

Overview of the Program

The principal goal of the program is to develop physician-scientists skilled in the diagnosis, treatment and investigation of disorders involving immune dysregulation, including allergic inflammation, immune deficiency, autoimmunity, and autoinflammatory disorders. Key focuses of the program are diagnostic methods in immune deficiency, interventional immunology, pharmacology of asthma and angioedema, asthma pathogenesis and air quality, and food allergy.

Key Personnel

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Contents

| | |
|---|-------------|
| Core Competencies and Overview | Page 1 |
| Overall Goals and Objectives for the Program | Pages 2-3 |
| Goals and Objectives for First Year | Pages 4-7 |
| Goals and Objectives for Second Year | Pages 8-10 |
| Goals and Objectives for Chief Year | Pages 11-12 |
| Goals and Objectives for Individual Rotations | Pages 13-18 |

The Six Core Competencies

| Patient Care (PC) | Medical Knowledge (MK) | Practice-based Learning (PBL), |
|---|---|--|
| Provision of health care to individual patients and families | The knowledge base that enables appropriate clinical and research decision-making | Translation of clinical practice problems into learning opportunities |
| Interpersonal and Communication Skills (CS) | Professionalism (P) | Systems-based Practice (SBP) |
| Appropriate and effective communication of information between all members of the health care community | Projection of an appropriate image and maintenance of ethical patient care and research practices | Provision of medical care within the context of the health care system |

Overall Goals and Objectives For The Program

The mission of the program is to develop physician scientists with a high level of expertise in the identification and management of immunologic disease and the ability to contribute new knowledge to their field.

Patient Care

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans, at least for the common A/I disorders.

Take a complete history, perform an appropriate physical examination, review of medical records, formulate a differential diagnosis, and design a plan for evaluation for all patients seen in clinic and inpatient services.

Present patients to the attending faculty who verifies certain issues in the history or physical findings. After discussion with the faculty, order the necessary tests, prescribe medications, provide patient education, and arrange for follow up.

Provide skilled performance and interpretation of basic allergy testing, including allergy skin testing, pulmonary function testing, oral food challenge tests, IVIG therapy, selection and interpretation of in vitro allergy tests, and prescription and management of immunotherapy programs.

Perform skin testing, immunotherapy, pulmonary function testing, oral challenges, desensitization, and manage IVIG therapy during clinical rotation.

Medical Knowledge

Develop fundamental research and grant writing skills.

Bring a research project from inception and funding to publication over the course of the fellowship.

Apply scientific understanding to the medical care of patients. Understand the pathophysiology of inflammation and its relation to asthma, allergic rhinitis, chronic sinusitis, atopic dermatitis, and autoimmune disease. Understand the pathogenesis of primary and secondary immune deficiencies. Be able to apply these principles to the identification of new treatments and diagnostic modalities.

Attend scheduled conferences and didactic sessions below.

Complete monthly homework questions and required reading.

Attend national courses (esp. Immunology Advanced Course and CIS schools) and national meetings.

Problem-Based Learning

Identify clinical areas of personal interest and develop plans to improve skills in these areas.

Identify to Program Director at first performance review three clinical areas in which improvement is desired and present a plan to improve those areas.

Use evaluations from faculty and others to improve practice

Use evidence from scientific studies

Incorporate new pharmacologic agents and treatment programs into the treatment of immunologic disease

Incorporate diagnostic and management decisions using guidelines and practice parameters as well as new studies

Application of research methods to practice

Use database skills to identify best practices in patient care, teaching or research and apply this to practice

Bring best practices learned through problem based-learning to others through teaching

Teach medical students, residents and other fellows during clinics and rounds.

Present lectures on research or clinical topics at didactic sessions.

Interpersonal and Communication Skills

Learn to communicate and create a therapeutic relationship with patients despite language, education barriers.

Interact with all members of the medical team, patients and families in a professional manner, and project a competent, affable image to patients and colleagues.

Generate a written report to the referring or primary care physician, which in some cases may be preceded by a telephone call.

Follow-up phone calls (refills, lab follow-up, problems) when on call.

Obtain appropriate informed consent for procedures and research protocols.

Be able to communicate research findings to a audience with broad interests.

Present research findings at a national conference (AAAAI, ACAAI, FOCIS or other identified and approved by program director)

Professionalism

Be appropriately available to patients while learning to protect research and personal time.

Assume responsibility for continuity of patient care and follow-up, to the extent possible, to the natural conclusion of disease.

Perform research, academic and clinical responsibilities to ethical standards as developed by legal and professional code, international treaty, UCLA policy and personal standards.

Attend ethical training through the M261 course and academic pediatrics course

Demonstrate to approval of attendings, nurses, ancillary personnel and patients respect for the dignity of all people.

Systems-Based Practice

Understand the manner in which immunologic care is currently delivered at UCLA and in California and be able to critically appraise that system and contrast its methods and structure with those of other health care systems nationally and abroad.

