>7. Manage complex or rare medical conditions.</li> <li>8. Customize care in the context of the patient's preferences and overall health.</li> </ol>	<p>Year 2</p>	
	<p><b>Consultative Care</b></p> <ol style="list-style-type: none"> <li>1. Provide specific, responsive consultation to other services.</li> <li>2. Provide Allergy/Immunology consultation for patients with more complex clinical problems requiring detailed risk assessment.</li> </ol>	<p>Year 1 Year 2</p>	<p>Direct Observation</p>
<p><b>ACGME Competency</b></p> <p><b>MEDICAL KNOWLEDGE:</b></p>	<p><b>Developmental Milestones Informing ACGME Competencies</b></p>	<p><b>Approximate Time Frame Trainee Should Achieve Stage</b></p>	<p><b>Assessment Methods/Tools</b></p>
<p><b>Core Knowledge of Allergy/Immunology</b></p> <ul style="list-style-type: none"> <li>• Demonstrates a level of expertise in the knowledge of those areas appropriate for an Allergy/Immunology specialist.</li> <li>• Demonstrates sufficient knowledge to treat medical conditions commonly managed by specialists in Allergy/Immunology.</li> </ul>	<p><b>Knowledge of Core Content</b></p> <ol style="list-style-type: none"> <li>1. Understand the relevant pathophysiology and basic science for common Allergy/Immunology conditions.</li> <li>2. Demonstrate sufficient knowledge to diagnose and treat common conditions specific for Allergy/Immunology.</li> <li>3. Demonstrate sufficient knowledge to diagnose and treat undifferentiated and emergent conditions.</li> <li>4. Demonstrate sufficient knowledge to provide preventive care.</li> <li>5. Demonstrate sufficient knowledge to identify and treat medical conditions that require intensive care.</li> <li>6. Understand the relevant pathophysiology and basic science for uncommon or complex medical conditions.</li> <li>7. Demonstrate sufficient knowledge of socio-behavioral sciences including but not limited to health care economics,</li> </ol>	<p>Year 1  Year 2</p>	<p>Direct Observation</p> <p>Standardized Test (In-service training exam)</p>

	medical ethics, and medical education.		
<p><b>Common Modalities Utilized in the Practice of Internal Medicine</b></p> <ul style="list-style-type: none"> <li>• Demonstrates sufficient knowledge to interpret basic clinical tests and images, use common pharmacotherapy and appropriately use and perform diagnostic and therapeutic procedures.</li> </ul>	<p><b>Diagnostic Tests</b></p> <ol style="list-style-type: none"> <li>1. Understand indications for and basic interpretation of common diagnostic testing, including but not limited to skin testing, routine blood chemistries, hematologic studies, complement tests, immunoglobulin studies, pulse oximetry, chest radiographs, CT scans, pulmonary function tests.</li> <li>2. Understand indications for and has basic skills in interpreting more advanced diagnostic tests.</li> <li>3. Understand prior probability and test performance characteristics.</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>Direct Observation</p> <p>Standardized test (in-service training exam)</p>
<p><b>ACGME Competency</b></p> <p><b>PRACTICE-BASED LEARNING AND IMPROVEMENT:</b></p>	<p><b>Developmental Milestones Informing ACGME Competencies</b></p>	<p><b>Approximate Time Frame Trainee Should Achieve Stage</b></p>	<p><b>Assessment Methods/Tools</b></p>
<p><b>Learning and Improving via Audit of Performance</b></p> <ul style="list-style-type: none"> <li>• Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement.</li> </ul>	<p><b>Improve the Quality of Care for a Panel of Patients</b></p> <ol style="list-style-type: none"> <li>1. Appreciate the responsibility to assess and improve care collectively for a panel of patients.</li> <li>2. Identify areas in resident's own practice and local system that can be changed to improve affect of the processes and outcomes of care.</li> <li>3. Engage in a quality improvement intervention.</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>Several Elements of Quality Improvement Project.</p> <p>Standardized Test (In-service training exam)</p>
<p><b>Learning and Improvement Via Answering Clinical Questions from Patient Scenarios</b></p> <ul style="list-style-type: none"> <li>• Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems.</li> <li>• Use information technology to optimize learning.</li> </ul>	<p><b>Ask Answerable Questions for Emerging Information Needs</b></p> <ol style="list-style-type: none"> <li>1. Identify learning needs (clinical questions) as they emerge in patient care activities.</li> <li>2. Classify and precisely articulate clinical questions.</li> <li>3. Develop a system to track, pursue, and reflect on clinical questions</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>Self-Evaluation Instrument</p>
	<p><b>Acquires the Best Evidence</b></p> <ol style="list-style-type: none"> <li>1. Access medical information resources to answer clinical questions and library resources to support decision making.</li> <li>2. Effectively and efficiently search NLM database for original clinical research articles.</li> <li>3. Effectively and efficiently search</li> </ol>	<p>Year 1</p>	<p>Direct observation</p>

	evidence-based summary medical information resources. 4. Appraise the quality of medical information resources and select among them based on the characteristics of the clinical questions.	Year 2	
	<b>Appraises the Evidence for Validity and Usefulness</b> 1. With assistance, appraise study design, conduct, and statistical analysis in clinical research papers. 2. With assistance, appraise clinical guideline recommendations for bias. 3. With assistance, appraise study design, conduct and statistical analysis in clinical research papers. 4. Independently, appraise clinical guideline recommendations for bias and cost-benefit consideration.	Year 1    Year 2	Direct observation
	<b>Applies the Evidence to Decision-Making for Individual Patients</b> 1. Determine if clinical evidence can be generalized to an individual patient. 2. Customize clinical evidence for an individual patient. 3. Communicate risks and benefits of alternatives to patients. 4. Integrate clinical evidence, clinical context, and patient preferences into decision-making.	Year 1    Year 2	Direct observation
<b>Learning and Improving Via Feedback and Self-Assessment*</b> <ul style="list-style-type: none"> <li>• Identify strengths, deficiencies, and limits in one's knowledge and expertise.</li> <li>• Set learning and improvement goals.</li> <li>• Identify and perform appropriate learning activities.</li> <li>• Incorporate formative evaluation feedback into daily practice.</li> <li>• Participate in the education of patients, families, students, residents, and other health</li> </ul>	<b>Improves Via Feedback</b> 1. Respond welcomingly and productively to feedback from all members of the health care team including faculty, peer residents, students, nurses, allied health workers, patients and their advocates. 2. Actively seek feedback from all members of the health care team. 3. Calibrate self-assessment with feedback and other external data. 4. Reflect on feedback in developing plans for improvement.	Year 1    Year 2	360 Evaluation  Direct observation
	<b>Improves Via Self-Assessment</b> 1. Maintain awareness of the situation in the moment, and respond to meet situational needs. 2. Reflect (in action) when surprised, applies new insights to future clinical scenarios, and reflects (on action) back on the process.	Year 1   Year 2	360 Evaluation  Direct observation
	<b>Participates in the Education of all Members of the Health Care Team</b> 1. Actively participate in teaching	Year 1	360 Evaluation



