Summer Studentships 2023/2024

Main supervisor:	Anja Mizdrak	
Email address:	anja.mizdrak@otago.ac.nz	
Other Supervisor/s:	Tim Chambers tim.chambers@otago.ac.nz	
Host Department:	Public Health	
Location:	Wellington campus	
	Can students work remotely?	Yes / No Maybe

PROJECT TITLE:

Assessing the validity of Google API to measure alcohol outlet opening hours

AIM:

To assess the extent to which Google API tools provide an accurate estimate of alcohol outlet opening hours in Aotearoa NZ

METHOD:

The Alcohol Regulatory and Licensing Authority (ARLA) database of alcohol outlets provides a record of the premises with an alcohol license. Information on opening hours represents the maximum hours of operation, but this is less relevant than the actual opening hours for measuring exposure to alcohol for public health research. We are currently trialling the use of Google's API to scrape alcohol outlet opening hours from Google Maps as part of a University of Otago Research Grant. This studentship project will involve collecting real-time opening hours from a sample of alcohol outlets and comparing this with the data obtained from Google's API. This will provide an indication of the accuracy of alcohol outlet opening hours information on the Google API.

RESEARCH SIGNIFICANCE:

Alcohol consumption contributes to poor health and health inequities. Availability, including the number and operating hours of outlets, is a key driver alcohol consumption. Despite alcohol being the most regulated harmful commodity, Aotearoa lacks accurate information on exposure to alcohol outlet opening hours. Using automated methods, such as Google's API, has the potential to be less time consuming and labour intensive than traditional data collection methods. However, assessing the accuracy of automated methods is needed prior to widespread uptake.

STUDENT'S ROLE:

The student will be responsible for contacting alcohol outlets and recording real-time outlet opening hours. The student will work with the supervisors to summarise findings. The student will write a short report and may have the opportunity to present their findings to stakeholders.

EXPOSURE TO SCIENTIFIC METHOD:

The project will provide an introduction to exposure assessment in public health and an opportunity for the student to improve their scientific writing skills.

STUDENT PREREQUISITES:

Do you have a student in mind? YES/ NO

The ideal candidate for this project would be detail oriented with excellent record-keeping skills. Knowledge of public health and/or statistics is desirable

Summer Studentships 2023/2024

Main supervisor:	Ankur Gupta	
Email address:	ANKURG@MDHB.HEALTH.NZ	
Other Supervisor/s:	Norman Panlilio Norman.Panlilio@midcentraldhb.govt.nz Albert Robertson Albert.Robertson@wdhb.org.nz	
Host Department:	Nephrology	
Location:	Palmerston North, Whanganui	
	Can students work remotely?	Yes / No

PROJECT TITLE:

Blood pressure (BP) monitors in health care facilities of the Manawatu region (Palmerston North Hospital, Whanganui Hospital and GP practices).

AIM:

In conducting this study, we will accomplish the following specific aim: Assess and compare the BP monitors currently prevalent in our health care practices with accurate BP monitoring devices endorsed by International Society of Hypertension. This is a Quality Improvement project to investigate the number, type and percentage of validated BP monitors used in our healthcare settings.

METHOD:

A cross-sectional survey of BP monitoring devices including clinic/office BP monitors, home BP monitors, ambulatory BP monitors, children BP monitors and BP monitors for pregnancy available in health care facilities across the Manawatu region would be performed after locality approval. The proposed areas to be covered include Palmerston North Hospital, Whanganui Hospital and GP practices across Manawatu. A survey asking about the above group of monitors available would be emailed to the administrator of different units in the hospital and GP practices. Participation would be voluntary for the GP practices. Wherever required for clarification and details, a visit would be done by the student to the unit. If a visit is not feasible, telephonic enquiry would be made to note the type of BP monitors. After completion, data would be analysed for the correlation between available monitors and recommended monitors (as per STRIDE BP, www.stridebp.org). The collection of the data is only for quality improvement and not for any medicolegal implication. The practices would be informed the results of the study. Furthermore, if there is a wide variation from the recommended standard, then a nationwide study could be proposed. Future service improvement for BP measurement instruments would translate into prevention of complications related to hypertension and improved patient outcomes.

RESEARCH SIGNIFICANCE:

Hypertension, which affects about one third of adults world-wide, is the leading risk factor for death and disability. The accurate measurement of BP is the first essential step in making a reliable diagnosis, and remains an essential procedure to ensure optimal management of hypertension. Most of the devices available for measuring BP are inaccurate, with a minority of devices on the market having been subjected to independent validation using an established protocol. Thus, many subjects with suspected hypertension are over- or under-diagnosed, and those being treated for hypertension are over- or under-treated due to a combination of a poor measurement methodology and/or use of inaccurate devices. Identifying the BP monitors which we have and how they compare to the recommended devices would investigate quality gap and provide us an opportunity for improvement.

