ACT Vacation Study Program - Projects 2026-27

ACT Government

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Research Project Summaries

Project 1 - The Journey into Residential Aged Care: Barriers, Enablers and Opportunities for Improvement

Supervisor Name

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CHS/HCSD Position

Canberra Health Services

Lead Discipline

Allied Health

Project Outline

Australia's ageing population is increasing demand for both hospital and residential aged care services. Transition from hospital to permanent residential aged care is a major life event for older people and their families and is often associated with complex decision-making, emotional distress, and the need to navigate multiple health and aged care systems. Evidence suggests that poor coordination, communication failures and inadequate preparation during this transition can negatively impact patient and family experiences and outcomes (Allen, Hutchinson, Brown & Livingston, 2020; Australian Institute of Health and Welfare, 2023).

Locally, Canberra Health Services and local Residential Aged Care Homes are working to strengthen transition pathways at a process and system-level. However, consumer experience remains a critical consideration to ensure that any enhancements meet the needs of patients and families. Patients and families will provide valuable insight into the aspects of transition that are not captured through process measures or service-level data. Incorporating consumer perspectives will support the development and implementation of more effective evidence-informed and person-centred service design and models of transitional care.

Existing evidence highlights that transitions from hospital to residential aged care are critical transition points that require effective communication, coordination and continuity of care. Australian research has primarily focused on system processes movement and challenges, service utilisation, clinical outcomes, transitions for specific populations, and supports for patients following their transition. The national Aged Care and health care quality and safety standards emphasise the importance of well-coordinated transitions and consumer involvement in decision-making. Despite this, limited qualitative research has explored the lived experiences of patients and families across the entire transition journey. There is little published evidence relating to patients' emotional and practical experience of their transition, their perceptions of major barriers and challenges, and conversely, factors that enable successful and positive transitions, aspects of the transition that work well, and what an ideal transition pathway should look like. Addressing this gap will provide consumer-informed evidence to support clinical improvement and design, and future implementation of optimal transition approaches.

<u>Research Question</u>
Primary Research Question:
How do patients and families experience the transition from hospital to permanent residential aged care, and what do they perceive as the barriers, enablers, and opportunities for improving this transition?

Secondary Research Questions:

1. What challenges and barriers are encountered throughout the transition journey from hospital to residential aged care?
2. What factors support or enable a positive transition experience?
3. What are the positive and negative aspects of the current transition pathway?
4. What improvements do patients and families recommend?
5. What do patients and families believe constitutes an ideal transition from hospital to residential aged?

CoCoPop Framework

Condition - Transition from hospital to permanent residential aged care

Context - Subacute hospital settings and residential aged care facilities

Population - Older adults transitioning to residential aged care and family members involved in the transition

Proposed Research Methods

This study will use an Interpretive Description methodology to explore patient and family experiences of transition from hospital to permanent residential aged care. Semi-structured interviews will be conducted with older people who have transitioned to residential aged care within the previous 12 months and/or family members involved in the transition. Reflexive Thematic Analysis (Braun & Clarke, 2021) will be used to identify key themes relating to barriers, enablers, positive and negative experiences, and opportunities for improvement. These findings will be interpreted using Meleis' Transition Theory (Meleis, 2010), to ensure consideration of the impact of personal, social and health system influences during significant life transitions, and principles of person-centred care, to inform recommendations for improving transitions between hospital and residential aged care.

Primary Data

Data will be collected through individual semi-structured interviews with:

- Older adults who have transitioned from hospital to permanent residential aged care within the previous 12 months and are able to provide informed consent.
- Family members or informal carers who were involved in the decision-making and transition process.

Interviews will explore experiences across the transition pathway, including:

- Decision-making regarding residential aged care placement.
- Communication and information sharing.
- Discharge planning and transfer processes.
- The move into residential aged care.
- Adjustment during the initial period following admission.
- Perceived barriers, enablers, positive and negative experiences.
- Recommendations for improvement and views on what an ideal transition would look like.

Data will consist of audio-recorded interviews and de-identified transcripts stored securely via password protection on approved health service computers.

Sample and Eligibility

A purposive sample of approximately 12 participants will be recruited through Canberra Health Services and partnering with Residential Aged Care Homes, following ethics approval. Given the exploratory qualitative design and the limitations on a data collection period within the 6-week project, a sample of 12 participants is considered sufficient to generate data that will identify key themes. If time permits the sample size will be increased to 15.

Inclusion Criteria

Patients:

- Aged 65 years and older.
- Transitioned from an acute or subacute hospital admission to permanent residential aged care within the previous 12 months.
- Able to provide informed consent and participate in an interview.

Family Members/Carers:

- Aged 18 years or older.
- Actively involved in the transition process from hospital to residential aged care.
- Able to provide informed consent.

Exclusion Criteria

- Patients unable to provide informed consent.
- Individuals experiencing significant distress that would make participation inappropriate.
- Participants unable to communicate in English where interpreter resources are unavailable.

Analysis Plan

Interviews will be analysed using Reflexive Thematic Analysis. Data collection and analysis will occur concurrently, allowing emerging insights to inform subsequent interviews and support refinement of developing themes. Findings will be interpreted through the lens of Meleis' Transition Theory to generate clinically meaningful recommendations for improving person-centred transitions between Canberra Health Services and Residential Aged Care Homes.

Student Tasks Across the Research Cycle

Research project design, HREC application, and participant recruitment (post HREC approval) will be completed prior to student commencement.

The student will participate in qualitative interviews, data management, coding and thematic analysis under supervision, interpretation of findings with the research team, and contributing to development of recommendations and an ideal transition model. There will also be opportunity to continue in project activities in a voluntary capacity following completion of the 6-week project.

6-Week Feasibility

Ethics application and recruitment will be completed prior to student commencement to maximise outputs that can be achieved within the 6-week placement period. The student will aim to complete qualitative interviews, preliminary coding and thematic analysis of available interview data, development of an initial thematic framework, preparation of a summary report outlining emerging findings and recommendations.

Activities That will Continue Beyond Placement

The research team will complete final thematic analysis, manuscript preparation and publication, conference presentations and any other dissemination activities, implementation of enhancement activities resulting from the evidence collected. The student will be offered ongoing participation in these activities a voluntary capacity as per their choice.

Key Dependencies and Risk Management

Dependency followed by mitigation strategy

i. Human Research Ethics Committee approval
   - Research protocol design and HREC application completed on approval of project

ii. Participant recruitment
   - Recruitment to commence once HREC approval obtained

iii. Qualitative analysis
   - Implement a staged analysis approach that supports timely analysis and reduce the risk of unanalysed data at the end of the placement.
   - Exploration of access to qualitative analysis software within CHS and UC

Preferred study discipline being undertaken by the student

Medical, Nursing or any Allied Health Profession student

Benefits to the student and to the organisation

Student benefits:

- Practical skills in qualitative research, including interviewing, coding and thematic analysis.
- Experience translating research findings into recommendations for clinical service improvement.
- Potential to contribute to dissemination activities, including conference and publication outputs.
- Comprehensive understanding of patient experience when transitioning to aged care
- Experience communicating with patients

Organisational benefits:

- Canberra Health Services and local Residential Aged Care Homes will receive consumer-informed evidence on barriers, enablers, unmet needs during transition, and recommendations for optimising transitions.
- The data will support ongoing collaboration between hospital and aged care sectors to improve transition pathways.
- The data will inform future improvement initiatives and development of a consumer-informed model of best-practice transition care.

Describe anticipated outcomes of VSP project

The project will

- generate new insights into patient and family experiences of transition from hospital to residential aged care, including barriers, enablers and opportunities for improvement.
- inform the evidence base regarding transitions from hospital to residential aged care, local initiatives and support development of a consumer-informed model of best-practice transition care.

In addition to the required VSP report and presentation, anticipated outputs include:

- A conference abstract for submission to a local or national conference.
- A manuscript for publication in a peer-reviewed journal.
- A consumer journey map highlighting key transition experiences, improvement opportunities, and an ideal transition framework.
- Service improvement opportunities for Canberra Health Services and partnering Residential Aged Care Homes.

Project 2 - Breaking the boundaries: Evaluating Skill-Sharing in a Multidisciplinary Rehabilitation at Home Service

Supervisor Name

Lucy Walton

Co-supervisor – Lilian Anderson

CHS/HCSD Position

Canberra Health Services

Lead Discipline

Allied Health

Project Outline

Clinicians working in public health services are increasingly challenged by the growing demands on health services, attributable to demographic shifts towards an ageing population with complex chronic conditions. By 2050, the world's population of people aged 60 years and older is predicted to double, placing increasing demands on healthcare services (1). Allied health workforce shortages have been identified in aged care, rural and regional areas and community-based services nation-wide (2). Services are stretched due to both high workload and inefficient models for multidisciplinary care. In multidisciplinary rehabilitation services, clients frequently require input from more than one profession. Traditionally siloed approaches can result in duplication of assessment and treatment, and inefficient holistic patient care. As services seek to provide timely, high-quality care with already constrained resources, innovative workforce models are needed to improve flexibility and responsiveness.

Professional skill-sharing is the process whereby an allied health professional undertakes a defined clinical task that is traditionally performed by another discipline, following appropriate training and competency assessment (3). By enabling clinicians to safely undertake selected tasks across traditional professional boundaries, skill-sharing can reduce delays, enhance workforce flexibility, and optimise the use of available resources while maintaining quality and safety. Existing evidence suggests skill-sharing models achieve clinical outcomes comparable to traditional profession-specific care while improving service efficiency and resource utilisation, particularly in community and rural rehabilitation settings (3-7).

Canberra Health Services (CHS) has developed a guideline to support the safe and consistent implementation of skill-sharing across services. However, and evidence-to-practice gap exists. Despite the emerging body of organisational guidance and training resources available, skill-sharing processes are not consistently implemented into the routine practice of existing multidisciplinary services. Whilst emerging evidence supports the effectiveness of a skill-sharing model, factors influencing implementation of skill-sharing remains largely unexplored. Little is known about the barriers and enablers to implementing skill-sharing within multidisciplinary rehabilitation services, and their implementation in real-world settings has not been evaluated. Addressing these gaps will help bridge the evidence-to-practice divide by generating practical insights to support the broader implementation of skill-sharing models and inform future transdisciplinary workforce initiatives across outpatient and community-based services. As such, this project seeks to answer the following research question; among allied health professionals working within the multidisciplinary RaH service, how well are skill-sharing tools and processes implemented in routine clinical practice, and what factors influence their implementation?

