

Accelerated Chest pain Risk Evaluation (ACRE) Project

Final Outcomes Report

June 2016

Accelerated Chest pain Risk Evaluation (ACRE) Project: Final Outcomes Report

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Summary

The ACRE Project is a state wide clinical redesign initiative to improve the assessment of chest pain patients in hospital Emergency Departments (EDs).

By implementing an accelerated diagnostic protocol (ADP) described in the ADAPT trial, the project aims to safely fast track assessment of one in five chest pain patients. This is expected to lead to reduced ED and admitted lengths of stay (LOS), and fewer admissions to await diagnostic testing.

Nineteen hospitals across Queensland have implemented the ADAPT-ADP. At implemented sites to 31st May 2016, **12 792 patients**, or 24% of the 53 374 patients presenting with possible cardiac chest pain had been managed using the ADAPT-ADP, which has led to:

- **Total hospital LOS reduction of 30%**, from 1167 to 815 minutes. This is a very substantial improvement for a cohort of patients traditionally requiring prolonged assessment and waits for diagnostic testing.
- **Admission rate decrease from 69% to 52%**. Only 18% of patients assessed using the ADAPT-ADP were admitted. This compares favourably to 63% for ineligible, higher risk patients, which has also dropped slightly from the pre-implementation rate likely due to other factors. The improved rate for ACRE/ADAPT-ADP patients enabled the overall post-implementation rate to drop to 52%.
- **ED LOS reduction from 228 to 213 mins**, demonstrating a median saving of 15 minutes (7%). While modest in isolation, the impact of this reduction is substantial when scaled across all chest pain patients across all ACRE Project sites.
- **NEAT improvement for cardiac chest pain patients from 56% to 63%** following ACRE Project implementation. ACRE/ADAPT-ADP patients performed significantly better than other cardiac chest pain.

1. Overview

1.1 Introduction

The Accelerated Chest pain Risk Evaluation (ACRE) Project is a Queensland Department of Health (QLD DoH) initiative aimed at improving the assessment of patients presenting to hospital Emergency Departments (EDs) with chest pain. It involves implementation of an accelerated diagnostic protocol (ADP) which safely identifies approximately 20% of patients presenting with possible cardiac chest pain who are at low risk of a heart attack and eligible for early discharge. By streamlining risk stratification of patients it aims to improve patient flow and released capacity thereby enabling improved resource utilisation.

Additionally, the ADP aims to improve adherence to the National Emergency Access Target (NEAT), which mandates that by 2015 90% of ED patients must be discharged, admitted or transferred within four hours of presentation. It therefore aligns with the Health Innovation Fund (HIF) Priority Area: Reducing Waiting Time for EDs, Outpatient and/or Elective Surgery and was funded for a two year period under this program.

The ACRE Project is supported and governed by the Healthcare Improvement Unit (HIU), formerly the Clinical Access and Redesign Unit (CARU) and administered under Metro North Hospital and Health Service (MNHHS).

1.2 Background and Rationale

The ACRE Project was developed as a means to accelerate the translation of research findings into practice and thereby make rapid improvements in the assessment of patients presenting to hospital EDs with chest pain.

Each year in Australia an estimated 500,000 patients present to EDs with undifferentiated chest pain, representing the most common single presentation in adult males and the second most common in adult females^{1,2}. While the majority (up to 85%) of these patients are eventually diagnosed with non-cardiac causes, their assessment under the current guidelines utilises extensive resources and requires extended ED stays (>6-8 hours), or admission for diagnostic testing.

Evidence has emerged which validates alternative risk stratification processes (using ADPs) that allow shorter assessment for certain patients and therefore reduced ED LOS and better adherence to the NEAT³.

In 2012 the ACRE Project was established to commence implementation of a recently derived ADP into clinical practice at a single site (Nambour General Hospital) as a pilot study. Seven months of data were collected which demonstrated approximately 15% of chest pain presentations (20% of 'possible cardiac chest pain' presentations) were able to be assessed using the ADP. This resulted in dramatic reductions in ED LOS in this group, which equated to 121,743 minutes over 6 months, or 0.46 of a staffed and equipped treatment space in the ED.

