



Research Report 2018



Excellent Care. Every Person. Every Time.



Acknowledgement of Traditional Owners

Bendigo Health acknowledges the traditional custodians of the land upon which our organisation delivers services, including Dja Dja Wurrung, Yorta Yorta, Baraba Baraba, Wemba Wemba, and Latje Latje and pays respects to elders both past and present. Bendigo Health also pays respects to All Aboriginal Nations of Victoria and their Stories, Traditions, waterways, plants, animals and Country.



MESSAGE FROM OUR CHIEF EXECUTIVE OFFICER

It gives me great pleasure to introduce the Bendigo Health Research Report 2018.

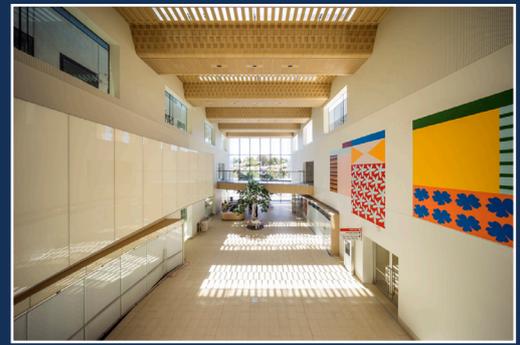
There is universal agreement that clinical care should be informed by the best available evidence. We know that translating research evidence into clinical practice is essential to safe, effective and efficient health care provision. We also know that a positive and proactive research culture is associated with improved organisational performance including improved patient outcomes and satisfaction, reduced staff turnover and improved staff satisfaction, and improved organisational efficiency.

This research report clearly demonstrates Bendigo Health's commitment to ensuring that the care we provide to our community is based on the best available evidence and that we do indeed translate this evidence into our practice. This would not be possible without the passion and innovation shown by our staff involved in the many and varied research projects conducted within our organisation, and the strength of our collaborations with our academic, industry and business partners across rural and regional Victoria. I must also thank our consumers and community for their invaluable input into our research activities and for ensuring that we always have the person at the heart of our activities.

Our Research and Innovation team do a great job in attracting research and projects to Bendigo Health, and also in developing a strong positive research culture within our workforce. I am proud that Bendigo Health has such an active research program focused on achieving our vision of providing excellent care to every person every time and I commend this report to you as an indication of the commitment of Bendigo Health to empower people to work together towards achieving this vision.

Peter Faulkner
Chief Executive Officer





MESSAGE FROM OUR DIRECTOR OF RESEARCH AND INNOVATION

2018 has been a fantastic year for research and innovation at Bendigo Health!

This research report highlights the activity undertaken through our Research and Innovation unit and also showcases the breadth of research undertaken by our passionate clinicians and staff from across the organisation. The Research and Innovation team is committed to improving the health of regional communities through investigation, innovation and transformation. Our focus is on knowledge generation, translating evidence into practice and leading health system improvements and innovations.

Our Cancer Services and Intensive Care Unit teams have also been very active in clinical trials which aim to confirm whether certain medicines and treatments are safe and will work to treat diseases or conditions. Clinical trials are also used to find better ways to use existing medicines and treatments. We are currently working on establishing a Clinical Trials Research Support Service aimed at increasing the number of clinical trials at Bendigo Health through supporting a number of other speciality areas that could conduct clinical trials if they had the relevant support in place.

I hope you enjoy reading about all of the fantastic research undertaken at Bendigo Health in 2018 and would like to take this opportunity to thank everyone who has been involved in research during this time. I look forward to building on our achievements in 2019!

Dr Angela Crombie
Director of Research and Innovation



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CLINICAL OPERATIONS

ANAESTHETICS

Clinical Trial/Multi Site Research

Multicentre prospective observational study of outcomes after the creation of arteriovenous fistulae **Bendigo Health Researcher:** Dr Eric Knauf

This project aims to determine the medium-term (6 week) outcomes for patients after having an arteriovenous fistula created. This project also aims to determine whether the type of anaesthesia given for this surgery can impact fistula outcomes.

CANCER SERVICES

Active research

Loddon, Gannawarra, Campaspe, Buloke and Swan Hill Cancer Survivorship Project

Co-ordinating Principal Investigator: Janice Radrekusa, Murray Primary Health Network

Bendigo Health Researcher: Dr Robert Blum

Victorians living in regional and remote locations commonly have a lower 5-year cancer survival rate than their metropolitan counterparts. Residents of the regions have a 4% lower five-year cancer survival rate (65%) than those in Melbourne (69%) (Victorian Cancer Registry, Cancer Council Victoria 2015). Although data is deficient regarding the exact cause for the variance, local health and community agencies across the regions report a lack of health service capacity and patient access to key services as key barriers to achieving quality cancer survivorship care.

The aim of this project is to identify and endeavour to address the gaps in access to cancer survivorship care across then Loddon, Gannawarra, Buloke, Swan Hill and Campaspe regions.

Sub-regional chemotherapy services supported by outreach

Co-ordinating Principal Investigator: Dr Belinda O'Sullivan, Loddon Mallee Integrated Cancer Services (LMICS)

Bendigo Health Researcher: Leanne Anderson

To support quality improvement of nurse-led oncology services in Kerang and Swan Hill District Health Services as supported by an outreach oncology team from Bendigo Health (Bendigo Cancer Centre). This project will identify:

- The types of oncology treatments and their modalities that can be safely provided in the level of nurse-led rural chemotherapy service with outreach support, underpinned by relevant nursing education and clinical risk governance systems, as well as regular quality improvement activities;
- Best practices for specialist oncology outreach to support the nurse-led oncology unit;
- How the service/s can be most sustainable (cost and resource implications understood and managed);

- Aspects of a formal service level agreement between Bendigo Health and Swan Hill and Kerang District Health Services and a schedule to underpin the subregional oncology service/s from Bendigo Health as agreed by all parties and support service monitoring (the types of indicators that should be measured over time);
- Information that can support the broader literature and ongoing delivery of safe, high quality outreach supported nurse-led oncology services.

LMICS prostate and OG cancer OCP project

Co-ordinating Principal Investigator: Ilana Solo, LMICS

Bendigo Health Researchers: Dr Carol Parker and Dr Robert Blum

At present it is unknown whether the Loddon Malee Region (LMR) adheres to best practice implementation of optimal care pathways (OCP)s for prostate and oesophagogastric (OG) cancer.

This project aims to evaluate current care for people with prostate or OG cancer and utilise redesign methods to identify and implement solutions towards the application of OCPs for these tumour streams across the LMR. This includes regional health services involved in the diagnosis and treatment of prostate and OG cancer.

Clinical Trial/Multi Site Research

- Circulating Tumour DNA Analysis Informing Adjuvant Chemotherapy in Locally Advanced Rectal Cancer: A Multicentre Randomised Study (DYNAMIC-RECTAL)
Bendigo Health Researchers: Dr Robert Campbell, Dr Mark Warren, Dr Robert Blum, Dr Sabine Roithmaier, Dr Samuel Harris and Dr Say Ng
- Pilot of a Lung Cancer Clinical Quality Registry **Bendigo Health Researchers:** Dr Robert Blum



- A randomised phase II trial comparing the efficacy of single fraction or or multi-fraction SABR (Stereotactic ablative body radiotherapy) with Atezolizumab in patients with advanced triple negative breast cancer (AZTEC) **Bendigo Health Researchers:** Dr Samuel Harris, Dr Mark Warren, Dr Robert Blum, Dr Sabine Roithmaier and Dr Say Ng
- A Phase III, Randomized, Double-Blind, Placebo-Controlled Clinical Trial of Pembrolizumab (MK3475) as Monotherapy in the Adjuvant Treatment of Renal Cell Carcinoma Post Nephrectomy (KEYNOTE-564) **Bendigo Health Researchers:** Dr Mark Warren
- How oesophageal cancer is diagnosed and treated in Victoria: understanding practice and treatment decisions **Bendigo Health Researcher:** Dr Samuel Harris
- Investigating Practices Relating to Supportive Care Screening in Victorian Cancer Services **Bendigo Health Researchers:** Narelle McPhee and Dr Robert Blum
- Circulating Tumour DNA Analysis Informing Adjuvant Chemotherapy in Stage II Colon Cancer (DYNAMIC) **Bendigo Health Researchers:** Dr Robert Blum, Dr Mark Warren, Dr Sabine Roithmaier, Dr Samuel Harris and Dr Say Ng
- A Phase III Study of BBI-608 in combination with 5-Fluorouracil, Leucovorin, Irinotecan (FOLFIRI) in Adult Patients with Previously Treated Metastatic Colorectal Cancer (CRC) **Bendigo Health Researchers:** Dr Say Ng, Dr Mark Warren, Dr Robert Blum and Dr Samuel Harris
- A Phase 3, Randomized, Double-Blind, Placebo-Controlled, Multicenter Study of PEGylated Recombinant Human Hyaluronidase (PEGPH20) in Combination with nab-Paclitaxel Plus Gemcitabine Compared with Placebo Plus nab-Paclitaxel and Gemcitabine in Subjects with Hyaluronan-High Stage IV Previously Untreated Pancreatic Ductal Adenocarcinoma **Bendigo Health Researchers:** Dr Robert Blum and Dr Say Ng
- ENZAMET Trial: A randomised phase 3 trial of enzalutamide in first line androgen deprivation therapy for metastatic prostate cancer **Bendigo Health Researchers:** Dr Robert Blum, Dr Mark Warren and Dr Say Ng
- A Phase III, open-label, multicentre trial of avelumab (MSB0010718C) versus platinum based doublet as a first line treatment of recurrent or Stage IV PD L1+ non small cell lung cancer **Bendigo Health Researchers:** Dr Mark Warren, Dr Robert Blum and Dr Say Ng
- A Phase III open-label, multicenter trial of maintenance therapy with avelumab (MSB0010718C) versus continuation of first-line chemotherapy in subjects with unresectable, locally advanced or metastatic, adenocarcinoma of the stomach, or of the gastro-esophageal junction **Bendigo Health Researchers:** Dr Say Ng, Dr Mark Warren and Dr Robert Blum
- IBIS-II (DCIS) Trial - An International multi-centre study of tamoxifen vs anastrozole in postmenopausal women with hormone sensitive Ductal Carcinoma In Situ (DCIS) **Bendigo Health Researchers:** Dr Robert Blum and Amanda Rundle
- IBIS II -PREVENTION: An international multi-centre study of anastrozole vs. placebo in postmenopausal women at increased risk of breast cancer. Protocol ANZ02P **Bendigo Health Researcher:** Dr Robert Blum

CARDIOLOGY

Active research

Cardiac pathologies in recreational cyclists: what are the chances? A pilot study

Co-ordinating Principal Investigator: Associate Professor Michael Kingsley, La Trobe University

Bendigo Health Researcher: Dr Voltaire Nadurata

The aim of this study is to evaluate the incidence of cardiac pathologies in a recreational population of cyclists before and after a multi-day endurance competition. 24 recreational cyclists will be recruited. Parameters to be assessed include:

Heart electrical activity, function and structure (12-lead electrocardiography, 24-hour Holter monitoring and Echocardiography), Body composition (dual-energy X-ray absorptiometry; DXA), Aerobic capacity (graded exercise test; GXT), Blood markers (biochemistry), Knee strength (dynamometer) & asymmetry (Kistler), Lower body motion and force (XSENS), Physical activity levels (Actigraph), and Training and injury (questionnaires; retrospective & prospective).

