Pediatric Pulmonology Fellowship

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Clinical Training

OUTPATIENT

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With the exception of the ambulatory component of the Sleep Medicine rotation at Legacy and the elective at Our Children’s House at Baylor in downtown Dallas, the entire outpatient experience will be provided in the Ambulatory Pavilion associated with Children’s Medical Center Dallas.

1. CHILDREN’S MEDICAL CENTER DALLAS - Ambulatory Rotation

The ambulatory experience at Children’s will be directly supervised by the fellowship program director, Dr. Carolyn Cannon, as well as pediatric pulmonologist colleagues in the Division of Respiratory Medicine.

The fellows will be the primary caregivers for their patients and the supervising attending will serve as a resource to discuss every case and guide each fellow in formulating the differential diagnosis and care plan. The fellows will attend clinic each week unless they are on the required PICU rotation, attending a national meeting or on vacation.

2. CHILDREN’S AT LEGACY - Sleep Medicine Rotation

The Children’s Sleep Center is the only pediatric-specific sleep center in Dallas accredited by the American Academy of Sleep Medicine. The Sleep Medicine rotation will take place at Children’s Legacy Campus. The fellows will observe Drs. Kamal Naqvi and Tanya Martinez-Fernandez as they follow their sleep patients. The fellows will act as the point person in the visit by taking the history and examining the patients before the attendings interact with the patients. These patients will not be considered the fellows’ primary responsibility.

Our multidisciplinary team offers comprehensive sleep testing geared toward the unique needs of children. Our services include:

- Inpatient and outpatient sleep consultations
- Diagnostic sleep studies
- CPAP/BIPAP titration sleep studies for sleep disordered breathing
- Sleep study for the assessment of decannulation
- Oxygen titration studies
- Ventilator titration studies via tracheotomy for ventilatory support
- CPAP clinics
- Multiple sleep latency test – daytime nap test
3. OUR CHILDREN’S HOUSE AT BAYLOR - Ambulatory Rotation

The ambulatory experience at Our Children’s House at Baylor will be supervised by Dr. Andrew Gelfand. The fellows will both observe Dr. Gelfand as he follows his patients and act as point person in the visit. These patients will not be considered the fellows’ primary responsibility.

Treating a variety of conditions, we care for infants and children who have sustained a neurological injury or who have immature lungs that have resulted in breathing difficulties.

- Anoxia
- Anemia
- Birth defects/genetic disorders
- Bronchopulmonary dysplasia
- Brain injury
- Brain stem stroke
- Guillain-Barré
- Neuromuscular disorders
- Spinal cord injury
- Sleep disorders

4. CHILDREN’S MEDICAL CENTER - Pulmonary Function Laboratory

In addition to basic physiology, trainees will be instructed on the technical aspects of pulmonary function testing including maintenance of equipment, quality control and supervision of the pulmonary function lab.

More than 1,200 procedures a month are performed for patients with asthma, cystic fibrosis, sickle cell disease, neuromuscular disease, and lung disease secondary to childhood cancers, heart disease and organ transplantation.

The technical aspects of oxygen therapy, patient education, chest physiotherapy and other respiratory care practice will be gained through shadowing the respiratory therapists. Using child-friendly, state-of-the-art equipment we perform comprehensive pulmonary function testing for children of all ages with disorders of the respiratory system. Our technologists hold certifications in RRT, NPS, RPFT, CPFT and AE-C.

Routine tests as well as a variety of sophisticated tests are performed, including Body Box (full body plethysmography), spirometry and carbon monoxide lung diffusion studies, and methacholine provocation and cardiopulmonary exercise tests. Conditions evaluated include, but are not limited to:

- Anaerobic testing
- Asthma
- Bronchodilator studies
- Cancer and bone marrow transplants
- Cystic Fibrosis
- Diffusion studies
- Exercise provocation testing
- Exercise-induced asthma
- Follow-up for patients from critical care, solid organ transplant, hematology-oncology and cardiology
- Heliox testing
- Infant pulmonary function testing
- Laryngoscopy
- Lung volumes obtained by plethysmography and nitrogen washout
- Methacholine challenge
Muscle strength
- Neuromuscular diseases
- Pulmonary Hypertension
- Restrictive lung disease, including interstitial diseases
- Sickle cell
- Spirometry
- Vocal cord dysfunction

**INPATIENT**

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<th>TRAINING SITE</th>
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Located on the 9th floor of the D-Tower at Children's Medical Center, the Respiratory Medicine Division staffs the 24-bed pulmonary ward and provides consult services for patients located throughout the hospital. The inpatient services are divided into two teams:

- Ward Team
- Consult Team

5. **CHILDREN’S MEDICAL CENTER - Center for Pulmonology-D9**

The fellow on the pulmonary ward will directly supervise the senior pediatric resident, who runs the morning rounds and guides the pediatric interns in their care of the patients.

