Increasing appropriate and decreasing inappropriate cardiac care

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In this edition of the NZMJ you will find three articles related to the appropriateness and timeliness of cardiac interventions in New Zealand.\textsuperscript{1-3} The retrospective analysis by Wang et al in over 800 patients showed that females (20.5\% of the total) had worse 30-day and medium-term survival than males. As the authors point out this finding has been noted before internationally, though not consistently. They conclude that women may have worse outcomes due to having smaller coronary arteries, more micro-vascular disease and/or more atypical presentations leading to delay in diagnosis.

Since the implementation of the recommendations of the Cardiac Surgery Service Development Working Group Report of 2008 there has been a 24\% increase in the number of cardiac surgery operations in New Zealand. The largest equity issue addressed by this increase has been the geographic inequity that existed, with a 68\% increase in surgery in the Midlands region. Wang and colleagues quite rightly point out that, due to the mixed findings of previous studies, gender has not been included in the access scoring for cardiac surgery in New Zealand.

The cardiac prioritisation working group are developing a new appropriateness (risk/benefit) score. Frailty appears to be the most important predictor of outcome that needs to be added into the preoperative assessment of the elderly candidates for cardiac surgery. With the females in this study being on average 2.4 years older than the males, frailty may have been the cause of some of the difference in outcome. This study emphasises the need for more thorough prospective appropriateness assessment of all candidates for cardiac surgery. Some validation of the frailty scoring against outcome will be available with the 1-year follow up of a recent Wellington and Auckland hospital study.

A larger multicenter piloting of the frailty score is the next step in the development of a new national appropriateness score. Ultimately we need to link these preoperative appropriateness assessments with the currently deploying national cardiac surgery register. Further linking both datasets to other New Zealand databases, including pharmacy and outcomes, will provide a continuous quality improvement framework to guide us regarding the appropriateness of cardiac surgery for both women and men in New Zealand.

It is also a privilege to comment on the excellent studies by Kerr et al and Ellis et al. These studies show where we were, where we are now and where we need go with the management of acute coronary syndrome (ACS) management in New Zealand. The first NZ ACS audit 10 years ago showed poor access to appropriate care for ACS patients in New Zealand.
The second audit showed some improvement but still significant delays for high risk patients receiving appropriate intervention. This latest audit shows that whilst we have improved we are not performing as well as Australia. There is still much to be done to deliver equitable, appropriate and timely care to ACS patients in New Zealand.

To ensure improvement, the continuous quality improvement dataset developed by Dr Kerr and colleagues has been expanded into the Midland region as part of their Acute Coronary Syndrome Project. Now, with national funding, as the All New Zealand Acute Coronary Syndrome Quality Improvement (ANZACS QI) Registry, it is being implemented at all hospitals admitted acute coronary syndrome patients. This is accompanied by a new linked coronary angiography and percutaneous coronary intervention registry.

All public hospital cardiac angiography laboratories are now entering data into the registries, as well as an increasing number of referring hospitals. Private hospitals are soon to follow. The new national target of >70% of ACS patients referred for angiography receiving it within 3 days of admission (day of admission being Day 0) is a 1A recommendation of the New Zealand NSTEACS management guideline. This however should not be the sole concentration of our efforts.

It is appropriate and important to monitor the timeliness of care of troponin positive, ST change, high GRACE score patients, as Dr Kerr and colleagues have in their study. This is a small specific and very high risk group. ANZACS QI data collection will provide a monitoring background for assessment of locally piloted quality improvement measures to improve all outcome-affecting aspects of the management of ACS patients, including this important group.

Successful pilots are then easily benchmarked against national ANZACS QI data, increasing relevance of the pilots and improved “buy-in” for implement of the innovation around New Zealand. Through this continuous quality improvement loop ANZACS QI will monitor and guide strategies to improve access to appropriate care for all ACS patients in New Zealand.

How do we continue to improve the access to appropriate care for cardiac patients in the current fiscally constrained environment? DHBs that have seen an appropriate increase in cardiac service delivery are understandably feeling the financial strain. It is therefore essential that we in the cardiology community champion not only increased appropriate care but also decreased inappropriate cardiac care in New Zealand.