<p>patient needs that supersedes self-interest.</p> <ul style="list-style-type: none"> <li>Accountability to patients, society and the profession.</li> </ul>	<p>and scholarly activity.</p>		
	<p><b>Demonstrate Compassion and Respect to Patients</b></p> <ol style="list-style-type: none"> <li>Demonstrate empathy and compassion to all patients.</li> <li>Demonstrate a commitment to relieve pain and suffering.</li> <li>Provide leadership for a team that respects patient dignity and autonomy.</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>360 Evaluation</p> <p>Direct observation</p>
	<p><b>Provide Timely, Constructive Feedback to Colleagues</b></p> <ol style="list-style-type: none"> <li>Communicate constructive feedback to other members of the health care team.</li> <li>Recognize, respond to and report impairment in colleagues or substandard care via peer review process.</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>360 Evaluation</p> <p>Direct observation</p>
	<p><b>Maintain Accessibility</b></p> <ol style="list-style-type: none"> <li>Respond promptly and appropriately to clinical responsibilities including but not limited to calls and pages.</li> <li>Carry out timely interactions with colleagues, patients and their designated caregivers.</li> </ol>	<p>Year 1</p>	<p>360 Evaluation</p> <p>Direct observation</p>
	<p><b>Recognize Conflicts of Interest</b></p> <ol style="list-style-type: none"> <li>Recognize and manage obvious conflicts of interest, such as caring for family members and professional associates as patients.</li> <li>Maintain ethical relationships with industry.</li> <li>Recognize and manage subtler conflicts of interest.</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>360 Evaluation</p> <p>Direct observation</p>
	<p><b>Demonstrate Personal Accountability</b></p> <ol style="list-style-type: none"> <li>Dress and behave appropriately.</li> <li>Maintain appropriate professional relationship with patients, families, and staff.</li> <li>Ensure prompt completion of clinical, administrative, and curricular tasks.</li> <li>Recognize and address personal, psychological, and physical limitations that may affect professional performance.</li> <li>Recognize the scope of his/her abilities and ask for supervision and assistance appropriately.</li> <li>Serve as a professional role model for more junior colleagues (e.g., medical students, interns).</li> <li>Recognize the need to assist colleagues in the provision of duties.</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>360 Evaluation</p> <p>Direct observation</p>
	<p><b>Practice Individual Patient Advocacy</b></p> <ol style="list-style-type: none"> <li>Recognize when it is necessary to advocate for individual patient needs.</li> <li>Effectively advocate for individual patient needs.</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>360 Evaluation</p> <p>Direct observation</p>

	<p><b>Comply With Public Health Policies</b></p> <ol style="list-style-type: none"> <li>1. Recognize and take responsibility for situations where public health supersedes individual health (e.g., reportable infectious diseases).</li> </ol>	Year 1	Direct observation
<p><b>Patient-Centeredness</b></p> <ul style="list-style-type: none"> <li>• Respect for patient privacy and autonomy</li> <li>• Sensitivity and responsiveness to a diverse patient population, including, but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.</li> </ul>	<p><b>Respect the Dignity, Culture, Beliefs, Values, and Opinions of the Patient</b></p> <ol style="list-style-type: none"> <li>1. Treat patients with dignity, civility, and respect regardless of race, culture, gender, ethnicity, age, sexual orientation, or socioeconomic status.</li> <li>2. Recognize and manage conflict when patient values differ from their own.</li> </ol>	Year 1  Year 2	360 Evaluation  Direct observation
	<p><b>Confidentiality</b></p> <ol style="list-style-type: none"> <li>1. Maintain patient confidentiality.</li> <li>2. Educate and hold others accountable for patient confidentiality.</li> </ol>	Year 1 Year 2	360 Evaluation  Direct observation
	<p><b>Recognize and Address Disparities in Health Care</b></p> <ol style="list-style-type: none"> <li>1. Recognize that disparities exist in health care among populations and that they may impact care of the patient.</li> <li>2. Embrace physicians' role in assisting the public and policy makers in understanding and addressing causes of disparity in disease and suffering.</li> <li>3. Advocates for appropriate allocation of limited health care resources.</li> </ol>	Year 1  Year 2	360 Evaluation  Direct observation
<p><b>ACGME Competency</b></p> <p><b>SYSTEMS-BASED PRACTICE:</b></p>	<p><b>Developmental Milestones Informing ACGME Competencies</b></p>	<p><b>Approximate Time Frame Trainee Should Achieve Stage</b></p>	<p><b>Assessment Methods/Tools</b></p>
<p><b>Works Effectively With Other Care Providers and Settings</b></p> <ul style="list-style-type: none"> <li>• Work effectively in various health care delivery settings and systems relevant to their clinical practice</li> <li>• Coordinate patient care within the health care system relevant to their clinical specialty.</li> <li>• Work in inter-professional teams to enhance patient safety and improve patient care quality.</li> </ul>	<p><b>Works Effectively Within Multiple Health Delivery Systems</b></p> <ol style="list-style-type: none"> <li>1. Understand unique roles and services provided by local health care delivery systems.</li> <li>2. Manage and coordinate care and care transitions across multiple delivery systems, including ambulatory, subacute, acute, rehabilitation, and skilled nursing.</li> <li>3. Negotiate patient-centered care among multiple care providers.</li> </ol>	Year 1  Year 2	360 Evaluation  Direct observation  Portfolio
	<p><b>Works Effectively Within an Interprofessional Team</b></p> <ol style="list-style-type: none"> <li>1. Appreciate roles of variety of health care providers, including, but not limited to, consultants, therapists, nurses, home care workers, pharmacists, and social workers.</li> <li>2. Work effectively as a member within the</li> </ol>	Year 1	360 Evaluation  Direct observation  Portfolio