On the basis of the findings of the pilot study and subsequent analysis showing these results were maintained, the ACRE Project was funded to roll out the protocol across Queensland.

2. Scope

2.1 Objectives

The overarching aim of the ACRE Project is to promote evidence-based and cost-effective practice by enhancing patient flow while maintaining or improving patient safety

The following key objectives were outlined prior to the statewide roll-out:

- Recruit at least 90% of suitable target hospital sites to the project
- Introduce the clinical redesign project based on the results of the ADAPT trial and encourage Stakeholders within ED and Cardiology/Medicine to apply the recommendations of the trial and the Nambour Hospital pilot.
- Engage with Stakeholders in order to assist with planning, education and support as required.
- Collect data from Emergency Department Information Systems (EDIS) and link to Hospital Based Corporate Information System (HBCIS) in order to document outcome measures as indicators of improvement, such as length of stay (LOS), admissions and NEAT performance.
- Compare these indicators to pre-implementation data
- Transfer diagnostic investigations for ADP patients from an inpatient to an ambulatory setting where feasible
- Engage relevant policy making organisations to amend State and National guidelines for assessment of patients presenting to ED with chest pain by including the ADP

Key Indicators

The following table outlines the key indicators identified for outcome reporting. Indicators are compared to pre-implementation data where relevant.

Key Indicator	Data Source
Number of target facilities implementing the protocol	ACRE Project Records
Proportion of possible cardiac chest pain patients accelerated using the ADP	EDIS (ACRE Project Box)
Median ED LOS <ul style="list-style-type: none"> • All possible cardiac chest pain patients • ACRE-ADP patients • Non-ACRE-ADP patients 	EDIS

Admission Rates <ul style="list-style-type: none"> • All possible cardiac chest pain patients • ACRE-ADP patients • Non-ACRE-ADP patients 	EDIS
Total Hospital LOS <ul style="list-style-type: none"> • All possible cardiac chest pain patients • ACRE-ADP patients • Non-ACRE-ADP patients 	EDIS, HBCIS

Table 1 Key outcome indicators and data source

2.2 Governance

Governance Model

Restructuring within the QLD DoH has led to changes in ACRE Project governance over the current funding period. The figure below outlines the governance structure for the ACRE Project at the time of reporting.