To address this question, the project will:

1. Explore clinician perspectives on factors influencing the use of skill-sharing practices with a home-based community rehabilitation service.
2. Evaluate the implementation of skill-sharing practices within this home-based rehabilitation service, considering key implementation outcomes i.e. adoption, acceptability, appropriateness, feasibility, sustainability).

Proposed Research Methods

Study Design

This mixed-methods pre-post implementation evaluation study will be conducted within the Rehabilitation at Home (RaH) service at the University of Canberra Hospital. The RaH service is a multidisciplinary home-based rehabilitation service that provides goal-oriented rehabilitation for older adults and individuals with neurological, orthopaedic, respiratory and deconditioning-related conditions. The team comprises physiotherapists, occupational therapists and allied health assistants, with additional support from a social worker as required. The study will use qualitative interviews and quantitative surveys assessing implementation outcomes, to evaluate the implementation of skill-sharing practices among allied health clinicians within one community rehabilitation service.

Participants

Occupational therapists, physiotherapists and allied health assistants employed within the RaH service between December 2026 and February 2027 will be invited to participate via email using purposive sampling (aiming for n = 5-8 clinicians). Given the small size of the Rehabilitation at Home workforce, all eligible clinicians will be invited to participate. A purposive sampling approach will be used to ensure representation of occupational therapists, physiotherapists and allied health assistants involved in skill-sharing practices. The proposed sample is considered appropriate for an exploratory implementation study focused on depth of understanding rather than statistical inference. Participation in interviews and surveys will be voluntary, with informed consent obtained prior to data collection.

Intervention

Prior to study commencement, skill-sharing tools and resources appropriate for the service will be co-designed by clinicians and the research team in accordance with CHS guidelines and recommendations, drawing on and adapting existing resources from other Australian health services. During a three-month implementation period, clinicians will be supported to integrate skill-sharing practices into routine clinical care. This will include discipline-specific training and competency assessment delivered by professional leads within the service using the co-designed resources and implementation tools. Following training, clinicians will engage in ongoing peer support, regular team discussions, and use of the implementation resources to facilitate the safe and consistent application of skill-sharing practices within the RaH service.

Data Collection

A semi-structured interview guide will be developed with consideration of validated implementation frameworks, including the Consolidated Framework for Implementation Research (CFIR)(1) and Proctor's implementation outcomes and process measures (2). Interviews will explore clinician experiences and perceptions on factors influencing the implementation of skill-sharing practices within the RaH service. Semi-structured interviews will be conducted face-to-face and are expected to last approximately 30–45 minutes. In the event interviews cannot be conducted face-to-face, they will be conducted virtually using Microsoft Teams. Interviews will be audio-recorded, professionally transcribed verbatim, and returned to participants for comment and verification. Field notes will be recorded following each interview to support interpretation of findings and reflexive analysis.

All consenting participants will be invited to complete an online survey assessing implementation outcomes associated with skill-sharing practices. Survey measures will include the Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility of Intervention Measure (FIM). Additional demographic and professional characteristics, along with process measures relevant to skill-sharing adoption, will be collected. Survey data will be administered using Qualtrics or an equivalent secure electronic platform. All quantitative and qualitative data will be collected immediately prior to and following the 3-month skill-sharing implementation period.

Data Analysis

Qualitative data, including interview transcripts and field notes, will first be analysed inductively using Braun and Clarke's six phases of thematic analysis to identify key themes and subthemes relating to clinician experiences. Identified themes and subthemes will then be deductively mapped to the CFIR to better understand factors influencing implementation at individual and organisational levels. These findings will then be mapped to Proctor outcomes of adoption, acceptability, appropriateness, feasibility, sustainability to comprehensively evaluate the success or failure of skill-sharing implementation. Coding and theme development will be discussed with the supervisory team to enhance trustworthiness and minimise individual researcher bias.

Quantitative survey data relating to feasibility, acceptability and appropriateness will be analysed using descriptive statistics. All findings will be summarised under each Proctor implementation outcome to provide a comprehensive evaluation of the implementation of skill-sharing practices.

Progress to be completed by clinical area pre-placement:

- Clinicians will conduct a literature review on the effectiveness and implementation of skill-sharing practices in community rehabilitation settings.
- Ethics approval will be sought (Aiming for low-risk sub-committee meetings on either Wednesday 05 August 2026 or Wednesday 19 August 2026).
- Skill-sharing tools will be co-design by clinicians and research leads based on existing skill-sharing tools and practices used in existing settings and an implementation blueprint created.
- Clinician recruitment and pre-implementation data collection of surveys and interviews will be completed with clinicians.
- A 3-month pilot implementation will be completed (Aiming for between September and December 2026).

Student tasks during placement

The student tasks will include:

- Assisting with the refinement of post-implementation semi-structured interview guides with supervisory support.
- Conducting post-implementation semi-structured interviews with participating clinicians (anticipated minimum of three interviews).
- Completing interview field notes
- Coordinating transcription and member-checking processes for interviews conducted during the placement.
- Undertaking descriptive analysis of pre- and post-implementation survey data.
- Contributing to preliminary interpretation of findings and discussion of implementation outcomes with the supervisory team.

6-Week Feasibility

During the 6-week placement, the student will descriptively analyse the pre-post implementation surveys. The student will adapt the pre-implementation semi-structured interview guides for use post-implementation. They will then complete >3 post implementation interviews with clinicians and

associated field notes, under the guidance of a supervisor. They will complete transcription and member checking of the interviews they completed with the relevant clinicians. To support skill development and minimise research risk, the student will participate in a pilot interview and receive feedback from the supervisory team before undertaking participant interviews independently. A compilation of supporting research tools and templates will be provided to the student on commencement of the placement to support the learning and use of basic research skill relating to these duties. Regular supervisory meetings will be scheduled.

Following completion of the placement, the supervisor and broader research team will conduct any remaining interviews, complete the final qualitative analysis, integrate findings and lead manuscript preparation and dissemination activities. Progress to date includes development of the research protocol, preliminary project planning and ongoing completion of the literature review.

Preferred study discipline being undertaken by the student

Physiotherapy or Occupational Therapy student

Benefits to the student and to the organisation

- The student will learn of practical research skills in mixed-methods research, including survey analysis, semi-structured interview design, qualitative data collection, transcription and thematic analysis.
- The student will gain experience in health service research, stakeholder engagement, co-design approaches, and knowledge translation within a multidisciplinary allied health setting.
- The project will generate evidence to inform the implementation of skill-sharing practices within the RaH service and support future workforce innovation initiatives across Canberra Health Services and in community rehabilitation settings outside the organisation.
- The project will produce practical outputs for the organisation, including skill-sharing tools, training resources, implementation recommendations and evidence to support service improvement and rehabilitation workforce development.
- Following the placement, findings will be translated into practice through service education and planning, disseminated through local and national conference presentations, and have potential to contribute to a peer-reviewed publication pathway.

Describe anticipated outcomes of VSP project

The project will generate locally adapted skill-sharing resources, including Clinical Task Instructions, training materials and implementation recommendations for the Rehabilitation at Home service. If found to be feasible, acceptable and sustainable, these resources may be adapted for use across other multidisciplinary outpatient and community rehabilitation services, supporting more efficient and timely rehabilitation delivery for community-based patient populations, in Canberra and more broadly. Findings will be disseminated through local in-service programs and presented at relevant local and national forums, including the Canberra Health Annual Research Meeting (CHARM), the Allied Health Symposium, and national allied health conferences. The project will also contribute to the development of a peer-reviewed publication and provide evidence-informed recommendations to support future workforce innovation and service redesign initiatives within Canberra Health Services.

Project 3 - Initiation of pump therapy at diagnosis of Type 1 Diabetes mellitus vs standard care: effect on glycaemic targets within the first 12 months

Supervisor Name

Sarah Hosking

Co-supervisor - Tony Lafferty

CHS/HCSD Position

Canberra Health Services

Lead Discipline

Medicine

Project Outline

Problem & Context

Type 1 diabetes mellitus (T1DM) is a lifelong autoimmune condition characterized by destruction of pancreatic beta cells and a resulting deficiency of insulin production. In children, T1DM is associated with a high lifetime risk of microvascular and macrovascular complications because of the early age of disease onset. Glycaemic control and duration of diabetes are key predictors of long-term outcomes, making optimisation of blood glucose management from diagnosis critical.

In Australia, approximately 13,000 children live with T1DM, with around eight children diagnosed each day. Achieving optimal glycaemic control in the first years after diagnosis is challenging for children and their families and can contribute to significant treatment burden, diabetes distress and caregiver burnout. Hybrid closed-loop (HCL) insulin pump systems have transformed diabetes management by automating insulin delivery and improving glucose control. While HCL systems are increasingly used in paediatric diabetes care, uncertainty remains regarding the optimal timing of initiation. Determining whether commencing HCL therapy at diagnosis improves outcomes may help guide clinical practice and support earlier access to diabetes technologies for children and families.

Evidence Gap

There is strong evidence that HCL insulin pump systems are safe and effective in children with T1DM. Multiple randomised trials, observational studies and meta-analyses have demonstrated improvements in HbA1c, Time in Range (TIR), and quality of life compared with multiple daily injections (MDI). HCL pump therapy has also been associated with reduced diabetes distress and fear of hypoglycaemia.

There is also substantial evidence that early glycaemic control predicts future diabetes outcomes. HbA1c levels during the first years after diagnosis are strongly associated with long-term glycaemic control and the development of complications including diabetic ketoacidosis (DKA), retinopathy and microvascular disease.

Despite these findings, evidence regarding early initiation of HCL therapy at diagnosis remains limited. Most studies evaluating HCL systems have included participants who were diagnosed several months prior to commencing pump therapy. Existing studies investigating pump initiation near diagnosis have produced mixed results. Some studies have reported improved long-term HbA1c among children commenced on pump therapy within one month of diagnosis, whereas others found no significant differences. Importantly, there is little evidence comparing HCL initiation within one month of diagnosis

versus initiation more than one month after diagnosis, particularly within an Australian paediatric population using contemporary HCL technology.

Research Question
Primary Research Question:
Among children aged ≤16 years newly diagnosed with type 1 diabetes mellitus, does commencement of a hybrid closed-loop insulin pump within one month of diagnosis, compared with commencement more than one month after diagnosis, improve glycaemic outcomes during the first year after diagnosis?

PICO Framework
Population (P): Children aged ≤16 years diagnosed with T1DM and managed at the Centenary Hospital for Women and Children.
Intervention (I): Initiation of a hybrid closed-loop insulin pump within one month of diagnosis.
Comparison (C): Initiation of a hybrid closed-loop insulin pump more than one month after diagnosis.
Outcome (O): Primary outcome – Time in Tight Range (TITR) at 3 and 6 months. Secondary outcomes – Time in Range (TIR) at 3, 6 and 12 months; HbA1c at 3, 6 and 12 months; total daily insulin dose (U/kg); proportion achieving HbA1c ≤6.5%; and rates of diabetic ketoacidosis (if available).