STUDENT'S ROLE:

The student will undertake a brief literature review of the studies of validated BP monitors in different health care settings (both in New Zealand and worldwide) in published journals, be trained in Qualitative Survey, and learn to analyse the data. The results generated would be compared with historic data. This would further be translated into academic research paper which will help in the student's academic writing skills.

EXPOSURE TO SCIENTIFIC METHOD:

The student would be exposed to the scientific methods ticked below.

STUDENT PREREQUISITES:
Do you have a student in mind? YES / NO
Medical student

Summer Studentships 2023/2024

Main supervisor:	Annie Wong	
Email address:	annie.wong@ccdhb.org.nz	
Other Supervisor/s:	James Fingleton james.fingleton@ccdhb.org.nz Rawiri Keenan rawiri@gmail.com	
Host Department:	Department of Medicine	
Location:	Wellington/online	
	Can students work remotely?	Yes for part of the project

PROJECT TITLE:

Clinicians' attitudes on use of blood-based molecular testing for advanced lung cancer

AIM:

To develop an understanding of how molecular testing can be incorporated into the diagnostic process for suspected advanced lung cancer

METHOD:

Conduct a survey and semi-structured interviews on clinicians' (GP, general medicine, respiratory specialists) attitudes to diagnostic testing methods for lung cancer, including: 1) Current diagnostic pathway, access to diagnostic procedures, imaging, and specialists 2) Molecular testing using blood-based testing, including interpretation of findings 3) Perceived barriers that could limit the use of blood based molecular testing for lung cancer

RESEARCH SIGNIFICANCE:

Lung cancer is NZ's top health research priority, as it is the leading cause of cancer-related death. Lung cancer also disproportionately affects Māori, with both incidence and mortality being three times compared to non-Māori. Currently the diagnostic process is failing our patients, with the majority of patients being diagnosed in emergency departments with advanced disease. This study focuses on the use of novel technology such as blood based molecular testing that can identify oncogenes that can be therapeutically targeted. In overseas studies, blood-based testing can be complementary to the standard invasive diagnostic tissue-based testing. This can lead to faster lung cancer diagnosis and earlier treatment. Our study aims to explore the attitudes of clinicians to this novel technology and perceived barriers to its implementation in clinical practice

STUDENT'S ROLE:

1. Review the existing literature of molecular testing of lung cancer undertaken by primary health care providers and respiratory physicians
2. Conduct a survey of clinicians involved in diagnostic pathway of lung cancer, compile and analyse results
3. Participate in design of semi-structured interviews of selected clinicians (10-15)

EXPOSURE TO SCIENTIFIC METHOD:

Literature review, survey design and conduction, analysis and presentation of results. Ideally leading to presentation and publication

STUDENT PREREQUISITES:

Do you have a student in mind? NO

Would prefer medical student with interest in Māori health, primary health care, respiratory and oncology

Summer Studentships 2023/2024

Main supervisor:	Judy Ormandy	
Email address:	judy.ormandy@otago.ac.nz	
Other Supervisor/s:	Sara Filoche sara.filoche@otago.ac.nz Georgina Barber Georgina.barber@ccdhb.org.nz	
Host Department:	O&G	
Location:	Wellington Hospital	
	Can students work remotely?	Sometimes

PROJECT TITLE:
Colposcopy Clinic Referrals, Triage & Appointments – is it equitable?

AIM:
To assess compliance of colposcopy clinic assessment timelines during the COVID pandemic and to ascertain if there is any effect of ethnicity, socio economic status and distance from hospital on speed of referral, appointments and attendance.

METHOD:
Colposcopy referrals, triage, appointments, attendance and outcomes are stored on the Solutions Plus Database. Compliance with recommended timeframes for appointments reduced during the COVID pandemic. Using the Solutions Plus database, the student will assess 2 time periods and review: Review of colposcopy clinic appointments from: Time of smear necessitating referral Time of referral letter Triage outcome Appointment scheduled Appointment attended Treatment performed (if required) The student will see if this is affected by distance lived from hospital and ethnicity.

RESEARCH SIGNIFICANCE:
Cervical cancer prevention in Aotearoa is inequitable with wāhine Māori more likely to be diagnosed with cervical cancer and more likely to be diagnosed at a later stage. This has been assumed to be difficulties accessing the cervical screening programme in primary care. The introduction of HPV testing as the primary screening test aims to address some of this inequity. There are standards for colposcopy that colposcopy clinics must adhere to with time limits for the assessment of various screening abnormalities. During the COVID pandemic, particularly during our Omicron outbreak, anecdotally there were more breaches of standards in colposcopy clinic with regard to being seen within an accepted time period. Theoretically, as colposcopy services are very 'standard based' and 'algorithm based', everybody should be affected equally. By analysing where delays took place and who was most affected we can see if there were inequities once people were referred to hospital services. If any inequities are identified, then these can be specifically addressed. This information will be helpful for planning future colposcopy services as we strive for equity. The information will inform ongoing community based colposcopy research projects.

