

RESEARCH ROTATION

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PREAMBLE

To develop skills necessary for continued medical education and improved clinical practice, the General Pediatrician will develop the following scholarly inquiry skills. At the heart of this training experience is being inspired by a patient-important issue and developing a systematic way, through mentorship, to address this issue so that in the future this could be further pursued and integrated into one's practice.

Research Training for General Pediatric Residency

The General Pediatric Residency Training Program at the University of Alberta incorporates research training as part of a Royal College of Physician and Surgeons of Canada mandate. The rationale for a research curriculum is to meet the Royal College guidelines for scholarly and collaboration CANMEDS objectives of training.

Curriculum

The research curriculum comprises three aspects:

A **research methodology course** (Research+) is available asynchronously through the Postgraduate Medical Office. The course has mandatory and optional modules to allow for flexibility in meeting the learning needs of each trainee. All General Pediatric Residents have access to this learning platform upon entry into the residency program. Residents sign up for this themselves through the PGME website and can do as much or as little as they wish with respect to the modules.

1. **Research Briefs** is a session offered each fall for all of the first year General Pediatric Residents affording them the opportunity to meet with potential research preceptors and see what projects are currently underway that they could be a part of. These sessions are not the full offering of projects, but give an idea to the first year trainees.
2. **Protected research blocks** allowing General Pediatric resident trainees to initiate and complete a research project during the four years of training. Research resources and funding request forms can be found at [Trainee Research Grant Program | Pediatrics \(ualberta.ca\)](https://www.ualberta.ca/trainee-research-grant-program/pediatrics)

First-year general pediatric residents usually have a two-week research block. Residents can select 2 or more weeks of protected research time in each of R2, R3, and R4 years upon approval of the program when extending beyond 4 weeks.

Evaluation of Research Training Performance

Successful completion of the research-training component requires each of the following:

1. Submission of a Pediatric Trainee Research Grant Application to the Department of Pediatrics for funding from WCHRI ([Trainee Research Grant Program | Pediatrics \(ualberta.ca\)](https://ualberta.ca/trainee-research-grant-program-pediatrics))
2. Presentation of interim or completed research data at the Annual Department of Pediatrics Research Day.
3. Prior to each research block, a Google form will be circulated to trainees for completion of their goals for their upcoming rotation. This will also serve as a reminder for residents to reach out to their preceptor and remind them of their upcoming research block.
4. Successful evaluation of each research block undertaken by the Research Mentor. Successful evaluation is defined as positive narratives as reviewed by the Competence Committee. Research block evaluations should be submitted as CD Narrative form, specific to the C13 Advancing the discipline through scholarly activity.narrative comments

Can MEDS Objectives in Pediatrics Research

	Key Competencies
Medical expert / clinical decision maker	General Requirements • Demonstrate critical appraisal skills of research literature • Access and apply information using available technology • Demonstrate effective consultation skills with research experts including biostatisticians, ethicists, data managers, and preceptors Specific Requirements Core Knowledge The Physician Researcher must be able to discuss: • The principles of establishing a good research question including PICO and SWAT evaluation tools • The principles and application of qualitative methodology in research • The methods required to critically appraise research in the therapy, prognosis, diagnostic tests and causation subject areas.



	• The concepts of causality, association and risk and their measurement • Basic statistical concepts such as mean, mode, median, and standard deviation • The definitions of bias, variability and confounding variables. • The elements of observational study design • The elements of interventional study design including concepts of randomization and concealment/blinding • The definition of scale measurement including nominal (categorical), ordinal (categorical) and interval (quantitative) variables. • The definition of Type I and Type II error. • The definition and utility of hypothesis testing. • A basic approach to choosing statistical tests suitable for each data type • How to determine inclusion and exclusion criteria • The definition of “sampling methodology” • The elements required to perform a sample size calculation. • The ethical basis for informed consent/assent Technical Skills The Physician will demonstrate competency in performing the following skills: • Development and evaluation of a research question • Ability to apply critical appraisal skills to the literature • Data extraction using qualitative methodology • Information retrieval skills including development of a search strategy • Review and assessment of experimental design • Construction of an ethics proposal • Construction of a research funding proposal • Presentation of research data in either a written or oral format.
Communicator	General Requirements The Physician Researcher must be able to: • Use and understand accurate and appropriate research terminology • Discuss the need to explain research data in lay terms to the public. • Specific Requirements The Physician Researcher must be able to:



	• Discuss accurately aspects of experimental design, analysis and reporting with members of the research team to promote research progress • Consult content experts effectively to assist with experiment development • Explain research concept, methodology, analysis and results in understandable terms to the lay public • Communicate the ethical considerations of research in the context of consent and assent.
Leader	General Requirements The Physician Researcher must be able to: • Utilize resources effectively to develop, implement, and complete a research project • Allocate resources for a research project within a fixed financial budget • Work effectively and efficiently in the allotted time for research • Utilize information technology to optimize research time Specific Requirements The Physician Researcher must be able to: • Describe the essential aspects of research funding and budgetary justification • Evaluate the quality of their own research and assist in developing changes to methodology to improve research quality • Contribute effectively to research question development, experimental design, data analysis and research presentation.
Health Advocate	General Requirements The Physician Researcher must be able to: • Determine areas of Child Health where insufficient knowledge exists, warranting further research to improve health outcomes or further the understanding of health and disease mechanisms. Specific Requirements The Physician Researcher must be able to: • Describe the scope and magnitude of a research question as it relates to Child Health. • Identify research methodologies that may cause harm to children or families participating in research, and advocate alteration to research methodology to minimize or eliminate that harm.



Professional	General Requirements The Physician Researcher must be able to: • Conduct research with the highest degree of integrity, honesty and compassion. • Exhibit appropriate interpersonal and personal professional behaviors • Participate in research ethically consistent with the obligations of a physician. Specific Requirements The Physician Researcher must be able to • Discuss the professional obligation of a physician in the role of Researcher • Describe and practice the elements of patient confidentiality as they relate to the conduct of research and the practice of medicine • Understand the relevant legislation that governs patient confidentiality within Canada and the Province of Alberta • Discuss strategies to balance professional roles of a physician with that of a researcher • Demonstrate personal and professional attitudes consistent with a Researcher Physician • Display sensitivity to patient needs when they conflict with the conduct of research • Respond to criticism and assessment of performance constructively.
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Expectations for Pediatric Residents for Research Rotations

1. Residents are expected to select a preceptor by the end of Block 6 of first year, and to notify the program of the preceptor and topic of the research project. Choosing a project that is inspired by a patient, seeing a question in real life and bringing it through to finding an answer tends to bring a lot of fulfillment to residents!
2. Once a resident has selected a preceptor, the program will send out a courtesy email to both the preceptor and resident prior to the scheduled research rotations. This email will also include a link to a [google form](#) that will allow identification of learning objectives while on rotation. Residents will also be

expected to connect with the preceptor one month prior to the research rotation where objectives and strategies for achieving these objectives can be refined.

At the end of the rotation, there should be a meeting to review the completion of the objectives. An evaluation of each research block will be completed on cbme.med platform with comments made anchored to EPA Core 13

3. All residents must submit an application for a WCHRI grant **by the end of the first year of training**, and will be notified of the internal deadline. Late submissions are not eligible for funding consideration. Minimal-cost projects still benefit from a proposal submission as it provides opportunities for reviewer feedback on proposals. An alternative grant being awarded is an acceptable alternative. The purpose of this application is to have practice preparing an application and receiving reviewer comments.
4. Ethics submission will ideally be completed by the resident and the preceptor together. However, it is also acceptable for the preceptor to do the submission, especially if the resident got involved after the project has already started.
5. The completed project must be presented at the Department of Pediatrics Research Day. You can present multiple times at DoP Research Day. Works in progress are welcomed!
6. It is expected that a manuscript will be submitted to Dr. Joel Livingston by December 31 of the final year of training in our program. Ideally, this manuscript will be suitable to submit for publication, and include a full methods and results section. If the resident put reasonable effort into the project but the results are not publishable (typically as full results were not obtained), a manuscript that includes as many of the usual components as possible with a discussion of the pitfalls of the project and the next steps one would take to complete the project will be acceptable.
7. Completion of a scholarly project is an expectation of the Royal College enabling competencies/training experiences, and observation of achievement results in completion of Core 13 EPA as assessed by the Competence Committee for CBD learners. The failure to complete the scholarly projects implies training in Pediatrics is incomplete, and as such the resident cannot proceed to the final exams. The Clinical Trainee Research Lead is here to support you and help you finish in a timely and rewarding manner, in addition to the support of your mentor and the Residency Program.