Does changing the duration of delivery from once-per-week for twelve weeks to twice-per-week for six weeks influence cardiac rehabilitation outcomes?

Co-ordinating Principal Investigator: Associate Professor Michael Kingsley, La Trobe University

Bendigo Health Researchers: Dr Voltaire Nadurata, Anne McIntosh, Debra McCluskey and Jacquelyn Dunstan

The aim of this project is to compare the efficacy of a modified shorter duration combined training-based cardiac rehabilitation program to a standard care cardiac rehabilitation program on functional capacity (physical and cardiac function). It is expected that this project will provide important information on the efficacy of shorter duration combined training-based cardiac rehabilitation programs, potentially a superior model than standard care cardiac rehabilitation. The secondary aim is to assess whether an alternative model of cardiac rehabilitation is viable at Bendigo Health.

Evaluating the efficacy of cardiac rehabilitation

Co-ordinating Principal Investigator: Associate Professor Michael Kingsley, La Trobe University

Bendigo Health Researcher: Dr Voltaire Nadurata

This study will investigate the efficacy of a modified shorter duration (6-week) combined training-based cardiac rehabilitation program on functional capacity (physical and cardiac function) versus a standard care (12-week) cardiac rehabilitation program.

The aim of this project is to evaluate the efficacy of a current standard care outpatient cardiac rehabilitation program on functional capacity (physical and cardiac function) as well as coronary heart disease risk factors, vascular compliance and quality of life. It is expected that this study will provide important information on the efficacy of once a week, 12-week, standard care outpatient cardiac rehabilitation programs, a common model for cardiac rehabilitation in Australia. The secondary aim is to assess whether the current guidelines for cardiac rehabilitation are appropriate for the individuals currently receiving this treatment.

Clinical trial/Multi Site Research

- Smartphone Cardiac Rehabilitation, Assisted selfManagement (SCRAM): A Multicentre, investigator blinded, parallel group randomised controlled trial comparing the effects and costs of cardiac telerehabilitation with usual care for people with coronary heart disease **Bendigo Health Researchers:** Dr Voltaire Nadurata and Jennifer Miko
- Victorian Cardiac Outcomes Registry (Bendigo Health) **Bendigo Health Researcher:** Dr Voltaire Nadurata
- Victorian Cardiac Outcomes Registry (Heart Failure Snapshot) **Bendigo Health Researcher:** Dr Voltaire Nadurata



EMERGENCY

Active Research

Gender and socio-economic inequality in cardiovascular health outcomes following an acute myocardial infarction in rural Victoria

Co-ordinating Principal Investigator: Dr George Mnatzaganian, La Trobe University

Bendigo Health Researcher: Dr Mark Putland

This hospital-based retrospective proposed study will compare in-hospital mortality following an acute myocardial infarction (AMI) by gender, socio-economic class, and treating hospital ward in an acute care major hospital in rural Victoria: Bendigo Health. This study will be the first phase of a larger planned study that will also include other hospitals in rural and metropolitan regions. The validity of AMI diagnosis in the ED will be assessed. Age-specific health-care related costs will be estimated and compared between the treating hospital wards.

Characteristics of Code Grey and Code Black security alerts in the Emergency Department of two regional Victorian hospitals

Co-ordinating Principal Investigator: Professor Peter O'Meara, La Trobe University

Bendigo Health Researcher: Dr Richard Smith

Violence in the workplace is one of the most challenging issues that staff in hospital ED's encounter. The high rates of violence result in an unsafe and unpredictable workspace for healthcare staff. Currently there is a lack of quality information regarding the epidemiology of ED security alerts in both published literature and at an organisational level. The aim is to identify the key patient, organisational and situational characteristics associated with Code Grey and Code Black security alerts within the Emergency Department (ED) of regional hospitals.

Clinical trial/Multi Site Research

- Australian Paediatric Head Injury Rules Study: Assessing the gap prior to implementation **Bendigo Health Researchers:** Dr Daniel Bourne and Dr Mark Putland
- Multi-Centre Randomised Clinical Trial evaluation of Medical Scribes in Emergency Medicine in Australia **Bendigo Health Researcher:** Associate Professor Diana Badcock
- T3 Trial: Triage, Treatment and Transfer of Patients with stroke in Emergency Departments **Bendigo Health Researcher:** Dr Richard Smith





INTENSIVE CARE UNIT

Active research

Decubitus in Intensive Care Units - DecubicUs: multicentre, international one-day prevalence study

Principal Investigator: Dr Timothy Chimunda

Bendigo Health Researchers: Dr Jason Fletcher, Julie Smith and Catherine Boschert

The aim of this observational study is to provide an up-to-date, global picture of the extent and patterns of pressure injuries in ICUs. As point prevalence studies are only of value when performed on a vast scale about 1200 ICUs will be recruited, with all continents covered and as many countries as possible within each continent.

Bendigo Health Critical Care Datathon

Principal Investigator: Dr Cameron Knott

Bendigo Health Researchers: Dr Angela Crombie, Dr Timothy Chimunda, Setina Rockliff and Kevin Masman

To facilitate the framing of research questions in healthcare in a datathon event setting that may stimulate ongoing research activity. The main theme of the Datathon is 'Critical Care Recovery'; exploring the health and community outcomes for patients after their journey through the hospital setting.

The Bendigo Health ICU INFUSED Study - Post Intensive care Follow Up clinic Study: An Evaluative and Descriptive quality improvement report

Principal Investigator: Julie Smith

Bendigo Health Researchers: Dr Emma Broadfield, Jenni Tuena, Kevin Masman, Catherine Boschert and Robyn Geldart

This study aims to describe and evaluate the impact of a regional university teaching hospital based post ICU follow-up clinic (PI-FC)

Primary outcome

1. To measure the effectiveness of the PI-FC.
 - Number and types of interventions/patients.
2. Barriers to inception and roll out of a regional PI-FC.
 - Identification and enumeration
 - Comparison to other clinical programs published in the literature

Secondary outcomes

1. To assess the cost-effectiveness of the ICU follow-up clinic
2. Post ICU Morbidity measures
 - Physiological impairment(s).
 - Psychological impairment(s).
 - Psycho-social impairment(s).
 - Quality of life (QoL) measure
3. Patient and Family satisfaction levels
 - Intra ICU care.
 - Post ICU care.

PICC and Central Line Insertion Efficiency Study

Principal Investigator: Dr Jason Fletcher

Bendigo Health Researcher: Dr Tim Chimunda, Julie Smith, Justin Hargreaves, Rylie Bell, Jenni Tuenna and Dr Matthew Kilpin

The study is an observational audit of a medical procedure performed on ICU and oncology patients who require insertion of a Central Venous Catheter (CVC) or a Peripherally Inserted Central Catheter (PICC) to administer long-term or toxic medications. as part of their usual medical treatment. This project will perform a cost benefit analysis of utilising a new position checking device (Teleflex Vascular Positioning System) for central venous access device (CVAD) placement. The standard method for CVAD insertion requires confirmation of the position using a chest XRay (CXR) prior to use, the timeliness of which is reliant on the availability of the radiology service, porter availability and medical CXR interpretation. On occasions the CVAD will be identified as misplaced and may require manipulation with or without fluoroscopy in radiology or removal and reinsertion. This involves significant cost, delay in the clinical use of the CVAD and, for some patients, a potential length of stay prolongation. The hope is to eliminate CXR confirmations and expedite clinical use of the line.

Survival outcomes following a Code Blue Event in a Victorian regional hospital

Principal Investigator: Associate Professor Rebecca Kippen, Monash University

Bendigo Health Researchers: Dr Zac Doherty, Dr Jason Fletcher, Dr Cameron Knott and Kim Fuzzard

This study will investigate survival outcomes following a Code Blue Event (CBE) in Bendigo Hospital (BH); specifically, time trends, and patient characteristics associated with survival (a) of the CBE; (b) to hospital discharge; and (c) longer-term following discharge.

This study will add to research on probabilities of short-term and longer-term survival of an in-hospital cardiac or respiratory arrest.

Report on the prevalence of anxiety and depression post ICU admission utilizing the HADS tool - a regional teaching experience

Principal Investigator: Dr Mark Aicken

Bendigo Health Researchers: Dr Tim Chimunda, Dr Emma Broadfield and Julie Smith

Critical illness and admission to an intensive care unit (ICU) often means exposure to both psychological and physical stress. These stressors can often lead to ongoing sequelae post discharge from the ICU and can effect patient's long term health and wellbeing (Kapfhammer et al 2004; Angus & Carlet 2003).

The Hospital Anxiety and Depression Scale (HADS) is a well-established screening tool which can be utilised in the hospital setting to identify depression and anxiety (Bjelland et al 2002). A number of research papers have used the HADS questionnaire as a means of identifying anxiety and depression in patients post discharge from ICU with variable findings.