Research Question (PICO Format)
In children aged ≤16 years newly diagnosed with type 1 diabetes, does initiation of a hybrid closed-loop insulin pump within one month of diagnosis, compared with initiation more than one month after diagnosis, result in improved Time in Tight Range, Time in Range and HbA1c outcomes during the first 12 months following diagnosis?

Proposed Research Methods

Study Type/Design
This project is a prospective observational cohort study conducted through the Paediatric Diabetes Service at the Centenary Hospital for Women and Children, Canberra Health Services. The study aims to determine whether commencing a hybrid closed-loop (HCL) insulin pump within one month of diagnosis of type 1 diabetes mellitus (T1DM) is associated with improved glycaemic outcomes compared with commencing HCL therapy more than one month after diagnosis.

As treatment allocation is determined by clinical need, family preference, and access to pump technology rather than randomisation, this is a non-randomised cohort study. The study utilizes prospectively collected clinical, continuous glucose monitoring (CGM), and insulin pump data routinely gathered as part of diabetes care.

Data Sources and Access Arrangements
Data were collected prospectively from children newly diagnosed with T1DM and managed by the Paediatric Diabetes Service at Canberra Health Services.

Data sources include electronic medical records, CGM downloads and reports, insulin pump downloads, pathology results (HbA1c), routine clinic records and demographic information collected during clinical care. Variables available for analysis include age, sex, auxology, HbA1c, total daily insulin dose, Time in Tight Range (TITR), Time in Range (TIR), socioeconomic status (IRSAD), English-speaking status and rates of diabetic ketoacidosis where available.

Data are stored within Canberra Health Services systems and will be extracted by authorised members of the research team. All data used for analysis will be de-identified and stored on secure Canberra Health Services servers in accordance with institutional governance and ethics requirements.

Sample and Eligibility Criteria

Inclusion criteria:

- Children aged ≤16 years.
- Newly diagnosed with T1DM
- Managed by the Paediatric Diabetes Service at the Centenary Hospital for Women and Children.
- Diagnosed between October 2024 and January 2026
- Commenced HCL pump therapy either within one month of diagnosis or more than one month after diagnosis.
- Availability of CGM and follow-up clinical data

Exclusion criteria:

- Alternative diabetes diagnoses (e.g., type 2 diabetes, monogenic diabetes)
- Patients managed primarily outside Canberra Health Services
- Missing key outcome data preventing meaningful analysis

Participants will be divided into two groups: (1) Early HCL group – commencement of HCL therapy within one month of diagnosis; and (2) Delayed HCL group – commencement of HCL therapy more than one month after diagnosis.

A total of 31 children diagnosed with T1DM between October 2024, and January 2026 have been consented for inclusion in the study. Of these, 14 participants commenced HCL therapy within one month of diagnosis, while 17 participants commenced pump therapy more than one month after diagnosis and will form the comparison group.

Analysis Plan

The primary outcome is Time in Tight Range (TITR) for 3 and 6 months following diagnosis.

Secondary outcomes include Time in Range (TIR) at 3, 6 and 12 months; mean HbA1c at 3, 6 and 12 months; change in HbA1c from diagnosis; mean total daily insulin dose (U/kg/day); proportion achieving ISPAD HbA1c targets (≤6.5%); and rates of diabetic ketoacidosis if available.

Baseline demographic and clinical characteristics will be summarized using descriptive statistics. Continuous variables will be reported as means and standard deviations or medians and interquartile ranges depending on data distribution. Categorical variables will be reported as frequencies and percentages.

Statistical analyses will be undertaken using R statistical software. Data will first be assessed for normality, and appropriate parametric or non-parametric tests will be applied. Comparisons between groups will be performed using t-tests, Mann-Whitney U tests, chi-square tests or Fisher's exact tests, as appropriate. Where sample size permits, multivariable regression models will be used to adjust for potential confounders including age, sex, baseline HbA1c, socioeconomic status and language background.

Results will be interpreted with consideration of both statistical and clinical significance.

Student tasks across the research cycle

The student will conduct and update the literature review; assist with refinement of the study protocol and analysis plan; review data quality and completeness; participate in data extraction and organization of de-identified datasets; undertake descriptive and comparative statistical analyses under supervision; assist with interpretation of findings; contribute to preparation of research reports, conference abstracts and manuscripts; and participate in discussions regarding translation of findings into clinical practice.

6-Week Feasibility

The project is highly feasible within a six-week placement as participant recruitment and data collection have already been completed for the study cohort. A de-identified dataset comprising 31 participants is available for analysis, allowing the student to focus on data review, analysis, interpretation, and dissemination.

Activities expected to be completed within the placement include literature review, dataset familiarization, data verification and cleaning, development of the statistical analysis plan, descriptive and comparative analyses, interpretation of findings, and preparation of a report and manuscript or conference abstract.

Activities that may continue beyond the placement include additional analyses, manuscript submission, conference presentations, and translation of findings into local clinical practice.

Key dependencies include access to the de-identified dataset, statistical software (R), and availability of complete follow-up data. Risks will be managed through early assessment of data completeness and prioritization of analyses for outcomes with sufficient available data.

Progress to Date

Substantial progress has already been made. A comprehensive literature review has identified an important evidence gap regarding the effect of HCL initiation at diagnosis compared with delayed commencement. The study protocol has been developed by the multidisciplinary Paediatric Diabetes and Endocrinology team, and data collection processes have been established. Ethics was submitted and approval gained.

Data have already been collected for 31 children diagnosed with T1DM between October 2024 and January 2026, including 14 children who commenced HCL therapy within one month of diagnosis and 17 children who commenced pump therapy later than one month after diagnosis. Clinical, CGM and demographic data have been obtained through routine clinical care, and key outcome measures including TITR, TIR, HbA1c and insulin dose have been identified. Preliminary data review has confirmed the availability of data required to address the study objectives, positioning the project well for statistical analysis and dissemination during the student placement.

Preferred study discipline being undertaken by the student

Medical

Benefits to the student and to the organisation

The student will gain experience in clinical research, literature review, data analysis and interpretation of outcomes in paediatric diabetes.

The student will develop skills in analysing real-world clinical and continuous glucose monitoring data. Understanding optimal and sub-optimal glycaemic control.

The student will contribute to research outputs such as reports, conference abstracts and manuscript preparation.

Canberra Health Services will benefit from local evidence on whether initiating hybrid closed-loop insulin pumps at diagnosis improves glycaemic outcomes.

Findings may inform future clinical practice, service planning and timing of pump initiation for children with newly diagnosed T1DM.

Results will be disseminated through presentations and publication, supporting ongoing quality improvement and future research.

Describe anticipated outcomes of VSP project

Aim to present at ANZSPED (Paediatric Endocrine conference), CHARM (at CHS) and formal publication of dataset and study.

Project 4 - Effect of brief parental educational regarding ASCIA guidelines for early peanut introduction on feeding practices and allergy development among infants

Supervisor Name

Deepti Raina

Co-supervisor – Emily Bek

CHS/HCSD Position

Canberra Health Services

Lead Discipline

Medicine

Project Outline

Peanut allergy remains a significant public health concern, effecting approximately 3% of children in Australia. Evidence from randomized trials, notably LEAP, demonstrates that early and sustained peanut consumption in infancy substantially reduces the risk of peanut allergy into later childhood. Based on this evidence, major international guidelines recommend early introduction of common allergens, including peanut, from 4–6 months for most infants.

The Canberra Allergy Reduction and Education for Peanuts (CARE Peanut) study started this year with an initial Knowledge, Attitudes, and Practices (KAP) survey and brief educational intervention delivered to new parents before their infants were 6 months old. The preliminary results are exciting, identifying significant risk factors for feeding intentions that are not concordant with national guidelines.

This project is the second stage of the CARE Peanut study, which will assess real world implementation and clinical outcomes at 12 months of age. The protocol for this second stage of the project has been approved by the Research Ethics and Governance Office. The primary objectives are: (1) to determine the proportion of parents who introduced peanut by 12 months and characterize timing, frequency, and form of introduction; and (2) to ascertain the occurrence of suspected or confirmed peanut allergy symptoms, healthcare presentations, and diagnoses. Secondary objectives include identifying barriers and facilitators for peanut introduction after the educational intervention, evaluating parental confidence and recall of recommendations, and exploring associations between atopic risk factors (e.g., eczema, egg allergy) and peanut introduction practices and outcomes.

Inclusion criteria: The follow up survey group will only include infants previously enrolled in the CARE Peanut study. The control group will include infants born 1 Aug 2025–31 Oct 2025 at Canberra Health Services and not meeting the previous exclusion criteria for CARE Peanut study enrolment (residing outside of the ACT, NICU/SCN admission for more than 72 hours; chronic complex care needs, parents declining consent or not contactable)

Outcomes: Primary outcomes are (a) timing of peanut introduction (b) suspected and clinician confirmed peanut allergy. Secondary outcomes include characterization of reaction severity, patterns of ongoing peanut ingestion, factors associated with delayed/non introduction, and changes in parental knowledge and confidence from baseline.

This study will measure uptake of early peanut introduction following targeted parent education and its association with allergy outcomes at one year. This will be compared to parents' feeding intentions prior to education intervention and to feeding practices among parents who did not receive the educational intervention. The findings will inform public health strategies to support safe, timely peanut introduction in routine care. The results of this study will also feed into the next phase of the CARE Peanut study which will involve the development of an oral immunotherapy program to treat Peanut allergy.

Proposed Research Methods

Methods: We will conduct a structured survey via email or telephone with parents previously enrolled in the KAP study (infants born 1 Nov 2025–31 Jan 2026 at Canberra Health Services), and with a control group of parents. The follow-up will occur when children reach approximately 12-18 months of age. The questionnaire will capture timing and method of peanut introduction; frequency and continuity of exposure; adverse reactions; any clinician-confirmed diagnoses; presence of other atopy e.g. eczema; and parental perceptions post-intervention.

Inclusion criteria: The follow up survey group will only include infants previously enrolled in the CARE Peanut study. The control group will include infants born 1 Aug 2025–31 Oct 2025 at Canberra Health Services and not meeting the previous exclusion criteria for CARE Peanut study enrolment (residing outside of the ACT, NICU/SCN admission for more than 72 hours; chronic complex care needs, parents declining consent or not contactable).

The student's 6-week placement will be useful for a considerable amount of data collection and generating results. As this is second stage of an ongoing project, the project will run on already established groundwork, and the inclusion group families are expecting us to contact them.