Supervision of the residents will include teaching. Since the fellow will not have any administrative duties in terms of daily note writing, the fellow has ample time to choose a patient issue of interest, research the issue in depth and present a bulleted summary of the available literature to the team to resolve the issue in a five to ten minute presentation on daily walk rounds the next morning. Thus, the fellow will learn the art of pulmonary medicine through teaching it to the residents.

Together with the senior resident, the fellow will lead the afternoon transition rounds in the presence of the attending. The fellow will be responsible for taking the overnight calls from the residents regarding patients on the floor and from other sources regarding potential admissions. The ward team is covered by a Respiratory Medicine faculty at all times.

The fellows will have two week blocks on the ward team, alternating with two week blocks on the consult service. The faculty blocks are currently one week in length. Thus, for any given service block the fellow will work with two (2) different attendings.

6. **CHILDREN’S MEDICAL CENTER - Pulmonary Consult Team**

The fellow will spend two week blocks on the consult team, alternating with the ward team. The fellow will be responsible for performing a subset of the consults requested of the team and becoming the primary consultant for that set of patients under the guidance of the attending.
7. CHILDREN’S MEDICAL CENTER - PICU

Pediatric Intensive Care Unit (PICU) attending physicians on the medical staff are full-time faculty members at UT Southwestern and are international leaders in pediatric critical care. The PICU medical staff and consulting services are prepared for any medical and surgical diagnosis and/or crisis and provide a full range of services and interventions for newborns through teenagers.

The first-year pediatric pulmonology fellows will spend four weeks in the Children’s PICU. The care of the PICU patients is delivered by two general PICU teams – each with one critical care fellow, two pediatric residents, and another resident who is either from anesthesia or ER.

The PICU also has a trauma/neurology team and a cardiac team, each with a slightly different makeup; but the pulmonary fellows will integrate into only the general teams.

While on the PICU rotation, the pulmonary fellow will act as a critical care fellow and lead a team of residents caring for the patients. The pulmonary fellow will be under the direct supervision of the critical care attending and will have the second critical care fellow available at all times as back-up. The pulmonary fellow will take in-house calls during this rotation only, emulating the critical care fellow schedule. Performance will be evaluated by the critical care faculty on service with the pulmonary fellow.

8. OUR CHILDREN’S HOUSE AT BAYLOR - Long Term Acute Care

This four week inpatient rotation at Our Children’s House at Baylor, in the first year of the fellowship, will provide fellows with unique training in long-term ventilator care.

The inpatient team at Our Children’s House consists of nurse practitioners, respiratory therapists and other specialists who round with Dr. Andrew Gelfand or one of his associates. The fellow will be integrated into the team, and during the first four week rotation the fellow will follow a subset of the patients as the primary caregiver under the direct supervision of the attending. The fellow’s performance will be evaluated by the attending that will remain consistent throughout the four week experience.

**Elective Ambulatory Experience**

CHILDREN’S AT LEGACY - Sleep Medicine Clinic

Fellows will have exposure to the Sleep Medicine Clinic at Children’s Legacy Hospital during the four week Sleep Medicine rotation during the first year of training.

Drs. Kamal Naqvi and Tanya Martinez-Fernandez will directly supervise the fellows as they see patients. Again, the fellow will not have primary responsibility for following the patients, given the intermittent exposure of the clinic. However, if the fellow bonds with a particular patient, with the permission of the attending, the family may follow-up with the fellow in the Fellows’ Clinic, in which case the fellow will assume primary responsibility of the patient.

OUR CHILDREN’S HOUSE AT BAYLOR - Chronic Ventilator Clinic

During the first year of training fellows will have exposure to the Chronic Ventilator Clinic at Our Children's House at Baylor during a four week rotation.