Review the structure of the program with attendings and program director continually and at scheduled program reviews and actively participate in the development of systems improvements.

Participate, to the satisfaction of attendings and program director, in the ongoing care and follow-up of all patients seen by the division, communicating information and observations to others to accomplish the best possible care of the patient.

Develop sufficient knowledge of billing and insurance procedures to practice independently and profitably.

First Year Fellow

The first year is intended primarily to improve clinical decision making skills and develop a fundamental knowledge base about the function of the immune system. First year fellows should also develop basic skills in applying this knowledge to clinical problems. First year fellows will also develop their research plan and delineate that plan in a grant application adequate for a training grant. Continuity of care is enhanced by scheduling follow-up visits with the same fellow as much as possible and planning three month rotations in each clinic.

Conference/Didactic Schedule

| Monday | Tuesday | Wednesday | Thursday | Friday |
|----------------------|---------------------------------|-----------|--|---|
| Board Review Noon | Rheumatology Seminar 8 AM | | Departmental Fellows Conf Noon Case Conf 1:15 PM | Grand Rounds 8 AM Division Conf 1 PM |

Required Reading

Nature Reviews in Immunology Monthly

Journal of Allergy and Clinical Immunology Reviews monthly

Rezaei, Aghamohammadi, Notarangelo eds. Primary Immunodeficiency Diseases. Springer-Verlag, 2008.

Middleton's Allergy: Principles and Practice

Youngs R, Evans K, Watson M. The Paranasal Sinuses. A Handbook of Applied Surgical Anatomy. Taylor & Francis, 2006.

Additional journal articles from primary or review literature as appropriate for patients seen and research topic chosen

Key Timepoints

| | |
|-------------|--------------------------------------|
| September 1 | Identification of mentor and project |
| December 1 | Training grant application |
| January | Performance Review |
| March | Attend AAAAI conference |
| June | Immunology course from AAI |
| June | Performance Review |

Sample Rotation Schedule

The year is divided into four rotations, which for first years are composed of three immunology clinics (half-day) and up to two months of service. Rotations are individually designed for each resident when the schedule is created each year.

| Fall July–Sept | Winter Oct–Dec | Spring Jan–Mar | Summer Apr–Jun |
|-------------------|-------------------|-------------------|-------------------|
| Pediatric General | Adult General | Pediatric General | Adult General |
| Adult General | Adult General | Pediatric General | Adult General |
| Food Allergy | Immunology | Adult General | Pediatric General |
| Peds Inpt (4 wks) | Peds Inpt (4 wks) | Peds Inpt (4 wks) | Peds Inpt (4 wks) |
| | Med Inpt (4 wks) | | Med Input (4 wks) |

First Year Goals and Objectives (Bold differ between first and second year)

Patient Care

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans, at least for the common A/I disorders.

Attend three clinics per week, four months of pediatric inpatient service, and two months of medicine inpatient service.

With moderate supervision, Take a complete history, perform an appropriate physical examination, review of medical records, formulate a differential diagnosis, and design a plan for evaluation for all patients seen in clinic and inpatient services.

Present patients to the attending faculty who verifies certain issues in the history or physical findings. After discussion with the faculty, order the necessary tests, prescribe medications, provide patient education, and arrange for follow up.

Provide skilled performance and interpretation of basic allergy testing, including allergy skin testing, pulmonary function testing, oral food challenge tests, IVIG therapy, selection and interpretation of in vitro allergy tests, and prescription and management of immunotherapy programs.

Perform skin testing, immunotherapy, pulmonary function testing, oral challenges, desensitization, and manage IVIG therapy during clinical rotation.

Medical Knowledge

Develop fundamental research and grant writing skills.

Identify a research mentor and committee as required.

Learn fundamental research skills as time permits.

Apply scientific understanding to the medical care of patients. Understand the pathophysiology of inflammation and its relation to asthma, allergic rhinitis, chronic sinusitis, atopic dermatitis, and autoimmune disease. Understand the pathogenesis of primary and secondary immune deficiencies. Be able to apply these principles to the identification of new treatments and diagnostic modalities.

Attend scheduled conferences and didactic sessions below.

Complete monthly homework questions and required reading.

Attend Immunology Advanced Course in Philadelphia (Usually held in June).

Problem-Based Learning

Identify clinical areas of personal interest and develop plans to improve skills in these areas.

Identify to Program Director at first performance review three clinical areas in which improvement is desired and present a plan to improve those areas.

Use evaluations from faculty and others to improve practice.

Use evidence from scientific studies

Incorporate new pharmacologic agents and treatment programs into the treatment of immunologic disease

Incorporate diagnostic and management decisions using guidelines and practice parameters as well as new studies

Application of research methods to practice

Use database skills to identify best practices in patient care, teaching or research and apply this to practice

Bring best practices learned through problem based-learning to others through teaching

Teach medical students, residents and other fellows during clinics and rounds.

