

For 2015, 20 Research grants were awarded totalling \$725,000

SVPHS Ladies' Committee Sr Mary Bernice Research Grant - \$100,000

"Apixaban in mechanical circulatory support - evaluation of potential"

Principal Investigator - A/Prof Chris Hayward

A new approach to blood thinning in the mechanical heart pumps

Mechanical heart pumps are successful in supporting patient's blood pressure and circulation, but require combination blood-thinning agents to prevent clots forming in the pump. This results in an unacceptably high rate of bleeding complications. We will test apixaban, a new form of anti-coagulation used commonly in atrial fibrillation, for compatibility with a number of different mechanical heart pumps.

St Vincent's Health Network Sydney

Adult Stem Cell Research Grant - \$50,000

"Evaluation of macrophage differentiated from induced pluripotent stem cells (iPS cells) for HIV-1 infectious study"

Principal Investigator - Dr Kazuo Suzuki

Novel approach to inhibit HIV replication with macrophage differentiated from induced pluripotent stem cells (iPS cells)

This proposal will evaluate a novel source of macrophages, which are derived from induced pluripotent stem cells (iPSCs) as a potential vehicle for gene therapy against HIV. The efficacy of our previously developed siRNA-based gene-therapy (promoter-target-shPromA) in iPSCs-derived-macrophages will be assessed, as an extension of our previously reported ability to silence HIV infection in DC4+T-cells. Gaining strong evidence supporting this concept, would open up a new avenue for provision of gene therapy via various immune cells derived from iPSCs. In particular these findings would expand opportunities to deliver HIV-1 promoter-target-shRNAs via various immune cells derived from iPSCs rather than relying on human stem cells that are difficult to obtain especially in large numbers.

St Vincent's Centre for Applied Medical Research

Tancred Research Grant - \$50,000

"Non-invasive molecular imaging for the identification of vulnerable atherosclerotic plaque"

Principal Investigator - Prof Roland Stocker

Imaging strategies to identify those at risk of heart attack and to develop new preventative medications

The basis for heart attacks is atherosclerosis, a disease of arteries characterised by cholesterol-rich plaques. Heart attacks are precipitated when a plaque ruptures, followed by formation of a blood clot, impedance of

blood low and potential heart muscle damage or death. At present there are no medical tests that can predict risk of plaque rupture and no specific therapies targeting plaque rupture. We aim to develop non-invasive imaging strategies to identify high-risk plaques that can eventually be applied to patients.

Victor Chang Cardiac Research Institute

K&A Collins Cancer Grant - \$50,000

"Adoption and sustainability of a telehealth treatment program to improve the health of cancer survivors after Hematopoietic Stem Cell Transplant"

Principal Investigator - Prof David Ma

A telehealth treatment program to improve wellbeing in cancer survivors after Bone Marrow Transplant.

This proposed telehealth treatment intervention aims improve the wellbeing and prevent transplant-related complications of stem cell transplant survivors. Telecommunication technology is used to deliver a combined physical exercise and psychological skill training programme to patients at home, designed to better meet patient needs without unduly increasing cost, time and travel burdens. This intervention may be adapted for other cancer survivors, individuals with chronic diseases, and solid-organ transplant survivors.

St Vincent's Health Network Sydney

Thelma Greig Cancer Grant - \$50,000

"A translational discovery pipeline to improve treatment outcomes for patients with advanced lung cancer"

Principal Investigator - Prof D Neil Watkins

Personalised Medicine for Patients with Advanced Lung Cancer

This project plans to develop a "living biobank" of tumours. Each tumour can have then have its genome sequenced, and its response to therapies tested in the laboratory. These results can be linked to each patient in order to provide a more personalised approach to treatment. We believe that this project will address a huge unmet need in the treatment of lung cancer, with the potential to dramatically change treatments results, and ultimately save lives.

Garvan Institute of Medical Research

Di Boyd Cancer Grant - \$25,000

"Antimicrobial therapy in haematology patients: turning good into best"

Principal Investigator - Prof Deborah Marriott

Improving the use of antibiotics in vulnerable patients with haematological cancers: can we do better?

