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: Lilian Gien, MD, MSc
Email: lilian.gien@sunnybrook.ca

Department: Dept of Obstetrics & Gynecology
Hospital/Research Institution: Sunnybrook Research Institute

SGS Department(s) (if applicable):
IHPME

ORCID ID (see https://orcid.org/ - If you do not have an ORCID ID we encourage you to sign up for one):
0000-0002-6558-3337

Location of Work:
remote

Field of Research (up to 4 keywords):
Vulvar cancer, sentinel nodes

Student contact time (number of hours per week YOU are available to the student for any concerns or to review progress):
1 hour per 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:
Assessing the feasibility of indocyanine green (ICG) to detect the sentinel node in vulvar cancer

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

Background & Objectives:
Sentinel node (SN) procedures in vulvar cancer are done to evaluate for metastatic disease. Currently SNs are detected by peritumoral injection by nuclear medicine of technetium-99 (Tc-99) preoperatively +/- injection of blue dye intraoperatively. Use of blue dye alone has a lower detection rate of the SN (68%), and accuracy is improved with Tc99 (94-97.7%). Indocyanine green (ICG) with near-infrared fluorescence is commonly used for SNs in endometrial and cervix cancers, however the use of ICG for vulvar cancers is new with emerging reports from expert centres. ICG is easily detected in the SN for endometrial and cervix cancers with higher accuracy than blue dye (96% vs 74%), such that ICG alone is now standard for these cancers. ICG has the advantage of eliminating a peritumoral injection in nuclear medicine preoperatively, and can be injected under general anesthetic intraoperatively, without sacrificing the detection accuracy.

Our institution has one of the highest vulvar cancer volumes in the country and started using ICG for SNs in vulvar cancer since 2017. This has been done in combination with Tc99 instead of blue dye, and also used alone. Our study will evaluate the feasibility of detecting the SN in vulvar cancer with ICG compared to use of Tc99+blue dye or Tc99 alone.

Methods: This will be a retrospective observational cohort study of vulvar cancer patients with a SN procedure between 2008-2022 at our institution. We have collected patient, pathologic, and surgical data up until January 2020 for other published manuscripts and therefore an updated cohort of 2 years will be added. Data collection will include the modality of SN procedure, feasibility of detecting the SN, final pathology, and recurrences. The ability to detect the SN by ICG will be compared to the standard methods of Tc99 +/- blue dye.

Outcomes: The primary outcome will be to determine the feasibility of detecting the SN by ICG compared to Tc99 +/- blue dye. Although an RCT would be ideal, vulvar cancer is a very rare tumor with 2.6 cases per 100,000 women per year. An RCT to demonstrate non-inferiority of ICG will require an unfeasible number of patients with international multicentre collaboration. Our institutional expertise and innovation will add a substantial cohort of patients using this technique of SN detection to the literature.

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:
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.**

This research will be done remotely with computerized access to electronic medical records at Sunnybrook and data collection on Excel. I have supervised CREMS students over the past several years who have been successful in publishing their work in peer-reviewed journals and presenting at national and international meetings, and I routinely supervise medical students, residents, and clinical fellows who have been successful with finished products. Meetings will take place regularly throughout the summer to ensure that questions regarding data collection are answered on a timely basis. I typically do a teaching session at the start of the summer to ensure that there is a clear understanding of the project and data variables to be collected. All paperwork for onboarding will be done such that data collection can start immediately without having to wait for approvals. A data dictionary is also established early on to ensure there is clarity of definitions. The student’s roles and responsibilities will include collecting data of all vulvar cancer cases with SNs from January 2020 to January 2022 in the same format as what has been collected in the database so far, and ensuring that the variables required for this particular research question has been completed for the previously collected cases. The student will also need to update the data dictionary as questions arise such that there is mutual agreement of variable definitions. The student will need to be organized and come prepared for meetings with pending questions that arise during data collection. This project offers opportunity for hands-on experience with a retrospective cohort study from inception to completion. Direct reporting will be done with the Principal Investigator. It is expected that data collection can be completed during the summer. There is opportunity for authorship and presentation of abstracts at national or international meetings. This study is feasible to complete within the projected timeframe.