<ul style="list-style-type: none"> <li>• Work in teams and effectively transmit necessary clinical information to ensure safe and proper care of patients including the transition of care between settings.</li> </ul>	<p>interprofessional team to ensure safe patient care.</p> <ol style="list-style-type: none"> <li>3. Consider alternative solutions provided by other teammates.</li> <li>4. Demonstrate how to manage the team by utilizing the skills and coordinating the activities of interprofessional team members.</li> </ol>	<p>Year 2</p>	
<p><b>Improving Health Care Delivery:</b></p> <ul style="list-style-type: none"> <li>• Advocate for quality patient care and optimal patient care systems</li> <li>• Participate in identifying system errors and implementing potential systems solutions</li> <li>• Recognize and function effectively in high quality care system</li> </ul>	<p><b>Recognizes System Error and Advocates for System Improvement</b></p> <ol style="list-style-type: none"> <li>1. Recognize health system forces that increase the risk for error including barriers to optimal patient care.</li> <li>2. Identify, reflect upon, and learn from critical incidents such as near misses and preventable medical errors.</li> <li>3. Dialogue with care team members to identify risk for and prevention of medical error.</li> <li>4. Understand mechanisms for analysis and correction of systems errors</li> <li>5. Demonstrate ability to understand and engage in a system level quality improvement intervention.</li> <li>6. Partner with other healthcare professionals to identify, propose improvement opportunities with the system.</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>Portfolio</p> <p>Direct Observation</p> <p>360 Evaluation</p>
<p><b>Cost-Effective Care for Patients and Populations</b></p> <ul style="list-style-type: none"> <li>• Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate.</li> </ul>	<p><b>Identifies Forces That Impact The Cost of Health Care and Advocates for Cost-Effective Care</b></p> <ol style="list-style-type: none"> <li>1. Reflect awareness of common socio-economic barriers that impact patient care.</li> <li>2. Understand how cost-benefit analysis is applied to patient care (i.e., via principles of screening tests and the development of clinical guidelines).</li> <li>3. Identify the role of various health care stakeholders including providers, suppliers, financiers, purchasers and consumers and their varied impact on the cost of and access to health care.</li> <li>4. Understand coding and reimbursement principles.</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>Standardized Test (In-service training exam)</p> <p>Direct Observation</p> <p>Portfolio</p>
	<p><b>Practices Cost-Effective Care</b></p> <ol style="list-style-type: none"> <li>1. Identify costs for common diagnostic or therapeutic tests.</li> <li>2. Minimize unnecessary care including tests, procedures, therapies and ambulatory or hospital encounters.</li> <li>3. Demonstrate the incorporation of cost-awareness principles into standard clinical judgments and decision-making.</li> <li>4. Demonstrate the incorporation of cost-</li> </ol>	<p>Year 1</p> <p>Year 2</p>	<p>Direct observation</p>

	awareness principles into complex clinical scenarios.		
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2012-2013

## **Learning Goals and Objectives for Vanderbilt Adult Allergy/Immunodeficiency Clinic Rotation:**

### **Year 1:**

**Overall Goals.** The overall goal of this rotation during the *first year* of A&I resident training is to differentiate the A&I resident as a subspecialist with respect to competencies in patient care and medical knowledge in the field of adult allergy and immunology from the level of competency established through residency training previously in internal medicine and/or pediatrics. The goal is that the resident demonstrates knowledge of basic pathophysiology and clinical presentations for common allergic and immunologic conditions. In addition, the resident will demonstrate sufficient knowledge and apply it to the diagnosis and treatment of patients with common allergic and immunologic conditions.

### **Patient Care**

1. Be able to prescribe initial therapy and dose adjustments for adults with uncomplicated asthma.
2. Be able to prescribe the proper administration of epinephrine
3. Be able to conduct oral food challenges, including the indications, consent process, design of dosing schedules, and monitoring.
4. Be able to diagnose and treat IgE-mediated allergic reactions to foods.
5. Be able to select appropriate skin testing regimens for adults with common allergic diseases and asthma.

### **Medical Knowledge:**

1. Be able to interpret pulmonary function testing (quality, reproducibility, obstruction or restriction) in adults.
2. Describe the major clinical manifestations of anaphylaxis in adults.
3. Describe the proper treatment of an anaphylactic reaction in a supervised clinic setting following an immunotherapy injection.
4. Describe the clinical presentation and management of mastocytosis in adults.
5. Describe the indications for laboratory tests that would be useful in the evaluation of anaphylaxis and mast cell disorders in adults.
6. Be able to discuss the pathogenesis of food allergies and intolerances.
7. Be able to describe indications and interpretation of testing for food-specific IgE.
8. Describe the pathophysiology of severe chronic refractory asthma and its detailed differential diagnosis
9. Describe the pathogenesis of chronic rhinosinusitis and nasal polyposis
10. Be able to discuss the pathogenesis of urticaria and angioedema
11. Describe lung diseases that present to Allergy/Immunology specialists including allergic bronchopulmonary aspergillosis, hypersensitivity pneumonitis, and eosinophilic pneumonias
12. Describe the clinical manifestations of eosinophil related diseases
13. Be able to discuss the pathogenesis of drug allergy

### **Practice-Based Learning and Improvement**

1. Develop an organized evidence-based approach to the evaluation of adult asthma
2. Develop and present an organized, evidence-based approach to the evaluation of adverse reactions to foods and drugs.
3. Using computerized databases, be able to locate information to interpret the risk of allergic reactions to foods based on allergen-specific IgE levels.

4. Be able to use the EMR to write treatment plans for asthma, rhinosinusitis, nasal polyposis, anaphylaxis, mastocytosis, angioedema, urticaria, including action plans for asthma,

#### Interpersonal & Communication Skills:

1. Describe to patients the meaning and uses of the following forms of step-up therapy in adult asthma:
  - a. Step-up short term
  - b. Step-up long term
  - c. Step-up intermittent
2. Be able to effectively demonstrate the use of topical medications and delivery devices (including nasal sprays, asthma inhalers, spacers, epinephrine) to patients.
3. Be able to describe to patients the risks and benefits of basic procedures such as immunotherapy, oral food challenges and drug challenges.
4. This rotation should also provide a familiarization with the psychosocial effects of chronic disease on the patient and his/her family.

#### Professionalism:

1. In conducting interviews with patients, solicit input in developing diagnostic and treatment plans.
2. Understand when assent from a adult is required for procedures and tests.
3. After ordering laboratory tests, follow up by discussing results with attending and notifying patient and implications for care.

#### Systems-Based Practice:

1. Be able to update appropriate sections in medical records to reflect allergies to medications, foods, and allergic diseases and asthma.

#### **Year 2:**

**Overall goals.** During the *second year*, these competencies will be further developed so that the A&I resident can manage more severe forms of disease, and is able to confidently and effectively communicate health-related knowledge through colleague and patient interactions, formal consultations, and didactic teaching in a variety of educational formats. During the second year, the goal is for the resident to independently apply acquired knowledge to diagnose and treat patients with complex allergic and immunologic conditions. The resident should independently synthesize the literature and patient care experiences to diagnose and treat patients with newly identified or emerging diseases.