STUDENT'S ROLE:
Reviewing Solutions Plus database and Concerto medical record system to obtain the information above. Write up of information

EXPOSURE TO SCIENTIFIC METHOD:
Service evaluation Data collection Data analysis Statistical analysis

STUDENT PREREQUISITES:
Do you have a student in mind? No
Medical student

Summer Studentships 2023/2024

Main supervisor:	Judy Ormandy	
Email address:	judy.ormandy@otago.ac.nz	
Other Supervisor/s:	Sara Filoche sara.filoche@otago.ac.nz Rosemary Hall rosemary.hall@otago.ac.nz	
Host Department:	O&G	
Location:	Wellington Hospital	
	Can students work remotely?	Sometimes

PROJECT TITLE:

"Without knowing the force of words it is impossible to know more" Confucius. The Language of Gestational Diabetes – what are we saying?

AIM:

To review the clinical communication of pregnant people diagnosed with gestational diabetes using a strengths based framework.

METHOD:

The student will review clinical correspondence in a series of pregnant people diagnosed with gestational diabetes looking specifically at the language used within the correspondence. Using published guidelines1-3 regarding the language used in caring for people with diabetes as a framework, the correspondence will be reviewed and assessed to the extent that it adheres to these guidelines.

RESEARCH SIGNIFICANCE:

Language has an impact on people's motivation, behaviours and outcomes. The diagnosis of and treatment recommended for people with gestational diabetes can have a significant impact on them. Person-first, strengths-based empowering language can improve communication and enhance the motivation, health and well-being of people with diabetes. The use of negative and stigmatising words and a deficit framework can lead to demotivation4. Healthcare providers may be unaware of the language they use or subconsciously use deficit based language. Raising awareness of the language used and highlighting a strengths based communication model could provide a standard for clinicians to work toward. Changing the language of gestational diabetes has the potential to make a positive difference to the emotional well-being, self-care and health outcomes of people with gestational diabetes5. 1. Dickinson JK, Guzman SJ, Maryniuk MD, et al. The Use of Language in Diabetes Care and Education. The Diabetes Educator. 2017;43(6):551-564. doi:10.1177/0145721717735535 2. Speight, J; et al. Our language matters: Improving communication with and about people with diabetes. A position statement by Diabetes Australia. Diabetes Research and Clinical Practice, Volume 173, 108655 3. 4. Jane K. Dickinson, Susan J. Guzman, Melinda D. Maryniuk, Catherine A. O'Brian, Jane K. Kadohiro, Richard A. Jackson, Nancy D'Hondt, Brenda Montgomery, Kelly L. Close, Martha M. Funnell; The Use of Language in Diabetes Care and Education. Diabetes Care 1 December 2017; 40 (12): 1790–1799. https://doi.org/10.2337/dci17-0041 4. Jane K. Dickinson; The Experience of Diabetes-Related Language in Diabetes Care. Diabetes Spectr 1 February 2018; 31 (1): 58–64. https://doi.org/10.2337/ds16-0082 5. Reid, J., Anderson, A., Cormack, D. et al. The experience of gestational diabetes for indigenous Māori women living in rural New Zealand: qualitative research informing the development of decolonising interventions. BMC Pregnancy Childbirth 18, 478 (2018). https://doi.org/10.1186/s12884-018-2103-8

STUDENT'S ROLE:

The student will be provided with anonymised correspondence and be supported to assess the compliance of the correspondence with guidelines regarding the language that should be used.

EXPOSURE TO SCIENTIFIC METHOD:

Qualitative research. Write up, presentation and dissemination of results.

STUDENT PREREQUISITES:
Do you have a student in mind? No
Medical student

Summer Studentships 2023/2024

Main supervisor:	Kamran Rostami	
Email address:	Kamran.Rostami@midcentraldhb.govt.nz	
Other Supervisor/s:	Nathalie de Vries Nathalie.devries@midcentraldhb.govt.nz Noha Nasef N.Nasef@massey.ac.nz	
Host Department:	Gastroenterology, Palmerston North DHB	
Location:	Palmerston North DHB	
	Can students work remotely?	Yes / No

PROJECT TITLE:
Is irritable bowel syndrome (IBS) a lifestyle related disease?

AIM:
Assessing the aetiology and risk factors implicated in pathogenesis of IBS

METHOD:
A retrospective study on patients presenting with IBS symptoms over the last few years. We will be collecting data of patients with IBS and will analyse them in cooperation with Massey University Riddet Institute.

RESEARCH SIGNIFICANCE:
Traditionally IBS patients are treated symptomatically with medications like laxative, anti-diarrhoeal and spasmolytic. In this study we concentrate on risk factors and try to treat the cause of the presenting symptoms. This is more effective that issuing a prescription.