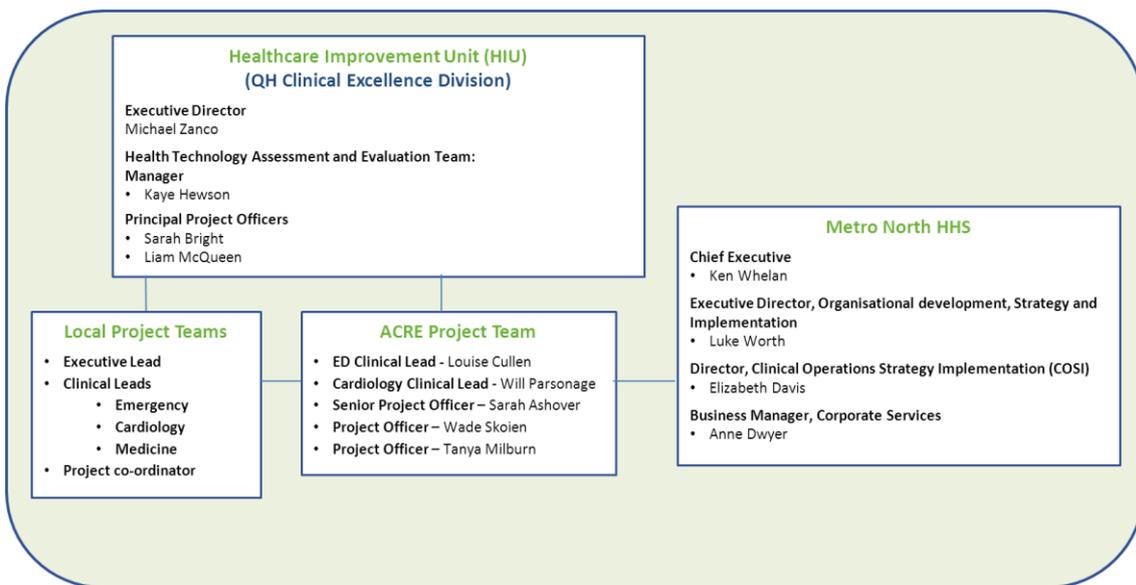


Figure 1 ACRE Project Governance

Key Stakeholders

Stakeholder Group or Individual	Key Project Area(s) of Interest
Healthcare Improvement Unit (HIU)	key sponsor of the project following dissolution of the Clinical Redesign and Innovation Board (CRIB) Project support and guidance
Metro North HHS Executive	Administration of project funds and operations, project support, outcomes

	across MNHHS involved sites
HHS Executives across Queensland	Project endorsement and support of implementation at individual hospital sites, outcomes at involved sites within HHS
Local Hospital Executive at involved sites	Local site outcomes, local project endorsement
ACRE Project Team	Successful recruitment of hospital sites to implement the protocol, engagement with key stakeholders, successful implementation and reporting of outlined project objectives.
Local site Project Teams	Successful implementation and continuing operation of the protocol to achieve measurable improvements in patient flow.

Table 2 Key ACRE Project Stakeholders

2.3 Overview of strategies

Site recruitment and stakeholder engagement

Sites were engaged at staggered intervals via direct contact with key clinical stakeholders. HHS Chief Executives were introduced to the project via a letter from the Deputy Director General of the Clinical Excellence Division. This communication was facilitated by the HIU.

Initial contact was usually followed up by site visits incorporating business meetings and education sessions for staff of relevant departments (i.e. ED, Cardiology, and Medicine). These events were used to present the evidence behind the project and address any initial concerns or reservations. An ACRE Project Officer was designated to oversee each site and coordinate subsequent site visits and communications. Sites were encouraged to nominate a local project coordinator to oversee implementation of the ADP and liaise with ACRE Project Officers. As per the project plan, limited funding was offered to support these roles.

Implementation

Sites were supported through the implementation process by the ACRE Project Team by way of:

- Provision of document templates (for clinical pathways, pre-formatted letters and information sheets for patients and GPs)
- Preparation and/or review of site specific documents
- Preparation of educational material such as presentations, posters and flyers

- Instructions for implementation of EDIS project box
- Staff education sessions and Grand Rounds presentations
- Regular site visits and/or contact
- Assistance with overcoming any issues relating to operations around the ADP
- Monthly outcome reporting and feedback

Data collection and analysis

EDIS data were collected through Queensland Health Enterprise Reporting Service (QHERS). Pre-implementation data was obtained from an existing report and post-implementation data was obtained using a customised report which identified those patients assessed using the ADP. This report required implementation of a 'project box' into EDIS at each involved site. The ACRE Project Team provided detailed instructions for local data managers to implement this. Customisation of the report and access to QHERS were facilitated by the HIU.

EDIS data were linked to HBCIS by the QH Statistical Analysis and Linkage Unit which provided inpatient data for the relevant patients. These data were available periodically (approximately 3-4 monthly) and were subject to a standard 3 month delay between patient presentation and availability of linked data.

Data were analysed in Microsoft Excel by the ACRE Project Team to inform key indicators for reporting. With the exception of inpatient data, site specific as well as pooled data were reported to sites monthly. Indicators were provided to Deloitte for evaluation reporting. A statistician was engaged to assist with analysis for the purposes of external reporting.