#### Patient Care:

1. Be able to evaluate, diagnose, and manage complex cases of food allergies and intolerances, including multiple food allergies, non-IgE-mediated food allergies, psychological food aversions, celiac disease, and other forms of food intolerance.
2. Be able to evaluate, diagnose, and manage complex cases of wheezing and asthma, including virally-induced wheezing, severe asthma, asthma complicated by vocal cord dysfunction, and other cough and wheezing syndromes.
3. Be able to conduct a workup for mast cell disorders.
4. Be able to evaluate and manage severe atopic dermatitis in adults, including cases complicated by non-adherence, socioeconomic factors, allergen exposure, and infection.
5. Be able to evaluate and manage allergic rhinitis, chronic rhinosinusitis, and nasal polyposis in adults

### Medical Knowledge:

1. Demonstrate detailed knowledge of basic immunoinflammatory mechanisms as they relate to diagnosis and treatment (both short and long term) in the area of asthma treatment in relationship to:
  - a. impairment (e.g., interpretation of spirometry; use of various tools to measure control and quality of life; use of symptom based action plans)
  - b. risk (exacerbations, loss of lung function over time, side effects from medications)
  - c. Delivery systems (nebulizers, DPIs, MDIs)
  - d. The concepts of treatment failure, loss of control, and exacerbations
  - e. National and International Asthma Guidelines
  - f. Asthma triggers
2. Demonstrate detailed knowledge of pathogenic mechanisms as they relate to diagnosis and treatment (both short and long term) in the areas of food allergy and atopic dermatitis.
3. Describe the immunologic pathways underlying immediate hypersensitivity focusing on the following components:
  - a. Structure of the IgE receptor
  - b. Ontogeny of IgE antibody development
  - c. Signaling cascades activated during mast cell mediator release
4. Describe in detail the various disorders that involve mast cells based on clinical presentation, major and minor criteria, laboratory abnormalities, genetic contributions, treatment, and prognosis

### Interpersonal & Communication Skills:

1. In conducting medical interviews, be able to elicit lifestyle, environmental, and allergic factors that promote more severe allergic diseases and asthma.
2. Be able to accurately counsel patients on treatment plans for complex medical problems and more severe diseases.
3. Be able to take an accurate medical history under difficult circumstances (e.g., patients who have behavior disorders, or who are angry with the health care system).

### Systems-Based Practice:

1. Be able to formulate treatment plans for complex and severe cases of food allergy. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the patient.
2. Be able to formulate treatment plans for complex and severe cases of atopic dermatitis that optimize local care of the skin, anti-inflammatory therapy, and anti-itch strategies. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the patients.
3. Be able to describe the major findings of landmark studies that demonstrate important parts of the evidence base for evaluation and management of asthma, food allergy, and atopic dermatitis.
4. Be able to formulate treatment plans for complex and severe cases of atopic dermatitis that optimize local care of the skin, anti-inflammatory therapy, and anti-itch strategies. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the patients.
5. Be able to formulate treatment plans for routine and complex allergic rhinitis, chronic rhinosinusitis, and nasal polyposis in adults.

### Professionalism:

1. Demonstrate sensitivity and responsiveness to the patient's gender, disabilities and culture background.

Systems-based practice:

1. Be able to quote approximate costs for commonly-used medications for allergies and asthma.

## **Learning Objectives for Vanderbilt ENT Clinic Rotation:**

**Overall Goals.** The overall goal of this rotation during A&I resident training is familiarize the A&I resident respect to competencies in patient care and medical knowledge in the field of ENT from the level of competency established through residency training previously in internal medicine and/or pediatrics. The goal is that the resident demonstrates knowledge of basic pathophysiology and clinical presentations for common ENT conditions. In addition, the resident will demonstrate sufficient knowledge and apply it to the diagnosis and treatment of patients with common ENT conditions. This rotation is only offered once in the course of the A&I residency, but can be taken as either a first or second year resident; therefore, there is no discrimination in regard to the competencies between years of training.

### **Patient Care**

1. Be able to diagnose common sinus and nasal conditions that are seen in clinic by A&I subspecialists.
2. Be able to determine when a patient with recurrent sinusitis or nasal obstruction should be referred to an ENT specialist for further evaluation.
3. Be able to treat acute sinusitis and chronic rhinosinusitis.
4. Be able to select appropriate radiographic tests including CT scans, MRI, and other radiographic studies for the diagnosis of nasal and sinus disease.

### **Medical Knowledge:**

1. Be able to interpret CT scans, MRI, and other radiographic studies in adults and children.
2. Describe the major clinical manifestations of acute sinusitis, chronic rhinosinusitis, and anatomic abnormalities of the nose and sinuses, and naso-sinal masses.
3. Describe the pathogenic mechanisms of acute sinusitis and chronic rhinosinusitis.
4. Describe the clinical presentation and management of acute sinusitis, chronic rhinosinusitis, and anatomic abnormalities of the nose and sinuses, and naso-sinal masses.
5. Describe the indications for laboratory tests that would be useful in the evaluation of acute sinusitis, chronic rhinosinusitis, and anatomic abnormalities of the nose and sinuses, and naso-sinal masses.
6. Be able to describe the basic treatment strategies for acute sinusitis and chronic rhinosinusitis.
7. Be able to describe indications and interpretation of testing for acute sinusitis, chronic rhinosinusitis, and anatomic abnormalities of the nose and sinuses, and naso-sinal masses conditions.

### **Practice-Based Learning and Improvement**

1. Develop an organized evidence-based approach to the evaluation of common sinus and nasal conditions that are seen in clinic by A&I subspecialists.
2. Develop and present an organized, evidence-based approach to the evaluation of diseases referred to an ENT clinic, including obtaining the history, performing laboratory evaluation, and formulating a differential diagnosis.
3. Develop and present an organized, evidence-based approach to the evaluation of diseases referred to an ENT clinic.
4. Using computerized databases, be able to locate information to interpret the tests required for proper evaluation of diseases referred to an ENT clinic.
5. Be able to use the EMR to write treatment plans, including action plans for diseases referred to an ENT clinic, and instructions for medication use.

Interpersonal & Communication Skills:

1. Describe to children and parents the meaning and uses of terms that describe common sinus and nasal conditions
2. Be able to effectively demonstrate the use of medications prescribed by ENT providers to patients and parents.
3. Be able to describe to children and parents the risks and benefits of ENT procedures commonly used in the evaluation of diseases pertinent to Allergy & Immunology clinical practice.

Professionalism:

1. In conducting interviews with older children and parents, solicit input from both in developing diagnostic and treatment plans.
2. Understand when assent from a minor is required for procedures and tests.
3. After ordering laboratory and radiologic tests, follow up by discussing results with attending and notifying patient/family of interpretation and implications for care.