We are in the stage of final data collection and result analysis of CARE Peanut project which is knowledge attitude and practices assessment of new parents on early introduction of peanuts. The inclusion group for the proposed research will be based on the KAP group. We have an ethics approval for the proposed project including consent and methodology.

Preferred study discipline being undertaken by the student

Medical

Benefits to the student and to the organisation

The student will learn about Paediatric food allergy and outcome of early vs late introduction of allergens (peanuts in our case).

They will be provided with an opportunity to be involved with the project firsthand from data collection to results analysis and also publication (if interested). They will also learn new skills on research methodologies.

This study will require direct communication with parents regarding their feeding practices and so will support the development of clinical communication skills that will be particularly relevant for medical and nursing students.

We will benefit immensely with their keenness to be a part of this project as we expect this project to bring a big shift in parental understanding of importance of early introduction of peanuts. Canberra Health Services will benefit from the information collected regarding parents for whom targeted education is likely to have the most significant impact on feeding practices, as this will result in reduction of peanut allergy reducing the healthcare burden of this condition.
The results of this study will also feed into the next phase of the CARE Peanut study which will involve the development of an oral immunotherapy program to treat Peanut allergy.

We also plan to use this work in further presentations at various scientific meetings and with an ultimate goal of publishing.

Describe anticipated outcomes of VSP project

Primary outcomes are (a) timing of peanut introduction (b) suspected and clinician-confirmed peanut allergy. Secondary outcomes include characterization of reaction severity, patterns of ongoing peanut ingestion, factors associated with delayed/non-introduction, and changes in parental knowledge and confidence from baseline.

We expect that this study will be written up as a journal article following the completion of the survey, and it may be possible to begin this process within the 6-week project period. Any student interested in this project would have the opportunity to remain involved with the publication process. This project represents one stage in the broader CARE Peanut study, which will be presented at conferences including CHARM in years to come and will also lead to further opportunities in the next phases of research mentioned including evaluation of the establishment of an oral immunotherapy treatment protocol for peanut allergy.

Project 5 - The allied health perspectives on delivering the SPICE exercise program for people with dementia and their care partners

Supervisor Name

Clare Stephenson

Co-supervisor – Nicholas Lawlis

CHS/HCSD Position

Canberra Health Services

Lead Discipline

Nursing and Midwifery

Project Outline

Dementia is a major public health concern with over 400,000 people living with dementia in Australia. Physical activity is considered one of the most effective non-pharmacological methods for supporting physical health, cognitive health, quality of life and independence. Despite a growing body of evidence supporting the role of physical activity for people with dementia, there is a limited understanding the perspectives of allied health professionals in delivering exercise programs. The Sustainable Personalised Interventions for Cognition, Care and Engagement (SPICE) program is a multicomponent intervention for people with dementia and their care partners. Within the program, participants engage in group exercise sessions delivered by allied health professionals. Understanding the perspectives and experiences of these clinicians is critical for identifying opportunities to improve implementation, sustainability, and participant outcomes.

Current evidence suggests that exercise programs for people with dementia can improve the health and lives of people with dementia and their care partners. But this research focusses on health outcomes. There is limited understanding regarding successful implementation from a workforce perspective, including workforce experiences, deliver barriers, staffing requirements, and adaptations and strategies. This program attempts to understand the perspectives of people delivering exercise programs for people with dementia.

Research question: What are the experiences, perceptions, barriers and facilitators experienced by allied health professionals associated with delivering the SPICE exercise program in different clinical settings.

Proposed Research Methods

This study will employ a qualitative, exploratory approach involving one-on-one semi-structured interviews with allied health professionals who are involved in delivering the SPICE exercise program. A qualitative approach is appropriate given the aims to explore experiences, perceptions, barriers and facilitators regarding implementation and delivery of exercise programs for people with dementia and their care partners.

To capture a range of contexts, participants will be recruited from three SPICE program delivering organisations: Canberra Health Services (University of Canberra Hospital [UCH] and Village Creek Kambah [VCC]), Harbison at Burradoo (Residential care facility in the southern highlands, NSW), and Barwon Health (Healthcare provider in Geelong, VIC). These sites represent different health service and aged care environments and provide an opportunity to compare experiences and perceptions across settings.

Participants will be recruited through existing SPICE programs and staff members that have been involved with delivering the SPICE program at UCH, VCC, Barwon Health, or Harbison. Interviews will be conducted in person or via videoconference and audio-recorded with participant consent. Recordings will be transcribed verbatim, stored in accordance with University of Canberra ethics and data management requirements.

Participants will be allied health staff involved with delivery of the SPICE program at UCH, VCC, Barwon Health, or Harbison.

Interview transcripts will be analysed using reflexive thematic analysis. Following familiarisation with the data, transcripts will be systematically coded to identify patterns relating to implementation experiences, barriers, facilitators, workforce factors, and recommendations for future programs. Codes will be iteratively grouped into themes and reviewed by the research team. The student involved will take part in all steps of the analysis project.

To ensure the student undertakes meaningful research engagement, they will be involved in conducting interviews, all stages of data analysis, and generation of findings and the reports. Through this process they will be supported to understand qualitative research, and reflexive thematic analysis by the panel, all of whom have experience in conducting qualitative research.

Prior to the commencement of the placement, the project will have ethics approval, including the development of interview material, consent and participant information forms, identification of participants and scheduling of participant interviews. The student will then assist with data collection and undertake transcript coding and thematic analysis of available interview data and participate in the interpretation of findings before preparing their final report and presentation. Activities that may continue beyond the placement include completion of any remaining interviews, completion of manuscript preparation, journal submission, and conference presentations.

To date, the SPICE project is an established lifestyle intervention within Canberra Health Services, Barwon Health, and Harbison. This ensures that the allied health professionals have adequate understanding of the exercise component to provide commentary. Relevant literature relating to dementia exercise interventions, implementation, and workforce experiences has been identified and reviewed. A draft study protocol and interview guide are being developed, and ethics application preparation is underway.

Preferred study discipline being undertaken by the student

Allied health student with clinical exercise focus (e.g. physiotherapy, exercise physiology)

Benefits to the student and to the organisation

- Developing practical skills in the design, data collection and analysis of a qualitative research project.
- Developing an understanding of dementia care and exercise interventions.
- UC will improve their understanding of factors influencing successful program delivery.
- To formulate peer-reviewed journal articles to support high-quality exercise programs for people with dementia.

Describe anticipated outcomes of VSP project

- Identification of barriers and facilitators to delivering exercise programs for people with dementia
- Development of practical recommendations to enhance future SPICE delivery
- Dissemination at conferences (e.g. CHARM or Australian Dementia Research Forum)
- Preparation of peer-reviewed manuscript

Project 6 - Trauma-related experiences in maternity professionals: A rapid review of risk factors, impacts, and interventions

Supervisor Name

Kai Hodgkin

Co-supervisor – Belle (Belinda) Bruce

CHS/HCSD Position

Health and Community Services Directorate

Lead Discipline

Nursing and Midwifery

Project Outline

Trauma can fundamentally alter how individuals perceive their work, their relationships, and the world around them. For maternity professionals, including midwives and obstetricians, exposure to trauma is not limited to isolated critical incidents, but is often cumulative, ongoing, and multifaceted.

This exposure includes direct trauma, such as personal involvement in adverse clinical outcomes, resuscitation, occupational violence, or working through high-pressure events, such as pandemics and natural disasters. It also includes vicarious trauma, arising from repeated exposure to distress, including witnessing difficult experiences and supporting women and birthing people and their families across the continuum of maternity care.

Alongside these exposures, maternity professionals may also experience moral distress or moral injury, particularly when clinical and organisational constraints limit their ability to provide care aligned with their professional values.

Within the Australian Capital Territory (ACT), Maternity in Focus: The ACT Public Maternity System Plan 2022-2032 highlights the importance of a safe, supported, and sustainable maternity workforce. It also recognises the complexity and demands of contemporary maternity care. In this context, exposure to trauma, including direct and vicarious experiences, alongside moral distress may be intensified by clinical complexity, workforce pressures, and the relational demands of women- and person-centred care.

Crucially, trauma exposure does not only affect individual wellbeing; it can also influence clinical decision making and care delivery. Trauma and fear may shape perceptions of risk, reduce confidence, and alter care practices over time. Maternity professionals may withdraw emotionally, reduce empathy, or adopt more defensive approaches, which may influence communication, decision-making, and interactions with both colleagues and women and birthing people, with potential impacts on care experiences and outcomes. Trauma may even cause maternity professionals to leave the profession, contributing to the workforce shortage.

Together, these impacts highlight the importance of understanding the range, nature, and consequences of trauma-related experiences among maternity professionals. However, whilst evidence in this area is growing, it is not yet brought together in a way that reflects the full scope of these experiences. A clearer and more comprehensive understanding is needed to inform workforce support, service delivery, and policy responses.

In response to this, this rapid review aims to synthesise the available evidence on trauma-related experiences among maternity professionals, including direct and vicarious trauma, moral distress or moral injury, and their impacts on wellbeing and care delivery.

Primary Question
What is known about trauma-related experiences (including direct and vicarious trauma, and moral distress or moral injury) among maternity professionals, including associated risk factors, impacts on wellbeing, workforce participation, and interventions?

Objectives
1. Map the range of trauma-related experiences among maternity professionals, including direct, vicarious, and cumulative trauma, and moral distress or moral injury.
2. Examine the impacts of these experiences on wellbeing, professional practice, and care delivery.
3. Compare trauma exposure and its impacts in maternity settings with other high-exposure professions (e.g. police, fire, emergency medical services, and social work) to provide broader context.
4. Map the range of interventions, preventative and supportive strategies, and assess the strength and type of evidence underpinning them.
5. Identify key evidence gaps and develop recommendations to inform workforce strategy, practice, and future research.

Proposed Research Methods

Study Type/Design
This project will be conducted as a Rapid Review, guided by the Cochrane Rapid Reviews Methods Group recommendations and reported in accordance with PRISMA.

Data/Sources
Searches will be conducted across three main electronic databases: MEDLINE, CINAHL, and Scopus. The database selection may be refined in consultation with the student and supervisory team at commencement of the project, with flexibility to adjust the scope and combination of databases according to student's learning needs and interests, provided the search remains sufficiently comprehensive to meet rapid review standards. Grey literature searches will also be conducted, including relevant government and professional body websites, to capture policy documents, workforce reports, and unpublished data relevant to the ACT and Australian context. Reference lists of included studies and key reviews will be hand searched to identify additional relevant sources.