Similar to that experience, Dr. Andrew Gelfand, Medical Director of Our Children’s House, will directly supervise the fellows as they see patients. Again, the fellow will not have primary responsibility for following the patients,
given the intermittent exposure to the clinic; but with the permission of Dr. Gelfand, a family may follow-up with the fellow in the Fellows’ Clinic, and the fellow will become the primary caregiver.

CONTINUITY OF CARE

CHILDREN’S MEDICAL CENTER - Fellows’ Clinic

The fellows will attend a ½ day-a-week clinic throughout the duration of the three-year program. The frequency drops to ½ day every other week for the last two years of the four year research fellowship in order to comply with NIH guidelines for participation in the T32 training program.

At the beginning of the fellowship, each fellow will be assigned a small group of patients that they will follow throughout their training. These patients will include those with moderate to severe asthma, chronic lung disease and Cystic Fibrosis. The patients will be cohorted by diagnosis in that the Cystic Fibrosis patients will be seen in the context of the multidisciplinary team on a once-a-month basis, while the other clinics will be for general pulmonary patients. The fellows will be encouraged to provide the outpatient care for patients whom they treated on the inpatient service, and the expectation is that the small nidus of patients provided at the inception of the fellowship will grow to a population that will fill the return slots not taken by new patients seen first in the outpatient setting. The fellows will be required to track their outpatient activities in a simple spreadsheet so that we can ensure they are experiencing longitudinal interactions with a core group of patients.

Research Training

SCHOLARLY TRAINING

Between the time of acceptance into the program and arrival in Dallas, the Program Director will discuss research plans with the future fellow and arrange an additional visit to Dallas, if helpful. Planning for a meaningful research experience begins prior to actual enrollment in the program. During the interview, the candidate will be invited to share his or her aspirations, in an attempt to ascertain whether clinical or basic science research training would more appropriately prepare the candidate for the desired career path.

UT Southwestern - Bench Science Track

For fellows interested in a bench science track, the various training options include:

- T32 Training Program through the adult Pulmonary and Critical Care Division and the Pediatric Pulmonary and Vascular Biology Division. Drs. Lance Terada and Philip Shaul are the co-directors.
- Pediatric Scientist Development Program (PSDP) - http://psdp.yale.edu
- Physician Scientist Training Program (PSTP). Drs. Charles Ginsburg and David Russell are the co-directors.
- R-25 Training Grant in NHLBI-focused Research for Minority Students. Dr. Michael McPhaul is the director.

UT Southwestern - Clinical Investigation Track

For fellows interested in clinical investigation, UT Southwestern has a Clinical Research Scholars program to support the development of the careers of individuals who are dedicated to a long-term career in clinical
investigation, and aspire to develop into future leaders in clinical research. The Training Curriculum in Patient-Oriented Research (TCPOR) is funded through a NIH NCRR KL2 grant mechanism.

UT Southwestern offers one of the nation’s most comprehensive clinical research curricula, including 24 full-semester courses in research principles and methods through the Southwestern Graduate School of Biomedical Sciences. The instructors include faculty and clinical investigators with a wide range of expertise, including clinical research design and methods, biostatistics, epidemiology and outcomes and health services research.

Throughout the three-year training program, fellows learn experimental design, data collection and analysis, and laboratory techniques through attendance at the required Pediatric Respiratory Medicine Research Conference, as well as in a research orientation session at the beginning of each year. The fellows have free access to the Program Director, other faculty in the Division and Department, and research mentors.

**UT Southwestern - Core Curriculum**

The Respiratory Medicine Core Curriculum will be led by a small group of faculty members, as well as upper-level pulmonary fellows.

The didactic sessions will cover the topics included in the American Board of Pediatrics “Pediatric Pulmonology Content Outline,” as well as other topics of interest to a pediatric pulmonologist. In addition to a broad introduction to pediatric pulmonology, the course aims to aid preparation for the certifying examination. Because topics pertinent to pediatric pulmonology overlap with interest of other subspecialties, some of the content of the course will be covered in joint sessions with the Critical Care and the Neonatology fellows.

A separate review of pulmonary physiology will take place in three blocks over the first six months of each year. The upper level fellows will participate with faculty in teaching the course to the first-year fellows. Other short courses include the PFT, tracheostomy and ventilator and flexible bronchoscopy practicums that are required for the first-year fellows and may be attended by interested upper-level fellows.

A required course in statistics, Conceptual Biostatistics for the Clinical Investigator, will be taught by faculty in the Department of Clinical Sciences and is required for second-year fellows. Additional courses are available for fellows interested in clinical research.