Patients undergoing chemotherapy for leukaemia can die from serious bacterial infection due to their reduced immunity. Antibiotic therapy is commenced as soon as they develop a fever. However the standard

antibiotic dose may not be adequate in all patients as the concentration of the drug in blood can be altered significantly by a number of factors including the infection itself and kidney function. Our study is the first to determine whether standard dosing is optimal and will examine alternative dosing strategies to improve patient outcome.

St Vincent's Health Network Sydney

Froulop Research Grant - \$30,000

"Assessing gating phenotypes of long QT syndrome type 2 causing mutations"

Principal Investigator - Dr Matthew Perry

Predicting risk of sudden death in patients with an inherited arrhythmia syndrome.

Implantable cardioverter-defibrillators are effective in terminating potentially fatal electrical disturbances in heart rhythm but are expensive and can have serious side effects. Predicting which patients are at greatest risk of sudden cardiac arrest would allow the targeting of cardioverter-defibrillators to those most in danger. We will use an in vitro assay and computer modelling to predict which inherited arrhythmia syndrome patients are at greatest risk of adverse cardiac events and to improve clinical management of inherited arrhythmia disorders.

Victor Chang Cardiac Research Institute

Annual Grant 1 - \$30,000

"Development of a new quantitative HIV-1 RNA assay (spliced-tat) for the detection of active virus production within HIV-1 reservoir cells"

Principal Investigator - Dr Kazuo Suzuki

Development of novel assay for identify active and productive HIV-1 infection in patients on effective therapy

Current antiretroviral therapy drastically reduces HIV-1 in plasma viral load (VL). However, HIV-1 persists in stable cellular reservoirs, where HIV-1 is hiding from host defences. The extremely low level of HIV replication is taking place in these latently infected cell. We aim to develop novel assay to detect HIV-1 spliced-tat mRNA in the HIV reservoirs. This new assay will identify active and productive HIV-1 infection to monitor the effectiveness of the antiviral therapy and to improve patients' out-come.

St Vincent's Centre for Applied Medical Research

Annual Grant 2 - \$30,000

"Improving the risk assessment and management of bleeding in subjects with acquired thrombocytopenia"

Principal Investigator - Dr Joanne Joseph

Predicting bleeding risk in patients with low platelet counts

Small blood cells known as platelets are produced in the bone marrow and are vital to prevent blood loss after injury. However, defects of platelets due to disease or medicines can result in excessive bleeding ranging in severity from relatively mild to potentially fatal. Current hospital tests count the number of platelets but not their functional quality. However, our new platelet testing regime could help predict the relative risk of bleeding in individuals during disease and treatment.

St Vincent's Centre for Applied Medical Research

Annual Grant 3 - \$30,000

"Structural simulation of transcatheter aortic valve implantation"

Principal Investigator - Dr James Otton

Computer simulation to improve heart valve replacement

The new technique, 'Transcatheter aortic valve implantation' allows the aortic heart valve to be replaced through a catheter placed in the groin. Correct placement of the valve is critical: a valve that is either too large or too small by even a few millimetres can have serious consequences. We intend to use three-dimensional computer simulation of heart valve placement so patients can have their new heart valve tested and optimized in a virtual environment prior to an actual clinical procedure.

Victor Chang Cardiac Research Institute

Annual Grant 4 - \$30,000

"Studies on the dendritic cell contribution to the regulation of anticephalic nervous system immunity"

Principal Investigator - A/Prof David Brown

Dendritic cell roles in central nervous system immune regulation

We have previously shown a potential contribution of dendritic cells to regulation of CNS immunity. This application will concentrate on characterising the DCs, that can increase or decrease immune responses against the CNS. By doing this we will gain an understanding on how they work and how we can manipulate them to treat disease.

