

Pediatric Respiriology Research Fellowship

Fellowship Director:	Dr. Larry Lands
Program Director:	Dr. David Zielinski
Institution:	McGill University
Location:	Montreal Children's Hospital, Montreal Children's Hospital Research Institute
Type of Fellowship:	Research (75%) and Clinical (25%) Fellowship
Number of Positions:	2 positions
Duration:	12 months

Mission Statement for Fellowship:

The Pediatric Respiriology Research Fellowship is offered to further develop skills and expertise in research related to Pediatric Respiriology. This fellowship is designed to supplement the training acquired during the core Pediatric Respiriology training and further prepare the candidate for a career in academic Pediatric Respiriology.

Rationale:

Currently the focus of Pediatric Respiriology training programs in Canada is to produce competent clinicians to deliver excellent specialized care to children with respiratory disorders. However the majority of Pediatric Respiriologists in Canada practice at University-based hospitals with academic appointments and are expected to contribute to academic advancements within the field. Therefore the focus of this fellowship is to provide a year long opportunity to focus on a research project to further develop skills in research design, implementation as well as specific technical/clinical skills that can be subsequently adapted to the fellows future academic career. The research component of the fellowship will be up to 75%.

It is recognized that after completion of the core Pediatric Respiriology training, the fellow would benefit from maintaining clinical contact to maintain and further expand their skills and knowledge acquired during their core Pediatric Respiriology training. As such opportunity for ongoing clinical contact will be provided.

Teaching Faculty

The Division of Pediatric Respiratory contains a number of full time staff respirologists, clinical associates as well as nurses and respiratory therapists. The Division approaches clinical work and research in an inter-disciplinary fashion.

The current full time teaching faculty includes:

Dr. Larry Lands, MD PhD, Division Chief

Dr. Anne-Marie Canakis, MD FRCPC

Dr. Aurore Cote, MD

Dr. Adam Shapiro, MD

Dr. David Zielinski, MD FRCPC

The Division of Pediatric Respiriology at the Montreal Children's hospital has recognized national and international experts in the areas of Cystic Fibrosis, Home Monitoring and Sudden Infant Death Syndrome. The Division maintains one of the highest research outputs among Pediatric Respiratory Divisions in Canada.

Dr. Lands takes a translational approach to his research. His primary interests are immune modulation and functional performance in chronic inflammatory lung diseases. From a clinical perspective, he is director of the Pediatric Pulmonary Function Laboratory and Pediatric Exercise Laboratory. Complete functional testing is available through these facilities. Aside from the opportunity to learn pulmonary and exercise physiology through experimentation and regular physiology seminars, there is the opportunity to learn clinical laboratory establishment and management. Dr. Lands also runs a fundamental laboratory based at the Montreal Children's Hospital Research Institute. The laboratory's principal externally funded work currently is focused upon the immune modulating capacities of vitamin D and examining ways to boost anti-viral responses while limiting pro-inflammatory responses to rhinovirus. He works as much as possible with primary cells collected from patients, both airway epithelial cells and macrophages, that are collected both at the Montreal Children's Hospital and through collaborations at McGill University, the Montreal Chest Institute-MUHC and CHUM. In the laboratory, students have the opportunity to learn cell culture, including air-liquid interface, and cell-based assays, including gene (PCR) and protein (ELISA, Western blotting, chemiluminescence, flow cytometry) expression, and gene suppression and overexpression. There is also the possibility of conducting animal experiments related to asthma and lung infection.

Dr. Cote main research interests in the field of pulmonary home monitoring of at risk children, devices for home assessment of obstructive sleep apnea and in outcomes and risks for Sudden Infant Death Syndrome.

Dr. Zielinski main research interest is in the field of home ventilation and long term outcomes as related to the Quebec home ventilation program.

Dr. Shapiro's main research interest is in Primary Ciliary Dyskinesia and related ciliopathies.

Dr. Canakis' main research interest is in Bronchopulmonary Dysplasia and long-term outcomes.

There are also several ongoing projects looking at pediatric Tuberculosis treatment, diagnosis and epidemiology is ongoing in conjunction with collaborators at the Montreal Chest Institute and Infectious Disease. Collaborations with Hematology are also in place looking at pulmonary outcomes of Sickle Cell Disease.

(Publications and Grant lists available on request)

Academic Facilities

The fellow will be provided a desk and computer to work at in the Pediatric Respiriology Resident/Fellow room. The resident/fellow room contains a library of the major and relevant Pediatric Respiriology textbooks.

