# SCT Newsletter **August 2013**

Hello, welcome to August's Newsletter.

The 'mini' Cardiac Society (CSANZ) meeting in Wellington has been a great success with highly informative presentations from leading experts, including physicians, nurses and physiologists alike. We hope that everyone who took part and attended the meeting found the conference informative and enjoyable. Thank you to everyone who attended the meeting and to the team in Wellington who organised the event.

The diversity of the subject matter within the topic of 'innovation' during Thursday's physiology meeting was notable. A glimpse was provided into how physiology in Christchurch are innovating practices to the current challenge that they face with the rebuild of Christchurch, and it's infrastructure. Whilst on the topic of innovation in cardiology, the subject of 3D echo diagnostic techniques and it's evolving use in the Auckland laboratory were discussed.

We also had the pleasure of receiving a presentation from this year's successful MTEX student, Bridget McIlraith, who provided an informative pathway of a patient whom underwent cardiac transplantation. Bridget received an SCT fellowship for her work.

Throughout the conference it was interesting to view the differing opinions from specialists, including cardiologists and surgeons, on complex pathologies that we see routinely. The range of subjects and cases presented reflect the wide variety of sub-specialites we are exposed to. It was apparent throughout the presentations the value of quality and accurate information that underpins correct patient diagnosis and treatment, and the need for varied and skilled physiologists.

Furthermore, it was interesting to see how modern diagnostic techniques are building on conventional methods, and the challenges that incorporating these into practice brings. This well run conference reminds us that cardiology is an evolving and exciting field in which we work.

Reminder that SCT council voting forms need to be in by the **9th August**. Please contact the SCT if these will be arriving late.

1) **MTEX Conference Report CSANZ 2013 – Bridget McIlraith**

## CSANZ Wellington 2013 Conference Report - Bridget McIlraith.

I would firstly like to extend a huge thank you to the University of Otago MTEX coordinators and the SCT committee for the presentation opportunity at the MTEX symposium. I also very much appreciated the opportunity to attend the two days of presentations and discussions at the CSANZ conference. As a relative novice in the cardiology community I found the conference an eye opening experience, the major take home message for me was the holistic nature of the industry. From initial screening and diagnostic testing, to interventional procedures and device implantation, furthered by extensive follow up and ongoing medical management, cardiology involves a dynamic interactive mix of health professionals, academics and corporate entities.

MTEX Symposium: New Zealand's Youngest Heart Transplant Recipient (Kip)

- Kip was born with severe congenital cardiac defects: L loop ventricles (TGA), double outflow right ventricle (DORV), ventricular septal defect (VSD), straddling tricuspid valve, coarctation and had recurrent episodes of supraventricular tachycardias.
- Kip underwent extensive surgical corrective procedures during the first 4 years of his life.
    - 11 days – pulmonary banding and coarctation ballooning
    - 5 months – Bi-directional Glenn redirecting blood flow from SVC to RPA followed by patch repair of straddling tricuspid valve. Post procedure 2:1 block required dual chamber pacemaker implantation.
    - 3 years – Unsuccessful radiofrequency ablation for recurrent SVT.
    - 4 years – Fontan completion redirecting blood flow from IVC to RPA. Cryoblation for SVT. Post procedure complete heart block required epicardial dual chamber pacing.
- Follow up echo studies revelled low flow and deterioration in ventricular function even with optimal epicardial dual chamber pacing. Kip was failing to thrive weighing the same as a sibling four years his junior and his energy levels restricted the amount of time he could spend in school each day.
- A cardiac catheterisation right heart study performed at age 6 was indicated to assess coarctation status and pulmonary artery pressures for transplant listing.
    - Cardiac arrest on anaesthetic induction compromised reliability of subsequent measures
- A conference between paediatric electrophysiologists and transplant cardiologists from Australia and England was held to discuss treatment

options for severe bi-ventricular dysfunction as no improvements were observed with ongoing medical management.
    - Conclusions drawn included upgrade of permanent pacemaker to biventricular CRT device, with new epicardial leads positioned on to morphological RV and active listing on NZ transplant list (criteria for transplant in NZ just meet with patient weight 15.5kg).
- After six months wait Kip received a small female adolescent heart of good fit, albeit swelling restricting complete chest closure until two days post op. Spontaneous sinus rhythm occurred when bypass was turned off.
- Kip remains on a strict immunosuppressant regime, however he now has the energy to enjoy a full week of school and his growth measures are normalising for stage and age.