Sample/Eligibility
Inclusion and exclusion criteria will be structured using a PICo (Population, Interest, Context) framework appropriate to the mixed-methods nature of the review:
Inclusion criteria:
- Population: Maternity professionals, including midwives, obstetricians, obstetric nurses, and student or trainee equivalents; comparative data from high-exposure professions (e.g., emergency services, social work, police) will also be included where relevant to Objective 3.
- Interest: Trauma-related experiences including direct trauma, vicarious trauma, moral distress, or moral injury; associated risk factors; impacts on wellbeing, workforce participation, professional practice, and care delivery; and interventions or support strategies
- Context: Any healthcare or clinical setting; all countries; peer-reviewed literature and grey literature

- Study designs: Quantitative, qualitative, and mixed-methods primary studies; systematic and narrative reviews; policy documents and workforce reports
- Language: English
- Date range: No date restriction initially applied, with a sensitivity check applied for studies published from 2000 onwards given the evolution of the evidence base in this area

Exclusion criteria:

- Studies focused only on women's and birthing person's experiences
- Non maternity contexts (unless used for comparison)
- Conference abstracts, letters, or editorials without extractable data

Analysis Plan:

Following title/abstract and full-text screening, data will be extracted from included studies using a structured data extraction tool developed for the review. Consistent with Cochrane guidance for rapid reviews, a proportion of records (e.g., 20%) will be screened dually at title/abstract level until sufficient reviewer agreement is achieved, then single-reviewer screening will proceed; single-data extraction will be conducted on the most relevant data points, with a second person verifying the data extraction for completeness and correctness.

Quality appraisal of included studies will be conducted using appropriate tools depending on study design (e.g., Mixed Methods Appraisal Tool [MMAT] for mixed-methods studies). Quality assessment will be used to contextualise findings rather than to exclude studies, reflecting the breadth of evidence types anticipated.

A narrative synthesis approach will be used to integrate findings across diverse study designs (quantitative, qualitative, and mixed methods), consistent with rapid review methodology. Data will be extracted and organised into a structured framework aligned to the five review objectives.

Findings will be analysed using a thematic approach, identifying patterns and recurring concepts across studies. The synthesis will map the range of trauma related experiences, associated risk factors, impacts on wellbeing and care delivery, and the range and strength of evidence for interventions. Findings will also be examined, where available, in comparison with other high exposure professions to provide contextual insight.

Student tasks across research cycle

The student will be supported to undertake:

- Refining the research protocol and eligibility criteria in collaboration with the supervisory team
- Developing and executing the database search strategy
- Title/abstract and full-text screening of retrieved records
- Data extraction of included studies
- Quality appraisal of included studies
- Contribute to narrative synthesis
- Draft sections of the final report, including the PRISMA flow diagram
- Prepare a summary of findings and recommendations

6-Week Feasibility

The rapid review design has been selected in part for its feasibility within a short-term student placement timeframe. Within a focused six-week timeframe, the student can feasibly participate in the following: finalise the protocol and search strategy (Week 1); conduct database searches and import results into citation management software (Week 1–2); complete title/abstract screening (Week 2–3); conduct full-text screening and begin data extraction (Week 3–4); complete data extraction and commence synthesis

(Week 4–5); and draft the findings summary and report (Week 5–6). The student will have an opportunity to contribute to the project planning regarding task sharing between the student and supervisor to ensure feasibility within the timeframe.

Progress to Date

The project title, research question, and objectives have been established. A preliminary scan of the existing literature has been conducted to confirm the relevance and feasibility of the review and to identify the key search concepts.

Preferred study discipline being undertaken by the student

Midwifery, nursing, or medicine with an interest in maternity care, or psychology with an interest in trauma and workforce wellbeing.

Benefits to the student and to the organisation

- The student will develop practical skills in rapid review methodology, including systematic database searching, title/abstract and full-text screening, data extraction, quality appraisal, and narrative synthesis.
- The student will be placed within the Office of the Chief Nursing and Midwifery Officer, providing valuable exposure to how evidence is generated and used to inform workforce strategy, service planning, and health policy in the ACT.
- Findings will contribute to the evidence base underpinning the Maternity in Focus: The ACT Public Maternity System Plan 2022–2032, supporting the Office of the Chief Nursing and Midwifery Officer in developing targeted, evidence-informed responses to workforce wellbeing and sustainability.

Describe anticipated outcomes of VSP project

This rapid review is anticipated to produce the following outcomes:

- A synthesised evidence map of trauma-related experiences (direct, vicarious, and cumulative trauma; moral distress and moral injury) among maternity professionals, including associated risk factors and impacts on wellbeing, professional practice, and care delivery.
- A catalogue and descriptive assessment of interventions and support strategies identified in the literature, including the type and strength of evidence underpinning them.
- A summary of key evidence gaps and recommendations to inform workforce support, service delivery, and policy, with relevance to the ACT maternity context and the priorities of Maternity in Focus: The ACT Public Maternity System Plan 2022–2032.
- A final presentation, to be delivered in week 6 of the placement (February 2027), summarising the review findings and key recommendations.
- A final report, documenting the review methodology, findings, evidence gaps, and recommendations in full, developed collaboratively with the supervisory team. The student will contribute meaningfully to the report but will not be solely responsible for its completion.
- A conference abstract, prepared for potential submission to the annual CHARM (Canberra Health Annual Research Meeting) and/or other relevant local or national conferences (e.g. the Australian College of Midwives annual conference) or publications, providing an opportunity for the student to disseminate findings to a broader research and clinical audience and to develop skills in scientific communication.

Project 7 - A Retrospective Study and Cost Analysis on the number of Canberra Hospital, Hospital in the Home (TCH HITH) patients that could have been prescribed oral probenecid plus intravenous cefazolin injection as an alternative to a continuous cefazolin infusion for the treatment of cellulitis in the 2026 Financial Year

Supervisor Name

Karyn Cuthbert

Co-supervisor – Holly Blunden

CHS/HCSD Position

Canberra Health Services

Lead Discipline

Medicine

Project Outline

Problem and Context:

When of moderate severity or not improving with oral antibiotics, cellulitis is a common Hospital in the Home (HITH) admission diagnosis when intravenous (IV) antibiotic therapy is indicated. In an Australian HITH context, IV cefazolin is commonly prescribed for cellulitis therapy to facilitate less frequent nursing visits to the patient's home by either prescribing a 2 gram injection once daily after a 1 gram dose of oral probenecid (which decreases renal excretion of cefazolin) or prescribing a 6gram/24 hour dose as a continuous infusion; noting that in a ward context cefazolin is usually prescribed as 2 grams IV injection 3 times daily for patients with normal renal function. Cefazolin can also be provided as a twice daily dose, but then requires 2 nurse visits per day, instead of one.

In Canberra HITH services, the current default option for IV cefazolin prescription is the provision of a 24-hour cefazolin infusion, noting some historical reluctance to use probenecid due to potential common adverse effects such as rash and nausea/vomiting. Probenecid is also contraindicated in this context in patients >75 years old and in those with renal dysfunction, blood dyscrasias, G6PD deficiency, kidney stones, gout and in pregnancy and breastfeeding, plus has a number of potential drug interactions, such that it's use in combination with IV cefazolin is not an option for many patients with cellulitis admitted to HITH.

The potential benefit of probenecid/cefazolin use over a continuous cefazolin infusion however is that it is cheaper, with total cost of utilising probenecid 1gram plus cefazolin 2g being $6.50 versus a cefazolin 6g pre-filled elastomeric infusor being around $95. There is also a potential patient benefit to probenecid/cefazolin use in that the patient is not continuously connected to an infusion line linking into their IV cannula; the cannula only needs to be accessed once daily by HITH nurse to inject the cefazolin and then be covered up and out of the way for remainder of day - but this needs to be balanced with the potential adverse effects of the probenecid, which continuous cefazolin patients are not exposed to.

It is hypothesised that probenecid/cefazolin is a cheaper and possibly equally acceptable option for IV cefazolin use for the treatment of some patients with cellulitis in HITH, in comparison to a continuous cefazolin infusion. We would like to assess how many patients could have been prescribed

probenecid/cefazolin as an alternative to a continuous cefazolin infusion over the past 2 years and what the cost saving may have been.

Evidence Gap:
There is currently only 1 published study comparing daily cefazolin infusion to probenecid/cefazolin prescription, which demonstrates similar clinical cellulitis outcomes for each group, but it doesn't make comment on probenecid contraindications and side effects or include any cost analysis. Other currently published evidence on oral probenecid/IV cefazolin use compares it to daily IV ceftriaxone (which is not a preference for antimicrobial stewardship reasons) and twice daily cefazolin injections. There is also a study comparing oral probenecid/IV cefazolin with oral probenecid/oral flucloxacillin.

Research Question:
How many patients admitted to TCH HITH service with cellulitis in the 2026 financial year, that were treated with a 24-hour cefazolin infusion, could have been treated with oral probenecid 1gram plus IV cefazolin 2g daily as an alternative option to a 24 hr cefazolin infusion and what cost saving would there have been if this option was used?

Proposed Research Methods

Study Type/Design:
Retrospective observational cohort study

Data/Sources:
A list of patients admitted to TCH HITH with cellulitis during the 2025-2026 financial year has been requested via the CHS Health and Information Services (HIS) Research and Data Manager, with individual patient data to then be accessed via CHS Digital Health Record (DHR); student to have DHR access arranged.

Sample/Eligibility:
Inclusion - all patients admitted to TCH HITH service for the purpose of cellulitis treatment during 2025-2026 financial year.
Exclusion - patients admitted to HITH with cellulitis that received oral antibiotics or IV antibiotics by any other means than a cefazolin infusion will be excluded from the comparison – but data on these patients will still be recorded however for data completeness as to what cellulitis therapy they did receive.

Analysis Plan:
Record total number of patients admitted to HITH with cellulitis during study period and what antibiotic therapy they received (including prior to HITH admission); record blood (FBC, UECs, LFTs, CRP, blood cultures) and wound swab results to enable assessment of contraindications to probenecid/cefazolin use, plus any medications that would preclude probenecid use due to potential drug interactions; also record patient demographic details such as age, gender and co-morbidities.

Look at subset of patients that received IV cefazolin infusion; analyse patient record and calculate number of patients admitted to HITH with cellulitis, that would have met current CHS "Cellulitis Referral and Treatment for Adult Patients Admitted to Hospital in the Home" procedure criteria for prescription of probenecid/cefazolin instead of cefazolin infusion; calculate what the cost saving may have been if these patients had been treated with probenecid/cefazolin instead of a cefazolin infusion.

The individual patient data will be de-identified such that only the patient's medical record number and initials will be visible to researchers for confidentiality purposes.