Moreover, the fellow is required to attend fellows’ core curriculum offered by the Department of Pediatrics. The weekly conference features research presentations by the fellows alternating with curricular activities of general interest that rotate on a three-year cycle, opportunities for social interaction, and general discussions. The conference is central to an interdisciplinary program for fellow education designed to develop a departmental repository of educational and administrative resources to enrich the opportunities offered by the individual fellowships.

**UT Southwestern - Core Mentors**

Core mentors for the pediatric pulmonology trainees outside of the Respiratory Medicine division have been selected based on their proven track record in science, as well as their experience training fellows in other related pediatric subspecialties. These core faculty members are among the most accomplished in the University and are listed in the “Research Handbook” that the fellow will receive upon joining the program. If a fellow expresses an interest that cannot be supported by the research programs of the core faculty, the Program Director will contact and screen potential mentors throughout the University and provide a list of possibilities to the fellow. The fellow will then have the opportunity to work with each potential mentor during brief rotations during the first year in order to ensure that the laboratory environment is a good match for the fellow.
UT Southwestern - Respiratory Medicine Research Conference

During the first year of fellowship, the Program Director supervises the fellows’ search for an appropriate project, laboratory or patient population and mentor. The second and third years of the training program are primarily devoted to research. Each year, the fellow will present two or three research conferences to the Respiratory Medicine faculty.

The pediatric faculty provides research opportunities both within the Respiratory Medicine division and within the larger community of UT Southwestern.

UT Southwestern - Case Conference

The fellows are required to prepare cases for the weekly case conference attended by the Respiratory Medicine faculty. The cases for presentation may represent diagnostic or therapeutic puzzles or simply illustrate a common issue in pediatric pulmonology for which “best practice” is debated.

In order to prepare for the presentation, a fellow must locate the relevant information regarding the case. Most frequently, the information will be available through online search of medical literature databases, such as PubMed [http://www.ncbi.nlm.nih.gov/pubmed]. Fellows will also be encouraged to seek faculty guidance in the preparation of the cases. Those fellows who are unfamiliar with the online medical literature databases will receive a tutorial on their use.

From the plethora of available articles, the fellow must glean the few most salient and assess the validity of the conclusions of the study as applicable to the patient case to be presented. Subsequently, the fellow will present his or her assessment of the literature to the faculty for discussion during the conference. The results of the discussion as informed by the fellow’s presentation will then be implemented in the care of the patient presented. Thus, the fellow will engage in self-study through literature searches, but will have immediate faculty feedback on his or her efforts in the conference.

Teaching

ACADEMIC TRAINING

The pulmonary fellows will have numerous teaching opportunities through their service in clinic, on the wards and through participation in didactic sessions.

On the wards, the fellows will be responsible for leading the inpatient team of residents and medical students caring for patients on the pulmonary ward. Part of that responsibility involves imparting “clinical pearls” during rounds and mentoring the residents and students as they develop daily care plans for their patients.

The fellows also round on the patients, which affords opportunities to educate patients and families. Because the fellow will also lead family meetings, they will have opportunities to give in-depth explanations for disease processes.

These activities will be accomplished in a mentored setting with the supervising attending available for direct and immediate feedback, as well as written formal evaluations on a monthly basis. Similarly, each fellow will follow their own outpatients, again in a mentored setting, which will allow opportunities to educate patients and families with immediate feedback from supervising attendings.
Each month, faculty meetings will be held at which fellow progress will be discussed. A summary of the feedback from all of the supervising attendings will be shared with the fellow on a monthly basis by either the Scholarship Oversight Committee Director or the Fellowship Director and the written summaries placed in the fellow’s file.

Fellows will also participate in case conference, journal club, research conference and pulmonary physiology conference, each of which will provide them with opportunities to hone their teaching skills.

Our Program Faculty Consists of World Class Clinicians In:

- Pediatrics
- Pediatric Pulmonology
- Pulmonary and Vascular Biology
- Genetics and Metabolism
- Neonatal-Perinatal Care
- Child and Adolescent Psychiatry
- Cystic Fibrosis
- Sleep Disorder
- Pediatric Allergy
- Pediatric Anesthesiology
- Pediatric Critical Care
- Pediatric Surgery
- Pediatric Immunology
- Pediatric Neurology
- Pediatric Pathology
- Pediatric Radiology