ACRE Project Forums

The project team held an annual forum in each of the two years of project operation. Stakeholders were invited to attend and in some cases were funded for travel. The forums presented an opportunity to provide updated outcomes on the project as well as networking opportunities for stakeholders from different ACRE Project sites. Guest speakers also provided informative sessions on topics relating to the project. These events were well attended and feedback indicated they were informative and worthwhile.

Sustainability

The sustainability of the clinical redesign associated with ACRE had been demonstrated following the Nambour pilot trial and remained a priority for the project team with wider implementation of the protocol. Many features inherent to the project help to make it sustainable. These include:

- A largely recognised need for change / improvement in protocols used for the assessment of patients with chest pain in EDs
- A strong evidence base behind the ADP; widely cited, peer reviewed and locally derived research
- The nature of the clinical redesign – involving no new tests or equipment, being flexible enough to implement in a variety of facilities, easily embedded into 'usual practice'

- Strong clinical leadership from both ED and Cardiology backgrounds

In addition, strategies utilised by the project team designed to maximise sustainability include:

- Regular contact with individual sites to establish a strong network and valuable relationships
- Site visits where possible
- Monthly outcome reporting and feedback to sites
- Continued provision of education sessions, promotional material and site support
- Quarterly newsletters to stakeholders

Indications are that to date, achievements of the ACRE project are being well sustained at participating sites.

2.4 Schedule

The project outcomes have been achieved in accordance with the overall schedule however delays at individual sites over the period of the roll-out have led to shorter than expected periods of data collection. As a result the ACRE Project team requested and was granted a three month extension to enable reporting of more meaningful outcomes. This extension also allows for the previously unanticipated lag time to link EDIS data with inpatient (HBCIS) data. The following table shows the target vs achieved date of high level milestones outlined in the project plan.

Milestone	Date Due	Date Achieved
Change in patient management at 4 currently recruited sites	December 2013	May 2014
Commencement of Snr Project Officer*	January 2014	January 2014
Commencement of 2 years HIF funding	April 2014	April 2014
Commencement of Project officers	April 2014	April 2014 (1.1 vs 1.5 FTE)
Implementation in at least 5 additional sites	September 2014	November 2014
Implementation in at least 3 additional sites	March 2015	May 2015
Implementation in all recruited sites	September 2015	March 2016
Final outcome report	March 2016	June 2016
Completion of ACRE Project (ADAPT rollout stage)	March 2016	June 2016

* This position was subsequently vacant from mid-June to early October 2014

Table 3 High level milestone achievement

Individual site delays have largely related to loss of momentum in the planning stage, which have been attributed to a variety of factors including:

- Reduced Staffing – lower than anticipated ACRE Project Officer FTE
- Difficulty nominating and retaining local project co-ordinators
- Prioritisation of other initiatives (e.g. hospital relocations, departmental restructuring projects)
- Day to day demands of busy clinicians

In addition to project milestones there have been some relatively minor delays to data collection caused largely by errors in local implementation of the EDIS project box. These have been minimised following the project team being granted access to QHERS, which has enabled real time monitoring following implementation to allow early identification of any problems.

2.5 Budget

The ACRE Project has consistently operated under its allocated budget, largely due to reduced staffing levels. With approval, this has enabled the extension of the project to support embedding the change to clinical practice. The original budget was \$999,043 over financial years 2014 – 2016. Enterprise bargaining agreements in the 2016 FY increased the budget by \$7,224 to \$1,006,267.

The following table shows the annual budget spend over the 3 financial years of ACRE HIF funding.

	2013/14	2014/15	2015/16	Total
ACRE Project spend	\$ 101,504*	\$ 366,416	\$ 322,160*	\$ 880, 044 [#]

* No rollover of \$60 452 following 13/14 FY, no rollover of \$65 771 (\$60 000 budgeted for local project officers – unclaimed) following 15/16 FY, \$89 964 rolled over to 16/17 FY.