Predictors of emotional outcomes such as patient demographics, clinical groupings, APACHE II scores, length of ICU and hospital stays have also been examined in a number of papers. Rattray, Johnston and Wildsmith (2005) found that women reported higher anxiety scores than men at six months post hospital discharge and higher depression scores at the time of discharge. Younger patients also reported higher anxiety scores at 6 and 12 months. Length of hospital stay, length of ICU stay and APACHE II scores were not found to be related to emotional outcomes (Rattray et al 2005).

At present, there is limited research on the prevalence of anxiety and depression in regional populations post discharge from ICU.

A prospective multisite observational audit of pressure support ventilation in mechanically ventilated patients admitted to the Intensive Care Unit

Principal Investigator: Dr Cameron Knott

Bendigo Health Researcher: Dr Tim Chimunda, Catherine Boschert and Julie Smith

Many patients admitted to the intensive care unit (ICU) for on-going clinical management receive mechanical ventilation. Mechanical ventilation is the process by which a patient's breathing is supported by a machine (ventilator). In a patient who is able to breathe spontaneously but they still need the breathing tube, we assist the patient breathing with

pressure so called pressure support ventilation (PSV). PSV is a mode of ventilation that is proposed to assist the weaning (liberation) process of ventilation. By far this is the most common mode of ventilation in Australia and New Zealand, However, there is little data regarding our current practice and what is the adequate pressure support a patient requires. We plan to conduct a prospective observational audit of adult patients admitted to the intensive care unit and require mechanical ventilation. We specifically wish to assess the use of PSV during the period of mechanical ventilation in order to accurately describe its use in multiple Victorian hospitals. Such information will provide an important insight into current practice and may aid future clinical trials seeking to improve this aspect of clinical care.

An audit of acute non-invasive ventilation (NIV) / Continuous positive airway pressure (CPAP) use

Principal Investigator: Dr Vishnu Jeganathan

Bendigo Health Researchers: Dr Emma Broadfield and Dr Wu Tzen Lim

NIV/CPAP has anecdotally not been administered well on the general ward compared to the HDU setting. The Intensive Care Coordination and Monitoring Unit, a governance body in New South Wales, Australia, recommend that health facilities that provide NIV should have a policy/procedure stating patient selection criteria, initial settings and escalation strategies. Bendigo Health does have such a policy. However, there have been no audits at our organisation looking at its implementation, compliance and outcomes.

NATURISm - Nasoenteric Tube pressUre Related InjurieS in ICU

Principal Investigator: Julie Smith

Bendigo Health Researchers: Lauren Ballantyne, Sarah Ketterer, Jenni Tuena and Kevin Masman

Treatment in Intensive Care Units (ICU) is costly (Rechner IJ, Lipmaon J, 2005) and with an ageing population, by 2020 the demand for intensive care services is expected to increase by 50% (Corke, De Leeuw, et al. 2009). One of the most common therapeutic interventions prescribed in intensive care is the insertion of a naso-enteric tube (NET) for the purposes of enteral feeding and gastric drainage.

The study aims to perform a prospective, observation audit on all adult Intensive Care patients who require a nasoenteric tube for enteral feeding or gastric drainage, with special emphasis on the relationship between acuity of illness and the incidence of pressure injury to the nares and if it has an impact on hospital length of stay.

We aspire to develop evidenced based recommendations and standardisation of practice guidelines for caring for patient's with NETs.

Proton Pump Inhibitors vs. Histamine 2 Receptor Blockers for Ulcer Prophylaxis Therapy in the Intensive Care Unit (PEPTIC)

Co-ordinating Principal Investigator: Dr Paul Young, Wellington Hospital

Bendigo Health Researchers: Dr Jason Fletcher, Dr Cameron Knott, Dr Emma Broadfield, Dr Janice Yeung, Dr John Dyett and Dr Sanjay Porwal

This study will compare H2RBs to PPIs in mechanically ventilated ICU patients on the incidence of clinically significant upper GI bleeding, Clostridium difficile infection, and episodes of mechanical ventilation of more than 10days.

This is a randomised study, but randomisation occurs at the hospital level; there is no patient level randomisation.

The study has two six month periods. For the first six month period a participating hospital is randomly assigned to use either H2RBs or PPIs as routine stress ulcer prophylaxis for all adult mechanically ventilated ICU patients. For the second six month period the hospital will 'cross over' to the other drug i.e. if a hospital is assigned to use PPIs for its patients during the first six month period it would then crossover to using H2RBs for its patients during the second six month period.

ANZICS CTG Adult and Paediatric Point Prevalence Day

Principal Investigator: Dr Jason Fletcher

Bendigo Health Researchers: Dr Emma Broadfield and Dr Sanjay Porwal

The aim of the ANZICS Clinical Trials Group (CTG) Point Prevalence Program is to provide the structure for individual researchers to conduct basic observational 'point prevalence' studies to inform future research. It is based on a principle of minimising the workload on participating ICUs by combining studies using a common and standardised Case Report Form (CRF), on predictable dates.



Clinical trial/Multi Site Research

- Randomized, Embedded, Multifactorial, Adaptive, Platform Trial for Community-Acquired Pneumonia **Bendigo Health Researchers:** Dr Timothy Chimunda, Dr Jason Fletcher, Dr Sanjay Porwal, Dr Emma Broadfield, Dr Cameron Knott and Dr Janice Yeung
- A phase III randomised controlled trial of continuous beta-lactam infusion compared with intermittent beta-lactam dosing in critically ill patients **Bendigo Health Researchers:** Dr Timothy Chimunda, Dr Jason Fletcher, Dr Sanjay Porwal, Dr Emma Broadfield, Dr Cameron Knott and Dr Janice Yeung
- STandard versus Accelerated initiation of Renal Replacement Therapy in Acute Kidney Injury (STARRT-AKI): A Multi-Centre, Randomized, Controlled Trial **Bendigo Health Researchers:** Dr Timothy Chimunda, Dr Jason Fletcher, Dr Sanjay Porwal, Dr Emma Broadfield and Dr Cameron Knott
- A Cluster Randomised Controlled Trial of Selective Decontamination of the Digestive Tract in Critically Ill Patients **Bendigo Health Researchers:** Dr Timothy Chimunda, Dr Jason Fletcher, Dr Sanjay Porwal, Dr Emma Broadfield and Dr Cameron Knott
- Plasma-Lyte 148® versUs Saline (PLUS) study **Bendigo Health Researchers:** Dr Timothy Chimunda, Dr Jason Fletcher, Dr Sanjay Porwal, Dr Emma Broadfield and Dr Cameron Knott and Dr John Dyett
- The Augmented versus Routine approach to Giving Energy Trial **Bendigo Health Researchers:** Dr Jason Fletcher, Dr Sanjay Porwal, Dr Emma Broadfield and Dr Cameron Knott, Dr John Dyett and Lauren Ballantyne
- Nebulised heparin for lung injury: A multi-centre, randomised, double-blind, placebo-controlled trial **Bendigo Health Researchers:** Dr Emma Broadfield, Dr Jason Fletcher, Dr Sanjay Porwal, Dr Timothy Chimunda, Dr Cameron Knott and Dr Janice Yeung
- A Randomized, Double-Blind, Placebo-Controlled, Phase 3 Study to Assess the Safety and Efficacy of ART-123 in Subjects with Severe Sepsis and Coagulopathy **Bendigo Health Researchers:** Dr Jason Fletcher, Dr Emma Broadfield and Dr Sanjay Porwal
- Sedation Practices in Intensive Care Evaluation: SPICE III: A Prospective Multicentre Randomised Controlled Trial of Early Goal Directed Sedation Compared with Standard Care in Mechanically Ventilated Patients in Intensive Care **Bendigo Health Researchers:** Dr Jason Fletcher, Dr Emma Broadfield and Dr Sanjay Porwal
- A randomised blinded placebo controlled trial of hydrocortisone in critically ill patients with septic shock **Bendigo Health Researchers:** Dr Jason Fletcher, Dr Emma Broadfield and Dr Sanjay Porwal
- STandaRd Issue TRANsfusion versuS Fresher red blood cell Use in intenSive carE (TRANSFUSE) – a randomised controlled trial **Bendigo Health Researchers:** Dr Jason Fletcher, Dr Emma Broadfield and Dr Sanjay Porwal

MEDICAL

Active research

A prospective observational study to evaluate the heart rate monitoring accuracy of photoplethysmography (PPG) technology in the Apple iWatch compared to that determined via lead II electrocardiography (ECG) in patients under general anaesthesia

Principal Investigator: Nicholas Savage

Bendigo Health Researcher: Dr Mohit Jain

Wearable fitness trackers, such as the Apple iWatch, are becoming increasingly popular. This technology represents a growth in the new area of personalised health. As they are used more frequently, the PPG technology within these devices will become more sophisticated. Currently, their accuracy in heart rate monitoring has only been reported on awake individuals and not on patients under general anaesthesia.

The aim of this study is to ascertain the accuracy of the heart rate determined by the Apple iWatch PPG compared with the gold standard of lead II Electrocardiography during General Anaesthesia and how that accuracy changes over time during the procedure.

Using the Apple iWatch to assess flap survival post-operatively

Principal Investigator: Nicholas Savage

Bendigo Health Researcher: Dr Mohit Jain

Monitoring the circulation of flaps is critical to successful operations. Any changes in perfusion need to be recognised quickly before partial or total tissue loss occurs. While clinical evaluation by an experienced surgeon is considered the best option for flap perfusion assessment this is augmented with pulse oximetry which is used to continuously monitor oxygen saturation and pulse using PPG technology. As the Apple iWatch uses the same technology it may be utilised as an additional resource to assess flap perfusion.

The aim is to ascertain whether the Apple iWatch can be used to assess flap perfusion post-operatively.