St Vincent's Centre for Applied Medical Research

Annual Grant 5 - \$30,000

"Confocal endomicroscopy optimisation research in HIV (CEMOR-HIV) Study - HIV GIT pathogenesis"

Principal Investigator - A/Prof Mark Danta

Gastrointestinal leak in HIV – implications for future HIV therapy

Research suggests that HIV-related damage to the gastrointestinal tract (GIT) is a key mechanism leading to many of the complications of HIV. While the immune system of the gastrointestinal tract has been studied,

the permeability (leakiness) and the role of the microbial gut contents (bacteria) has not been well described. We propose a study of the leakiness of the gastrointestinal tract using a novel prototype microscope in a colonoscope, in addition to a detailed investigation of the stool and blood in a set of well characterised research participants. This research has the potential to improve our understanding of how HIV causes disease as well as identifying new ways to treat HIV in the future.

St Vincent's Health Network Sydney

Annual Grant 6 - \$30,000

"Re-establishing Thymic T Cell self-tolerance following Haematopoietic Stem Cell transplantation in patients with Multiple Sclerosis and Systemic Sclerosis"

Principal Investigator - Dr John Moore

Re-establishing the Normal Immune System in Multiple Sclerosis and Systemic Sclerosis by
Blood Stem Cell Transplantation

Currently there are few therapeutic options for Multiple Sclerosis and Systemic Sclerosis sufferers who have failed the most potent treatments available. Blood stem cell transplantation (SCT) offers these patients a chance to prevent the devastating progression of disease. The goal of this research is to discover changes occurring in the immune system after SCT to understand how disease is corrected and to invent new therapies to eliminate disease-causing cells and promote regeneration of a normal immune system without needing chemotherapy.

St Vincent's Health Network Sydney

Annual Grant 7 - \$50,000

"A whole genome sequencing study to discover biomarkers associated with survival for patients with oesophageal adenocarcinoma"

Principal Investigator - Prof Reginald V N Lord

Examination of the entire DNA sequence in oesophageal cancers to discover genetic alterations that predict outcome and guide treatment

In this study we will be using the newest available gene-analysis technology to analyse the genetic content of oesophageal cancers using a subset of the world's most extensive and valuable tissue bank. The aim of the study is to identify genetic changes that are related to worse prognosis in patients suffering from this disease, to be able to guide future treatment selection. This would herald a long over-due era of rational, tumour biology-based, personalised treatment for patients with oesophageal cancer.

St Vincent's Centre for Applied Medical Research

Multidisciplinary Grant 1 - \$25,000

"Medication-related problems at transitions of care: the patient's perspective"

Principal Investigator - Prof Jo-anne Brien

This multidisciplinary, pharmacy-led study will examine medication-related problems associated with transitions of care, from the patients' perspective. While there are many studies in the patient safety and health service research literature about the burden of medication-related morbidity and mortality, as well as many health service and clinical interventions to improve patient safety, these are largely derived from health practitioners' perspectives. Little has been developed from the patient's perspective. Preliminary data suggest that there may be important differences between what the patient and health practitioners understand and experience about medication-related problems. This study will explore the patient and carer's experiences around medication-related problems following discharge from hospital, to inform development of patient-focussed hospital practices to improve patient outcomes.

St Vincent's Health Network Sydney

Multidisciplinary Grant 2 - \$25,000

"Healthy lifestyle trial to reduce progression of mild cognitive impairment: a pilot study of the Mediterranean Diet and physical activity"

Principal Investigator - Prof Vicki Flood

This research project will investigate the feasibility and compliance to Health Lifestyle Intervention: Mediterranean diet and physical activity promotion over 12 week period of intervention among people aged 50-80 years with mild cognitive impairment (n=75). Assessment for dietary compliance and physical activity will be conducted using validated assessment tools and functional status. A PhD student with expertise in the Mediterranean diet will use this project as part of her PhD program and an Honours student with expertise in Exercise Science will run the physical activity intervention. Screening for Mild Cognitive Impairment will be supported by a Psychology research student, under the supervision of investigators from the project team. Screening for activities of daily living will be conducted by the research assistant, under the supervision of Occupational Therapy investigator. This project will form the pilot study for a nationally competitive grant application, which will assess the effectiveness of lifestyle parameters to reduce the progression of mild cognitive impairment.