Present lectures on research or clinical topics at didactic sessions.

Interpersonal and Communication Skills

Learn to communicate and create a therapeutic relationship with patients despite language, education barriers.

Interact with all members of the medical team, patients and families in a professional manner, and project a competent, affable image to patients and colleagues.

Generate a written report to the referring or primary care physician, which in some cases may be preceded by a telephone call.

Follow-up phone calls (refills, lab follow-up, problems) when on call.

Obtain appropriate informed consent for procedures and research protocols.

Be able to communicate research findings to a audience with broad interests.

Present research findings **or a case report** at a national conference (AAAAI, ACAAI, FOCIS or other identified and approved by program director).

Professionalism

Be appropriately available to patients while learning to protect research and personal time.

Assume responsibility for continuity of patient care and follow-up, to the extent possible, to the natural conclusion of disease.

Perform research, academic and clinical responsibilities to ethical standards as developed by legal and professional code, international treaty, UCLA policy and personal standards.

Attend ethical training through the M261 course and academic pediatrics course.

Demonstrate to approval of attendings, nurses, ancillary personnel and patients respect for the dignity of all people.

Systems-Based Practice

Understand the manner in which immunologic care is currently delivered at UCLA and in California and be able to critically appraise that system and contrast its methods and structure with those of other health care systems abroad.

Review the structure of the program with attendings and program director continually and at scheduled program reviews and actively participate in the development of systems improvements.

Participate, to the satisfaction of attendings and program director, in the ongoing care and follow-up of all patients seen by the division, communicating information and observations to others to accomplish the best possible care of the patient.

Develop sufficient knowledge of billing and insurance procedures to **understand appropriate billing procedures and major revenue sources for academic and private practice.**

Second Year Fellow

Second year fellows consolidate their clinical knowledge and begin to execute their research plan. A second-year fellow should have made sufficient progress by the end of the year to present data on their project at a national meeting.

Conference/Didactic Schedule

| Monday | Tuesday | Wednesday | Thursday | Friday |
|----------------------|---------------------------------|-----------|---|---|
| Board Review Noon | Rheumatology Seminar 8 AM | | Departmental Fellows Conf Noon Case Conf 1 PM | Grand Rounds 8 AM Division Conf 1 PM |

Required Reading

Nature Reviews in Immunology Monthly

Journal of Allergy and Clinical Immunology Reviews monthly.

Middleton's Allergy: Principles and Practice

Ochs Primary Immunodeficiency Diseases

Additional journal articles from primary or review literature as appropriate for patients seen and research topic chosen

Key Timepoints

| | |
|--------|---|
| Sept 1 | Hypotheses and Specific Aims for Project |
| Jan | Performance Review |
| March | Poster/Platform for AAAAI conference |
| April | Application CIS Hypersensitivity School, PID School, or Autoimmunity School |
| June | Performance Review |

Sample Rotation Schedule

The year is divided into four rotations, which for second years are composed of two clinics and up to two months of medicine service. Rotations are individually designed for each resident when the schedule is created each year.

| Fall July–Sept | Winter Oct–Dec | Spring Jan–Mar | Summer Apr–Jun |
|---------------------------------|---|-------------------|--|
| Immunology General Pediatric | General Pediatric General Medicine Med Inpt (4 wks) | Breathmobile | General Medicine General Medicine Med Inpt (4 wks) |

Second Year Goals and Objectives (Bold differ between first and second year)

Patient Care

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans, at least for the common A/I disorders.

Attend two clinics per week. Attend two months of inpatient medicine service. Weekend coverage for first year fellows.

Take a complete history, perform an appropriate physical examination, review of medical records, formulate a differential diagnosis, and design a plan for evaluation for all patients seen in clinic and inpatient services.

Present patients to the attending faculty who verifies certain issues in the history or physical findings. After discussion with the faculty, order the necessary tests, prescribe medications, provide patient education, and arrange for follow up.

Provide skilled performance and interpretation of basic allergy testing, including allergy skin testing, pulmonary function testing, oral food challenge tests, IVIG therapy, selection and interpretation of in vitro allergy tests, and prescription and management of immunotherapy programs.

Perform skin testing, immunotherapy, pulmonary function testing, oral challenges, desensitization, and manage IVIG therapy during clinical rotation.

Medical Knowledge

Develop fundamental research and grant writing skills.

Bring a research project from inception and funding to publication over the course of the fellowship.

Apply scientific understanding to the medical care of patients. Understand the pathophysiology of inflammation and its relation to asthma, allergic rhinitis, chronic sinusitis, atopic dermatitis, and autoimmune disease. Understand the pathogenesis of primary and secondary immune deficiencies. Be able to apply these principles to the identification of new treatments and diagnostic modalities.