Systems-Based Practice:

1. Be able to update appropriate sections in medical records to reflect diseases referred to an ENT physician that are pertinent to Allergy & Immunology clinical practice.

## **Learning Objectives for Vanderbilt Inpatient Consult Rotation:**

### **Year 1:**

**Overall Goals.** The overall goal of this rotation during the *first year* of A&I resident training is to differentiate the A&I resident as a subspecialist with respect to competencies in patient care and medical knowledge in the field of inpatient pediatric and adult allergy and immunology from the level of competency established through residency training previously in internal medicine and/or pediatrics. The goal is that the resident demonstrates knowledge of basic pathophysiology and clinical presentations for common allergic and immunologic conditions. In addition, the resident will demonstrate sufficient knowledge and apply it to the diagnosis and treatment of patients with common allergic and immunologic conditions.

### **Patient Care**

1. Be able to evaluate drug allergy
2. Be able to perform skin testing for drug allergy.
3. Be able to evaluate and treat anaphylaxis.
4. Be able to diagnose immunodeficiencies that require hospitalization for care
5. Be able to diagnose and treat asthma.
6. Be able to diagnose and treat IgE-mediated allergic reactions to foods.
7. Be able to diagnose, evaluate, and treat atopic dermatitis.

### **Medical Knowledge:**

1. Describe the major clinical manifestations of anaphylaxis.
2. Describe the proper treatment of an anaphylactic reaction in a hospital setting.
3. Describe the indications for laboratory tests that would be useful in the evaluation of anaphylaxis and mast cell disorders.
4. Be able to discuss the pathogenesis of food allergies and intolerances.
5. Describe the pathophysiology of acute and chronic refractory asthma and its detailed differential diagnosis
6. Be able to discuss the pathogenesis of angioedema.
7. Be able to discuss the pathogenesis of drug allergy.
8. Describe the indications for laboratory tests that would be useful in the evaluation of immunodeficiency

### **Practice-Based Learning and Improvement**

1. Develop an organized evidence-based approach to the evaluation of asthma
2. Develop and present an organized, evidence-based approach to the evaluation of adverse reactions to foods and drugs.
3. Develop an organized evidence-based approach to the evaluation of anaphylaxis.
4. Develop an organized evidence-based approach to the evaluation of angioedema
5. Be able to use the EMR to write treatment plans for severe asthma, drug desensitization, anaphylaxis, mastocytosis, angioedema, urticaria, and atopic dermatitis

### **Interpersonal & Communication Skills:**

1. Describe to internal medicine and pediatric residents the pathophysiology of drug allergy and the procedure of drug desensitization.
2. Be able to describe to patients the risks and benefits of drug challenge and desensitization.
3. Describe to internal medicine and pediatric residents the pathophysiology, evaluation, and treatment of anaphylaxis.

### Professionalism:

1. In conducting interviews with patients, solicit input in developing diagnostic and treatment plans.
2. Understand when assent from an adult is required for procedures and tests.
3. After ordering laboratory tests, follow up by discussing results with attending and notifying patient and implications for care.

### Systems-Based Practice:

1. Be able to update appropriate sections in medical records to reflect anaphylaxis, drug allergy, food allergy, asthma, immunodeficiency, and angioedema.

### Year 2:

**Overall goals.** During the second year, these competencies will be further developed so that the A&I resident can manage more severe forms of disease, and confidently and effectively communicate health-related knowledge through colleague and patient interactions, formal consultations, and didactic teaching. During the second year, the goal is for the resident to independently apply acquired knowledge to diagnose and treat patients with complex allergic and immunologic conditions. The resident should independently synthesize the literature and patient care experiences to diagnose and treat patients with newly identified or emerging diseases.

### Patient Care:

1. Be able to evaluate, diagnose, and manage complex cases of severe immunodeficiency syndromes.
2. Be able to evaluate, diagnose, and manage complex cases of severe asthma, asthma complicated by vocal cord dysfunction, and other severe cough and wheezing syndromes.
3. Be able to conduct a complete workup for life-threatening mast cell disorders.
4. Be able to evaluate and manage severe atopic dermatitis, including cases complicated by non-adherence, socioeconomic factors, allergen exposure, and infection.

### Medical Knowledge:

1. Demonstrate detailed knowledge of basic immunologically based mechanisms as they relate to diagnosis and treatment (both short and long term) in the area of immunodeficiency including SCID, disorders of toll like receptor signaling, NF-kB activation, complement, and humoral defects.
2. Demonstrate detailed knowledge of pathogenic mechanisms as they relate to diagnosis and treatment (both short and long term) in the areas of asthma.
3. Describe the immunologic and non-immunologic pathways involved in drug allergy.

### Interpersonal & Communication Skills:

1. In conducting medical interviews, be able to elicit detailed history of immunodeficiency disorders from both patients and family members.
2. Be able to accurately counsel patients on treatment plans for complex medical problems and more severe diseases.
3. Be able to take an accurate medical history under difficult circumstances (e.g., patients in critical care settings).

### Systems-Based Practice:

1. Be able to formulate treatment plans for complex and severe cases of food allergy. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the patient.
2. Be able to formulate treatment plans for complex and severe cases of atopic dermatitis that optimize local care of the skin, anti-inflammatory therapy, and anti-itch strategies. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the patients.
3. Be able to describe the major findings of landmark studies that demonstrate important parts of the evidence base for evaluation and management of severe asthma, refractory anaphylaxis, immunodeficiency, life threatening angioedema.
4. Be able to formulate treatment plans for complex and severe cases of atopic dermatitis that optimize local care of the skin, anti-inflammatory therapy, and anti-itch strategies. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the patients.

Professionalism:

1. Demonstrate sensitivity and responsiveness to the patient's gender, disabilities and culture background.

Systems-based practice:

1. Be aware of the approximate costs of hospitalization on the general ward and intensive care units.
2. Be cognizant of the costs of extensive immunodeficiency work-ups.

## **Learning Objectives for Vanderbilt Pediatric Dermatology Clinic Rotation:**

**Overall Goals.** The overall goal of this rotation during A&I resident training is familiarize the A&I resident respect to competencies in patient care and medical knowledge in the field of pediatric dermatology from the level of competency established through residency training previously in internal medicine and/or pediatrics. The goal is that the resident demonstrates knowledge of basic pathophysiology and clinical presentations for common dermatologic conditions. In addition, the resident will demonstrate sufficient knowledge and apply it to the diagnosis and treatment of patients with common dermatologic conditions. This rotation is only offered once in the course of the A&I residency, but can be taken as either a first or second year resident; therefore, there is no discrimination in regard to the competencies between years of training.

