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UNIVANTS™
OF HEALTHCARE EXCELLENCE

# Interdisciplinary team recognized for outstanding acute cardiac care using novel accelerated diagnostics pathway

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Distinction awarded to team members at Canterbury and the New Zealand Healthcare System, Canterbury, New Zealand

Chest pain and other symptoms of a heart attack are often chief complaints of patients presenting to the Emergency Department. Traditionally a very large portion of these patients would be admitted to the Emergency Department and undergo additional invasive testing, which in some cases carries unnecessary risks to the patient and represents a significant burden to the health system.

An integrated health team in the Canterbury District Health Board recognized an opportunity to develop and implement an Accelerated Diagnostic Pathway (ADP) which enables safe early rule-out of Acute Myocardial Infarction (AMI) by reliably identifying high-risk patients who are appropriate for escalation of care and mitigating unnecessary admissions of patients who are at low risk for AMI. The team initiated an iterative and evidence-based initiative to collect and translate evidence into a validated diagnostic pathway that was able to rule-out AMI in a greater percentage of patients faster and less invasively than traditional diagnostic pathways. Randomized clinical trials across diagnostic testing strategies were used to evaluate risk profiles compared to major adverse cardiac events (MACE) to determine effectiveness and safety. Their initiative found that non-elevated results of point of care testing of cardiac markers when combined with Thrombolysis In Myocardial Infarction (TIMI) risk score of 0 could enable determination of safe discharge in approximately 10% of patients presenting with suspicion of AMI. They further found that use of the lab-based contemporary cardiac troponin with results < the 99th percentile with a TIMI score of 0, enabled the safe discharge of almost 20% of patients, and the use of the lab-based high-sensitivity cardiac troponin assay with results below the 99th percentile, coupled with a TIMI score of ≤ 1 approximately 40% of patients could be safely discharged. They implemented their novel ADP into clinical practice beginning in Christchurch Hospital and eventually expanded the use of the algorithm across New Zealand and internationally. Their recommendation for ADP was so successful and well-endorsed that it eventually became included in guidelines for the Cardiac Society of Australia and New Zealand (CSANZ) in 2016.

Their care initiative has generated remarkable results. They have achieved a 2.5-fold reduction in the overall length of stay (LOS) for patients without ACS. This reduction in stay reduces the unnecessary burden on staff, costs for payors, and improves both the safety and experience of the patient. Martin Than, MD (Senior Medical Officer Emergency Department Christchurch Hospital and University of Otago) states "People who come the emergency department are anxious as many fears that they are having a heart attack. It is really meaningful to be able to say to them much quicker that we don't think they are."

With 100% adherence to the ADP at Christchurch Hospital and widespread adoption across New Zealand and internationally, the clinicians demonstrate confidence in their ability to utilize this ADP for triaging patients to the appropriate setting safely. Significantly more patients were able to be safely discharged without further testing as indicated by a 30% reduction in hospital admissions for patients with suspected acute coronary syndrome (ACS) after implementation of the ADP. The LOS and transport savings have been associated with 9.5 million NZD savings across New Zealand following the implementation of their ADP. Their project also has led to a national guideline (ICARE-ACS) for Emergency Departments to implement this or comparable programs of ADP for ACS care.

The success of their ADP care initiative was driven by collaborative effort across many disciplines with five cross-discipline leaders who were recognized as principle winners of the UNIVANTs of Healthcare Excellence Award: Martin Than, MD, Senior Medical Officer Emergency Department Christchurch Hospital and University of Otago, Peter George, MBBS, FRCPA, Clinical Pathologist, Medlab Pathology Sydney NSW Australia, Sally Aldous, MBChB, MRCP, FRACP, MD, Cardiologist, Christchurch Hospital, Gerry Devlin, MD, FRACP, FEASC, Cardiologist, Medical Director of the National Heart Foundation, Associate Professor of Medicine, University of Auckland, and Greg Hamilton, PhD., Team Leader Planning and Funding, Canterbury District Health Board.

**THREE KEY TAKEAWAYS:**

1. Accelerated diagnostics pathways for patients suspected with ACS can safely rule-out AMI.
2. The highest percent of patients safely ruledout for AMI leveraged accelerated diagnostic pathways (ADPs) with high sensitivity troponin, however, safe discharge is also possible using ADPs with point of care troponin testing.
3. The implementation of these ADP pathways have positively impacted Key Performance Indictors (KPIs) throughout the Canterbury Health System including median length of stay, number of patients transported to central hospitals, cost of prolonged stays and cost of transports, patient satisfaction, and increased clinician confidence.