Attend scheduled conferences and didactic sessions.

Complete monthly homework questions and required reading.

Attend national courses (esp. Immunology Advanced Course and CIS schools) and national meetings.

Problem-Based Learning

Identify clinical areas of personal interest and develop plans to improve skills in these areas.

Assess progress on clinical goals identified as first year. Refine goals as appropriate.

Use evaluations from faculty and others to improve practice

Use evidence from scientific studies

Incorporate new pharmacologic agents and treatment programs into the treatment of immunologic disease

Incorporate diagnostic and management decisions using guidelines and practice parameters as well as new studies

Application of research methods to practice

Use database skills to identify best practices in patient care, teaching or research and apply this to practice

Bring best practices learned through problem based-learning to others through teaching

Teach medical students, residents and other fellows during clinics and rounds.

Present lectures on research or clinical topics at didactic sessions.

Schedule, with assistance of chief fellow and program director, Friday divisional conferences.

Mentor rotating primary care residents and medical students. Provide guidance to fellows with opposite training during the time they are rotating on the service with which they are less familiar (i.e. medicine fellows should assist pediatric fellows with basic medical care questions and vice-versa).

Interpersonal and Communication Skills

Learn to communicate and create a therapeutic relationship with patients despite language, education barriers.

Interact with all members of the medical team, patients and families in a professional manner, and project a competent, affable image to patients and colleagues.

Generate a written report to the referring or primary care physician, which in some cases may be preceded by a telephone call.

Follow-up phone calls (refills, lab follow-up, problems) when on call.

Obtain appropriate informed consent for procedures and research protocols.

Be able to communicate research findings to a audience with broad interests.

Present **original research findings** at a national conference (AAAAI, ACAAI, FOCIS or other identified and approved by program director)

Professionalism

Be appropriately available to patients while learning to protect research and personal time.

Assume responsibility for continuity of patient care and follow-up, to the extent possible, to the natural conclusion of disease.

Perform research, academic and clinical responsibilities to ethical standards as developed by legal and professional code, international treaty, UCLA policy and personal standards.

Attend ethical training through the M261 course and academic pediatrics course

Demonstrate to approval of attendings, nurses, ancillary personnel and patients respect for the dignity of all people.

Systems-Based Practice

Understand the manner in which immunologic care is currently delivered at UCLA and in California and be able to critically appraise that system and contrast its methods and structure with those of other health care systems abroad.

Review the structure of the program with attendings and program director continually and at scheduled program reviews and actively participate in the development of systems improvements.

Participate, to the satisfaction of attendings and program director, in the ongoing care and follow-up of all patients seen by the division, communicating information and observations to others to accomplish the best possible care of the patient.

Develop, with the help of the program director, a personal improvement project that involves measurement of current performance, setting of goals, and assessment of accomplishment.

Develop sufficient knowledge of billing and insurance procedures to practice independently and profitably.

Chief Fellowship

Chief fellow is an optional year for fellows with academic goals. Fellows are responsible for completing the research plan they proposed initially and generating any manuscripts that result. They should begin their application for a K08/K23 award and discuss with faculty ways they can move their project forward from fellowship. They should be independent in the clinic and be able to mentor and educate first-year fellows in the clinical practice of immunology. Third years have greater flexibility in designing and planning their schedule to accommodate the need for specialization.

Conference/Didactic Schedule

| Monday | Tuesday | Wednesday | Thursday | Friday |
|----------------------|---------------------------------|-----------|---|---|
| Board Review Noon | Rheumatology Seminar 8 AM | | Departmental Fellows Conf Noon Case Conf 1 PM | Grand Rounds 8 AM Division Conf 1 PM |

Required Reading

Nature Reviews in Immunology Monthly

Journal of Allergy and Clinical Immunology Reviews monthly.

Three texts identified with program director appropriate to areas of special interest.

Key Timepoints

| | |
|---------|---|
| Sept | CIS Hypersensitivity School or PID School |
| Jan 1 | K Award Grant Application |
| January | Performance Review |
| Feb | Manuscript for review |
| June | Present at Science Day |
| June | Performance Review |

Typical Rotation Schedule

The year is divided into four rotations, which for third years are composed of two immunology clinics and no inpatient service. Rotations are individually designed for each resident when the schedule is created each year.

| Fall July–Sept | Winter Oct–Dec | Spring Jan–Mar | Summer Apr–Jun |
|-------------------|-------------------|-------------------|-------------------|
| Elective | Elective | Elective | Elective |

Goals/Objectives

Goals and objectives are individually tailored for each chief fellow. General goals for the year are given below.

Become sufficiently well-known outside of UCLA to compete for academic positions at a national level.

Develop specific areas of excellence in clinical care.

Have sufficient research experience and comfort to compete for K level NIH funding.

Develop unique research skills as appropriate to the fellow's defined research plan.