### **Patient Care**

1. Be able to prescribe initial therapy and dose adjustments for infants and children with uncomplicated atopic dermatitis.
2. Be able to prescribe the proper dosing of dermatologic medications based on age and weight
3. Be able to diagnose and treat dermatologic diseases such as contact dermatitis, urticaria and angioedema and to recognize other dermatologic diseases.
4. Be able to select and order appropriate tests needed to diagnose pediatric skin disease.

### **Medical Knowledge:**

1. Be able to interpret immediate and delayed hypersensitivity skin testing in children.
2. Describe the major clinical manifestations of atopic dermatitis in children.
3. Describe the pathogenic mechanisms of contact dermatitis, urticaria and angioedema.
4. Describe the indications for laboratory tests that would be useful in the evaluation of dermatologic disorders in children.
5. Be able to describe the basic treatment strategies for atopic dermatitis, contact dermatitis, urticaria and angioedema.
6. Be able to describe indications and interpretation of testing for dermatologic conditions.

### **Practice-Based Learning and Improvement**

1. Develop an organized evidence-based approach to the evaluation of skin diseases.
2. Develop and present an organized, evidence-based approach to the evaluation of dermatologic disorders, including obtaining the history, performing laboratory evaluation, and formulating a differential diagnosis.
3. Develop and present an organized, evidence-based approach to the evaluation of atopic dermatitis, contact dermatitis, urticaria and angioedema.
4. Using computerized databases, be able to locate information to interpret the laboratory evaluation of dermatologic diseases commonly seen by allergy & Immunology specialists.
5. Be able to use the EMR to write treatment plans, including action plans for atopic dermatitis, and instructions to schools about medication use.

### **Interpersonal & Communication Skills:**

1. Describe to children and parents the meaning and uses of the terms commonly used to describe dermatologic diseases
2. Be able to effectively demonstrate the use of medications to patients and parents.
3. Be able to describe to children and parents the risks and benefits of immunosuppressive agents in the treatment of dermatologic diseases seen by A & I subspecialists.

Professionalism:

1. In conducting interviews with older children and parents, solicit input from both in developing diagnostic and treatment plans.
2. Understand when assent from a minor is required for procedures and tests.
3. After ordering laboratory tests, follow up by discussing results with attending and notifying patient/family of interpretation and implications for care.

Systems-Based Practice:

1. Be able to update appropriate sections in medical records to reflect dermatologic diseases.

## **Learning Objectives for Pediatric Allergy Clinic Rotation:**

### **Year 1:**

**Overall Goals.** The overall goal of this rotation during the *first year* of A&I resident training is to differentiate the A&I resident as a subspecialist with respect to competencies in patient care and medical knowledge in the field of pediatric allergy and immunology from the level of competency established through residency training previously in internal medicine and/or pediatrics.

### **Patient Care**

1. Be able to prescribe initial therapy and dose adjustments for infants and children with uncomplicated asthma.
2. Be able to prescribe the proper dosing of epinephrine based on age and weight
3. Be able to conduct oral food challenges, including the indications, consent process, design of dosing schedules, and monitoring.
4. Be able to diagnose and treat IgE-mediated allergic reactions to foods.
5. Be able to select appropriate skin testing regimens for children with common allergic diseases and asthma.

### **Medical Knowledge:**

1. Be able to interpret pulmonary function testing (quality, reproducibility, obstruction or restriction) in children.
2. Describe the major clinical manifestations of anaphylaxis in children.
3. Describe the proper treatment of an anaphylactic reaction in a supervised clinic setting following an immunotherapy injection.
4. Describe the clinical presentation and management of mastocytosis in children.
5. Describe the indications for laboratory tests that would be useful in the evaluation of anaphylaxis and mast cell disorders in children.
6. Be able to discuss the pathogenesis of atopic dermatitis and contact dermatitis.
7. Be able to describe the basic treatment strategies that address barrier function and anti-inflammatory aspects of the skin.
8. Be able to discuss the pathogenesis of food allergies and intolerances.
9. Be able to describe indications and interpretation of testing for food-specific IgE.

### **Practice-Based Learning and Improvement**

1. Develop an organized evidence-based approach to the evaluation of childhood asthma with consideration of the following contextual factors:
  - a. Gender
  - b. Development
  - c. Wheezing phenotypes
  - d. Asthma predictive index
2. Develop and present an organized, evidence-based approach to the evaluation of atopic dermatitis and contact dermatitis, including obtaining the history, performing the skin examination, and formulating a differential diagnosis.
3. Develop and present an organized, evidence-based approach to the evaluation of adverse reactions to foods.
4. Using computerized databases, be able to locate information to interpret the risk of allergic reactions to foods based on allergen-specific IgE levels.
5. Be able to use the EMR to write treatment plans, including action plans for asthma and atopic dermatitis, and instructions to schools about medication use

### **Interpersonal & Communication Skills:**

1. Describe to children and parents the meaning and uses of the following forms of step-up therapy in childhood asthma:
  - a. Step-up short term
  - b. Step-up long term
  - c. Step-up intermittent
2. Be able to effectively demonstrate the use of topical medications and delivery devices (including nasal sprays, asthma inhalers, spacers, epinephrine) to patients and parents.
3. Be able to describe to children and parents the risks and benefits of basic procedures such as immunotherapy and oral food challenges.

#### Professionalism:

1. In conducting interviews with older children and parents, solicit input from both in developing diagnostic and treatment plans.
2. Understand when assent from a minor is required for procedures and tests.
3. After ordering laboratory tests, follow up by discussing results with attending and notifying patient/family of interpretation and implications for care.

#### Systems-Based Practice:

1. Be able to update appropriate sections in medical records to reflect allergies to medications, foods, and allergic diseases and asthma.

#### Year 2:

**Overall goals.** During the *second year*, these competencies will be further developed so that the A&I resident can manage more severe forms of disease, and is able to confidently and effectively communicate health-related knowledge through colleague and patient interactions, formal consultations, and didactic teaching in a variety of educational formats.

#### Patient Care:

1. Be able to evaluate, diagnose, and manage complex cases of food allergies and intolerances, including multiple food allergies, non-IgE-mediated food allergies, psychological food aversions, celiac disease, and other forms of food intolerance.
2. Be able to evaluate, diagnose, and manage complex cases of wheezing and asthma, including viral wheezing in infancy, severe asthma, asthma complicated by vocal cord dysfunction, and other cough and wheezing syndromes.
3. Be able to conduct a workup for mast cell disorders in children.
4. Be able to evaluate and manage severe atopic dermatitis in children, including cases complicated by non-adherence, socioeconomic factors, allergen exposure, and infection.