St Vincent's Health Network Sydney

Multidisciplinary Grant 3 - \$25,000

"Preventing perioperative inadvertent hypothermia in adult surgical patients: The development, implementation and evaluating of an evidence-based care bundle"

Principal Investigator - Dr Jed Duff

The purpose of this study is to develop, implement and evaluate a 'care bundle' to prevent inadvertent hypothermia in adult surgical patients. It is well established that keeping patients warm and preventing hypothermia before, during and after surgery leads to better outcomes. Although recommended practices for keeping patients warm are relatively simple and inexpensive, they are often not adhered to. Care bundles are an innovative new approach for translating evidence into clinical practice. A care bundle

comprises a small set of high impact recommendations that significantly improve patient outcomes when implemented together in a bundle. The Translating Research into Practice (TRiP) model will be used to facilitate the development and implementation of the care bundle.

St Vincent's Private Hospital Sydney

Multidisciplinary Grant 4 - \$25,000

"Frailty-HF"

Principal Investigator - Ms Carol Whitfield

To investigate the theory that frailty measured in patients with heart failure may improve with the intervention of a structured, multidisciplinary heart failure management program including an individualised exercise program designed in consultation with the heart failure services physiotherapist

St Vincent's Health Network Sydney

Multidisciplinary Grant 5 - \$25,000

"Virtual" specialist multidisciplinary Motor Neurone Disease (MND) care: Examination of the perceptions of patients, carers and health care professionals, towards telehealth"

Principal Investigator - Ms Natalie Mohr

Motor neurone disease (MND) is a rapidly progressing fatal disease which causes physical deterioration, and for some patients cognitive decline and behavioural changes. Patients living with MND and their carers who are able to access a specialist multidisciplinary MND service, have better patient outcomes in terms of length and quality of life, and reduced carer burden. However, more than half of the patients living in New South Wales (NSW) with MND are not able to access a specialist multidisciplinary service throughout the course of their disease. In the initial diagnostic phase of MND patients and their carers may be unable to access a specialist multidisciplinary MND service due to geographical isolation. As the disease progresses many patients and carers are unable to continue to attend a specialist multidisciplinary MND service due to physical, cognitive and behavioural deteriorations. Many patients and carers become house-bound in the final terminal phase of the disease. Timely access to specialist multidisciplinary care improves patient outcomes and reduces carer burden, and also reduces hospital admissions. Telehealth is a model of service delivery that could improve access to specialist multidisciplinary MND care for isolated patients and carers throughout the disease. In the context of working with a rapidly progressive fatal disease, such as MND, health care professionals alleviate suffering and promote quality of life through practical symptom management, provision of information, and facilitating future care planning. Specialist multidisciplinary MND services offer wholistic care, which encompasses emotional, social, psychological and existential care as core components of overall physical symptom management. Currently there is no research considering the potential of telehealth to provide wholistic specialist multidisciplinary MND care to patients and carers. Through improved access to specialist multidisciplinary MND telehealth could provide efficiency savings. During the course of the disease the number of face-to-face clinic appointments may be reduced and hospital admissions avoided.

This study would recruit 10 patients, 10 carers, and 10 specialist MND health care professionals to participate in exploratory interviews regarding their perceptions of telehealth. Semi-structured interviews with open-ended questions will be used to gather information about this topic, which allows for responsiveness and flexibility in an area that has not previously been explored. This project will identify facilitators and barriers requiring consideration for setting-up a patient-directed 'virtual' specialist multidisciplinary MND service.

St Joseph's Hospital

Travelling Fellowship Grant - \$15,000

"Fellowship in Global Health and Regional Anaesthesia at Dalhousie University, Nova Scotia, Canada"

Principal Investigator - Dr Matthew Ho

St Vincent's Health Network Sydney