Develop specialized clinical skills as desired, such as rhinoscopy, skin biopsy, specialized immunotherapy techniques (rush or ultra-rush therapy). These skills are not ACGME required skills, but may be of interest to specific individuals.

Attend appropriate CIS School if selected.

Submit manuscript and respond to peer review.

Develop career plan and job search strategy.

Schedule monday board review sessions. Attend all scheduled conferences and didactic sessions.

Attend board review course if not attended already.

General Adult Rotation First Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for asthma, allergic rhinitis, chronic and acute sinusitis in adults. *(PC, MK, PBL, CS, P, SBP)*

Attend clinic once per week, evaluate both new patients and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, and present this data to the attending.

Understand the principles behind diagnosis and formulating appropriate treatment plans.

Provide skilled performance and interpretation of pulmonary function tests in adults. *(PC, MK, SBP)*

Complete full set of 40 PFT interpretations with program director.

Identify appropriate patients in which to perform PFTs and ensure that asthma patients have one PFT on record per year.

Pass the PFT interpretation test provided to program director standard.

Provide allergen immunotherapy to practice parameter standards. *(PC, MK, SBP)*

Perform and interpret skin testing appropriately for immunotherapy in at least 20 patients.

Understand the principles behind designing immunotherapy prescriptions and describe them to the attending.

Distinguish hereditary and idiopathic angioedema and manage each appropriately. *(PC, MK)*

Provide appropriate evaluation and symptomatic management of urticaria. *(PC, MK)*

Perform at least five physical urticaria challenges.

Provide appropriate management and evaluation of contact dermatitis. *(PC, MK, CS, SBP)*

Provide appropriate education to patients about avoidance of contactants.

Distinguish COPD from asthma and describe the way in which the pathophysiology and management differs for each. *(PC, MK)*

Understand the evaluation of patients who report reactions to insect stings and demonstrate prescription of appropriate immunotherapy. *(PC, MK)*

Appropriately evaluate and manage patients who report reactions to medication, and identify drug reactions in non-specific presentations. *(PC, MK)*

Understand when an evaluation for ABPA is indicated and demonstrate the appropriate way to conduct it. If such patients present, manage them appropriately or describe to the attending the appropriate management. *(PC, MK)*

Understand and demonstrate the evaluation and management of conjunctivitis in adults. *(PC, MK)*

Distinguish hypersensitivity pneumonitis from asthma and understand the appropriate management. *(PC, MK)*

Describe how the management of occupational asthma differs from other asthma presentations. *(MK, SBP)*

General Adult Rotation Second Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for asthma, allergic rhinitis, chronic and acute sinusitis in adults. *(PC, MK, PBL, CS, P, SBP)*

Attend clinic once per week, evaluate both new patients and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, **formulate a differential diagnosis, and design a plan for evaluation for all patients seen in clinic and inpatient services.**

Record at least 10 patients and complete assessments in ASTHMA IQ system. Share the results and improvement plan generated with attending and program director.

Provide skilled performance and interpretation of pulmonary function tests in adults. *(PC, MK, SBP)*

Identify appropriate patients in which to perform PFTs and ensure that asthma patients have one PFT on record per year. **Perform and interpret at least 40 PFTs.**

Pass the PFT interpretation test provided to program director standard.

Provide allergen immunotherapy to practice parameter standards. *(PC, MK, SBP)*

Perform and interpret skin testing appropriately for immunotherapy in at least 20 patients.

Prescribe at least 20 immunotherapy prescriptions either through clinics or simulation.

Distinguish hereditary and idiopathic angioedema and manage each appropriately. *(PC, MK)*

Provide appropriate evaluation and symptomatic management of urticaria. *(PC, MK)*

Perform at least five physical urticaria challenges.

Provide appropriate management and evaluation of contact dermatitis. *(PC, MK, CS, SBP)*

Provide patch testing to at least 10 patients.

Provide appropriate education to patients about avoidance of contactants.

Distinguish COPD from asthma and describe the way in which the pathophysiology and management differs for each. *(PC, MK)*

Understand the evaluation of patients who report reactions to insect stings and demonstrate prescription of appropriate immunotherapy. *(PC, MK)*

Appropriately evaluate and manage patients who report reactions to medication, and identify drug reactions in non-specific presentations. *(PC, MK)*

Understand when an evaluation for ABPA is indicated and demonstrate the appropriate way to conduct it. If such patients present, manage them appropriately or describe to the attending the appropriate management. *(PC, MK)*

Understand and demonstrate the evaluation and management of conjunctivitis in adults. *(PC, MK)*

Distinguish hypersensitivity pneumonitis from asthma and understand the appropriate management. *(PC, MK)*

Describe how the management of occupational asthma differs from other asthma presentations. *(MK, SBP)*

General Pediatric Rotation First Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for asthma, allergic rhinitis, chronic and acute sinusitis in children. (PC, MK, PBL, CS, P, SBP)

Attend clinic once per week, evaluate both new patients and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, and present this information to the attending.

