



Clinical Biochemistry Unit

Head: Associate Professor Hans Schneider

- The cardiac marker testing with B-type natriuretic peptide (BNP) study showed that the use of BNP in the setting of emergency departments is of marginal value in that it may reduce hospital length of stay in healthcare environments with long hospital stay. At The Alfred, it does not seem to help patient management.
- In collaboration with the General Medical Unit, a study commenced to measure high sensitivity troponin T levels in patients without acute coronary syndrome that are admitted for other reasons. Troponin T levels appear to be more frequently elevated in patients with general medical problems, which may be important for long term prognosis and also may further identify high risk populations.
- The feasibility study of using urinary NGAL (neutrophil gelatinase-associated lipocalin) as an acute kidney injury marker in the ICU ended, with the outcome that patients who would develop acute renal failure with early NGAL elevation could not be easily identified.
- A study to identify urine and serum markers of acute kidney injury in heart failure in order to predict risk of future hospitalisation and cardiac events continued.
- Dr Nilika Wijeratne measured heart type fatty acid binding protein in serum and CSF of patients with traumatic brain injury and in controls, and is preparing to publish the outcomes.
- Nicole Jenkins determined bone turnover markers in a cohort of Australians from Geelong. Data analysis led to a routine method of vitamin D measurement being stopped. A new liquid chromatography tandem mass spectrometry method, considered the gold standard for vitamin D measurement, is being worked up.
- Associate Professor Schneider joined the AusDiab team to provide pathology expertise for interpretation and measurement issues.

Haematology

Acting Head: Dr Susan Whitehead

During 2010, the focus of the Haematology Unit turned to the transfusion service, in particular, patient identification. An audit performed by the transfusion nurses showed poor compliance with the hospital procedure for patient identification when administering red blood cells (RBC). A proof of concept study using electronic hand-held devices was initiated to explore the hypothesis of improved compliance and, hence, patient safety.

Blood Bank

- Support of a pilot feasibility trial of allocation of freshest available RBCs versus standard care in critically ill patients undertaken by the ANZIC group is now complete, and demonstrated a significant degree of separation between the two groups
- In conjunction with the Transfusion Outcomes Research Collaborative, a study of the early coagulopathy in trauma is currently accruing patients

General Haematology

- The flow cytometry department continues to be involved mainly in Phase 1 drug studies from Nucleus Network
- In collaboration with the Clinical Haematology Unit, a Phase 2 study of lenalidamide and prednisolone as post-autologous stem cell

transplant maintenance therapy for patients with multiple myeloma incorporating residual disease monitoring using flow cytometry is progressing

- Support of a cross-institutional study of the utility of repeating blood films in the diagnosis of imported malaria. Data suggest that, in selected patients, the diagnosis can be made using a single set of thick and thin blood films together with rapid ICT
- Collaboration continues with the Australian Centre for Blood Diseases in assessing the role of platelet glycoprotein 6 in haematological diseases
- An audit of intrinsic coagulation factor assays on patients who present to the Emergency Department with an unexpected prolonged aPTT showed that current practice is appropriate
- The study showing that rapid change in mean red cell volume can be used to identify wrong blood in tube samples in the laboratory was completed and the findings presented at the annual meeting of the Haematology Society of Australia and New Zealand

Microbiology

Head: Associate Professor Denis Spelman

Microbiology has an ongoing significant role in a hospital-wide diagnostic and consultative service, and a surveillance role in the monitoring and detection of antimicrobial resistance. Projects include:

- In collaboration with the Cardiothoracic Surgical Unit, studies of the causative organisms and impact of infections in patients with ventricular assist devices have been undertaken
- In collaboration with Infectious Diseases and Immunology, an NHMRC-funded multisite study to optimise immunisation protocols in hyposplenic and asplenic patients commenced
- Studies of patients with endocarditis and participation in the International Collaboration on Endocarditis
- Annual surveys of consecutive isolates with antibiotic resistance patterns and contributions to the Australian Group on Antimicrobial Resistance including hospital and community acquired organisms such as *Staphylococcus aureus* and *Enterococcus faecalis*
- Australian and New Zealand collaboration on the outcome of staphylococcal sepsis (ANZCOSS)
- Study of antibiotics resistance in the Asia-Pacific region (SENTRY): this is a study on antibiotic resistance to evaluate the frequency and antimicrobial susceptibility of bacterial isolates collected from specific clinical infections in different geographical regions
- Determination of risk factors for vancomycin resistant enterococci (VRE) and vancomycin susceptible enterococci
- Study of the usefulness of multilocus sequence typing in the determination of the epidemiology of VRE
- In collaboration with the Victorian College of Pharmacy and the Austin Hospital, a multisite analysis of cost of VRE infection
- Collection, identification and typing of methicillin-resistant *S. aureus* isolates over a 6 month period

Publications

12 Journal Articles
3 Book Chapters
1 Book