STUDENT'S ROLE:
The main role starts with data collection. The student will also get the opportunity to join the IBS clinic where he/she can gain the educational insight for dealing with these patients in real life. The students is also encourage to join the educational gastroenterology and general medicine meetings.

EXPOSURE TO SCIENTIFIC METHOD:
Data collection, participation in data analysis, writing an abstract for major national and international scientific gastroenterology meetings including participation and presenting in these meetings if desired. Finally learning how to write a scientific manuscript. The team involved in this project are world well known scientists that increase the potential of learning outcome.

STUDENT PREREQUISITES:
Do you have a student in mind? YES / <u>NO</u>
Medical student

Summer Studentships 2023/2024

Main supervisor:	Kathryn Hally	
Email address:	kathryn.hally@otago.ac.nz	
Other Supervisor/s:	Scott Harding scott.harding@ccdhb.org.nz Lupe Taumoepeau lupe.taumoepeau@ccdhb.org.nz	
Host Department:	Surgery and Anaesthesia	
Location:	Wellington campus	
	Can students work remotely?	Yes / No
Funding:	Surgical Research Trust?	

PROJECT TITLE:

The SURVEILLANCE study: cardiac troponin surveillance for detecting myocardial injury in vascular surgery patients.

AIM:

To understand the historic position of cardiac troponin surveillance in vascular surgery at Wellington Hospital.

METHOD:

We will conduct a clinical audit of all patients undergoing elective vascular surgery (including endovascular procedures) at Wellington Hospital between January 2022 and October 2023. All patients will be reviewed for high-sensitivity troponin T (hsTnT) values measured by Wellington Southern Community Laboratories (WSCL) within 30-days before and after their surgery date. Medical records will be accessed to ascertain the reason for requesting hsTnT, the diagnosis for patients with raised hsTnT and the clinical management pathways for all patients with hsTnT measurements. Data will also be collected on historic practice of pre-operative assessment and management of cardiovascular risk, and for the incidence of cardiovascular complications requiring readmission to hospital within 30-days post-surgery and cardiovascular-related mortality.

RESEARCH SIGNIFICANCE:

The overarching aim of the SURVEILLANCE study is to provide context for implementing a cardiac troponin surveillance program for vascular surgery at Wellington Hospital. A substantial proportion of postoperative morbidity and mortality is attributable to cardiovascular causes. Clinically silent myocardial injury (cardiac troponin rise in the absence of cardiovascular signs/symptoms) is alarmingly common, is strongly associated with postoperative mortality, and is undetectable without a dedicated cardiac troponin surveillance program. This audit will provide context for determining the risk factors for developing cardiovascular complications after vascular surgery, and will be the first step in understanding how we implement a cardiac troponin surveillance program in this patient group for monitoring both clinically overt and clinically silent myocardial injury.

STUDENT'S ROLE:

The student will be responsible for retrospectively identifying suitable patients, collecting the required clinical data, maintaining audit data in a secure database, performing statistical analysis and preliminary report writing with the aid of the supervision team.

EXPOSURE TO SCIENTIFIC METHOD:

Clinical data collection, data interpretation, statistical analysis.

STUDENT PREREQUISITES:

Do you have a student in mind? YES / NO

No prerequisites.

Summer Studentships 2023/2024

Main supervisor:	Max Berry	
Email address:	Max.berry@otago.ac.nz	
Other Supervisor/s:	Rebecca Dyson Avery Kramer	
Host Department:	Paediatrics & Child Health	
Location:	Wellington	
	Can students work remotely?	**Yes** / No

PROJECT TITLE:

Characterising "normal" in a novel model of preterm birth: mortality, morbidity, birth weight "z" scores and other metrics

AIM:

We have a well-developed model of preterm birth in the guinea pig. We have shown for a number of organ systems that the guinea pig mirrors human development well. Having over a decade of data from this model, we wish to generate the sort of databases we have available for humans so that we can delineate what is "normal" for a preterm guinea pig. Therefore, the aim of this project is to use retrospective data to produce a database and information such as birthweight centiles, z scores, etc for our preterm born guinea pigs, allowing greater comparison of our model with human data, and increasing translational capacity.
In addition, we will also use this large dataset to interrogate birth order and other birth statistics on survival, morbidity, and other outcomes

METHOD:

Retrospective data based on our one-of-a-kind guinea pig model of preterm birth will be used.
You may have the opportunity to travel to the research facility in Palmerston North to observe preterm animal care, but this will be 1) dependent on timing of research studies and 2) is not compulsory.
The main methods to be used will be record sorting of historical data, including cleaning data to align the data which will have changed in terms of how things are reported / recorded over the 10-year period, database building, data analysis, statistical analysis and associated figure generation, and report writing.