The cost of increased hospital stay for patients delayed in accessing coronary intervention is difficult for DHBs to quantify, but is real. Better management of ACS does lead to better outcomes. It is interesting to note that while the cardiovascular risk status of New Zealanders remains static (increased diabetes versus decreased smoking) the death rate continues to fall. Also the New Zealand Vascular Atlas has highlighted the marked variation in heart failure admission rates around New Zealand. DHBs with high admission rates appear to be those with low cardiac intervention rates and high death rates. Clearly there are improvements in care and savings to be made in the longer term.

In the medium term the appropriateness score for cardiac surgery will provide an important semi-objective measure comparable between centres and helpful in
discussion with patient and relatives as well as at our cardio-surgical conferences. Even the perception of inappropriate acceptance for, or non-acceptance for cardiac surgery can undermine trust between doctors, patients, relatives, colleagues and hospital management, especially if the outcome is not ideal.

In the short term, New Zealand has a great opportunity to benefit from being the first country in the world to have access to high sensitivity troponin assays. Accelerated chest pain pathways such as that trailed by Than et al\textsuperscript{5} in lower risk patients in Christchurch have already shown benefit with the less sensitive troponin assays. This is now being studied in at Nelson Hospital by Dr Munro and colleagues\textsuperscript{3}, using the new high sensitivity troponins. They are studying all chest pain presentations using a pragmatic clinical pre and post-test probability assessment.

Interim analysis is showing extremely encouraging findings so far with high rates of direct discharge from ED and very reassuring outcomes at 1 month. Importantly the question of outpatient stress testing is left with the general practitioner to consider and refer for if appropriate. Christchurch has fully implemented an accelerated chest pain pathway in their emergency department. These pathways appear to save significant time and resources in EDs and reduction in inappropriate admissions and investigation. Their rapid development throughout New Zealand should be encouraged.

Aside from coronary artery disease the increasing burden of atrial fibrillation needs proactive management strategies. The National Health Committee report\textsuperscript{4} has supported the benefits of the increasing use of atrial fibrillation ablation in patients under 70 years of age. However the increase in incidence is mainly in the elderly who will require medical management. Clinical pathways that give appropriate access to outpatient echocardiography and specialist advise to primary care will improve management and quality of life for these patients. In more acute settings emergency department management of atrial fibrillation should be established with the goal to markedly reduce the need for hospital admission of these patients while more rapidly improving their quality of life. This is being achieved in many hospitals.

Our management of heart failure patients has led to improved outcomes and better quality of life. However for those with end stage heart failure a point comes where a transition from active to palliative care must be made. Advanced care planning in these patients not only improves their quality of life but avoids inappropriate hospital admissions where support in the home or hospice care maybe more appropriate.

We must work with all stakeholders to reduce the burden of cardiac disease in New Zealand. Primary care manages the whole patient with cardiovascular risk factor assessment and management being a part of the overall care they provide. There will continue to be debate over the wording and details of the guidance for assessment and management of risk.

We all agree, however, that estimation of combined cardiovascular risk is an essential step towards the required shared decision making with our patients to achieve effective long term risk management. Similarly the efforts to reduce smoking rates, address obesity and better manage diabetes are essential to reducing demand on cardiac services in the future.
There is a worryingly low medication uptake/compliance in patients with known cardiac disease, especially in the younger age groups. Strategies to address this have huge potential to improve outcome while reducing healthcare costs. The New Zealand Vascular Atlas provides an excellent monitoring structure within which piloted strategies for improvement can be rapidly assessed and benchmarked.

This “big data” approach as coined by the National Institute of Healthcare Innovation (NIHI)\(^5\) has been recently used in a study of thrombus aspiration during primary angioplasty set within a Swedish acute coronary syndrome registry\(^6\), providing a very powerful research study at low cost answering an important clinical question. Once ANZACS QI is fully implemented there is the potential for New Zealand to move in this direction.

When the balance of probabilities that a management strategy is either neutral or beneficial, a study design with progressive uptake throughout the country could lead to New Zealanders benefiting from new therapeutics strategies. Such research would of course need careful consideration, design and ethics review. Potential therapeutic examples that come to mind are selective use of the polypill or colchicine therapy post ACS.

In conclusion, the authors of the papers in this edition of the journal should be proud of their contribution to our knowledge of the status of our management of acute coronary syndrome and the outcome of women post-cardiac surgery. As I move on from my current role I am reassured that with the continued efforts of the authors of these papers and the wider cardiology community, the work the New Zealand Cardiac Network has been doing with the Cardiac Society, Heart Foundation, ministry, DHBs and primary care will continue to improve “the equity and access to high quality cardiac care for all New Zealanders”.

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**References:**