Understand the principles behind forming a differential diagnosis and medical treatment plan.

Provide adequate performance and interpretation of basic allergy testing, including allergy skin testing, pulmonary function testing, oral food challenge tests, IVIG therapy, and selection and interpretation of in vitro allergy tests. (PC, MK, PBL, CS, P, SBP)

Diagnosis and appropriately manage atopic dermatitis, distinguishing it from other skin diseases. (PC, MK)

Evaluate 10 eczema patients using the SCORAD score.

Demonstrate and communicate to patients appropriate skin care techniques for atopic patients.

Know the difference between immunologic and non-immunologic mechanisms of vaccine reactions and be able to educate patients about symptoms that may be caused by vaccines and those that are not, particularly with respect to autistic spectrum disorders. (PC, MK, CS, P)

Provide skilled performance and interpretation of pulmonary function tests in children. (PC, MK, SBP)

Complete full set of 40 PFT interpretations with program director.

Identify appropriate patients in which to perform PFTs and ensure that asthma patients have one PFT on record per year.

Describe a strategy to distinguish asthma in children from disorders that mimic asthma. (PC, MK)

Provide appropriate evaluation and symptomatic management of urticaria. (PC, MK)

Perform at least five physical urticaria challenges.

Understand the distinction between cutaneous and more severe mastocytosis and devise an appropriate management strategy. (PC, MK)

Identify the primary lesions of cutaneous mastocytosis and distinguish pediatric disease from adult disease.

General Pediatric Rotation Second Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for asthma, allergic rhinitis, chronic and acute sinusitis in children. (PC, MK, PBL, CS, P, SBP)

Attend clinic once per week, evaluate both new patients and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, **formulate a differential diagnosis, and design a plan for evaluation and treatment for all patients seen.**

Record at least 10 pediatric patients and complete assessments in ASTHMA IQ system. Share the results and improvement plan generated with attending and program director.

Provide **skilled and independent** performance and interpretation of basic allergy testing, including allergy skin testing, pulmonary function testing, oral food challenge tests, IVIG therapy, and selection and interpretation of in vitro allergy tests. (PC, MK, PBL, CS, P, SBP)

Diagnosis and appropriately manage atopic dermatitis, distinguishing it from other skin diseases. (PC, MK)

Evaluate 10 eczema patients using the SCORAD score.

Demonstrate and communicate to patients appropriate skin care techniques for atopic patients.

Know the difference between immunologic and non-immunologic mechanisms of vaccine reactions and be able to educate patients about symptoms that may be caused by vaccines and those that are not, particularly with respect to autistic spectrum disorders. (PC, MK, CS, P)

Provide skilled performance and interpretation of pulmonary function tests in children. (PC, MK, SBP)

Complete full set of 40 PFT interpretations with program director.

Identify appropriate patients in which to perform PFTs and ensure that asthma patients have one PFT on record per year. **Perform and interpret at least 40 PFTs.**

Pass the PFT interpretation test provided to program director standard.

Describe a strategy to distinguish asthma in children from disorders that mimic asthma. (PC, MK)

Provide appropriate evaluation and symptomatic management of urticaria. (PC, MK)

Perform at least five physical urticaria challenges.

Understand the distinction between cutaneous and more severe mastocytosis and devise an appropriate management strategy. (PC, MK)

Identify the primary lesions of cutaneous mastocytosis and distinguish pediatric disease from adult disease.

Immunology Rotation First Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for patients presenting with recurrent sinopulmonary infections, failure to thrive, opportunistic infections, autoimmune disease and vasculitis. *(PC, MK, PBL, CS, P, SBP)*

Attend clinic once per week, evaluate both new patients and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, and understand the principles behind formulating a diagnosis and medical treatment plan.

Demonstrate appropriate and cost-effective use of laboratory testing for the evaluation of immune deficiency, including the use of the diagnostic algorithm to ESID standards. *(PC, MK, PBL, P, SBP)*

Present to the attending a minimum of 10 patients evaluated to ESID standards.

Communicate with medical team effectively, including referring physicians, nurses, dietitians and respiratory therapists. Generate appropriate documentation on all patients seen. *(CS, P)*

Generate a written report to the referring or primary care physician, which in some cases may be preceded by a telephone call.

Administer IVIG appropriately, including knowledge of indications for use and management of infusion reactions. *(PC, MK, SBP)*

Describe appropriate prescription of IVIG and administer under supervision.

Effectively reassure patients and parents of patients who do not have significant immune disorders. *(CS)*

Develop a set of strategies with attending input for reassuring the worried well, including the management of symptoms and frequent follow-up as indicated. Discuss these plans with attendings and reflect outcomes when strategies were applied.