Student tasks across the research cycle:
Reading of literature accessed already via TCH library literature search on probenecid plus IV cefazolin use for treatment of cellulitis; creation of database to facilitate data storage; DHR data extraction, with results to be put onto created database; data analysis and interpretation; writing up results for purpose of creating final VSP report and presentation as well as other dissemination options e.g. poster, oral presentation, journal manuscript.

6-Week Feasibility:
TCH library literature search for probenecid/cefazolin use articles already completed via Division of Medicine lead pharmacist; have recently communicated with HIS Research and Data manager, requesting number of patients admitted to TCH and NCH HITH Units with cellulitis between 1/1/24 and 31/12/25 to confirm patient numbers and feasibility of data collection over 6 weeks – initial plan was for 2 years of data from both HITH Units – however noting that for 2025 calendar year at TCH HITH only there is already around 233 patients (unchecked list currently, need to confirm definite eligibility via DHR), have now decided to go with only 1 year of data from TCH HITH and align this with the financial year, also currently exploring further research assistance via TCH intern that is being mentored by fellow HITH consultant; have received permission from NCH as well as TCH HITH Unit Directors to obtain required data; intention to commence writing research protocol and submit for low risk ethics approval soon, such that this has been received prior to November.

Progress to Date:
Literature search done and review commenced; research protocol being drafted with intention to submit low risk ethics application by 30/08/26; initial contact made with HIS Research Support Data Manager as above, who will provide a new list of patients admitted to TCH HITH with cellulitis during the 2025-2026 financial year, once coding has been completed for all patients admitted to HITH up until 30/06/2026 (anticipated to be around September, so well in time for VSP project commencement).

Preferred study discipline being undertaken by the student

In order of preference:

1) Medical student
2) Pharmacy student
3) Nursing student

Benefits to the student and to the organisation

Student learnings

- Data collection and analysis skills
- Data analysis and presentation skills

Organisation (CHS) benefits and data use post placement

- Better informed cellulitis management practice for HITH
- Potential cost savings
- Pilot type study, likely to support future crossover RCT on IV cefazolin prescription as a 24-hour infusion vs probenecid/IV cefazolin injection and potential 3rd arm using oral antibiotics
- Potential change in CHS (and external) HITH services antibiotic prescribing practice for cellulitis if externally presented/published.

Describe anticipated outcomes of VSP project

Could be presented at CHARM as a poster or oral presentation; other poster/oral presentation opportunities could be at ASID (Australasian Society for Infectious Diseases) Annual Scientific meeting around May 2027 or HITH Society Australasia ASM November 2027. The results from this study may support a future RCT comparing probenecid/cefazolin use to cefazolin infusion for HITH cellulitis patients.

Project 8 - Evaluating the effectiveness and acceptability of Screening for Familial Hypercholesterolaemia by opportunistic blood lipid testing in Ambulatory children and adolescents attending ACT Pathology

Supervisor Name

Antony Lafferty

Co Supervisor – Kathleen O'Brien

CHS/HCSD Position

Canberra Health Services

Lead Discipline

Medicine

Project Outline

Heterozygous Familial Hypercholesterolaemia (FH) is an autosomal dominant metabolic condition resulting in reduced clearance of low-density lipoprotein cholesterol (LDL-C) from plasma by hepatocytes. FH is a one of the commonest genetic disorders in the population with an estimated population prevalence of 1:200-250 individuals, with estimates that up to 90% of individuals being undiagnosed and unaware that they are affected. (Horton et al, J Paed and Child health, July 2022)

The LDL-C levels are raised in affected individuals from birth which, if undiagnosed and untreated, causes development premature atherosclerotic cardiovascular (ASCVD) disease by as early as their mid-30s, and with this an increased risk of premature cardiac or cerebrovascular events and premature death. Statin treatment is effective in the majority and is recommended from 8-10 years of age along with diet and lifestyle counselling.
The initial project, which aimed to increase the diagnosis of possible or likely diagnoses, was conducted over a 12-month period spanning 14 April 2025 to 14 April 2026. After an information sheet was provided and consent was obtained, a lipid profile was added to all outpatient children aged 2-16 years having chemical pathology blood tests taken at a branch of ACT Pathology.

In total, 1932 participants screened, with 14.6% of them originally having lipids requested by their referring doctor and 85.4% added having not been requested.

Of this cohort, 0.6% (n = 12) were newly identified as having LDL-cholesterol levels ≥5.0 mmol/L (likely FH), and 11.1% of the sample (n = 215) had results deemed borderline and in need of further follow up. 88.3% (n = 1705) of participants had LDL-c levels that were thought unlikely to represent risk of FH.

Pathology provided auto text outlining normal range and recommending follow up for those who were outside of the range.

Population screening for familial hypercholesterolaemia screening is considered both clinically effective and cost effective at identifying previously undiagnosed individuals, but despite evidence of the effectiveness of such a process, it is not routinely offered in Australia. Cascade screening of first-degree relatives recognized is an effective way to identify affected relatives.

In practice, cascade screening is inconsistent in clinical practice, and relatively little is known about what happens when abnormal results are identified (https://pmc.ncbi.nlm.nih.gov/articles/PMC11003060/). In particular, little evidence exists to determine if families are notified of results (https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2847677), whether appropriate follow-up investigations occur, or whether cascade screening of relatives is undertaken. The opportunistic screening programme undertaken from April 2025-April 2026 therefore provides a unique opportunity to evaluate the downstream implementation outcomes, thereby identifying barriers to effective translation of those having abnormal screening results into optimal clinical care and outcomes.

Research Question

Among children and adolescents identified as having borderline or likely familial hypercholesterolaemia by opportunistic lipid screening, what follow-up actions are undertaken by families and healthcare providers following notification of abnormal lipid results?

Specifically:

- Are families aware that their child had a possible or definitely abnormal result?
- Has further investigation, specialist referral or treatment occurred?
- Has reverse cascade screening of parents (and if a parent is affected) and siblings
- What barriers and facilitators influence follow-up care?

In other words (using a CoCoPop approach):

- Condition: Heterozygous familial hypercholesterolaemia (HeFH) is a genetically determined, treatable cause of early morbidity and mortality due to premature atherosclerotic cardiovascular disease. It affects 1:200-250 in the population.
- Context: Lack of population screening means that a large proportion of affected individuals and families remain undiagnosed. Timely diagnosis and starting treatment in childhood is treatment is effective at delaying early atherosclerotic events. Delaying this treatment until adulthood is less effective.
- Population: Ambulatory children and adolescents in the ACT community aged 2-16 years who were screened as part of a project evaluating introduction of opportunistic screening when attending ACT Pathology outlets to have chemical pathology testing.

Using a questionnaire, the following themes will be explored:

1. Effectiveness of the low-cost method of routine addition of lipids at improving diagnosis of children affected with potential FH in childhood.
2. Identifying barriers to optimal management in the children identified with borderline LDL-levels or likely FH, including:
    a. Medical workforce knowledge
    b. Results communication to parents/ carers
    c. Exclusion of secondary causes
    d. Discussion and counselling of its clinical importance
    e. Dietary assessment
    f. Follow-up recommendations
    g. Treatment initiation
    h. Reverse cascade screening of parents and whether if they are affected, treatment initiation.
    i. Whether the parents of potentially affected children are aware of or have been referred to existing lay information FH patient support sites such as: https://www.athero.org.au/fh/

Proposed Research Methods

1. Study Design
   This is a quantitative questionnaire-based study with the student interviewing parents of children identified as having borderline or likely FH, that aims to answer the above questions. Data derived from the questionnaires will be entered into Qualtrics and results analysed (a preliminary draft of questions is appended at the end of the document).

2. Data Source
   The data source for this project is the results obtained from a 12-month pilot study of children aged 2-16 identified with borderline or raised LDL-c from the study, "Identifying potential cases of undiagnosed Familial Hypercholesterolemia in outpatient children and adolescents attending ACT Pathology".

3. Sample Eligibility
   All children identified in initial study as having borderline or raised LDL-cholesterol levels.

4. Analysis Plan
   Descriptive statistics will be used to summarised, overseen by Co-supervisor, Dr Kathleen O'Brien (Academic Unit of General Practice, ANU who has expertise in survey design and biostatistics).

5. Student tasks across the research cycle
   Before commencing the study, the student will be given literature to read to familiarize them with the scope of FH, including current recommendations for its diagnosis and management.

   They will be provided with a summary of the already cleaned data and upon starting will be able to access this.

   Using patients identified from the initial project, the student will access DHR to obtain a parent/ carer contact number, then contact the parent/ carer by phone.

   They will administer the questionnaire to parents/carers by phone and enter this data into Qualtrics, enabling secure storage.

   The student will then analyse the data obtained from the questionnaire supported by co-supervisor Dr Kathleen O'Brien.

   They will then compile a report which summarises their findings and prepare the project report, while preparing an abstract for future presentations.

6. 6-Week Feasibility
   The supervisors believe this project is feasible within the 6-week time frame noting that some people may require more than one call to reach them and some may request a second call to complete the questionnaire.

7. Summary of progress to date

   The initial pilot project ("Identifying potential cases of undiagnosed Familial Hypercholesterolemia in outpatient children and adolescents attending ACT Pathology"; 2024/ETH 02494) demonstrated feasibility of adding a lipid profile to an existing chemical pathology laboratory request at increasing the diagnostic rate of children and adolescents age 2-16 years with borderline or probable FH.

   The project will provide information that assists to identify knowledge gaps for referrers, ensure follow up of borderline or elevated studies is optimised, and will assist in optimizing messages to referring medical community about results, assisting with understanding the importance of hypercholesterolaemia when it presents in childhood, including the potential familial implications to parents and siblings.

   Given the clinical benefit and the ethical merit of following up those identified as having elevated LDL-cholesterol results, further advice is being sought from Research Ethics and Governance Office (REGO) about whether an amendment will be needed to the previous project, whether this can be considered a quality initiative that fulfils ethical obligations, or whether a new ethics application will be required. Supervisors intend that this work will be completed before the vacation student starts.

Preferred study discipline being undertaken by the student

A medical student preferred but not essential, likely in clinical years of their course.

The student would ideally (but not essentially) have prior clinical experience and be confident at contacting people by telephone.

Benefits to the student and to the organisation

Opportunities / Benefits for student

- By participating in this project, the student will be learning about the clinical importance of familial hypercholesterolaemia, a common treatable problem which poses a significant risk to morbidity and mortality if not treated.
- The student will develop experience interacting with parents of a child previously involved in the initial study to seek additional feedback with the aim of improving clinical follow up and processes.
- The student will be able to use Qualtrics to collect survey data and undertake preliminary descriptive statistical analysis of the questionnaire results.
- This project affords them opportunity to enhance their understanding about data analysis and correct choice of appropriate descriptive statistics (co-supervisor Dr Kathleen O'Brien at ANU has these skills and has agreed to support the student).
- The student will then be supported in their preparation of the project report with the option of presenting their findings at a number of local and national forums including CHARM, a National annual scientific meeting (listed below), with further potential for publishing findings in a journal (e.g. A publication of RACGP, or Journal of Paediatrics and Child Health).