Fittingly, several cardiac transplantation discussions at conference address what I have come to understand as the holistic nature within cardiology. The use of implantable cardiac defibrillators (ICDs) is a common therapy among patients waiting cardiac transplantation. In the previous decade 100 patients received transplantation of which 53% had an ICD in situ with 51% of these patients receiving appropriate therapy while on the active waiting list. Another study addressed the demographics of 253 cardiac transplant recipients in New Zealand, 70% of patients were European, 19% Maori, 3% Pacific Island and 8% other ethnicities. Maori patients were found to be heavier, have higher BMIs, were blood group A and had significantly reduced survival at 10 years. Interestingly, a study on employment post transplantation found 58% of patients were in paid employment, 6% were students, 14% were retired, 12% were homemakers, 2% were too unwell to work and 8% were on an unemployment benefit. The median return to work post transplantation was 8.5 months for 89% of patients who were in paid employment pre surgery. Interestingly, these rates of employment are similar to the overall employment statistics in New Zealand.

**2) Fellowship Conference Report CSANZ 2011 - Christopher Jenkins**

CSANZ Wellington 2013 has finished and I feel simultaneously exhausted and energised. What a fantastic, well run conference. I found myself having to decide which sessions I would have to miss, rather than which ones I wanted to see. There was so much on! Sessions I expected to be struggling to keep awake in were some of the most interesting I saw. I even understood some of the EP case studies!

The SCT physiologist specific sessions on the Thursday were great, and included an interesting talk by Sharron Mathewson from Christchurch on the challenges her department has faced over the last couple of years. Changing longstanding processes during the chaos of the hospital rebuild must have been extremely stressful and challenging, but provided an opportunity to embrace change and the fresh perspective it can bring.

The full CSANZ conference kicked off on Friday, and included everything from echo imaging of aortic stenosis to atrial flutter ablation. Dr. Mark Simmonds' talk on the 'renaissance' of balloon aortic valvuloplasty for aortic stenosis was very interesting. BAV has seen increased use for symptom relief, as there is no evidence for it improving life expectancy. He suggested that focussing on quality of life rather than expecting to improve mortality has meant that BAV is sometimes done less aggressively, and now has lower complication rates. It has also had increased exposure with the appearance of TAVI, and the improvements in vascular closure devices.

Other highlights from Friday's sessions were Dr. Alejandro Jimenez's talk on AF rate vs. rhythm control strategies, and Dr. John Ormiston's research into new stent technology.

Saturday's sessions included Dr. Ian Melton's review of the literature around indications for ICD and cardiac resynchronisation therapy (CRT). This talk was very interesting, and was followed by another presentation about ICD programming to reduce mortality and inappropriate shocks.

It was interesting to learn that we have a very low rate of both CRT and ICD implantation in New Zealand (compared to most European countries). It was suggested that this was due to a lack of knowledge around CRT, and a perhaps a perception that there is limited benefit to be seen from it. An interesting comment was made that without careful analysis of the patients who do receive this therapy, we will struggle to develop a better and accurate understanding of who will benefit from it.

I also wondered if our low implant rate has resulted in better patient selection, and if our rate of responders to CRT in New Zealand is any better than other countries. This talk tied in nicely with another about the importance of fast electronic access to patient records and data from other services; and how this not only makes planning treatment easier, but it also makes data collection and analysis for research faster and easier.