#### Medical Knowledge:

1. Demonstrate detailed knowledge of basic immunoinflammatory mechanisms as they relate to diagnosis and treatment (both short and long term) in the area of pediatric asthma treatment in relationship to:
  - a. impairment (e.g., interpretation of spirometry in children; use of various tools to measure control and quality of life; use of symptom based action plans)
  - b. risk (exacerbations, loss of lung function over time, side effects from medications—growth in children)
  - c. Delivery systems (nebulizers, DPIs, MDIs)
  - d. The concepts of treatment failure, loss of control, and exacerbations
  - e. National and International Asthma Guidelines
  - f. Asthma triggers

2. Demonstrate detailed knowledge of pathogenic mechanisms as they relate to diagnosis and treatment (both short and long term) in the areas of food allergy and atopic dermatitis.
3. Describe the immunologic pathways underlying immediate hypersensitivity focusing on the following components:
  - a. Structure of the IgE receptor
  - b. Ontogeny of IgE antibody development
  - c. Signaling cascades activated during mast cell mediator release
4. Describe in detail the various disorders that involve mast cells based on clinical presentation, major and minor criteria, laboratory abnormalities, genetic contributions, treatment, and prognosis

#### Interpersonal & Communication Skills:

1. In conducting medical interviews, be able to elicit lifestyle, environmental, and allergic factors that promote more severe allergic diseases and asthma.
2. Be able to accurately counsel children and their parents on treatment plans for complex medical problems and more severe diseases.
3. Be able to take an accurate medical history under difficult circumstances (e.g., children and parents who have behavior disorders, or who are angry with the health care system).

#### Systems-Based Practice:

1. Be able to formulate treatment plans for complex and severe cases of food allergies that involve communications with parents, schools, and other caretakers, and optimize care coordination with other members of the health care team including nurses and nutritionalists. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the child and parent.
2. Be able to formulate treatment plans for complex and severe cases of atopic dermatitis that optimize local care of the skin, anti-inflammatory therapy, and anti-itch strategies. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the child and parent.
3. Be able to describe the major findings of landmark studies that demonstrate important parts of the evidence base for evaluation and management of asthma (e.g. PEAK, CLIC, CAMP), food allergy, and atopic dermatitis.

#### Professionalism:

1. Demonstrate sensitivity and responsiveness to the child's developmental stage, gender, disabilities and culture background.

#### Systems-based practice:

1. Be able to quote approximate costs for commonly-used medications for childhood allergies and asthma.

## **Learning Objectives for Vanderbilt Pediatric Rheumatology Clinic Rotation:**

**Overall Goals.** The overall goal of this rotation during A&I resident training is familiarize the A&I resident respect to competencies in patient care and medical knowledge in the field of pediatric immunology/rheumatology from the level of competency established through residency training previously in internal medicine and/or pediatrics. The goal is that the resident demonstrates knowledge of basic pathophysiology and clinical presentations for common immunologic/rheumatologic conditions. In addition, the resident will demonstrate sufficient knowledge and apply it to the diagnosis and treatment of patients with common immunologic/rheumatologic conditions. This rotation is only offered once in the course of the A&I residency, but can be taken as either a first or second year resident; therefore, there is no discrimination in regard to the competencies between years of training.

### **Patient Care**

1. Be able to prescribe initial therapy and dose adjustments for infants and children with uncomplicated arthritis.
2. Be able to prescribe the proper dosing of immunosuppressive medications based on age and weight
3. Be able to diagnose and treat autoimmune-mediated diseases such as SLE, Sjögren's, scleroderma and vasculitis.
4. Be able to select appropriate serologic tests including autoantibody measurements for the diagnosis and evaluation of patients with autoimmune diseases.

### **Medical Knowledge:**

1. Be able to interpret autoantibody testing in children.
2. Describe the major clinical manifestations of autoimmune diseases in children.
3. Describe the pathogenic mechanisms of arthritis, SLE, Sjögren's, scleroderma and vasculitis.
4. Describe the clinical presentation and management of as bursitis, tendonitis, fibromyalgia and osteoarthritis in children.
5. Describe the indications for laboratory tests that would be useful in the evaluation of autoimmune disorders in children.
6. Be able to describe the basic treatment strategies for arthritis, SLE, Sjögren's, scleroderma and vasculitis.
7. Be able to describe indications and interpretation of testing for immunologic/rheumatologic conditions.

### **Practice-Based Learning and Improvement**

1. Develop an organized evidence-based approach to the evaluation of autoimmune disorders.
2. Develop and present an organized, evidence-based approach to the evaluation of immunologic/rheumatologic disorders, including obtaining the history, performing laboratory evaluation, and formulating a differential diagnosis.
3. Develop and present an organized, evidence-based approach to the evaluation of immunologic/rheumatologic diseases.
4. Using computerized databases, be able to locate information to interpret the serologic evaluation of immunologic/rheumatologic diseases.
5. Be able to use the EMR to write treatment plans, including action plans for immunologic/rheumatologic diseases, and instructions to schools about medication use.

### **Interpersonal & Communication Skills:**

1. Describe to children and parents the meaning and uses of the immunologic/rheumatologic diseases
2. Be able to effectively demonstrate the use of medications to patients and parents.
3. Be able to describe to children and parents the risks and benefits of immunosuppressive agents in the treatment of immunologic/rheumatologic diseases.

Professionalism:

1. In conducting interviews with older children and parents, solicit input from both in developing diagnostic and treatment plans.
2. Understand when assent from a minor is required for procedures and tests.
3. After ordering laboratory tests, follow up by discussing results with attending and notifying patient/family of interpretation and implications for care.

Systems-Based Practice:

1. Be able to update appropriate sections in medical records to reflect immunologic/rheumatologic diseases.

## **Learning Goals and Objectives for Veterans Administration Adult Allergy/Immunodeficiency Clinic Rotation:**

### **Year 1:**

**Overall Goals.** The overall goal of this rotation during the *first year* of A&I resident training is to differentiate the A&I resident as a subspecialist with respect to competencies in patient care and medical knowledge in the field of adult allergy and immunology from the level of competency established through residency training previously in internal medicine and/or pediatrics. The goal is that the resident demonstrates knowledge of basic pathophysiology and clinical presentations for common allergic and immunologic conditions. In addition, the resident will demonstrate sufficient knowledge and apply it to the diagnosis and treatment of patients with common allergic and immunologic conditions.

### **Patient Care**

1. Be able to prescribe initial therapy and dose adjustments for adults with uncomplicated asthma.
2. Be able to prescribe the proper administration of epinephrine
3. Be able to conduct oral food challenges, including the indications, consent process, design of dosing schedules, and monitoring.
4. Be able to diagnose and treat IgE-mediated allergic reactions to foods.
5. Be able to select appropriate skin testing regimens for adults with common allergic diseases and asthma.