Benefits to host organisation

- The project will assist in identifying gaps in knowledge for workforce and will assist us with providing targeted education if and where needed whether by presentation or further amendment to Health Pathways.
- The project also represents service improvement
- It has the potential to identify challenges with screening, and optimising follow up.

- The project has an ultimate aim of ensuring that all clinically important results are followed up and additional referrals made if needed.

Describe anticipated outcomes of VSP project

Project Outputs/Deliverables

In addition to the project report, the following opportunities will be supported by supervisors and be available to the student:

1. Letter to referrers via GPLU or Capital Health Network
2. Presentation at CHARM (and potentially Grand Rounds)
3. Conference Abstract(s) and/or publication in a peer reviewed journal (e.g. Journal of Paediatrics and Child Health or a national Australian GP Journal)
4. The student will be provided with the opportunity to present their work at a national conference (supervisors will determine but will likely be):
    - 2027 Australian and New Zealand Society for Paediatric Endocrinology and Diabetes (ANZSPED)
    - 2027 RANZGP Annual Scientific Meeting (GP27)
    - 2027 Australian Atherosclerosis Society state or national annual scientific meeting (www.athero.org.au).
    - 2027 Australasian Association for Clinical Biochemistry

Project 9 - It's Time to Go to Quantum in Orthopedic Surgery

Supervisor Name

Rachel W. Li

Co-supervisor – Tom Ward

CHS/HCSD Position

Canberra Health Services

Lead Discipline

Medicine

Project Outline

Implant-associated infection remains one of the most significant complications in orthopaedic surgery. Bacteria can attach to the surface of implants and form biofilms, which are highly resistant to antibiotics and the body's immune response. These infections often result in prolonged hospitalisation, revision surgery, delayed recovery, increased healthcare costs, and in severe cases, loss of limb function.

The growing global threat of antimicrobial resistance has further reduced the effectiveness of many conventional antibiotic treatments, creating an urgent need for new antibacterial strategies that do not rely solely on traditional antibiotics. This challenge is highly relevant to Australian health services, where orthopaedic implant infections continue to represent a major burden on patients and healthcare systems.

Carbon Quantum Dots (CQDs) are an emerging class of nanomaterials that have shown promising antibacterial properties. Unlike conventional antibiotics, CQDs may prevent bacterial growth and biofilm formation through novel physical and biochemical mechanisms. However, their potential application in orthopaedic surgery remains largely unexplored.

Recent research has demonstrated that Carbon Quantum Dots can exhibit antibacterial activity against a range of clinically important pathogens. However, significant knowledge gaps remain regarding:

- Their effectiveness against bacteria commonly responsible for orthopaedic implant infections.
- Their ability to prevent or disrupt biofilm formation.
- Their safety and compatibility with human cells.
- Their suitability as a future biomaterial for preventing surgical implant infections.

The TORU Laboratory at Canberra Health Services, in partnership with researchers from the Australian National University and RMIT University, has developed several novel CQD formulations and generated preliminary laboratory data. The next stage is to evaluate and interpret these findings within the context of the broader scientific literature and identify the most promising candidates for future translational research and grant applications.

<u>Research Question</u>

Can novel Carbon Quantum Dots developed by the TORU Laboratory demonstrate antibacterial activity against pathogens commonly associated with orthopaedic implant infections while maintaining compatibility with human cells?

Secondary questions include:

- Which bacterial species appear most susceptible to the developed CQDs?
- How do the antibacterial effects observed compare with those reported in the published literature?
- What evidence exists that CQDs may reduce biofilm formation and support future orthopaedic applications?
- What are the most promising directions for future translational and clinical research?

Proposed Research Methods

Study Design

This project will combine a structured literature review with quantitative laboratory data analysis.

Data Sources

The student will utilise:

- Existing laboratory data generated by the TORU Laboratory and collaborators.
- Published peer-reviewed literature relating to Carbon Quantum Dots, orthopaedic infections and antibacterial nanomaterials.

All laboratory data will be available prior to commencement of the placement.

Student Activities

The student will:

1. Conduct a focused literature review examining:
    - Orthopaedic implant-associated infections
    - Biofilm formation
    - Antibacterial nanomaterials
    - Carbon Quantum Dot technologies

2. Analyse existing laboratory datasets examining:
    - Antibacterial activity against clinically relevant pathogens including:
        - *Staphylococcus aureus*
        - *Staphylococcus epidermidis*
        - *Escherichia coli*
        - *Klebsiella pneumoniae*
        - *Enterococcus faecalis*

3. Compare laboratory findings with published evidence to identify:
    - Consistencies with existing research
    - Novel findings
    - Potential translational applications

4. Contribute to interpretation of findings and preparation of:
    - A manuscript draft
    - Research figures and tables
    - Future grant application material

Analysis

The student will undertake descriptive and comparative analysis of antibacterial outcomes across different CQD formulations and bacterial species. Findings will be interpreted in the context of published evidence to identify potential mechanisms of action, translational relevance and future research opportunities.

Feasibility

The laboratory work and preliminary data collection have already been completed by the supervisory team. This significantly reduces project risk and ensures the student can focus on literature synthesis, data analysis, interpretation and research writing during the six-week placement.

Preferred study discipline being undertaken by the student

Medical

Benefits to the student and to the organisation

The student will gain experience in:

- Nanomedicine and translational biomedical research
- Literature review methodologies
- Research data analysis and interpretation
- Scientific writing and publication development
- Multidisciplinary collaboration across medicine, engineering and materials science

Benefits to Canberra Health Services:

The project will help determine whether Carbon Quantum Dots warrant further investigation as a novel strategy to reduce orthopaedic implant infections and address antimicrobial resistance. Findings may support future externally funded research programs and strengthen Canberra Health Services' role in emerging quantum and nanotechnology applications in healthcare.

Describe anticipated outcomes of VSP project

Potential outputs include:

- Submission of a manuscript to a peer-reviewed journal
- Conference abstract submission (e.g. CHARM or relevant national conference)
- Development of preliminary evidence supporting future translational research in antibacterial biomaterials.

Project 10 - Plasma donor remuneration - a review

Supervisor Name

Philip Crispin

Co-supervisors – Bryony Ross

CHS/HCSD Position

Canberra Health Services

Lead Discipline

Medicine

Project Outline

Plasma donation is critical for the provision of manufactured plasma products, with the primary driver of demand being intravenous immunoglobulin. Despite a long-standing policy of self-sufficiency in blood supply, Australia, like most of the world, is unable to meet demand and currently around 50% of immunoglobulin is imported. Australia also has an increasing demand with long term needs expected to increase with expanding availability of therapies causing hypogammaglobulinaemia anticipated in both haematological neoplasms and immune modulation.

Approximately 80% of the world's international plasma market is derived from USA where plasma donation is in excess of local needs. Remuneration for plasma donors is permitted and common in the USA and while this policy difference is often cited as a reason for the excess production in USA, local regulations also permit donation up to twice week, compared with Australia, where donation frequency is limited by 14-day intervals between donations.

The Australian Law Reform Commission in a consultation paper on Human Tissues Acts in 2025 raised the potential for a regulatory (rather than specifically legislated) pathway to remunerated plasma donation. The issue is complex as it would essentially create an explicit exemption to a prohibition on the sale of human tissue for profit, although some would also view it as recognising an implicit acceptance of internationally sourced plasma from paid donors. The question does recognise the current growing demand for immunoglobulin and that Australia, despite one of the highest per capita volumes of plasma donation in the world, does not have enough supply to meet demand.

Proponents of voluntary donation cite a potential risk of reduced blood donation if voluntary donors no longer view altruism as a driver in an environment where donation has been monetised. If this eventuated, the high voluntary plasma donation rate in Australia would make this a particular risk.

A decision to allow plasma donor remuneration could have a profound impact on the blood sector in Australia. It should not be entered into lightly and the Australian and New Zealand Society of Blood Transfusion has embarked on work to review the current evidence for and against such a change. Key issues include:

1. Quantifying the impact of donor remuneration on plasma and other blood component supplies, both in terms of volume and safety (particularly noting the recent introduction of plasma only donation pathway in Australia)
2. Quantifying the impact of donor frequency on plasma supply and donor health
3. Determining the relative impacts of the above two strategies on donor selection and contribution to plasma supplies internationally.
4. The ethical implications of plasma donor remuneration including: the sale of human tissues more broadly, recognition of current dependency on international plasma from remunerated

donors, employment agreements partially funding plasma donation, and the economic impact on plasma donors

5. Structural implications and potential requirements given current legislated monopolies on Australian blood collection and manufacturing of plasma from Australian donors. Current excess plasma products (e.g. albumin) manufactured from Australian voluntary donors are discarded due to a prohibition on their sale. Maximising efficiencies would require the use of all products, allowing international sale and mechanisms to ensure the best price for collection and manufacturing.

Currently, many international agencies advocate for voluntary non-remunerated donors, including the World Health Organisation, however these same organisations advocate for blood supply self-sufficiency. While much attention has been given to the important ethical arguments, both for and against donor remuneration, arguments for it tend to be pragmatic and rely upon the premise that remuneration increases plasma supply, that it does so safely and will do so in Australia, where per capita plasma donations are already high. Given the differences between Australia and USA with respect to plasma frequency, the potential benefits or otherwise first need to be quantified.

While there have been numerous articles promoting one voluntary or remunerated donors, there is no systematic comparison evaluating the evidence for remuneration and in particular applying it within populations with high voluntary donation rates. While higher rates of plasma donation are associated with greater yields, it is unclear to what extent the introduction of remuneration will have in a high income setting with high voluntary donation rates.

This study will be the first systematic review of voluntary versus remunerated plasma donation. For the summer student project, the focus will be on studies directly comparing these two approaches, for example between countries, regions or before and after change implementation.

The primary outcome will compare overall plasma supply in remunerated versus voluntary donation approaches in high income countries with donation frequencies at or below a minimum of 2 weeks between donations.

Secondary outcomes will include donor recruitment and retention rates (<6 months and >2 years) in remunerated and non-remunerated systems. Exploratory outcomes include the effect of donor remuneration by per capita household purchasing power parity and income inequality (Gini coefficient).