Library access is available widely on-line through McGill University as well as an on-site location at the Montreal Children's Hospital. Funds through the Division of Pediatric Respiratory Medicine are available for ordering journal articles not available through the McGill University system.

Dr. Lands has a laboratory at Montreal Children's Hospital Research Institute as described above.

Fellow Duties and Responsibilities

Research Duties

It is expected that research duties will encompass 75% of the fellowship period.

The primary responsibility and goal for the fellowship will be the completion of a primary research project with the goal for publication in a major peer-reviewed journal. In doing so, the fellow will learn overall skills in research design and methodology as well as specific skills to the project undertaken.

It is expected that with mentoring and supervision, the fellow will embark on a project and lead it through literature review, create a scientific proposal, and subsequent scientific and ethics board review. The fellow will be expected to perform the majority of the work for the project with aid from their supervisor. A resident may also be involved in helping the fellow with the project as long as there is a learning benefit for the resident involved, and it acts as a stepping stone for the resident to develop subsequent projects.

It is recommended that the identification of the supervisor and project be done during the core Pediatric Respiratory residency for residents who completed their residency program at the Montreal Children's Hospital. It is also recommended that for clinical projects with patient recruitment, where possible, the project is submitted for scientific review and ethics review prior to the start of the fellowship year to ensure adequate time to complete the research. This can be done during the research periods in the second year of the core Pediatric Residency program.

The fellow will be provided full funding to attend at least one major conference. The fellow will be encouraged to present at a conference (typically American Thoracic Society or Canadian Respiratory Conference) and this will also be fully funded.

Call duties

The fellow will cover call for the Pediatric Respiratory Service. This is home call and will be at most 1 week out of 4 weeks. The rationale for this is to have the fellow

maintain ongoing clinical contact and exposure during the year. This call will have minimal to no impact on the ongoing research component of the fellowship.

Clinical Duties

As it is recognized the fellow will benefit from ongoing clinical contact to consolidate and further expand their clinical knowledge and skills learned during their core Pediatric Respiratory residency, minimal clinical duties will be provided. Clinical duties will take approximately 10-15% of a typical week.

As a general guide, the fellow will:

1. Attend 1 clinic weekly:
 - a. This will usually consist of attending a weekly general Chest Clinic or Consult Clinic.
 - b. The fellow may also choose to attend one of the subspecialty clinics (Cystic Fibrosis, Bronchopulmonary Dysplasia Clinic, Neuromuscular Clinic, Apnea Clinic, Infant Respiratory Care Clinic, EA-TEF Clinic, complicated airway clinic) if there is no core Pediatric Respiratory Resident scheduled.
2. Inpatient Consultation Service
 - a. 4 weeks of inpatient consultation service will be offered.
 - i. This will be done in 2 week blocks
 - b. The decision of the number of weeks on service will be made primarily by the fellow in conjunction with the Fellowship Director and Program Director at the beginning of the fellowship. It will be based on the goals of the fellow, the requirements/flexibility of the research project and the schedule of core Pediatric Respiratory Residents (ie provided there are openings in the schedule).
 - c. The fellow will act as an advanced senior resident ("junior attending") and may have rotating Pediatric Residents, off-service Residents and/or Medical Students to supervise. The fellow will have a staff physician as a supervisor, however will have the opportunity for greater autonomy with respect to clinical decision making with a further progression from the senior year in Pediatric Respiratory residency.
 - d. These blocks will be chosen as to not overlap with a Pediatric Respiratory Resident to be on the service.
3. Priorities for flexible bronchoscopies and other procedures are given to core Pediatric Respiratory.
 - a. The goal is to provide the core residents with a minimum of 25 bronchoscopies annually – (there are 60-90 bronchoscopies/annually)
 - b. Depending on the number of Pediatric Respiratory Residents and (rarely >2) it is likely that ongoing exposure to performing flexible bronchoscopies will be provided (1-2/month).

As research duties may have busier and quieter phases depending on the type of research project chosen, the fellow in conjunction with their research supervisor and fellowship director may choose to limit times in clinics during periods of the year.