[#] to 30th June '16 (Includes amount rolled over and budgeted to October '16)

3. Outcomes

3.1 Key Indicators

Number of target facilities implementing the protocol

Twenty one target sites across Queensland were identified for implementation of the ADP, as listed in table 4. Major sites not targeted were the Royal Brisbane and Women's Hospital, as it is the site of ongoing ADP research, Nambour Hospital, as it was the pilot site, the Mater hospital, as there are issues with the public-private interface reporting, and children's hospitals, as the ADP is specific to patients aged over 18 years. Maryborough Hospital was excluded as it does not have pathology laboratory services and the ADP is only validated for use with laboratory based Cardiac Troponin (as opposed to bedside testing). All sites targeted were EDIS reporting hospitals.

Of the 21 hospitals targeted, 18 have implemented the ACRE protocol accounting for 85.7% of target sites.

Emergency Department presentation data extracted from EDIS for 2014 indicates that excluding the RBWH and children's hospitals, target hospitals account for 77% of ED presentations statewide. Hospitals that have implemented the ADP, including the Nambour pilot site account for 71% of statewide ED presentations.

	Site	HHS	Annual ED Presentations*	Implementation Date
1	Logan Hospital	Metro South	73,388	21 st October 2013
2	Redcliffe Hospital	Metro North	59,856	24 th March 2014
3	Gold Coast University Hospital	Gold Coast	88,416	1 st July 2014
4	Queen Elizabeth II Jubilee Hospital	Metro South	49,548	21 st May 2014
5	Ipswich Hospital	West Moreton	55,601	23 rd June 2014
6	Toowoomba Hospital	Darling Downs	48,701	1 st July 2014
7	Townsville Hospital	Townsville	75,006	1 st August 2014
8	Gladstone Hospital	Central Qld	28,307	18 th August 2014
9	Caboolture Hospital	Metro North	50,749	10 th November 2014
10	Rockhampton Hospital	Central QLD	47,111	20 th April 2015
11	Robina Hospital	Gold Coast	58,382	4 th May 2015
12	The Prince Charles Hospital	Metro North	72,281	4 th May 2015
13	Mackay Base Hospital	Mackay	48,048	18 th May 2015
14	Hervey Bay Hospital	Wide Bay	36,731	1 st July 2015
15	Caloundra Hospital	Sunshine Coast	31,091	2 nd July 2015
16	Redland Hospital	Metro South	55,861	1 st September 2015
17	Cairns Hospital	Cairns & Hinterland	61,256	1 st October 2015

18	Bundaberg Hospital	Wide Bay	48,084	29 th March 2016
19	Princess Alexandra Hospital	Metro South	61,825	Not Implementing
20	Mount Isa Hospital	North West	30,303	Not Implementing
21	Gympie Hospital	Sunshine Coast	30,812	Not Implementing

*2014 EDIS Data

Table 4 ACRE Target Hospitals and Implementation dates

Clinical stakeholders at Gympie Hospital made an early decision not to implement the protocol due to limited pathology laboratory hours. The Princess Alexandra Hospital (PAH) and Mount Isa Hospital expressed interest in implementing the ADP and the ACRE Project team engaged in ongoing communication at both sites over at least six months. Engagement was lost at Mount Isa Hospital, with no response to attempted communications and no explanation given.

The PAH is the only tertiary hospital that did not proceed with implementation and this was due to decision by local clinical stakeholders. Interviews with key stakeholders were conducted by Deloitte and the following reasons for not implementing were reported:

- 'Change fatigued' environment considered not optimal for introduction of the ACRE ADP
- Clinical staff resources not available to support implementation
- Local clinicians believe chest pain presentations to the PAH are predominantly higher acuity and complex in nature and therefore question the value of a 'low risk' assessment pathway
- Seniority of medical workforce does not demand implementation of clinical pathways; there would likely be poor uptake
- Stakeholders believe there is a lack of evidence around the long term outcomes of patients assessed on the ACRE ADP

No additional analysis or evidence was sought to verify these statements.