Describe the pathogenesis of common immune deficiencies, including description of the pathways and networks involved. *(PC, MK)*

Attend scheduled didactics and complete reading of Aghammohamadi, et al.

Understand how immune deficiency and autoimmunity are linked, and demonstrate how to intervene in autoimmune disorders to control disease and address susceptibility to infection. *(PC, MK)*

Discuss principles of interventional immunology with attending. Attend interventional immunology course at FOCIS meeting once. Describe to the attending features of immune deficiency that are not recurrent infection.

Immunology Rotation Second Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for patients presenting with recurrent sinopulmonary infections, failure to thrive, opportunistic infections, autoimmune disease and vasculitis. *(PC, MK, PBL, CS, P, SBP)*

Attend clinic once per week, evaluate both new patients and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, **formulate a differential diagnosis, and design a plan for evaluation for all patients seen in clinic and inpatient services.**

Demonstrate appropriate and cost-effective use of laboratory testing for the evaluation of immune deficiency, including the use of the diagnostic algorithm to ESID standards. *(PC, MK, PBL, P, SBP)*

Present to the attending a minimum of 10 patients evaluated to ESID standards.

Communicate with medical team effectively, including referring physicians, nurses, dietitians and respiratory therapists. Generate appropriate documentation on all patients seen. *(CS, P)*

Generate a written report to the referring or primary care physician, which in some cases may be preceded by a telephone call.

Administer IVIG appropriately, including knowledge of indications for use and management of infusion reactions. *(PC, MK, SBP)*

Attend 10 patients receiving IVIG, write appropriate orders for these patients and manage any reactions that may result.

Understand when referral for bone marrow transplant or immune reconstitution is indicated in the treatment of immune deficiency patients. *(PC, MK)*

Identify to the attending any patients seen in which reconstitution is indicated. Identify to the attending diagnoses and presentations in which reconstitution would be warranted if none present.

Effectively reassure patients and parents of patients who do not have significant immune disorders. *(CS)*

Develop a set of strategies with attending input for reassuring the worried well, including the management of symptoms and frequent follow-up as indicated. Discuss these plans with attendings and reflect outcomes when strategies were applied.

Describe the pathogenesis of common immune deficiencies, including description of the pathways and networks involved. *(PC, MK)*

Attend scheduled didactics.

Understand how immune deficiency and autoimmunity are linked, and demonstrate how to intervene in autoimmune disorders to control disease and address susceptibility to infection. *(PC, MK)*

Discuss principles of interventional immunology with attending. Attend interventional immunology course at FOCIS meeting once. Describe to the attending features of immune deficiency that are not recurrent infection.

Food Allergy First Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for immediate food hypersensitivity, eosinophilic esophagitis, food-induced enterocolitis and non-immunologic food reactions. (PC, MK, PBL, CS, P, SBP)

Attend clinic once per week, evaluate both new patients and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, and present the data to the attending.

Understand the principles behind formulating an appropriate diagnosis and treatment plan.

Provide skilled performance and interpretation of skin tests and *in vitro* testing for food allergies. (PC, MK, PBL, CS, P, SBP)

Describe to the attending the appropriate use of RASTs and skin testing. Identify decision points and thresholds on such testing.

Perform food challenge appropriately and safely, and identify the appropriate type of challenge to use in specific situations. Be able to identify anaphylaxis when it occurs, and distinguish non-anaphylactic reactions. (PC, MK, PBL, CS, P, SBP)

Understand the principles behind food challenges and perform them under attending supervision.

Effectively educate patients and schools about the nature of food allergy and teach them to distinguish immunologic from non-immunologic reactions. (CS, SBP)

Educate at least 10 patients on the use of epinephrine. Provide such education on at least one occasion to the attending and do so to their satisfaction.

Be able to develop dietary plans in conjunction with team dietitian. Know appropriate requirements for growth and development and ensure adequate intakes through diet histories and diaries. (P, CS, SBP)

Attend patients together with the dietitian and discuss the management plans with the dietitian and attending. Indicate how any dietary plans developed ensure adequate intake.

Food Allergy Second Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for immediate food hypersensitivity, eosinophilic esophagitis, food-induced enterocolitis and non-immunologic food reactions. (PC, MK, PBL, CS, P, SBP)

Attend clinic once per week, evaluate both new patients and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, **formulate a differential diagnosis, and design a plan for evaluation for all patients seen in clinic and inpatient services.**

Provide skilled performance and interpretation of skin tests and *in vitro* testing for food allergies. (PC, MK, PBL, CS, P, SBP)

Describe to the attending the appropriate use of RASTs and skin testing. Identify decision points and thresholds on such testing.

Perform food challenge appropriately and safely, and identify the appropriate type of challenge to use in specific situations. Be able to identify anaphylaxis when it occurs, and distinguish non-anaphylactic reactions. (PC, MK, PBL, CS, P, SBP)

Perform at least 10 oral challenges (to food or drug) and indicate to the attending the appropriate type of challenge to use. Work with nursing and dietitian to deliver the appropriate challenge. Identify any anaphylaxis that results.