Telehealth for enhanced gestational diabetes mellitus management in regional setting

Co-ordinating Principal Investigator: Dr Tshepo Rasekaba, La Trobe University

Bendigo Health Researcher: Dr Jessica Triay

Gestational diabetes mellitus (GDM) affects 1 in 7 pregnant women. Optimum blood glucose levels (BGL) produces better maternal and foetal outcomes. Our trial in the urban

setting showed telehealth significantly reduced time to achieve glycaemic target without compromising the quality and safety of care. We propose to examine telehealth in regional areas where access to diabetes care is limited. We will undertake preliminary work to establish (1) feasibility and acceptability of telehealth for GDM by exploring patient and health providers' perspective on telehealth, and (2) how telehealth can be embedded as part of routine care in regional setting

Clinical trial/Multi Site Research

- Early environmental determinants of pancreatic islet autoimmunity: a pregnancy to early life cohort study in children at risk of type 1 diabetes **Bendigo Health Researcher:** Associate Professor Mark Savage
- Victorian Stroke Telemedicine Program Evaluation **Bendigo Health Researchers:** Associate Professor Mark Savage and Tessa Coupland
- Australian Stroke Clinical Registry (national) **Bendigo Health Researchers:** David Rosaia and Erin Ray
- Reducing disability from stroke by improving access to best practice stroke care in Victoria – The STELAR Project **Bendigo Health Researchers:** David Rosaia and Tessa Coupland



MEDICAL IMAGING

Active research

BreastScreen Project

Principal Investigator: Dr Jill Wilkie

Bendigo Health Researchers: Dr Christina Giudice, Eliza Alford and Kathryn Carmen

Current Australian breast cancer screening guidelines recommend for asymptomatic, low-risk women between the ages of 50 to 74 years to undergo a screening mammogram every two years. At the screening mammogram, two standard radiographic views are performed for each breast. Each set of mammographic views is analysed by radiologists, who recommend whether a patient should be recalled for further assessment or not. However, there has been a paucity of literature reviewing asymmetric mammogram findings over last two decades. With numerous recent papers revealing that many missed cancers were originally only seen on one standard projection, there is now conflicting thoughts as to the estimated percentage of malignant one-view findings.

In Australian BreastScreen patients, it is unclear how many recalled single-view lesions are found to be cancerous and whether these mammographic findings correlate to a particular type of breast cancer. Therefore, our key aim is to determine the pathological outcomes for BreastScreen patients with findings in only a single standard mammographic projection.

Functional magnetic resonance imaging of the human visual system

Co-ordinating Principal Investigator: Dr Philippe Chouinard, La Trobe University

Bendigo Health Researchers: Richard Gregory and Michelle Bertovic

The research question is: What are the neural mechanisms of how vision is used for the purposes of perception and action?

Vision allows us to recognise objects and carry out actions. It is widely accepted that two separate neural pathways underlie these two different functions (vision-for-perception and vision-for-action) [1,2,3]. The ventral “perception” stream projects from the primary visual cortex to the inferior temporal cortex and enables us to consciously recognise objects while the dorsal “action” stream projects from the primary visual cortex to the parietal cortex and enables us to perform visually-guided movements to reach and grasp objects. These two streams have been dissociated in patients with brain damage [1,2,3]. We will characterise this dorsal / ventral dissociation in greater detail using fMRI in sub-regions of the brain in normal adult volunteers. Given the rich scope of how vision is used in both perception and action, different fMRI experiments will be carried out in different participants, which will differ in the type of visual stimulus presented and the type of response being made.





MENTAL HEALTH

Active research

Design and Prototyping of Sensory Trolley systems for Bendigo Health

Co-ordinating Principal Investigator: Juan Sanin, RMIT

Bendigo Health Researcher: Lisa Spong

This project will work as a platform for collaboration between designers and healthcare professionals, who will combine their knowledge and expertise to approach multisensory stimulation from a novel hybrid perspective constituted at the intersection of design and mental healthcare.

Aim: The primary objective of this project is to design a functional prototype of a sensory trolley system to support the delivery of multisensory stimulation therapies at Bendigo Health's Psychiatric Services. Outcomes of this project will provide tools and guidelines for conducting multisensory stimulation therapies in 'new' and 'different' ways, and will open a future path for introducing improvements in this field.

Design of game-objects for multisensory stimulation

Co-ordinating Principal Investigator: Juan Sanin, RMIT

Bendigo Health Researcher: Lisa Spong

This project will work as a platform for collaboration between designers and healthcare professionals, who will combine their knowledge and expertise to approach multisensory stimulation from a novel hybrid perspective constituted at the intersection of design and mental healthcare. Outcomes of this project will provide tools and guidelines for conducting multisensory stimulation therapies in 'new' and 'different' ways, and will open a future path for introducing improvements in this field.

The primary objective of this project is to design a series of objects to support the delivery of multisensory stimulation therapies at Bendigo Health's Psychiatric Services through game-based activities.

The use of validation in BPSD

Principal Investigator: Dr Nardine Elzaharby

The project will be conducted in an acute geriatric inpatient psychiatric ward setting. It will outline the use of validation therapy in the management of a range of eligible patients with behavioural and psychological symptoms of dementia (BPSD).

The validation method is a method for communication with disoriented old people. It is a process that grows with trust and intimacy which was developed by Naomi Feil and was adopted worldwide in 1989, beginning in Europe. Little research on the use of the validation method in the management of BPSD is available (Feil, 1989). The validation method is an interactive nursing intervention for use with people suffering dementia and other cognitive disorders. It recognizes the emotional needs of dementia sufferers and highlights inadequacies in the attempts to orientate the disoriented, a technique which gave little recognition to the experience of dementia, an experience characterized by feelings of loss, fear and isolation (Feil, 1989).

The project presents the experience of utilising this modality in the management of BPSD of dementia in a range of patients in an acute inpatient geriatric psychiatric setting. Results of this case series may support the use of the validation method in the management of BPSD and may call for further studies in the area, including randomized controlled trials.

An investigation of the effectiveness of a receptive music therapy intervention in ameliorating mental health symptoms in aged community clients of a regional mental health service

Principal Investigator: Nicholas Schulz

The aim of this project is to investigate the effectiveness of a receptive music therapy intervention as an adjunct to other treatment modalities utilised in facilitating management of mental health conditions in persons aged over 64 years. To date, there has been a considerable body of research directed at establishing the effectiveness of music therapy interventions applied as an adjunct to other forms of mental health treatment. This has been largely in the form of quantitative research, which has not been able to establish conclusive findings due to methodological difficulties and study limitations. However, the research findings suggest that music therapy and music interventions have great potential for effective, adjunctive treatment and management of mental health conditions, including depression, anxiety, dementia and schizophrenia (see attached literature review).

Additionally, throughout the research there have been no adverse effects of music interventions indicated, and receptive (listening) music interventions may be easily accessed and inexpensive for the client. The participant group in this study comprises persons over 64 years of age, who are case managed in the community by the Bendigo Health Aged Persons Mental Health Team. Consenting participants will listen to preferred music of their choice for a designated period and duration (10 X 30 minute sessions over two weeks), after which they will be invited to express their views of the experience in relation to symptom management and recovery. Their responses will be recorded in a semi-structured interview process, with analysis of the interviews undertaken to establish any emerging themes. The findings may contribute to recent research regarding the effectiveness of music interventions applied in a mental health treatment context.

A study investigating the incidence of seclusion in an adult acute psychiatric inpatient unit over a three year period: a retrospective file review

Principal Investigator: Lisa Spong

Bendigo Health Researcher: Tim Lenton

The aim of this project is to: investigate the incidence of seclusion over a 3 year period, in an adult acute psychiatric inpatient unit; examine whether the reducing restrictive interventions (RRI) project, currently running as a Bendigo Health internal project, has had an impact on the incidence of seclusion rates, explore factors which may have contributed to change in incidence rates, such as practices implemented through the RRI project, changes to the Mental Health Act in 2014, and possible sleep deprivation effecting decision making. The incidence of seclusions/restrictive interventions in an adult acute psychiatric inpatient unit will be examined for the 18 month periods prior to and post the start of the RRI project. The method for this project is to conduct a retrospective file review to retrieve as much

information as possible for the questions/points included in the Audit form attached. All information on the attached audit form will be considered as factors which have possibly influenced the incidence of seclusions and will be explored.

The possible outcome may be that the incidence of seclusions/restrictive interventions have decreased with the implementation of the RRI project. Further that information obtained from the file review will highlight areas which may have contributed to this decrease and help direct further practices, awareness and or education for the future.

Clinical trial/Multi Site Research

- Antipsychotic choice: understanding shared decision making **Bendigo Health Researcher:** Dr Skye Kinder
- Building the evidence base of Prevention and Recovery Care Services (PARCS) - A study of recovery-oriented outcomes **Bendigo Health Researcher:** Associate Professor Phil Tune



ORTHOPAEDIC

Active research

Muscular control of the arthritic hip joint

Co-ordinating Principal Investigator: Dr Tania Pizzari, La La Trobe University

Bendigo Health Researchers: Dr Dugal James and Theo Kapakoulakis

The primary aim of this project is to establish the structure and function of the key deep hip stabilizing muscles (gluteus medius [GMed] and minimus [GMin]) in a population with hip osteoarthritis(OA)involving the application of intramuscular electromyography (EMG) and MRI (Magnetic Resonance Imaging) scan. MRI allows quantification of muscle structure (volume) and EMG quantifies muscle function (when and how hard a muscle is working).

The secondary aim of this project is to compare data from hip OA patients to age and gender-matched controls.

This study will compare 2 groups of 15 participants

- Patients with unilateral hip OA who are deemed to be low priority (grade 2 OA or less) and therefore not eligible for immediate surgery following clinical assessment at the Osteoarthritis hip knee clinic at Bendigo Health (hip OA).
- Control participants, age and gender-matched to the hip OA group, will be recruited from the general population (CON).



PAEDIATRICS

Active research

Clinical accuracy and comparison of iSTAT machine and commonly used glucometers for detection of neonatal hypoglycaemia

Principal Investigator: Dr Kiah Zeman

Bendigo Health Researchers: Dr Andy Lovett and Dr Catherine Smale

Neonatal hypoglycaemia remains controversial to define and when prolonged has been said to result in poor neurodevelopmental outcomes, necessitating an accurate and efficient method of testing for it. To date, there few studies that examine the accuracy and clinical suitability of the i-STAT handheld device. These are typically small studies over a decade old, with none focussing specifically on the diagnosis of neonatal hypoglycaemia. Despite this, the i-STAT device is referred to in clinical guidelines Victoria-wide as a diagnostic test for hypoglycaemia. Consequently, this study aims to further examine the accuracy of this device in the neonatal population, alongside commonly used POC glucometers. The participant group will be neonates admitted to the Special Care Babies Unit (SCBU) at Bendigo Health who require blood glucose measurement. Laboratory true blood glucose testing and i-STAT values will be compared in neonates who have had a blood glucose reading of less than 2.6mmol/L via a point-of-care (POC) glucometer. Comparison of glucose readings will also be made with commonly used POC glucometers. If i-STAT measurements are found to be consistent with laboratory true blood glucose values, this device may be used in the diagnosis of neonatal hypoglycaemia, possibly saving time and expenses in this potentially time-critical and common condition.

