

Summer Studentships 2026/2027

PROJECT TITLE:

SURVEILLANCE-AUDIT-2: A retrospective audit of Wellington Hospital elective vascular surgery patients to inform the implementation of a cardiac troponin surveillance programme.

AIM:

Clinically silent myocardial injury (defined as a rise in cardiac troponin in the absence of overt cardiovascular symptoms) is common after major vascular surgery and is strongly associated with postoperative mortality, yet it can only be detected through dedicated cardiac troponin (cTn) surveillance. Early identification of myocardial injury through such a programme creates an opportunity for timely cardiology review and optimisation of secondary prevention therapies, which may reduce the risk of adverse post-operative cardiovascular outcomes. The SURVEILLANCE study, conducted by researchers at the University of Otago Wellington (UOW), is prospectively recruiting vascular surgery patients at Wellington Hospital into a dedicated cardiac troponin surveillance programme. The overarching aim is to determine how well international definitions of elevated cTn identify clinically significant myocardial injury (injury that warrants further investigation or a change in management) in an Aotearoa New Zealand context, with the goal of producing evidence-based guidelines for service-wide implementation of cTn surveillance in late 2026. These guidelines will address: (1) defining which patients are at high risk of a postoperative cardiac event and should be surveilled; (2) how frequently cTn should be sampled pre- and post-operatively; (3) what constitutes a clinically meaningful acute elevation in postoperative cTn; and (4) what management is recommended for patients found to have myocardial injury.

This studentship directly supports SURVEILLANCE, with the aim of **conducting a retrospective audit of patients admitted to Wellington Hospital for elective vascular surgery over the past 10 years, benchmarking this cohort against the cTn surveillance recommendations developed from the SURVEILLANCE study.** Specifically, the project aims to determine: (1) what proportion of elective vascular surgery patients would meet criteria for cTn surveillance; (2) how many of these high-risk patients are currently referred through the Comprehensive High-Risk Surgical Patient (CHRISP) clinic; and (3) how many experience a complicated postoperative course (defined as 30-day readmission or reintervention, categorised as cardiovascular or non-cardiovascular). Together, these data will allow the research team to **provide an evidence-based estimate of the expected per-week or per-month workload for the Vascular and Cardiology services arising from the implementation of a SURVEILLANCE-informed cTn surveillance programme.**

METHODS:

The SURVEILLANCE study is currently adjudicating individual cases from its prospective cohort to establish the specific criteria defining which patients are high-risk for a post-operative cardiac event and therefore should be entered into a cTn surveillance programme (e.g., age ≥ 45 years with established cardiovascular or vascular disease, undergoing a high-risk vascular procedure, or with a high nzRISK postoperative mortality score). This summer project will apply

those consensus recommendations retrospectively to a 10-year cohort of Wellington Hospital elective vascular surgery patients.

Patient identification. The student will identify all patients admitted to Wellington Hospital for elective major vascular surgery over the preceding 10 years using clinical coding data and patient records. Relevant clinical characteristics (age, sex, ethnicity, comorbidities, surgical procedure, and pre-operative medications) will be extracted from patient records.

Applying the surveillance criteria. Each patient will be assessed against the consensus SURVEILLANCE recommendations to determine whether they would have been identified as high-risk and indicated for cTn surveillance. The proportion of the elective vascular surgery population meeting these criteria will be reported, along with the weekly and monthly frequency of newly eligible patients.

CHRISP clinic participation. For patients meeting the surveillance criteria, the student will determine what proportion were referred to and assessed by the CHRISP clinic, a multidisciplinary perioperative medicine service at Wellington Hospital for elective surgical patients deemed high-risk, using clinic records and patient notes.

Postoperative outcomes. For a subset of the data (e.g., for the previous two years), the student will determine whether each patient experienced a complicated postoperative course, defined as 30-day readmission or reintervention. Complications will be categorised as cardiovascular (e.g., acute coronary syndrome, arrhythmia, heart failure) or non-cardiovascular (e.g., wound infection, graft failure, pulmonary complication).

Workload modelling. Combining the estimated number of high-risk patients per week or month with the proportion experiencing postoperative complications, the student will produce a practical estimate of the expected clinical workload for the Vascular and Cardiology services under a future troponin surveillance programme. This will inform a formal recommendation to both services.

RESEARCH SIGNIFICANCE:

A substantial and clinically silent burden of myocardial injury occurs after major vascular surgery, and can only be detected through dedicated cardiac troponin surveillance. While the SURVEILLANCE study is establishing the recommendations for detecting myocardial injury in a prospective Wellington Hospital cohort, there is a critical gap in knowledge regarding whether widespread implementation of such a programme is feasible in routine practice. Without understanding how many patients per week would require surveillance and follow-up, neither Vascular Surgery nor Cardiology can plan appropriately for the additional clinical workload.

This project will generate the real-world, service-level evidence needed to translate research findings into clinical practice. By quantifying the eligible patient population, CHRISP clinic coverage, and rates of complicated postoperative courses, the research team will be able to make a concrete, evidence-based recommendation to both the Vascular and Cardiology services regarding expected workload. This is an essential step towards sustainable, service-wide implementation of cTn surveillance at Wellington Hospital and beyond.

STUDENT'S ROLE AND EXPOSURE TO SCIENTIFIC METHOD:

With the support of their supervisors and the wider SURVEILLANCE research team, the student will be responsible for identifying eligible patients from clinical records, extracting and coding clinical data, applying the consensus surveillance criteria, and analysing the resulting dataset. The student will gain hands-on experience in retrospective clinical audit methodology, including systematic patient identification, structured data extraction from patient records, and data cleaning and analysis. They will be exposed to key concepts in perioperative medicine, cardiovascular risk stratification, and health services research. The student will contribute to the preparation of a

formal written recommendation to the Vascular and Cardiology services and, where appropriate, to a peer-reviewed manuscript or conference abstract.

RELEVANT PREVIOUS EXPERIENCE FOR STUDENTS (Education or Research):

No prior research experience is required. An interest in cardiovascular medicine or perioperative care is an advantage. Some familiarity with basic data handling (e.g., spreadsheets) would be beneficial. The project is well-suited to a student wishing to develop practical skills in clinical research and audit methodology.

Main supervisor:	Dr Kathryn Hally	
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Other Supervisor/s:	Wellington Hospital supervisors are Dr Scott Harding (Interventional Cardiologist) and Dr Lupe Taumoepeau (Vascular Surgeon).	
Host Department:	Department of Surgery and Critical Care	
Location:	Department of Surgery and Critical Care, Wellington Hospital	
	Can students work remotely?	No