RESEARCH SIGNIFICANCE:

This model is being used by our group and by collaborators around the world to explore novel drugs to improve the long-term outcomes of babies born too early. Better characterisation of the model which improves the translational capability of the model means that findings in this model can be applied to the human setting better and more rapidly. In addition, we will retrospectively review the data to ask some novel questions regarding birth order and outcome.

STUDENT'S ROLE:

The student will take the lead in record sorting of historical data, including cleaning data to align the data which will have changed in terms of how things are reported / recorded over the 10-year period, database building, data analysis, statistical analysis and figure generation and report writing. Supervisors will help with each stage, including guiding appropriate questions and appropriate statistical approach

EXPOSURE TO SCIENTIFIC METHOD:

This project will give students an insight into data and database management, the pitfalls of dealing with historical data, some insight into the world of Translational Physiology, and associated statistical approaches. The student will work with a multidisciplinary team of Clinicians, Biomedical Scientists, and Laboratory Animal Technicians.

While there is no plan to run any new experiments to generate novel data for this project, the associated model is the only one of its kind in the world, and we will be happy to share as much of it with the student. There may be an opportunity to observe the model depending on timing.

STUDENT PREREQUISITES:
Do you have a student in mind? No
Anyone interested in physiology, preterm birth, pregnancy, database management or statistics should feel welcome to apply

Summer Studentships 2023/2024

Main supervisor:	Pritika Narayan	
Email address:	pritika.narayan@otago.ac.nz	
Other Supervisor/s:	Peter Larsen peter.larsen@otago.ac.nz	
Host Department:	Surgery and Anaesthesia	
Location:	Remote	
	Can students work remotely?	Yes

PROJECT TITLE:

Diabetes, cardiovascular disease and risk in Peoples of Fiji: Systematic review and meta-regression

AIM:

To perform a meta-regression of relevant variables related to diabetes and heart disease comorbidity and mortality among different ethnic groups who identify as Peoples of Fiji (living in NZ, Fiji, and abroad).

METHOD:

This project involves a systematic review and meta-regression on diabetes and heart disease comorbidity and mortality among ethnic groups identifying as Peoples of Fiji. The student researcher will use Rayyan for screening and data collection, following Prisma guidelines and Prospero protocol. Relevant data will be extracted for meta-regression analysis in excel and R software. Review question: What are the diabetes and cardiovascular disease rates and risk factor profile of the major ethnic groups in Fiji? • Population: Peoples of Fiji (Inclusion: publications reporting on diabetes and cardiovascular disease or diabetes cardiovascular risk factors in people of Fiji; Exclusion: ethnic groups other than peoples of Fiji or other than Fijians of i-Taukei/Rotuman/Indian-descent. Non-CVD conditions. Qualitative studies. Commentary, opinion pieces.) • Exposure: Ethnicity (Indigenous Fijian (I-Taukei), Rotuman-Fijian , Fijian Indian (Indo-Fijian)) • Comparator: between major ethnic groups (Overall rates, then compare between ethnic groups.) • Outcomes: Diabetes and CVD occurrence and CV risk factors Data management: • An electronic systematic review app named Rayyan will be used for this review. All papers identified from different database searches will be imported to Rayyan for screening, selection and data collection. • Excel spreadsheets and microsoft word document will be used to collate information and display results. Selection process and data collection • Screening will involve Student removing any duplicates from the compiled searches within Rayyan. Two independent reviewers (student and PN) will read all titles and abstracts and include/exclude papers based on defined inclusion and exclusion criteria. • Deviations will be resolved through discussion with third reviewer on consensus. Extracting data • Student will extract all the data and every field will be checked over by an independent person • Deviations will be resolved through discussion with third reviewer on consensus. • The data from each study will be extracted for number of participants per ethnic group, other relevant variables (age, sex, BP, smoking, BMI, weight, height, comorbidities), sampling, key outcomes/findings, limitations, conflicts of interest, Risk of bias tools, and all relevant information extracted and organized into a table by the reviewers. Synthesis and Meta-biases • The planned synthesis for the data in this study aims to determine the diabetes and cardiovascular disease rates and risk factor profile of the major ethnic groups in Fiji (Peoples of Fiji). The criteria for data synthesis will include the minimum number (2 or more) being pooled for synthesis. • The data to be synthesized will include outcomes related to cardiovascular disease (CVD) occurrence and cardiovascular risk factors. This encompasses CVD incidence, mortality, and clinically accepted cardiovascular risk factors. • To combine the individual study data, a formal method will be employed. This will involve fitting statistical models, such as random effects meta-analysis, for combining risk ratios from individual studies. • Pooling of disease or risk factor values will be conducted as a weighted mean when multiple studies of the same design report on the same outcome. Differences between ethnicities in Fiji will be examined using meta-regression within generic inverse variance random effects models

RESEARCH SIGNIFICANCE:

There is a scarcity of research on diabetes-related incidence of cardiovascular health and disease among Peoples of Fiji. This is for various reasons including inadequate ethnicity capture and reporting of data for specific ethnic groups

who strongly identify as Peoples of Fiji. In Fiji, health reports and publications often pool i-Taukei and Indo-Fijian data, for example for diabetes-related limb amputations which are more prevalent in one ethnic group than the other by pooling the data from both ethnic groups, the average incidence and prevalence looks vastly better, and compromises adequate resource allocation and early intervention. Better representation/reporting of ethnic differences in diabetes-related heart health and risks, co-morbidities and mortality is essential for the allocation of equitable medical and public health resourcing and intervention. Although the focus is on the Peoples of Fiji, the research will align with culturally appropriate practices and considerations for Māori communities. It aims to contribute to equitable health outcomes and respect the diverse indigenous populations in New Zealand.

STUDENT'S ROLE:

To perform a systematic review and meta-analysis using predefined search terms and familiarise with systematic review tools and databases for searching academic works. The student will also practise skills in extracting and analysing variables of interest for meta-regression and preparing a systematic literature review for publication.

EXPOSURE TO SCIENTIFIC METHOD:

Systematic review and meta-regression Statistical analysis using excel and/or R.

STUDENT PREREQUISITES:

Do you have a student in mind? No

Skills Required: To successfully carry out this project, the student researcher should possess a basic understanding of Pacific health research methodologies. Proficiency in conducting library database searches is necessary, and some experience using R Studio is preferred, although training will be provided to fill any knowledge gaps.

Summer Studentships 2023/2024

Main supervisor:	Richard Carroll	
Email address:	Richard.carroll@ccdhb.org.nz	
Other Supervisor/s:	Rosemary Hall rosemary.hall@otago.ac.nz	
Host Department:	Endocrinology Department	
Location:	Wellington Hospital	
	Can students work remotely?	No

PROJECT TITLE:

Frequency and characteristics of adrenal nodules identified on imaging

AIM:

To assess the frequency, referral characteristics, and clinical characteristics of all adrenal nodules identified on imaging performed by regional providers over a defined period; and to develop a best practice, locally appropriate, investigation and management protocol.

METHOD:

Report records of local radiology providers will be reviewed to identify all adrenal nodules reported on imaging over a defined period of time. The radiological characteristics of the nodule, basic demographic details of the patient, clinical scenario in which imaging was performed, subsequent investigations conducted in light of documenting the nodule (e.g. further imaging, referral to endocrine/endocrine surgery service), and any endocrine testing performed will be recorded. Adrenal nodules will be separated in to those identified incidentally or those identified while investigating associated medical problems. The frequency of incidental adrenal nodules over the study period will be described, along with a description of the investigations and management thereafter.

RESEARCH SIGNIFICANCE:

Adrenal nodules are frequently identified on imaging (approximately 6% in those over 60 based on international literature). Current guidelines advise on when further imaging should be conducted, and on a hormonal assessment to exclude adrenal hormone dysfunction. We have no recent data on the frequency of adrenal incidentalomas in the Wellington region, or their management once identified. This study will allow an estimation of the frequency of adrenal incidentalomas and help to shape our regional approach to the management of this issue.

STUDENT'S ROLE:

The student will collect all data related to the project and will play a primary role in data analysis and reporting.

EXPOSURE TO SCIENTIFIC METHOD:

This project will allow the student to gain experience in study design, identifying potential participants, data collection, data analysis, and data reporting. The student will aim to develop a management protocol and will present their work at the Central Region Endocrinology meeting in 2024.

STUDENT PREREQUISITES:

Do you have a student in mind? NO

Medical student

Summer Studentships 2023/2024

Main supervisor:	Rob Hackett / Anthea Anantharajah	
Email address:	Rob.hackett@ccdhb.org.nz Anthea.Anantharajah@ccdhb.org.nz	
Other Supervisor/s:	Amanda Chen	
Host Department:	Gastroenterology & Immunology, Wellington Hospital	
Location:	Wellington Hospital	
	Can students work remotely?	No

PROJECT TITLE:

Audit of the clinical utility and positive predictive value of serological markers in the diagnosis of autoimmune liver disease.

AIM:

Aim to improve the positive predictive value, sensitivity and specificity of serological markers in the diagnosis of autoimmune liver disease.

METHOD:

- Patient's diagnosed with autoimmune liver disease will be identified using individual gastroenterology consultants patient lists.
- Patients with a confirmed histological diagnosis of autoimmune liver disease will be further identified from this list of patients.
- Serological patterns consistent with autoimmune liver disease will be analysed in this patient group.
- Utilising retrospective data collection from the immunology department's database patients with positive liver autoantibody titres will also be identified.
- Data will be anonymised and stored on data collection spreadsheets held on the hospital network only.