Paediatric Video conference support to rural hospitals

Co-ordinating Principal Investigator: Dr Andy Lovett

Bendigo Health Researchers: Ms Debra Forbes and Dr Sean Warfe

This study aims to evaluate the effectiveness of providing video conferencing between Bendigo Health Paediatric Team and rural healthcare professionals in Echuca and Swan Hill health services. The service aims to provide support to local clinicians in caring for paediatric patients in Swan Hill or Echuca where clinically appropriate. It is expected that this service will result in less children needing to be transferred to alternative hospitals, including Bendigo Hospital, and more children being cared for in their community thus decreasing the stress (emotional and financial) on families and supporting rural clinicians in delivering paediatric care.

There will be two participant groups. Group 1 will consist of rural and Bendigo Health clinicians involved in caring for paediatric patients. Group 2 will consist of carers/parents or guardians of paediatric patients in rural hospitals. This project will assess clinician and carer satisfaction with the service, as well as objective hospital admission and transfer data.

Clinical trial/Multi Site Research

- Late onset sepsis and Breast Milk - Exploring the association between late onset GBS sepsis and breast feeding **Bendigo Health Researcher:** Dr Joel Ziffer

REHABILITATION

Clinical trial/Multi Site Research

- The ENVIRONS (ENVironments for Inpatient RehabilitatiON of Stroke patients) study: A multiple-case study to understand how the built environment of inpatient stroke rehabilitation facilities may best promote efficiency, effectiveness, emotional well-being. **Bendigo Health Researchers:** Dr Faraz Jeddi and Leanne Muns



RENAL

Active research

The prevalence and utility of backup arteriovenous fistula in patients undergoing peritoneal dialysis a rural perspective

Principal Investigator: Dr Chau Ng

Bendigo Health Researchers: Dr Christian Holmes and Dr Gregory Harris

The practice of creating backup arteriovenous fistula in peritoneal dialysis patients vary across renal centres, and there is no unifying guideline informing an evidence based approach.

The aim is to investigate the prevalence and utility of backup arteriovenous fistula in patients on peritoneal dialysis at the rural centre, Bendigo Health, over the past ten years.

Effect of intravenous B12 supplementation in haemodialysis patients on erythropoietin stimulating agent requirements

Principal Investigator: Dr Christian Holmes

Bendigo Health Researchers: Dr Ayushi Chauhan and Kevin Masman

Anaemia (low haemoglobin) is a common problem amongst dialysis patients, and is in part due to erythropoietin deficiency, a hormone normally made by the kidney which stimulates red blood cell production in the bone marrow. Given that the levels of this hormone drop as kidney function declines, in patients with kidney failure, anaemia is usually treated with a combination of iron supplementation and erythropoietin stimulating agents, the latter of which is extremely costly.

A previous study has shown that intramuscular B12 supplementation in haemodialysis patients even with a normal level of B12 reduces erythropoietin stimulating agent requirements. Given the ability to administer drugs painlessly through a dialysis machine, we propose to use intravenous supplementation of B12 on haemodialysis in patients with a B12 level <400pmol/L, and observe if this reduces erythropoietin stimulating agent requirements over 12 months.

Participation will not require any additional time spent on dialysis. In terms of risks to participants, there are no known side effects from excessive B12 supplementation, though there are rare cases of anaphylaxis (severe allergic reaction) in the literature after intravenous B12, and all doses will be administered under supervision of staff trained in treatment of anaphylaxis.

If intravenous B12 replacement reduces erythropoietin stimulating agent requirements, this would represent a significant cost reduction given the expensive nature of erythropoietin stimulating agents (several thousand dollars per patient per annum) compared to B12 replacement (\$15 per patient per annum).

UROLOGY

Active research

Evaluation of the clinical utility of prostate MRI at Bendigo Health

Principal Investigator: Dr Samantha Koschel

Bendigo Health Researchers: Dr Janelle Brennan and Dr Rohan Hall

The overall aim of this project is to review the clinical utility of prostate MRI by examining three aspects using a retrospective approach:

1. Comparing volume data of prostate MRI with urologist performed transrectal ultrasound (TRUS) and prostatectomy specimens at histopathology, to determine if prostate MRI could now be considered gold standard in volume assessment.
2. Comparing prostate MRI results with prostatectomy histopathology to determine if MRI accurately identifies the dominant malignant lesion.
3. Presenting retrospective blinded MRI and histopathology results to a multidisciplinary team of urologists, radiologists, and oncologists, to determine if prostate MRI actually changes or enhances clinical management of prostate cancer.

Magnetic resonance imaging (MRI) of the prostate is now routinely undertaken in surveillance of low-risk prostate cancers, to facilitate targeted biopsy, and for staging of high risk cancers.

Bendigo Health commenced prostate MRI in August 2013, and since then has performed more than 380 studies which is comparable to a higher volume tertiary centre.

Outcomes from the study would assess the utility of prostate MRI in surveillance and as a tool for planning surgical intervention in prostate cancer, in a regional setting.

Clinical trial/Multi Site Research

- Multicentre Feasibility Study Of an Enhanced Lithotripsy System (ELS) In The Treatment Of Urinary Stone Disease **Bendigo Health Researcher:** Dr Janelle Brennan



WOMENS HEALTH SERVICES

Active research

Understanding your Newborn and Adapting to parenthood (UNA): A randomised clinical effectiveness trial of the Newborn Behavioural Observations (NBO) for new families

Co-ordinating Principal Investigator: Dr Susan Nicolson, The Royal Women's Hospital

Bendigo Health Researchers: Wendy Lauder and Caitlin Fraser

The UNA study tests the effectiveness of the newborn behavioural observations (NBO) system (a brief psychosocial support) in promoting adaptation to parenthood in first time parents screening positive for maternal antenatal risk factors of postnatal depression (PND) during pregnancy. Aims: To test the effectiveness of the NBO intervention in enhancing the mother-infant relationship, decreasing maternal postnatal depression & decreasing maternal stress. Methods: All recruits complete a brief psychosocial screen at 26-36 weeks gestation. Women with antenatal risk factors of PND (current anxiety or depression symptoms or past history of depression) will be randomized with their recruited partners, if relevant, to two groups: Clinical comparison group (G1): Referral for treatment as usual to community mental health or, Intervention group (G2): Referral for treatment as usual to community mental health plus neonatal relationship support. Data for all recruits will be collected at several time-points from recruitment in pregnancy (T1), to infant age 4 months (T8). Data will be compared between groups to determine the impact of the NBO on adaptation to parenthood, as evidenced by parental mood, stress and the parent-infant relationship.

Effect of Betamethasone on glycaemic profile and control in women with gestational diabetes mellitus, between 37.0 and 39.0 weeks gestation; a retrospective study

Principal Investigator: Dr Likhui Lau

Bendigo Health Researchers: Dr Benjamin Rutten, Dr Mark Savage, Dr Jessica Triay, Dr Nicola Yuen and Kevin Masman

Antenatal corticosteroids, such as Betamethasone, are frequently used to reduce the risk of respiratory distress syndrome in neonates who are planned for delivery by elective caesarean section prior to 39 weeks gestation. A 2005 randomised trial found that if antenatal corticosteroids were administered prior to a planned elective caesarean section between 37 and 39 weeks gestation, the incidence of respiratory distress can be reduced by more than 50%. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists suggest this could be considered by practitioners.

The aim is to evaluate the effect of Betamethasone (a corticosteroid) on blood sugar levels in pregnant women who received steroids during their pregnancy. Specifically, to see how often these women have blood glucose levels above current targets (i.e. Fasting blood glucose >5mmol/L and 2 hours post-meal blood glucose >6.7mmol/L) and by how much they exceed these targets. Also to see if these women required insulin treatment and how much they required.

Maternal body mass index profile and obstetrics outcomes in northern regional Victoria

Principal Investigator: Dr Madeline Ward, Monash University

Bendigo Health Researcher: Dr Jennifer Pitson, Dr Anju Agarwal, Rachel James and Fiona Faulks

Obesity in the obstetric population is a current health issue, in particular in rural and regional areas, being a known risk factor for obstetric complications. An awareness of its prevalence and associated outcomes can lead to the direction of education, counselling and interventions to improve birthing outcomes.

This proposed retrospective study aims to compare obstetric birthing outcomes by WHO body mass index (BMI) categories. Delivering women listed in Bendigo Hospital's Birthing Outcome System (BOS) database during 2011-2015 will be eligible to participate. All study variables will be extracted from this electronic database.

Outcomes investigated will include: labour / delivery onset (induction versus spontaneous); delivery mode (vaginal – instrumental or not – versus caesarean (CS), which can be elective or emergency); gestational diabetes; post-partum haemorrhage; estimated blood loss (EBL); newborns' birth weight (BW) – infants with normal weight, macrosomia, or growth restriction; admission to Special Care Baby Unit (SCBU); length of stay (LOS); and infant feeding on discharge. Costs relating to outcomes by different BMI categories will also be collected.

Clinical trial/Multi Site Research

- Sustainability of Identification and Response to Domestic Violence in Antenatal care (SUSTAIN) study **Bendigo Health Researchers:** Dr Angela Crombie, Nicole West, Rachel James and Tanya Hoad
- The cross-country ultrasound study - CROCUS **Bendigo Health Researcher:** Dr Nicole Yuen



CLINICAL GOVERNANCE

PHARMACY

Active research

Cefepime for Febrile Neutropenia: time to treat from admission to administration

Principal Investigator: Caillan Welton

Bendigo Health Researchers: Cerisse Brown and Melanie Jones

Febrile neutropenia is a common complication for oncology patients whilst undergoing chemotherapy and places patients at risk of infection. Early identification of febrile neutropenia and treatment according to local protocols is critical to treating these patients.

