Comprehensive Research Experience for Medical Students (CREMS)

2022 Supervisor and Project Information Form

Please complete and return via email ONLY to crems.programs@utoronto.ca by February 18, 2022.

**Supervisor Information**

*NOTE: CREMS will not support pre-determined pairings of students and supervisors. Supervisors must agree to open their projects to all students and interview all that are interested.*

**Name:**
Shiri Shinar

**Email:**
shiri.shinar@sinaihealth.ca

**Department:**
Obstetrics and gynaecology

**Hospital/Research Institution:**
Mount Sinai Hospital

**SGS Department(s) (if applicable):**
Click or tap here to enter text.

**ORCID ID** (see https://orcid.org/ - If you do not have an ORCID ID we encourage you to sign up for one):
0000-0001-6352-4846

**Location of Work:**
Mount Sinai Hospital

**Field of Research (up to 4 keywords):**
Fetal; renal; kidney; cakut

**Student contact time** (number of hours per week YOU are available to the student for any concerns or to review progress):
16 hours a week
Project Information

NOTE: If this project is selected, this information will be posted on CREMS website for interested student applicants to view research opportunities.

PROJECT TITLE:
Congenital renal anomalies – from prenatal detection to postnatal diagnosis, management and long-term outcomes.

PROJECT DESCRIPTION:
Including background, aim(s), methods and significance of the project. **Maximum 300 words.**

Background
Congenital anomalies of the kidneys and urinary tracts (CAKUTs) are embryonic disorders that result in a diverse range of renal defects. Prenatal diagnosis improves postnatal outcome because early recognition and timely treatment of critical obstructions and urinary tract infections prevents further renal damage and loss of function.

Aims
To retrospectively review the long-term outcomes of prenatally diagnosed CAKUTs.

To establish prenatal diagnostic accuracy of CAKUTs

To determine the ability to prenatally predict severity of each of the different CAKUTs.

Methods
A retrospective observational study of fetuses with prenatally suspected CAKUTs between January 2009 and December 2021. This cohort will be compared with all neonates with postnatally confirmed CAKUTs, that underwent evaluation at the Hospital for Sick Children. Fetuses with additional major structural or chromosomal anomalies will be excluded from analysis.

Prenatal ultrasound images will be reviewed independently by a blinded fetal medicine specialist, and prenatal sonographic findings will be recorded. In cases where an antenatal MRI was performed MRI images will be reviewed by a blinded radiologist. Neonatal outcome data will be obtained through review of delivery and discharge summaries. Renal outcomes will be obtained through review of the renal database of the urology department at the Hospital for Sick children.

Cohen's Kappa will be calculated to determine the concordance between prenatal and postnatal ultrasounds for each renal pathology. Descriptive statistics will be used to assess the frequency of the short and long term outcomes for each confirmed pathology. Prenatal sonographic predictors of postnatal renal pathology severity will be analyzed through logistic regression.

Significance
The findings from this research will aid in providing better prenatal counseling, particularly in conditions associated with urinary tract obstruction. The database created through this research will serve for multiple future collaborations between the fetal medicine unit and the urology department at Sickkids.

Is this project remote-capable (in case of new restrictions) or have an alternative remote option? ☒ Yes, remote capable ☐ No

☐ Yes, alternate remote option. Please specify (100 words max): Click or tap here to enter text.

If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?
☒ Yes  ☐ No  ☐ Not Applicable

If yes, please list the application submission date:  28/01/2022

Do you expect this work will be published?
☒ Yes  ☐ No  ☐ Uncertain / Other
Research Environment and Student Roles and Responsibilities

Please be specific as possible. Please describe the research environment, including availability of required facilities/equipment/expertise, supervisor’s experience and mentorship plans. Please clearly outline the student role(s) and responsibilities related to the project, potential educational value, and indicate who will serve as the student’s direct report for daily oversight (PI, PHD student, technician, etc.). Maximum 300 words.

I am an associate Professor at UofT. In the past seven years I have mentored numerous medical students, in Israel (4) and in Canada (2). All of the research projects yielded publication of papers in peer reviewed journals, with the students listed as first or second authors. I previously served as chief resident and program director of the OBGYN program in Israel’s third largest tertiary center, serving two years in each role. Thus, I am deeply involved in and committed to quality medical education. One of my goals has always been to encourage critical thinking and coherent writing, and to involve the younger generation in active and productive clinical research. Therefore, I believe my experience and passion for teaching and research make me an ideal candidate to supervise a summer student.

I recently joined the Maternal Fetal Medicine unit at MSH as a clinician-investigator in the fetal unit. I have two research days a week during which I will be available and delighted to mentor and guide the student who will be reporting directly to me.

Student responsibilities:

- Patient data extraction from large computerized databases
- Incorporation of relevant variables in advanced data software platforms (Redcap)
- Review prenatal ultrasound images, with an emphasis on renal pathology with the aid of an experienced MFM specialist
- Contacting previous patients by phone to inquire about long term renal outcomes (when these are not documented in our computerized systems at Sickkids and MSH)

Educational values/opportunities for the student:

- Learn how to use Redcap
- Apply basic statistical data analysis tools
- Work alongside senior researchers at MSH and Sickkids
- Learn to systematically search for and summarize relevant literature
- Opportunity to present findings at medical conferences
- Be involved in the writing of several manuscripts based on his/her data collection, and be a co-author on all of them.