A big highlight for me was being able to meet physiologists from other areas of the country, and to see them presenting. This was very inspiring, and I thought they all spoke very well. It was also great fun meeting some medical reps and checking out some of the new equipment and tech that is available.

I feel like I am heading back to work with a fresh outlook and increased passion for my work and learning. I hope I can share some of what I have learnt with my colleagues.

Thank you to the SCT for helping to fund my trip to CSANZ, it was well worth while.

Chris Jenkins (Physiology at Auckland Hospital).

**3) Fellowship Conference Report CSANZ 2011 - Kristine Shand**

# Report on Mini CSANZ in Wellington June 2013

**By Kristine Shand**

Thank you to SCT for the fellowship funding to cover my registration to attend this conference in Wellington. As usual a well run affair, and didn't Wellington do well with the weather! My only complaint was room 3 was too small for some of the presentations with people standing out the back door and it was a little too far to change rooms comfortably between talks, but all in all a well run meeting.

Following is a brief overview of a couple of sessions and interesting facts from other sessions that I attended.

The Physiologist workshops on Thursday afternoon were good refresher sessions, EP lab for the naive was a great talk on the indications for EP, this area has really moved ahead since I last had hands on experience with EP's. Right heart cath – interpretation was a good talk to consolidate knowledge. It is great listening to speakers who are passionate and knowledgeable in their areas.
Well done to Bridget, really enjoyed her presentation on "Kip", it's great to hear about these success stories.

Friday I went to a really interesting session on atrial fibrillation, there is alot of research going on in this area, who would have thought the atria could be so complex and have so many variations. The risk of 1 in 4 over 40yrs getting AF in their lifetime is quite high (thankfully not as many women as men). Prevalence is increasing 3-4%/yr possibly due to extrinsic factors like our increasingly obese and aging population. Obesity seemed to be a common theme this year.
Rheumatic heart disease due to group A streptococcus which is still quite prevalent in these times. Causing 600-800 admissions a year and 200 deaths a year. Penicillin is the drug of choice and it should be IM for 28days and continue secondary prophylaxis for 10yrs or until 21yrs old (whichever is longest).
Mitral valve repair is better than replacement for these individuals with better late outcome and 2% mortality, and no need for long term anticoagulation. Higher volume surgeons are more likely to repair the Mitral Valve especially posterior prolapse (91%) compared to anterior prolapse (3%).
Interestingly the introduction of TAVI hasn't reduced AVR volumes in 80+ age group.
Frailty is a big reason for pts not to have surgery, Euroscore 2 correlates with frailty and measurement of frailty correlates with clinical assessment.
Mitral stenosis (MS) has decreased in the western world but increased in the developing world including NZ.
Inoue balloon mitral valvuloplasty is second most popular procedure after angiography, get good results in >80% pts. Ratio of 3-4females/male have MS.
FFR is underused, <5% of angios done. The protocol has changed over the years with more knowledge now, using bigger doses of adenosine and cut-off of FFR = 0.80 rather than 0.75.
Optical coherence tomography (OCT) is good for showing bioabsorbable scaffolds, quicker than IVUS and maybe more accurate in larger vessels, but does have some limitations with aorto-ostial lesions and uses additional contrast.
Stents only needed for 3-6mths to limit negative remodeling so absorbable stents a good idea, fully absorbed by 2yrs.
Thank you to the Doc's prepared to share their best and worst cases, they all seemed to have a good outcome eventually.

Was interesting to hear the Minister's talk, he mentioned a review of cardiac technologies by National Health Committee is to take place and that Pharmac is to oversee purchase and supply of medical devices to 20 DHB's. We now have funding for Ticagrelor. $46million in next year for Rheumatic fever with

aim to reduce presentation by 1/3rd with sore throat clinics in Auckland and Porirua within the next 3 mths.
Chest pain is in the top 3 reasons for presentation @ ED and most receive an angio within 3 days.
2025 goal for NZ to be smoke free.
$60million on physical and healthy choices education programmes to deal with increasing obesity.