Teaching Duties

Teaching learners (medical students, residents etc...) is an important part of an academic career. As such there will be several opportunities for the fellow to participate in this:

1. The fellow will be encouraged to develop or adapt teaching sessions for rotating house staff on core Pediatric Respiratory topics/skills
2. The fellow will be given the opportunity to aid in the orientation and teaching of the core introductory sessions for incoming Pediatric Respiratory fellows.
3. The fellow will be given the opportunity to be a small group preceptor for clinical skills sessions as part of the core curriculum for the McGill Medical School
4. The fellow will be given the opportunity to present a topic during the Pediatric Residency half day program (once a year).
5. The fellow will have the opportunity for ad hoc teaching and mentoring of the Pediatric Respiratory residents

For fellows who did their Pediatric Respiratory residency program at the Montreal Children's Hospital, this will be an opportunity to expand on the teaching they provided during their senior year. There are plenty of opportunities and needs for this and the fellow will not dilute the teaching experience for the Pediatric Respiratory Residents.

Rounds and Seminars

The fellow will attend:

1. Thursday AM Respiratory Rounds (2-3 hours)
 - a. ~ 1 hour of case presentations of interesting/challenging patients followed by Respiratory service
 - b. ~ 1 hour of
 - i. once a month journal club or morbidity and mortality round
 - ii. once a month is a 2 hour national resident/fellows based videoconference (Cross Canada Rounds)
 - iii. once a month is an invited speaker from outside of the Division discussing ongoing research/academic activity
 - iv. once a month is a rotating resident/fellow presentation
 - v. a 6 part methods in pediatric respiratory research course is presented annually
 - c. The fellow will be expected to participate actively in the journal clubs

- d. The fellow will be expected to provide a presentation to update their ongoing research and/or topic related to their research at the end of each 3 month block during these rounds
2. Friday AM Pediatric Respiratory Core Curriculum review (1 hour)
 - a. The fellow will be invited to attend the weekly core curriculum review.
3. Further research seminars/rounds that are available to the fellow include:
 - a. Beer Seminar at the Meakins-Christie Laboratory
 - b. Regular laboratory meetings/presentations from Dr. Larry Lands Laboratory.
 - c. Advanced physiology course at the Meakins-Christie Laboratory
 - d. Pediatric Health Research Epidemiology Statistics Curricula offered monthly at the Montreal Children's Hospital.

Evaluations

The fellow will be given at a minimum monthly feedback from the fellowship director.

Formal written evaluations will be done every 3 months. There will be separate evaluations for research and for clinical work.

Funding

Commencement of the fellowship is contingent on acquiring external funding for the program. The fellowship and program directors will aid in identify sources of funding and application process for this (Disease specific fellowships, Hospital Fellowships, Sponsorship funding for Middle Eastern Fellows etc...).

The potential fellow should be aware that applications for funding may need to be started more than a year prior to the start of the fellowship and that an identified and developed research proposal may be required for this funding. As such potential applicants are encouraged to start considering and preparing for this during the first year of their core Pediatric Respiratory residency.

The fellows' responsibilities are separate from those of the residents, and the fellows positively impact residency training. There is no negative impact of the fellowship on residency training.

A. Specific Objectives of Training for the Fellowship

Medical Expert

1. To formulate a reasonable hypothesis driven question
2. To apply relevant clinical or basic science information to research development
3. To demonstrate properties of a project that are translatable to clinical care
4. To demonstrate medical expertise in situations other than direct patient care
 - a. Research development
 - b. Teaching of junior learners

Communicator

1. To document research ideas as a protocol, manuscript or lecture
2. To develop good communication skills with research subjects, supervisors, trainees, and/or team members
3. To develop and effectively teach learners core respiratory concepts

Collaborator

1. To contribute effectively to a team approach in a research laboratory
2. To supervise and help junior residents who may be collaborating on a research project learn the necessary skills
3. To acquire the skill of identifying potential collaborators locally, nationally or internationally and the skill of proposing a mutually
4. To consult and delegate effectively

Manager

1. To effectively allocate time to research, teaching and clinical responsibilities
2. To effectively utilize resources effectively in designing and implementing a project
 - a. Appreciate limitations of budgets, time and subject availability
3. To manage a research operating budget
4. To understand and demonstrate the concept of quality assurance/improvement

Health Advocate

1. To understand the translational importance of research for at-risk population
2. To use research as a tool to advocate for health change and disseminate health information

Scholar

1. To formulate a clinical/research question and protocol
2. To complete a project based on this question
3. To contribute to the development of new knowledge
4. To critically appraise new literature

Professional

1. To exhibit honesty, integrity and respect for diversity
2. To demonstrate one's limitations and seek guidance when necessary
3. To understand and apply the concepts of medical ethics

The clinical component goals and objectives will be specific to the context and will be based on those from the core Pediatric Respiratory Residency. The ambulatory rotation specific evaluation will be used for the ongoing clinics exposure and will be done each 3 months. The inpatient/consultation evaluation will be done following the inpatient service.