Proposed Research Methods

This study will systematically review the literature to identify articles related to issues 1-3 above. The search, screening and article selection will be performed prior to the project start. Comparative studies (between jurisdictions, health systems or before and after implementation) will be used to quantify the impacts of donation frequency and donor remuneration on donor health and plasma supply. The risk of bias will be determined using appropriate tools (for example ROBINS-I) and meta-analysis where appropriate to determine the impact of remuneration or voluntary strategies to increase plasma.

The student project will focus on data abstraction from relevant articles, quality and risk of bias assessment and summarising comparisons. Pooling data and meta-analysis will be undertaken if suitable data are available.

The proposed search strategy (for EMBASE) is:

Search: [MESH: Blood Donor (exp) OR keywords Blood donor OR blood donation OR plasma donation.mp] AND [MESH: remuneration OR fee OR reimbursement OR economics OR remuneration.mp OR keyword “salary and fringe benefit”] OR [donor frequency.mp Or donor interval OR donation interval OR donation frequency]

EMBASE, Pubmed, CINAHL and Health Business Elite will be searched. Articles references will be reviewed to identify additional relevant articles.

During the course of the abstract selection, literature examining ethical principles, economic evaluations, government policies and position statements will be collated for later or concurrent review.

This study is being performed in collaboration with A/Prof Bryony Ross (John Hunter Hospital / University of Newcastle) and the Australian and New Zealand Society of Blood Transfusion’s (ANZSBT) Clinical Transfusion Practice Committee. Results will be used to:

1. Provide data to ANZSBT to form a policy position, which will be used to advise governments
2. Present at the Blood national conference in 2027 and / or International Society of Blood Transfusion.
3. Develop a paper based on the systematic review of the evidence for benefit, expected to target local general medical, health policy and / or international transfusion literature. Target journals include Vox Sanguinis (International Society of Blood Transfusion), Internal Medicine Journal or Australian Health Review.

Preferred study discipline being undertaken by the student

Medicine or medical laboratory science

Benefits to the student and to the organisation

Project benefits:

- Evidence-based input into national policy, for example formulation of ANZSBT policy, feedback to the Australian Law Reform Commission and Health Ministers should proposals for change be developed.
- Development of systematic review research skills (and possibly meta-analysis) with a group of national collaborators
- National and/ or international publication and presentations
- Further opportunity to develop project in ethical and governance principles

Describe anticipated outcomes of VSP project

Results will be used to:

1. Provide data to Australian and New Zealand Society of Blood Transfusion to form a policy position, which will be used to advise governments
2. Present at the Blood national conference in 2027
3. Develop a paper based on the systematic review of the evidence for benefit, expected to target local general medical, health policy and / or international transfusion literature

Project 11 - Palliative Radiotherapy “Near the End of Life”: A Real-World Evaluation of Quality Indicators at CHS

Supervisor Name

Amy Shorthouse

Co-supervisor – Helen Truong

CHS/HCSD Position

Canberra Health Services

Lead Discipline

Medicine

Project Outline

Palliative radiotherapy is an important component of symptom management for patients with advanced cancer, providing relief from symptoms such as pain, bleeding and neurological compromise. For patients approaching end of life, treatment decisions require careful consideration to maximise benefit while minimising burden. In this setting, radiotherapy should be delivered in a timely manner, using evidence-based dose fractionation schedules that minimise hospital visits and avoid treatment when meaningful clinical benefit is unlikely. The quality of radiotherapy delivered near the end of life has emerged as an important indicator of cancer care quality, with measures such as treatment fractionation, timeliness of treatment, documentation of prognosis, and treatment within the final 30 days of life increasingly used to evaluate clinical practice. However, there remains a significant evidence gap regarding the quality of palliative radiotherapy care. Although around half of radiotherapy patients are treated with palliative intent, relatively few studies have examined quality indicators in this setting, and the literature addressing radiotherapy quality near the end of life is particularly limited (Roos & Govindaraj 2025).

Previous studies have evaluated quality indicators for palliative radiotherapy, including 30-day mortality following treatment, as a measure of appropriateness of care near the end of life. A prior review conducted within the Canberra Health Services (CHS) radiation oncology service reported a 30-day mortality rate of 11.7%, comparable with published international series. However, there is currently limited evidence evaluating adherence to a broader suite of quality indicators specifically designed for patients receiving radiotherapy near the end of life.

The Royal Australian and New Zealand Palliative Radiation Oncology Group (RANZPROG) has recently developed consensus-based quality indicators for near end-of-life radiotherapy through a Delphi process involving international experts. These indicators include documentation of life expectancy, communication regarding prognosis, use of single-fraction treatment for uncomplicated painful bone metastases, timely treatment commencement, appropriate fractionation schedules, and mortality benchmarks. As these guidelines are newly developed, real-world validation is required to determine their feasibility, applicability and utility in routine clinical practice.

Research Question

Among patients receiving palliative intent radiotherapy at Canberra Health Services between 1 January 2021 and 1 January 2026, what is the level of adherence to the RANZPROG near end-of-life radiotherapy quality indicators, and how does current practice compare with the proposed benchmark standards?

Condition: Cancer patients receiving palliative intent radiotherapy near the end of life.
Context: Canberra Health Services Radiation Oncology Department.
Population: Adult patients receiving palliative intent radiotherapy between 1 January 2021 and 1 January 2026.
The findings will establish a baseline assessment of current practice at CHS, identify opportunities for quality improvement, and contribute to the validation of newly developed international consensus quality indicators for near end-of-life radiotherapy.

Proposed Research Methods

Retrospective observational cohort study.

Data Sources

All patients receiving palliative intent radiotherapy at Canberra Health Services (CHS) between 1 January 2021 and 1 January 2026 will be identified through the ARIA Oncology Information System. Clinical information will be extracted from ARIA and the Digital Health Record (DHR), including demographics, treatment details, documentation of prognosis and life expectancy discussions, timing of consultation and treatment, and mortality data. Data access will be facilitated through the supervising research and clinical team.

Sample and Eligibility

Inclusion criteria will be all adult patients receiving palliative intent radiotherapy within the study period. Where patients have received more than one course of radiotherapy during the study period the last course will be included. Patients receiving curative-intent treatment will be excluded. Patients who are deceased within 30 days of radiotherapy commencement will be analysed in more depth for prognosis documentation.

Analysis Plan

Patient and treatment characteristics will be summarised using descriptive statistics. Adherence to each RANZPROG quality indicator will be calculated and compared with the proposed benchmark standards. Results will be interpreted to identify areas of strong performance and opportunities for quality improvement within the CHS radiation oncology service.

Student Tasks

The student will participate in multiple stages of the research cycle, including data collection, data analysis, interpretation of findings, and preparation of a report, abstract, or manuscript for dissemination. The student will also contribute to discussions regarding the clinical implications of the findings and future quality improvement initiatives.

6-Week Feasibility

This project is anticipated to qualify as a quality assurance/audit activity however, given the planned involvement of students in the project, low risk ethical review will be obtained prior to commencement of the program. During the 6-week placement, the student will complete the data collection, preliminary analysis, and interpretation of results, in conjunction with the project team. A draft report and/or conference abstract may be developed by the end of the placement. Manuscript preparation and dissemination activities may continue following project completion. Potential risks include data access

and governance requirements; these will be addressed prior to project commencement to ensure timely progress.

Progress to Date

The research question has been identified and discussed with clinical investigators and will be reviewed through the local Radiation Oncology research governance process prior to project commencement. Consensus-based quality indicators have been developed by RANZPROG and are anticipated to be published by the end of the year. The required data fields have been identified within ARIA and the Digital Health Record (DHR), and preliminary review suggests the information required to assess the proposed some of the quality indicators is routinely documented in clinical records e.g. dates and timing data. Others are likely to be less well documented however this will be a key finding and opportunity for quality improvement going forward. A preliminary ARIA report has also been generated to quantify the number of patients treated with palliative intent radiotherapy over the past 5+ years, confirming the availability of an adequate study cohort and supporting project feasibility.

Preferred study discipline being undertaken by the student

Medical

Benefits to the student and to the organisation

- Gain practical experience in clinical research methods, including retrospective data collection, data analysis, interpretation of findings, and dissemination of results.
- Develop an understanding of palliative oncology, radiotherapy decision-making, quality-of-care measurement, and the challenges of delivering evidence-based care near the end of life.
- Gain exposure to health services research and quality improvement, including the evaluation of clinical practice against national consensus guidelines and benchmark standards.
- Provide Canberra Health Services with a baseline assessment of adherence to newly developed RANZPROG near end-of-life radiotherapy quality indicators, identifying areas of strength and opportunities for service improvement.
- Generate evidence to inform future departmental quality improvement initiatives, guideline implementation, and ongoing monitoring of palliative radiotherapy practice.
- Support the development of conference presentations, peer-reviewed publications, and internal reporting, with findings used to guide clinical practice and benchmark CHS performance against emerging national standards.

While evaluation of local practice is important to ensure the continued delivery of appropriate and timely palliative radiotherapy, the principal value of this project lies in its potential contribution to the broader evidence base surrounding near end-of-life radiotherapy quality indicators. The study is expected to provide some of the first Australian real-world data evaluating recently developed RANZPROG consensus-based quality indicators. The findings may assist in validating these indicators beyond expert consensus, support benchmarking across radiation oncology services, and inform future national collaborations involving other Australian centres and members of the Australasian Palliative Radiation Oncology Group (APROG).

Describe anticipated outcomes of VSP project

1. Submission of an abstract to a local or national conference, such as CHARM, RANZCR Scientific Meetings or the RANZCR Annual Scientific Meeting in 2027, to disseminate findings and benchmark local practice against emerging national standards.
2. Preparation of a manuscript for submission to a peer-reviewed journal in radiation oncology, palliative care or health services research, with publication in a journal such as the Journal of Medical Imaging and Radiation Oncology (JMIRO) anticipated.
3. Development of a local quality improvement report for Canberra Health Services Radiation Oncology, including recommendations to improve adherence to near end-of-life radiotherapy quality indicators where required.
4. Exploration of opportunities for collaboration with other Australian radiation oncology services and members of the Australasian Palliative Radiation Oncology Group (APROG) to support broader benchmarking and validation of near end-of-life radiotherapy quality indicators.

Project findings will be presented at the Radiation Oncology Journal Club in 2027 to provide feedback to clinicians involved in the delivery of palliative radiotherapy. Opportunities for dissemination through palliative care continuing professional development activities may also be explored. Depending on the findings, the project may inform the development of local quality improvement measures, such as enhancements to documentation processes within the ARIA Oncology Information System or the Digital Health Record (DHR). Recommendations arising from the study will be considered for implementation where appropriate to support ongoing monitoring and improvement of palliative radiotherapy practice.