### **Medical Knowledge:**

1. Be able to interpret pulmonary function testing (quality, reproducibility, obstruction or restriction) in adults.
2. Describe the major clinical manifestations of anaphylaxis in adults.
3. Describe the proper treatment of an anaphylactic reaction in a supervised clinic setting following an immunotherapy injection.
4. Describe the clinical presentation and management of mastocytosis in adults.
5. Describe the indications for laboratory tests that would be useful in the evaluation of anaphylaxis and mast cell disorders in adults.
6. Be able to discuss the pathogenesis of food allergies and intolerances.
7. Be able to describe indications and interpretation of testing for food-specific IgE.
8. Describe the pathophysiology of severe chronic refractory asthma and its detailed differential diagnosis
9. Describe the pathogenesis of chronic rhinosinusitis and nasal polyposis
10. Be able to discuss the pathogenesis of urticaria and angioedema
11. Describe lung diseases that present to Allergy/Immunology specialists including allergic bronchopulmonary aspergillosis, hypersensitivity pneumonitis, and eosinophilic pneumonias
12. Describe the clinical manifestations of eosinophil related diseases
13. Be able to discuss the pathogenesis of drug allergy

### **Practice-Based Learning and Improvement**

1. Develop an organized evidence-based approach to the evaluation of adult asthma
2. Develop and present an organized, evidence-based approach to the evaluation of adverse reactions to foods and drugs.
3. Using computerized databases, be able to locate information to interpret the risk of allergic reactions to foods based on allergen-specific IgE levels.

4. Be able to use the EMR to write treatment plans for asthma, rhinosinusitis, nasal polyposis, anaphylaxis, mastocytosis, angioedema, urticaria, including action plans for asthma,

#### Interpersonal & Communication Skills:

1. Describe to patients the meaning and uses of the following forms of step-up therapy in adult asthma:
  - a. Step-up short term
  - b. Step-up long term
  - c. Step-up intermittent
2. Be able to effectively demonstrate the use of topical medications and delivery devices (including nasal sprays, asthma inhalers, spacers, epinephrine) to patients.
3. Be able to describe to patients the risks and benefits of basic procedures such as immunotherapy, oral food challenges and drug challenges.
4. This rotation should also provide a familiarization with the psychosocial effects of chronic disease on the VA patient and his/her family.

#### Professionalism:

1. In conducting interviews with patients, solicit input in developing diagnostic and treatment plans.
2. Understand when assent from a adult is required for procedures and tests.
3. After ordering laboratory tests, follow up by discussing results with attending and notifying patient and implications for care.

#### Systems-Based Practice:

1. Be able to update appropriate sections in medical records to reflect allergies to medications, foods, and allergic diseases and asthma.

#### **Year 2:**

**Overall goals.** During the *second year*, these competencies will be further developed so that the A&I resident can manage more severe forms of disease, and is able to confidently and effectively communicate health-related knowledge through colleague and patient interactions, formal consultations, and didactic teaching in a variety of educational formats. During the second year, the goal is for the resident to independently apply acquired knowledge to diagnose and treat patients with complex allergic and immunologic conditions. The resident should independently synthesize the literature and patient care experiences to diagnose and treat patients with newly identified or emerging diseases.

#### Patient Care:

1. Be able to evaluate, diagnose, and manage complex cases of food allergies and intolerances, including multiple food allergies, non-IgE-mediated food allergies, psychological food aversions, celiac disease, and other forms of food intolerance.
2. Be able to evaluate, diagnose, and manage complex cases of wheezing and asthma, including virally-induced wheezing, severe asthma, asthma complicated by vocal cord dysfunction, and other cough and wheezing syndromes.
3. Be able to conduct a workup for mast cell disorders.
4. Be able to evaluate and manage severe atopic dermatitis in adults, including cases complicated by non-adherence, socioeconomic factors, allergen exposure, and infection.
5. Be able to evaluate and manage allergic rhinitis, chronic rhinosinusitis, and nasal polyposis in adults

### Medical Knowledge:

1. Demonstrate detailed knowledge of basic immunoinflammatory mechanisms as they relate to diagnosis and treatment (both short and long term) in the area of asthma treatment in relationship to:
  - a. impairment (e.g., interpretation of spirometry; use of various tools to measure control and quality of life; use of symptom based action plans)
  - b. risk (exacerbations, loss of lung function over time, side effects from medications)
  - c. Delivery systems (nebulizers, DPIs, MDIs)
  - d. The concepts of treatment failure, loss of control, and exacerbations
  - e. National and International Asthma Guidelines
  - f. Asthma triggers
2. Demonstrate detailed knowledge of pathogenic mechanisms as they relate to diagnosis and treatment (both short and long term) in the areas of food allergy and atopic dermatitis.
3. Describe the immunologic pathways underlying immediate hypersensitivity focusing on the following components:
  - a. Structure of the IgE receptor
  - b. Ontogeny of IgE antibody development
  - c. Signaling cascades activated during mast cell mediator release
4. Describe in detail the various disorders that involve mast cells based on clinical presentation, major and minor criteria, laboratory abnormalities, genetic contributions, treatment, and prognosis

### Interpersonal & Communication Skills:

1. In conducting medical interviews, be able to elicit lifestyle, environmental, and allergic factors that promote more severe allergic diseases and asthma.
2. Be able to accurately counsel patients on treatment plans for complex medical problems and more severe diseases.
3. Be able to take an accurate medical history under difficult circumstances (e.g., patients who have behavior disorders, or who are angry with the health care system).

### Systems-Based Practice:

1. Be able to formulate treatment plans for complex and severe cases of food allergy. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the patient.
2. Be able to formulate treatment plans for complex and severe cases of atopic dermatitis that optimize local care of the skin, anti-inflammatory therapy, and anti-itch strategies. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the patients.
3. Be able to describe the major findings of landmark studies that demonstrate important parts of the evidence base for evaluation and management of asthma, food allergy, and atopic dermatitis.
4. Be able to formulate treatment plans for complex and severe cases of atopic dermatitis that optimize local care of the skin, anti-inflammatory therapy, and anti-itch strategies. These treatment strategies should take into consideration the knowledge base, lifestyle, and capabilities of the patients.
5. Be able to formulate treatment plans for routine and complex allergic rhinitis, chronic rhinosinusitis, and nasal polyposis in adults.

### Professionalism:

1. Demonstrate sensitivity and responsiveness to the patient's gender, disabilities and culture background.

Systems-based practice:

1. Be able to interact with the VA pharmacy to find alternative medications that may not be available through the VA formulary for commonly-used medications for allergies and asthma.