RESEARCH SIGNIFICANCE:

Anecdotally, a greater number of patients than expected have been diagnosed with histologically proven autoimmune liver disease in the context of negative autoimmune serology.
This project, in liaison with resources from other immunology departments in New Zealand, will help to ensure the calibration of machinery in the immunology lab at Wellington Hospital.
In performing this analysis and calibration we hope to improve the positive predictive value, sensitivity and specificity of serological markers in autoimmune liver disease.

STUDENT'S ROLE:

This project will be jointly supervised by the Gastroenterology (Hackett) and Immunology (Steele) departments.
The student will be gain exposure to laboratory processes in autoantibody testing and gain a greater understanding of autoimmune liver disease.
The student will collect and analyse datapoints collected from electronic patient records.
Our aspiration would be that this be written up with a view to presentation at a national conference

EXPOSURE TO SCIENTIFIC METHOD:

Students will gain exposure to principles of autoimmune serology. The techniques specific for this project are below, but as discussed, there are a number of ancillary tests/techniques that the student can be exposed to as well such as immunoblot and looking at the liver biopsies

1) **Indirect immunofluorescence for the detection of antinuclear antibodies and tissue specific autoantibodies**
    a. Patient samples are incubated with antigen substrate to allow specific binding of autoantibodies to tissue antigens. If Antibodies are present, a stable antigen-antibody complex is formed. After

washing to remove non-specifically bound antibodies, the substrate is incubated with an anti-human antibody conjugated to fluorescein. When results are positive, there is the formation of a stable three-part complex consisting of fluorescent antibody bound to human antibody which is bound to tissue antigen. This complex can be visualized with the aid of a fluorescent microscope. In positive samples, the tissue antigen will show a bright apple-green fluorescence with a staining pattern characteristic of the particular autoantibody

2) **Enzyme linked immunosorbent assay (ELISA) for the detection of F-actin antibodies**

The QUANTALITE Actin IgG assay is performed as a sandwich ELISA assay. Purified F-actin antigen is bound to the wells of a polystyrene microwell plate under conditions that will preserve the antigen in its native state. Pre-diluted controls and diluted patient sera are added to separate wells, allowing any actin antibodies present to bind to the immobilized antigen. Unbound sample is washed away and an enzyme labelled anti-human IgG conjugate is added to each well. A second incubation allows the enzyme labelled anti-human IgG to bind to any patient antibodies, which have become attached to the microwells. After washing away any unbound enzyme labelled anti-human IgG, the remaining enzyme activity is measured by adding a chromogenic substrate and measuring the intensity of the colour that develops. The assay can be evaluated spectrophotometrically by measuring and comparing the colour intensity that develops in the patient wells with the colour in the control wells.

STUDENT PREREQUISITES:
Do you have a student in mind? No – Applications from medical or science students welcome

Summer Studentships 2023/2024

Main supervisor:	Rosemary Hall	
Email address:	rosemary.hall@otago.ac.nz	
Other Supervisor/s:	Richard Carroll Richard.carroll@ccdhb.org.nz	
Host Department:	Endocrinology Department	
Location:	Wellington Hospital	
	Can students work remotely?	No

PROJECT TITLE:

Assessment of referrals to a tertiary endocrine unit

AIM:

To assess the frequency and characteristics of referrals to a tertiary endocrine/diabetes unit over a defined period of time, and compare against a historical period.

METHOD:

All referrals to the Endocrinology and Diabetes service at Wellington Regional Hospital over a 2 year period will be reviewed. Data collected will include source of referral, endocrine issue the referral relates to, whether the referrer has requested a clinic review or advice only, and data on timing of referral. In addition, we will record data on length of time to assessment beyond referral, how many appointment with our service a referral initiated and whether this relates to the endocrine issue under question, and whether multiple referrals over the period of time were received. Similar data will be collected from a historical period to allow a comparison, and assess what significant changes to the demands on our service have occurred over that time.

RESEARCH SIGNIFICANCE:

Referrals to our service have increased significantly in recent years, for an increasing breadth of endocrine issues. Our service is moving towards a regional model of care in line with the transition to Te Whatu Ora, and a review of our referral numbers and process is required to ensure our service adopts the most appropriate model to manage this referral load.

STUDENT'S ROLE:

The student will collect all data related to the project and will play a primary role in data analysis and reporting.

EXPOSURE TO SCIENTIFIC METHOD:

This project will allow the student to gain experience in data collection, data analysis, and data reporting. The student will present their work at the Central Region Endocrinology meeting in 2024.