This project aims to retrospectively assess the time taken from when a patient presents to the Emergency Department triage to the time the patient was first administered Cefepime for febrile neutropenia.



INFECTION PREVENTION AND CONTROL

Active research

Establishing outcomes for people not regularly attending HIV care

Principal Investigator: Dr Andrew Mahony

Bendigo Health Researcher: Judy Lamb

Since the advent of combination antiretroviral therapy (ART) in 1996 the morbidity and mortality of the estimated 6300 people living with HIV (PLHIV) in Victoria has significantly improved. However, PLHIV are still presenting to health care facilities with advanced HIV and opportunistic infections. Importantly, many of these patients are already aware of their HIV diagnosis and have intersected with HIV services in the past.

The aim is to understand the outcomes for PLHIV already diagnosed, who have intersected with major services providing HIV care but who have unknown outcomes and are potentially lost to follow-up. Establishing whether individuals with unknown outcomes have transferred care to another site, or are truly disengaged from care/lost to follow-up will allow for accurate estimates of the number retained in HIV care with access to ART. Accurate estimates of retention in HIV care will allow care providers and researchers to target steps in the HIV care cascade that will harness the benefits of ART for both individuals living with HIV and individuals at risk of HIV infection.

Clinical trial/Multi Site Research

- Establishing the prevalence of healthcare associated infections in Australian hospitals
Bendigo Health Researcher: Jane Hellsten



QUALITY AND PATIENT INFORMATION

QUALITY AND RISK

Active research

Advance Care Planning

Principal Investigator: Meagan-Jane Adams

Bendigo Health Researcher: Dr Jason Fletcher

Advance care planning (ACP) enhances the quality of end-of-life care. However, in central Victoria the uptake of ACP is low and the communication of Advance Care Plans between primary health care (PHC)/general practitioner (GP) services and regional hospitals is unknown. This may result in unnecessary, expensive and often distressing hospitalisations and medical interventions. Consumers and their families may have little choice and control over medical treatment and choices about their care.

The aim of this project is to identify and address the barriers and enablers to the uptake and communication of Advance Care Plans across the health system for consumers aged 75 years and over. Tailored interventions will be implemented in a range of PHC/GP service settings and a communication strategy will be implemented so the Plans are known to Bendigo Health. By focusing on the PHC/GP service '75 year-old plus' health assessment and building on existing communication between GPs and Bendigo Health, the project outcomes will be sustained and progress will be routinely monitored. This project is not about assisted dying.





INTEGRATED CARE SERVICES

OUTPATIENTS REHABILITATION

Active research

Home Based Pulmonary Rehabilitation

Principal Investigator: Wendy Millar

Bendigo Health Researchers: Nakita Pirodi, Nikki Lewis and Julia Birchall

Pulmonary Rehabilitation is a comprehensive intervention designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence of health-enhancing behaviours.

To increase access to pulmonary rehabilitation through flexible service provision, for clients who are unable to travel/commit to a centre-based program. The program will be modelled on previous studies and similar programs that have been completed through Alfred Health & La Trobe University. This project will evaluate the impact of a home based Pulmonary Rehabilitation Program in a rural setting.

A review of wound management in a regional community nursing service

Principal Investigator: Sharon Heap

Bendigo Health Researcher: Kevin Masman

To improve infection control practices with surgical wound dehiscence (SWD) wound management at Community Nursing Service, Bendigo Health. SWD is defined as the “separation of the margins of a closed surgical incision that has been made in skin, with or without exposure or protrusion of underlying tissue, organs or implants” (World Union of Wound Healing Societies, 2018, 9.4).



HEALTH PROMOTION

Active research

Integrated Motivational Interviewing and Cognitive Behaviour Therapy for physical activity change: The Healthy 4U Project Version 2

Co-ordinating Principal Investigator: Associate Professor Michael Kingsley, La Trobe University

Bendigo Health Researcher: Stephen Barrett

The rise in chronic diseases has placed a significant demand on the healthcare system. Hospitals are required to broaden their role from their primary focus of disease treatment towards a position of more integrated health promotion and prevention. Hospital-based surgeons are seen as credible sources of advice and expertise on health issues that extend beyond their responsibilities for services related to sick care. Surgeons as such, are influential in the promotion of lifestyle behaviour change.

Aim: The main success criteria of the Healthy 4U service is to increase the number of Specialist Clinic patients who receive preventative health advice as part of routine care, facilitated by a brief intervention by the specialist and a referral to the telephone coaching intervention. The research aim is to evaluate the effectiveness of this telephone coaching intervention on changes and maintenance of health related outcomes. A further aim is to quantify the cost-effectiveness of the intervention from a healthcare organisational perspective.

Surgeons and Preventative Health

Co-ordinating Principal Investigator: Associate Professor Michael Kingsley, La Trobe University

Bendigo Health Researcher: Stephen Barrett

The aim of this research is to explore which health promotion interventions are carried out by hospital surgeons, as well as exploring the attitudes of surgeons towards health promotion activities, including facilitators and barriers. The depth of insight gained from the study of these highly professionalised clinical groups will offer a distinctive perspective on clinical practice and the challenges of implementing effective health promotion into hospital practice.

The findings from this study may offer insight into individual, institutional and contextual factors that influence surgeons' decisions to participate in health promotion activities. Combining quantitative data about preventative health practice with qualitative data about beliefs and attitudes may highlight ways in which preventative health interventions might be designed to increase the overall rate of health risk factor management.

Healthy 4U Project

Co-ordinating Principal Investigator: Associate Professor Michael Kingsley, La Trobe University

Bendigo Health Researcher: Stephen Barrett

The primary aim of the study is to examine if a telephone based intervention of a blend of Motivational Interviewing (MI) and Cognitive Behaviour Treatment (CBT) is effective in increasing and maintaining physical activity in people presenting to an elective non-admitted clinic in a public hospital in the regional town of Bendigo in Victoria. Secondary aims relate to the effect of the MI/CBT intervention on self-efficacy, quality of life, type II diabetes risk, and anthropometric measures.

This office delivered telephone support model may be a cost effective and relatively straightforward way of promoting health behavior change to BH patients. This project aims to test the effectiveness of this approach in a well-designed and rigorously conducted trial.

Facilitated through the MI/CBT component, referrals may be made to already existing Community Health population-health programs. This link provides service coordination and avoids unnecessary service duplication.

INTEGRATED PALLIATIVE CARE SERVICES

Active research

Evaluation of a new Palliative Care at Home service

Principal Investigator: Dr Buddy Mudugamuwa

Bendigo Health Researchers: Alison Smith, Anita Wild, Catherine Griffin, Angela Munro, Les MacLeman, Kevin Masman, Lucy Rodda, Mel Hartwell and Ashleigh Reid

The literature concerning preferred location of dying and actual location of dying in Australia, indicates a mismatch. Seventy percent of people surveyed in palliative care, respond that they would prefer to die at home, but only 14% of people in Australia actually die in their nominated preferred location.

The main success criteria of the new palliative care service, is to increase the proportion and number of palliative patients who elect to die at home, to do so, with an end stage quality of life acceptable to the palliative patient and their carer, by introducing a multi-disciplinary support, home-based service in the regional city of Bendigo.

Aim: The research aim is to evaluate the effectiveness of the new Palliative Care at Home service.



ALLIED HEALTH

Managing stable PIPJ volar plate injuries with figure 8 splinting

Principal Investigator: Mathew Grange

Bendigo Health Researchs: Susanne Ellis and Kevin Masman

This randomised controlled trial will compare two treatment methods for management of stable volar plate injuries to the proximal interphalangeal joint of the finger. The aim is to determine if management with figure 8 splinting with an exercise plan provides similar or improved results to the current treatment used in the hand clinic of dorsal block splinting with an exercise plan.

The foot-health of people with diabetes in regional and rural Australia

Principal Investigator: Dr Byron Perrin, La Trobe University

Bendigo Health Researcher: Marcus Gardner

Indications suggest that people with diabetes living in regional and rural areas of Australia have high rates of diabetes-related foot problems, but the extent of these problems is not established. This research aims to determine foot-health characteristics of people with diabetes who present to podiatrists in Central Victoria and Northern Tasmania over a three year period.

Evaluation of the implementation of a standardised program of clinical supervision for allied health professionals

Co-ordinating Principal Investigator: Dr Carol McKinstry, La Trobe University

Bendigo Health Researcher: Marcus Gardner

The aim of this study is to increase understanding of what influences the effectiveness of CS for allied health professionals practising in a regional setting. This study is utilising a qualitative action research methodology informed by multiple methods. The study will involve three phases: baseline data collection regarding perceptions of supervisees using a validated clinical supervision questionnaire (MCSS-26); a group supervision study using the Clinical Supervision Evaluation Questionnaire; and longitudinal study of the impact of CS program and outcomes. The action research group is being used to inform and evaluate changes across the three phases.

The baseline findings from the MCSS-26 tool have included that overall, clinical supervision was perceived to be effective. However, there were statistically significant differences been some discipline groups, particularly occupational therapy and physiotherapy. The project reference group has identified a need to develop alternative models of supervision in some settings. Leading from this a pilot of group supervision is to be undertaken.

Can a targeted exercise program improve hip function and increase activity levels in people with hip osteoarthritis; a randomized controlled trial

Co-ordinating Principal Investigator: Dr Rodney Green, La Trobe University

Bendigo Health Researcher: Theo Kapakoulakis

The primary aim of this project is to establish whether a targeted hip stabilizer (gluteal) muscle exercise program improves hip muscle structure, function, and increases activity levels in individuals with mild-moderate hip osteoarthritis (OA). Muscle structure will be measured as muscle volume, function will be measured as strength, electromyographic parameters and using questionnaires and activity levels will be measured by accelerometry and questionnaires.