Janet Hoek was a dynamic speaker unusual to have someone with a marketing degree talking on medical issues. Obesity has increased 20-30% prevalence, education didn't seem to work with smoking cessation/tobacco, will it work with food/obesity? It was environmental change that helped and maybe that's what's needed with food/obesity. As price increased consumption decreased with tobacco but that's part of the problem with food, because as price of healthy food increases, cheaper foods are consumed which are not always as healthy.

Some interesting facts from Saturday's talks.

QRS duration can affect mortality benefit of CRT but proven benefit of CRT/CRT-D in NYHA class 3 & 4.
Need to use all discriminators and parameters available to reduce shocks in ICD pts.
End of life care is important in heart failure management and should be organised early on, not in the last few days. Need shared care plan across healthcare systems and practices so all can see in timely manner.
NZ underutilising ICD's as primary prevention and reluctant to use in the elderly.
Pts and families of inherited diseases should be seen in a dedicated clinic, we need an in depth registry and thorough cascade screening for these pts. They need good counselling pre and post testing. This is a rapidly expanding field and testing is becoming quicker and cheaper.
Dilated cardiomyopathy is the condition of cause for the biggest presenting group of out of hospital cardiac arrests.
50% of cardiomyopathy is idiopathic and 50% of them have family history.
Initial rhythm, age and ambulance response time do make a difference to outcome of "out of hospital cardiac arrest" (OHCA). No difference if witnessed event or bystander CPR given.
Manual mode defib better than AED, thrombolysis by paramedics is safe and reduces chance of heart failure.
For weight loss calories do count, but adherence to an eating plan is most important.
1/10 of world population is obese. NZ 3rd for obesity, only 35% NZ population are normal weight. Diet and exercise cornerstone.
>1000 cardiac arrests/ yr - 80% out of hospital. Initial rhythm in 50% is VF, 30% asystole, 18% PEA, 2% VT,
average age 65yr, 70% male.
Neurological injury is most common cause of death in OHCA pts.
Time to return of spontaneous circulation is a good predictor of survival in OHCA.

Once again a big thank you to SCT
Kristine Shand

### 4) The A. H. Couch Trust

The A. H. Couch Trust is a charitable trust set up by Arthur Couch in 1972.

It invites applications for financial support towards cardiology continuing education and research within the Auckland region.

Grants up to $15,000 may be made on a case by case basis, subject to availability of funds and at the discretion of Trustees.

Typical grants have been towards small research projects or conference travel, and recipients have included junior doctors, cardiac MRTs, nurses, cardiac physiologists, sonographers and biostatisticians.

Applications may be made to **applications@ahcouchtrust.org**

### 5)The SCT council members and contacts

- Chairperson - Fiona Riddell (Cardiac Physiologist – Auckland DHB).
  And cardiac CPRB.

- Education Coordinators – Miriam Gideona (Cardiac Technician Middlemore DHB)
- Kara Edwards (Cardiac Physiologist – Auckland DHB).

- Treasurer - Renelle French (Cardiac Sonographer – Auckland DHB)

- Secretary – Catriona Pearson (Cardiac Physiologist – Auckland DHB)

- Newsletter editor - James Cadogan (Cardiac Sonographer – Auckland DHB)

- South Island members – Karen Harvey (Cardiac Physiologist - Christchurch DHB)

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If you wish to speak to an SCT Council member phone: +64 9 6309924

**Contributions to the newsletter**
All contributions are welcome.
This may be in the form of a case study from any discipline within the fields of cardio-respiratory. A detailed description and interpretation of your findings should be included.
Contact - **Jcadogan@adhb.govt.nz**

A case study written for the Newsletter earns 10 points towards your continued professional Development. Remember, case studies are to be made confidential.

Thank You