Effectively educate patients and schools about the nature of food allergy and teach them to distinguish immunologic from non-immunologic reactions. (CS, SBP)

Educate at least 10 patients on the use of epinephrine. Provide such education on at least one occasion to the attending and do so to their satisfaction.

Be able to develop dietary plans in conjunction with team dietitian. Know appropriate requirements for growth and development and ensure adequate intakes through diet histories and diaries. (P, CS, SBP)

See at least 10 patients together with the dietitian and discuss the management plans with the dietitian and attending. Indicate how any dietary plans developed ensure adequate intake.

Pediatric Inpatient First Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for asthma, immune deficiency and drug reactions in children. (PC, MK, PBL, CS, P, SBP)

Attend daily rounds, evaluate both new consults and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, and present the data to the attending.

Become familiar with the use of immunomodulatory medications in the management of autoimmune manifestations of disease, including those associated with immune deficiency. (PC, MK, CS, P, SBP)

Manage patients receiving cyclophosphamide, TNF antagonists, IL-1 inhibitors, and immune suppressive agents **with immediate attending oversight**.

Develop appropriate consultation skills. (P, CS)

Demonstrate to attending's satisfaction appropriate interactions with services requesting consults and provide education to residents and attendings of other specialties.

Pediatric Inpatient Second Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for asthma, immune deficiency and drug reactions in children. (PC, MK, PBL, CS, P, SBP)

Attend daily rounds, evaluate both new consults and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, **formulate a differential diagnosis, and design a plan for evaluation for all patients seen in clinic and inpatient services.**

Become familiar with the use of immunomodulatory medications in the management of autoimmune manifestations of disease, including those associated with immune deficiency. (PC, MK, CS, P, SBP)

Manage patients receiving cyclophosphamide, TNF antagonists, IL-1 inhibitors, and immune suppressive agents.

Identify and manage complications arising from the use of these medications.

Develop appropriate consultation skills. (P, CS)

Demonstrate to attending's satisfaction appropriate interactions with services requesting consults and provide education to residents and attendings of other specialties.

Adult Inpatient First Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for hospitalized patients with asthma, immune deficiency, and drug reactions. (PC, MK, PBL, CS, P, SBP)

Attend rounds, evaluate both new consults and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, and present the data to the attending.

Assess and appropriately manage patients with medication reactions and intraoperative anaphylaxis. (PC, MK, PBL, CS, P, SBP)

Perform penicillin skin tests and correctly interpret the results **with close attending supervision or guidance**.

Develop appropriate consultation skills. (CS, P)

Demonstrate to attending's satisfaction appropriate interactions with services requesting consults and provide education to residents and attendings of other specialties.

Adult Inpatient Second Year

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to reach an appropriate differential diagnosis and formulate satisfactory diagnostic and therapeutic plans for hospitalized patients with asthma, immune deficiency, and drug reactions. (PC, MK, PBL, CS, P, SBP)

Attend rounds, evaluate both new consults and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, **formulate a differential diagnosis, and design a plan for evaluation for all patients seen in clinic and inpatient services.**

Assess and appropriately manage patients with medication reactions and intraoperative anaphylaxis. (PC, MK, PBL, CS, P, SBP)

Perform **at least 10** penicillin skin tests and correctly interpret the results **without attending intervention.**

Develop appropriate consultation skills. (CS, P)

Demonstrate to attending's satisfaction appropriate interactions with services requesting consults and provide education to residents and attendings of other specialties.

Breathmobile Second Year (Not typically a first year rotation)

Goals and Objectives (Specific Competencies are labeled by abbreviation after each goal)

Be able to rapidly evaluate and design management plans for asthmatic patients according to NHLBI guidelines. Know when deviations from guidelines is appropriate. (PC, MK, PBL, CS, P, SBP)

Attend rounds, evaluate both new consults and follow-up patients, attend scheduled conferences and didactic sessions, complete monthly homework questions and required reading.

Take a complete history, perform an appropriate physical examination, review of medical records, formulate a differential diagnosis, and design a plan for evaluation for all patients seen in clinic and inpatient services.

For each patient, indicate to the attending the classification, level of control and therapy step. Be able to describe the guideline's recommendation. If a deviation from the guideline is proposed, indicate the reasoning why.

Understand the potential role for novel health care delivery systems and how they may improve or worsen health care. Understand the role of living environment in asthma and asthma care. (SBP, CS)

Discuss asthma care and control among the children at each school with Breathmobile personnel, school officials, school nurses, and parents.

Observe and review the care of children with asthma within a mobile asthma clinic, and draw conclusions about the effectiveness of such care and ways such care could be improved. Share these conclusions with attendings and Breathmobile staff.