Primary outcome measures at each time point are the Oxford hip score as a measure of hip function and objectively measured physical activity using 7-day tri-axial accelerometry. Secondary measures include measures of hip strength and flexibility, the HOOS (Hip disability and Osteoarthritis Outcome Score), the A-QoL (Assessment of Quality of Life) and a global rating of change. For the Bendigo site, outcomes will also include EMG gluteal muscle activity and hip muscle volume and adiposity

Clinical trial/Multi Site Research

- Translating Neurorehabilitation research into clinical practice: the Sense Implement Project
Bendigo Health Researchers: Marcus Gardner, Donna Borkowski and Fiona Templeman



INNOVATION AND DIGITAL SERVICES

RESEARCH AND INNOVATION

Active research

Development of an Integrated Chronic Obstructive Pulmonary Disease (COPD) Model of Care

Principal Investigator: Amanda Collings

Bendigo Health Researcher: Dr Angela Crombie, Kevin Masman, Dr Emma Broadfield and Toni Hall

The project is a collaborative initiative involving specialist respiratory physicians, GPs, community health services, residential aged care and acute hospitals managing people with COPD in eight locations: Bendigo, Castlemaine, Echuca, Elmore, Kyneton, Lockington, Rochester and Swan Hill. These areas were selected as they were found to have the highest frequency of admissions in a study undertaken at Bendigo Health. The Loddon Mallee Region has also been identified as having the second highest COPD hospital discharge rates in Victoria.

The aim is to develop and pilot an integrated model of care to address any gaps identified during this study in the assessment and management of people with COPD living in the rural/regional areas in scope.

Bendigo Health clinical staff research capacity and culture survey

Principal Investigator: Dr Angela Crombie

Bendigo Health Researchers: Setina Rockliff, Kevin Masman, Donna Borkowski and Marcus Gardner

A positive and proactive research culture is associated with improved organisational performance including improved patient outcomes and satisfaction, reduced staff turnover and improved staff satisfaction, and improved organisational efficiency. Research culture is linked to the research capacity of clinicians, teams and the organisation. For the first time, we now have a baseline measure of the research capacity and culture of clinicians at Bendigo Health.

The Clinician Research Capacity and Culture (RCC) tool was previously used at Bendigo Health in a survey of the allied health workforce, led by Donna Borkowski, and subsequently applied in a survey of the Victorian public health allied health workforce in 2014. In order to profile the current research culture and capacity of all clinical staff at Bendigo Health, the RCC tool was sent to all 3,104 clinicians in July 2018. Four hundred and sixteen responses were received (13.4%) which demonstrates interest by clinicians in research at Bendigo Health.

The survey results were consistent with those reported in the literature around the influences on research culture in Australian public health settings and indicate a lack of awareness of what research is being undertaken at Bendigo Health and of what resources are available to assist clinician research. There were many comments that reflect an invisibility of

research to clinicians and limited knowledge of where to go to access support. The lowest rated aspect of the organisation's capacity for research was around funding, equipment or administration to support research activities. One of the main barriers identified via the comments of respondents at the organisation, team and individual level was around the clinical workload and clinical priorities taking precedence over research.

The highest rated indicator of the organisation's research capacity was around the organisation promoting clinical practice based on evidence. This was also reflected in the comments on team and individual motivators to research where using evidence to improve practice and patient outcomes was the overwhelming theme.

The survey results provide an insight into the current research culture and capacity of clinicians at Bendigo Health and an action plan will now be developed to address some of the identified barriers and to facilitate identified enablers to research. The action plan will be developed in close consultation with clinicians and with the Interdisciplinary Research Leadership Group to ensure that actions are achievable and communication pathways are optimised. Working towards a positive and proactive research culture will help Bendigo Health in achieving our vision of Excellent care. Every Person. Every time.

Enhancing health services access and support for people with a disability and their carers: The efficacy of a single point of contact and individualised care plans in the acute setting.

Principal Investigator: Dr Angela Crombie

Bendigo Health Researcher: Caitlin Wright

A dedicated project has been funded by the Department of Health and Human Services (DHHS) to identify opportunities and strategies for improving health service accessibility and responsiveness for people with a disability who have complex needs and behaviours.

A significant focus of the project has been the need for individualised care planning with this patient cohort. The Project Advisory Group identified the Hospital Passport and Emergency Department (ED) Action Plan as appropriate resources following review of the literature and consultation with healthcare professionals and consumers. A single point of contact into the acute health system has also been identified by the Advisory Group as potentially beneficial for this patient cohort.

This study aims to determine whether the use of Hospital Passports will benefit patients with a disability, their carers and direct care staff in the hospital setting at Bendigo Health and Echuca Regional Health. It will also identify whether a single point of contact model can be used in an acute setting to improve admission coordination for this complex cohort.

The study design will focus on a case study approach, and the study population includes healthcare staff in targeted areas as well as patients with a disability who have a Hospital Passport and/or ED Action Plan, and the carers of the patients with a disability. Surveys with staff, semi-structured interviews with carers and patient file audits will be conducted for the data collection.

Bendigo Health Lung Cancer Redesign Project

Principal Investigator: Dr Robert Blum

Bendigo Health Researchers: Dr Carol Parker and Ms Christal Guthrie

This study aims to utilise approved redesign methodologies to understand baseline performance and systematically improve processes to support timely diagnosis and commencement of treatment for patients diagnosed with lung cancer.

Currently the time it takes for a patient to be diagnosed with lung cancer at Bendigo Health and the time it takes for a patient with lung cancer to commence treatment is unknown. The new optimal cancer care pathways recommend that a patient should be diagnosed with lung cancer within 28 days of receipt of referral and commence treatment for lung cancer within 14 days of receipt of referral. Failing to meet these recommendations increases the potential for disease progression before treatment commences and increases the psychological distress of the patient and family. Delays in the diagnosis and treatment of lung cancer. *Chest* (2005)128: 2282-2288).

Possible outcomes

Document and understand the time taken to be diagnosed and treated for lung cancer from the receipt of referral.

Generation of evidence based solutions to the problems identified, process redesign and identification of any potential supportive documents or tools that may be required.

Improve the timeliness of diagnosis and treatment for patients with lung cancer.



RESEARCH AND INNOVATION PROJECTS

Delirium Breakthrough Series

Safer Care Victoria (SCV) has established a delirium collaborative as the next phase of the Delirium Improvement Project. Castlemaine Health and Rochester & Elmore District Health Service are partnering with Bendigo Health for the duration of the twelve month initiative. Health services participating in the delirium collaborative will undertake improvement projects that focus on (i) screening for delirium, (ii) preventing delirium in at-risk patients, (iii) managing patients with delirium, and/or (iv) educating patients, carers and clinicians about delirium. Improvement projects can also be aligned with planned or current improvement initiatives in progress as health services work towards implementing the Australian Commission on Quality and Safety in Healthcare's Delirium Clinical Care Standard.

Strengthening Hospital Responses to Family Violence (SHRFV)

Bendigo Health has worked in partnership with the Women's Hospital over the past four years on the 'Strengthening hospital responses to family violence' (SHRFV) initiative, funded by the State Government. The resultant SHRFV service model is being implemented at Bendigo Health and across metropolitan and regional Victoria in a staged approach. The SHRFV initiative is part of the government response to the Royal Commission into Family Violence, and relates to Recommendation 95 which requires a 'whole-of-hospital' model for responding to family violence in public hospitals within three to five years.

Bendigo Health has received funding from the Department of Health and Human Services (DHHS) for three different roles:

1. Regional Sector Lead role – To provide sector leadership to all regional and rural health services across Victoria in implementing the SHRFV initiative.
2. Regional Lead Health Service role – To actively mentor and support five smaller health services in our region to roll out a whole of hospital service model for responding to family violence.
3. Individual Health Service role - To continue to implement and embed the SHRFV service model across all areas of Bendigo Health.

Evaluation of the Tele fractures clinic

The Department of Health and Human Services (DHHS) provided funding to Bendigo Health to pilot a tele fracture clinic. The Research and Innovation department was engaged to perform an objective evaluation of the tele fracture pilot. The evaluation used both qualitative and quantitative approaches to assess the extent to which the pilot achieved its expected outcomes.

The evaluation achieved its aim of assessing the extent to which the tele fracture clinic achieved its expected outcomes based on the key performance indicators for the pilot. Overall the tele fracture clinic trial has been successful with positive feedback from all involved. Staff at both participating health services were supportive of this clinic continuing and could see the benefits for the patients.

Evaluation of Murray Connect

The Murray Primary Health Network (MPHN) provided funding to Bendigo Health to expand the current Geri-Connect service. The expansion provides Geri-Connect service support to six rural and regional residential aged care facilities (RACFs) and includes remote patient monitoring through a partnership with Tunstall Healthcare. This program is free and accessible to GPs for the individualised and remote management of patients with chronic disease in RACFs. The 'Murray Connect' program focuses on aged care residents who have congestive cardiac failure, chronic obstructive pulmonary disease or diabetes. The system is being trialled and the planned evaluation will determine the useability and effectiveness of Murray Connect as a tool for GPs and RACF nurses in maintaining the health of their aged care patients. This project will conduct an objective assessment of the Murray Connect program trial in achieving its set objectives.

Introduction of a COPD integrated model of care

This project aimed to develop an integrated Chronic Obstructive Pulmonary Disease (COPD) Model of Care (MoC) across regional areas that were known to have a high burden of disease for COPD. The health services involved in this initiative included Bendigo Health, Echuca Regional Health (ERH), Rochester and Elmore District Health (REDHS), Castlemaine Health, Swan Hill District Health Service, Kyneton Health Service, Lockington Bush Nursing Service and Cobaw Community Health Service.

The project achieved its objectives and has had many other benefits, generated by the action research methodology, that have stemmed from the collaborations formed across the participating health services. There has been a good network for communication developed which allows for key staff caring for COPD patients to have peers in other health services that they can ask questions of and get advice from and thus educate and support each other.

The COPD-x best practice guidelines were used to determine the gaps between current and best practice and ways of dealing with gaps, capacity building and upskilling the primary health network were identified and introduced where possible. The project methods enhanced connectivity, alignment and collaboration within and between health services and settings in order to develop a more integrated COPD MoC.

Aboriginal cultural safety for cancer services

Following a successful application for an Aboriginal Cultural Safety program grant, the Research and Innovation team worked with our cancer services, Aboriginal services and the broader community in the development of culturally appropriate cancer services and resources. We assisted the development of a Reflect Reconciliation Action Plan (RAP), identified and adapted a range of brochures to inform the Aboriginal Community about cancer and preventative measures that can be undertaken, engaged VACCHO to provide cultural training to staff and purchased desk flags and pin flags to acknowledge the traditional owners of the land.