STUDENT PREREQUISITES:

Do you have a student in mind? NO

Medical student

Summer Studentships 2023/2024

Main supervisor:	Anthony Lin	
Email address:	tony.lin@otago.ac.nz	
Other Supervisor/s:	Sara Farrant Sara.Farrant@ccdhb.org.nz Omid Yassaie omid.yassaie@ccdhb.org.nz	
Host Department:	Department of Surgery & Anaesthesia	
Location:	Wellington campus	
	Can students work remotely?	Yes / No

PROJECT TITLE:

The rate of urinary retention and urinary function after rectal cancer surgery at a tertiary centre in New Zealand

AIM:

Urinary dysfunction is frequent after rectal cancer surgery. Symptoms include urinary retention, difficulty emptying, and urinary incontinence. These symptoms may be temporary or permanent. Multiple tumour and treatment factors are associated with urinary dysfunction, including preoperative treatment (radiation) and pelvic nerve palsy caused by surgical dissection. This study aims to define the prevalence of urinary dysfunction after rectal cancer surgery using local data and to identify risk factors for urinary dysfunction after rectal cancer surgery.

METHOD:

Data from a prospectively maintained database on patient-reported outcomes after rectal cancer surgery and hospital records will be accessed. Patient demographics, medical comorbidities, preoperative investigations, operative details, and postoperative recovery will be recorded. The association between prostate volume and urinary dysfunction will be examined. Descriptive statistics will be analyzed for each relevant factor. Nonparametric continuous data will be compared using the Mann–Whitney U test. Categorical variables will be compared using the Chi-squared test of independence. Multivariable regression analysis will be performed to identify risk factors for urinary dysfunction after rectal cancer surgery.

RESEARCH SIGNIFICANCE:

New Zealand has one of the world's highest bowel cancer rates, with 3000 patients receiving the diagnosis each year. Rectal cancer accounts for approximately one-third of the newly diagnosed bowel cancer. While cancer-related outcomes have improved with the refinement of surgical techniques and neoadjuvant radiation therapy, it has become apparent that many patients suffer from "survivorship disorders," including bowel, sexual, and urinary dysfunctions. This study aims to describe the prevalence and risk factors of urinary dysfunction in a local patient cohort.

STUDENT'S ROLE:

Extract information from a prospectively maintained cancer database and clinical records. Perform statistical analysis. Draft a manuscript.

EXPOSURE TO SCIENTIFIC METHOD:

Hypothesis formulation. Clinical data extraction and database maintenance. Perform descriptive study. Perform parametric and Nonparametric tests.

STUDENT PREREQUISITES:

Do you have a student in mind? YES/ NO

Medical student

Summer Studentships 2023/2024

Main supervisor:	**Ed Randal**	
Email address:	Edward.Randal@otago.ac.nz	
Other Supervisor/s:	Ayo Fasoro Ayo.Fasoro@otago.ac.nz	
Host Department:	Department of Public Health	
Location:	UOW Brandon Street	
	Can students work remotely?	Yes (partly)
Funding:	$6000 stipend provided by Rotary Wellington	

PROJECT TITLE:

Ageing well in urban environments – accessibility and older adults in Wellington

AIM:

To understand the accessibility of services for older adults in Wellington City

METHOD:

Detailed methods will be refined with the student, but will involve defining facilities and services of importance to older adults in Wellington in conjunction with the Funders (Rotary Wellington); collecting and processing location data from publicly available databases; mapping these facilities and services; validating location data through in-field survey; collecting publicly available sociodemographic data for the study area; using statistical software and/or GIS to analyse correlations between service location and older adult populations to establish current accessibility levels and identify any accessibility issues for specific sub-populations, services or locations.

RESEARCH SIGNIFICANCE:

Access to basic services and facilities is fundamental for wellbeing. However, a recent report from the Social Wellbeing Agency has highlighted significant vulnerabilities in access and social connection in older people in New Zealand, which are also patterned by ethnicity (Social Wellbeing Agency, 2023). With an increasingly urban and ageing population, and policies to encourage higher density development, it is important to understand whether and how inner-city urban environments meet the needs of older people. To ensure all people can age well in our cities we need to understand which services are available and which are not, where these services are found and where they are missing, and who can easily access these services and who cannot. This project is funded by the Knowles Rotary Wellington Summer Studentship as part of an ongoing scholarship programme to support research on the provision of services related to the welfare of older adults in Wellington.

STUDENT'S ROLE:

- Brief literature review of accessibility and ageing in place/inner city areas.
- Work with funder to define a list of facilities and services to study.
- Collect data on services and population in the study area.
- Map data using GIS and validate by surveying a selection of locations in person.
- Use statistical software and/or GIS to perform statistical analyses of data.
- Write a lay report of findings, including a brief summary of the literature.
- Produce poster for the Summer Studentship Poster Showcase Event.
- Brief presentation of findings to the Funders at the end of the project.

EXPOSURE TO SCIENTIFIC METHOD:

Literature review; geospatial data processing and statistical analyses; stakeholder engagement; reporting and presentation

STUDENT PREREQUISITES:

Do you have a student in mind? NO

This project will suit a student with good quantitative data and statistics skills. Experience using GIS would be beneficial, but not essential.