Victorian Chronic Diseases Nurse Practitioner (NP) Collaborative

Bendigo Health supports the Chronic Diseases Nurse Practitioner Collaborative through hosting the convener of this group. This role maintains a list of participants, their contact details and their roles and acts as a means of communication between Nurse Practitioners and Candidates and the Department of Health and Human Services.

Enhancing Health Services Access and Support for people with disability

This project aims to improve access to and experiences of health services for people with a disability and their carers. The project is particularly focused on people with a disability who have complex needs and behaviours associated with conditions such as Autism and Acquired Brain Injury. The project stemmed from the knowledge that the health needs of a person with a disability will be met through access to the universal health services system, however, recent examples within the region have identified that this access could be improved for some people with a disability. The overall project aim is to develop a model of healthcare support in the acute and primary sectors for people with a disability, which is replicable in other regional and rural organisations.

There are two project objectives:

Objective 1 - Develop a system, which includes individualised models of care, to enhance access and quality of care through the hospital system for people with a disability who have complex needs and behaviours.

Objective 2 - Increase access to preventative, general and specialist health care for people who have a disability.



INNOVATION AND IMPROVEMENT PROJECTS

Think Sepsis. Act Fast

The Better Care Victoria (BCV) sponsored project 'Think sepsis: Act fast' was a scaling collaboration across 11 health services. The aim of the project was to implement the Sepsis Pathway protocol, developed by Melbourne Health and proven to improve outcomes for patients and reduce health care costs associated with sepsis. The pathway is a care bundle that focuses on six key actions following sepsis recognition. These actions include: oxygen administration; taking of two sets of blood cultures; testing of venous blood lactate levels; administration of rapid fluid resuscitation and appropriate antibiotic treatment and continued monitoring (together occurring within 6 hours). The project commenced at Bendigo Health in April 2018 and concluded at the end of March 2019. A post implementation analysis was conducted as part of the project and demonstrated a <2% decrease in sepsis related mortality, 26% decrease in sepsis related ICU admissions and reduction in LOS of 3.1 days and 1.3 days for ICU LOS. Overall results from other services participating in the scaling collaboration showed similar results with an estimated number needed to treat of 21, (for every 21 pathways used, 1 life is saved). In addition an economic evaluation of the collaboration found that the Sepsis Pathway delivered significantly better patient outcomes at a significantly lesser cost. Estimated at saving \$11.7 million, the economic evaluation concluded that there was a 6-fold return on investment for BCV and may be generalised to demonstrate savings at all health services that took part in the collaboration.

Discharge Summaries

Discharge summaries are an important clinical handover document ensuring continuity of care for patients post discharge by providing quality and timely communication to GP's and patients. Through the work of Clinicians in Redesign (March 2017 to Aug 2018) it was clear that the quality and timeliness of discharge summaries is variable at Bendigo Health. Several initiatives have been implemented to improve the quality and timeliness of discharge summaries at Bendigo Health including the introduction of dual screen monitors; more timely reporting of outstanding discharge summaries for each clinical unit to Clinical Directors; regular weekly reports to clinical department heads, the Chief Medical Officer and Executive; updated 'Hospital Discharge Summary Protocol' that states the target for 100% completion of discharge summaries within 48 hours of discharge and a workshop with clinical directors providing a comprehensive diagnosis of the barriers to achieving target. The next stage in the project will focus identifying and implementing improvements to discharge summary completion in Orthopaedics. Improvement and Innovation will facilitate an improvement team to be drawn from Orthopaedics and use the Institute for Healthcare Improvement (IHI) Model for Improvement, a simple but powerful tool for accelerating improvement in healthcare settings, as the framework for this stage of the project.

Patient Flow Partnership/Daily Operating System

The Partnership aimed to improve patient flow, enabling health services to provide attention and care to new presentations more rapidly without sacrificing the quality of treatment. Participating services worked towards improving against state wide performance targets and individual initiative targets. Supplementary objectives included improvement capability development for participating health services, and creation of opportunities for health services to learn from and collaborate with one another

Community Nursing Referrals

Referrals to Community Nursing are processed by the Clinical Co-ordinators to determine eligibility for admission to the service. Currently, the Co-ordinators are required to undertake a variety of time consuming additional tasks to investigate missing referral information. An increase in referrals to Community Nursing is predicted and the time and diversions taken to gather missing information for referrals presents an ongoing strain on Co-ordinator resource. Redesign project staff worked directly with key staff across CNS to develop tools and processes to streamline and standardise referral processing.

Chemo Chair Booking Coordination

The volume and complexity of treatment pathways for chemotherapy patients has increased and booking coordinator support and processes need to adapt to suit the service. The CCB improvement project facilitated review of the current booking coordination process with relevant subject matter experts and process owners to identify and implement improvements to the process.

Karen Interpreter Data

Data support provided to Director of Aboriginal Services, Diversity and Health Promotion for their business case to employ Karen interpreters at Bendigo Health. This business case was successful and support is now being provided to establish internal Karen interpreting service via predicting use, measuring KPI's such as percentage face to face and telephone service delivered, ensure cap on costs and feedback via rounding regarding Bendigo Health's care for Karen consumers.

Resources

HUMAN RESEARCH ETHICS COMMITTEE

Bendigo Health's (BH) Human Research Ethics Committee's (HREC) primary role is to protect the welfare and rights of participants in research. This committee is appointed by the board of directors and consists of representation sufficient to satisfy the requirements of the National Health and Medical Research Council (NHMRC) for constitution of institutional ethics committees. The functions of the HREC are both advisory and executive. They include consideration of the ethical implications of all proposed research projects and monitoring of approved projects until completion to ensure they continue to conform to approved ethical standards. The committee ensures statutes relevant to ethical considerations are complied with in the formulation and conduct of research practices and policies within Bendigo Health. It also establishes procedures to assist the examination and review of research proposals and protocols for new forms of treatment and therapy.

BH's Research & Development department is responsible for providing both the HREC Secretariat and the Research Governance Office. HREC secretariat duties cover a wide range of tasks. These include responsibility for the HREC monthly meetings and associated documentation (agenda, minutes, and correspondence), management of the expedited process for low risk research and post approval amendments, upkeep of the HREC database and BH intranet and website HREC information. New and existing researchers are assisted with applications and other queries. Researcher's compliance with post-approval reporting requirements is continually monitored and auditing of projects is undertaken, particularly when concerns are raised by the HREC. Annual reports are submitted to the National Health and Medical Research Council (NHMRC), the Health Complaints Commissioner and to the rural health services whose applications are managed by the HREC. In line with NHMRC requirements, an annual report describing Bendigo Health's research projects for which consent has been waived is also published

All research at Bendigo Health receives both ethical approval and formal research governance assessment and authorisation; however ethical approval isn't necessarily obtained from the BH HREC. Site-specific assessment (SSA) of multi-site research projects that have undergone single ethical and scientific review is one aspect of research governance. Research governance office/r (RGO) duties include ensuring all research at Bendigo Health is conducted according to ethical practices, scientific, regulatory and professional standards and the principles of risk management. The research governance assessment may involve, but will not be limited to, assessment of the following:

- Compatibility of the research project with the organisation's research aims
- Feasibility of the research project with consideration of the required resources at the organisation (e.g. financial, human resources, infrastructure)
- Expertise and experience of researchers, and ensuring that training for research staff is undertaken as required
- Compliance of the research project with relevant laws, policies and guidelines (such as radiation safety, confidentiality, intellectual property, biosafety and licensing standards).

Library services

- Literature Searching
- Database access
- How do I know what my question is?
- Which book?
- Referencing Support: RefWorks, Endnote
- What's the best evidence?
- I found a great article – but I can't read it without paying for it.
- A quiet place to do my work/ study – 24/7 !

Library statistics

- 2,467 Articles Retrieved
- 144 Literature Searches Conducted
- 144 Requests for Physical Library Access
- 496 Books were borrowed from the Bendigo Health Collection
- 3 Minutes Quickest Turnaround time for an Article to be supplied

Library Resources



Our Librarians



BENDIGO HEALTH RESEARCH HIGHLIGHTS

BENDIGO HEALTH CRITICAL CARE RECOVERY DATATHON

The inaugural Bendigo Health Datathon was held on the 8th and 9th September 2018 at La Trobe University Rural Clinical School. The theme of the Datathon was 'Critical Care Recovery', with the aim of exploring the health and community outcomes for patients after their journey through the hospital setting.

The Datathon format responds to the increasing interest in optimizing the use of 'big data' to generate adequate sample size and produce robust clinically relevant research that improves health outcomes for our community. Datathon participants had the opportunity to develop innovative solutions to very real problems by applying data analytics and statistical techniques to never-before-combined disparate data sets linked under the supervision and auspices of the Centre for Victorian Data Linkage (CVDL) from Department of Health and Human Services (DHHS). Collaborating partners for the event included the Australian New Zealand Intensive Care Society (ANZICS), Be.Bendigo, La Trobe University, University of Wollongong, and the Department of Health & Human Services (DHHS). The event was held at the culmination of the annual Be.Bendigo's city-wide Bendigo Innovation and Invention Festival.

The Bendigo Health Datathon brought together more than 120 clinicians, specialists, researchers and data scientists from Australia and overseas to explore the theme 'Critical Care Recovery', through large and linked formal collections of healthcare data. The teams were composed of people of different skill-sets and a mix of senior clinicians guiding junior clinicians, where the data scientist querying of the data was guided by the researchers and clinicians. The teams interrogated the data to answer research questions as varied as 'What are the factors that affect recovery post-ICU?', 'How does living alone affect hospital experience?', 'What are the outcomes of cardiac arrest survivors requiring rehabilitation?' 'What are the outcomes for regionally treated cancer patients compared to those treated in metropolitan hospitals?', and others.

Participant evaluation of the Datathon was overwhelmingly positive and participants will be followed up in 6 and 12 months to ascertain how teams have continued with their research. It is great to see that post-Datathon, the majority of teams have continued their collaboration and are continuing to use big data to improve health outcomes for our regional communities.







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