The stakeholders interviewed stated they were comfortable with the research base supporting the ACRE ADP and with the level of engagement and support provided by the ACRE Project Team through the decision making process. They acknowledged the value of the ADP in bolstering the confidence of junior doctors treating chest pain and contributing to effective engagement between ED and Cardiology.

Proportion of possible cardiac chest pain patients accelerated using the ADP

To May 2016, 53 374 patients were assessed across 16* sites using the ACRE ADP with 12 792 (24%) being managed down the accelerated arm of the pathway. This is

consistent with the ADAPT trial which identified approximately 20% of possible cardiac chest pain patients as suitable for accelerated care. Figure 2 shows the number of sites that have implemented the ADP over time along with the number of patients presenting with possible cardiac chest pain and the number which have had their care accelerated, of the sites included in the combined statewide data.

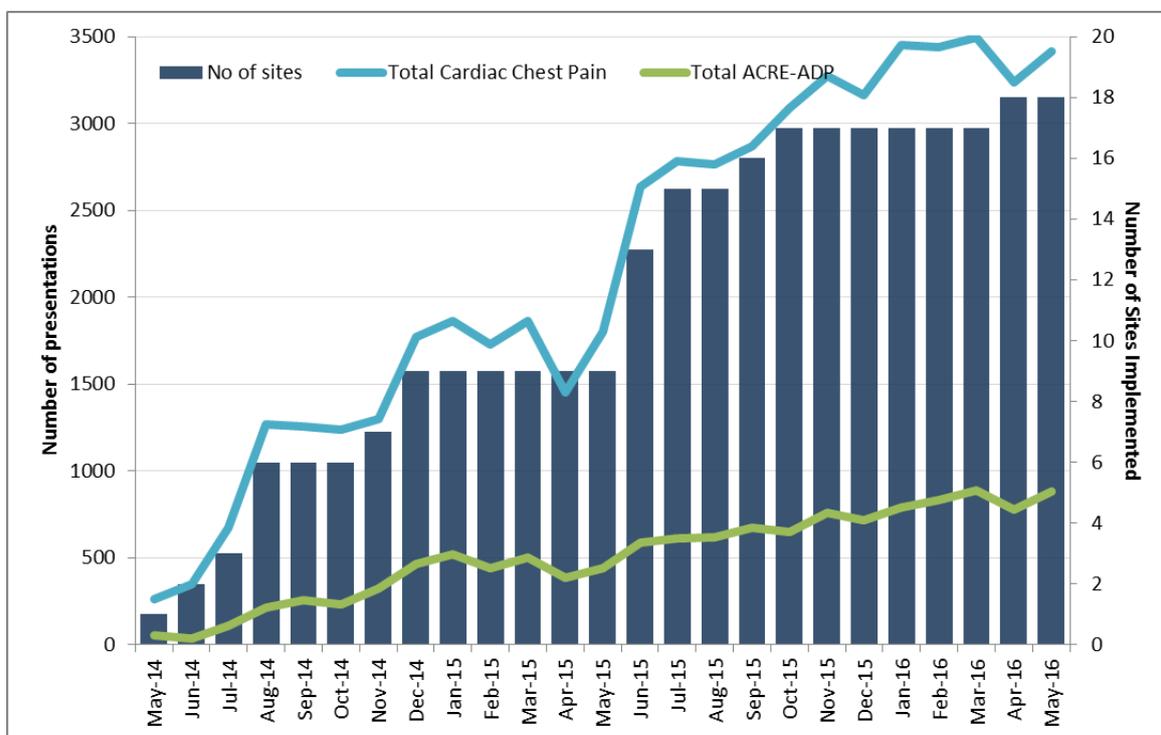


Figure 2 Possible cardiac chest pain presentations at ACRE Project sites from May 2014 to May 2016.

Figure 3 shows the cumulative proportion of patients managed down the accelerated arm of the pathway. It should be noted that there is variation in this proportion across implemented sites, and ranges from 10% to 32%.

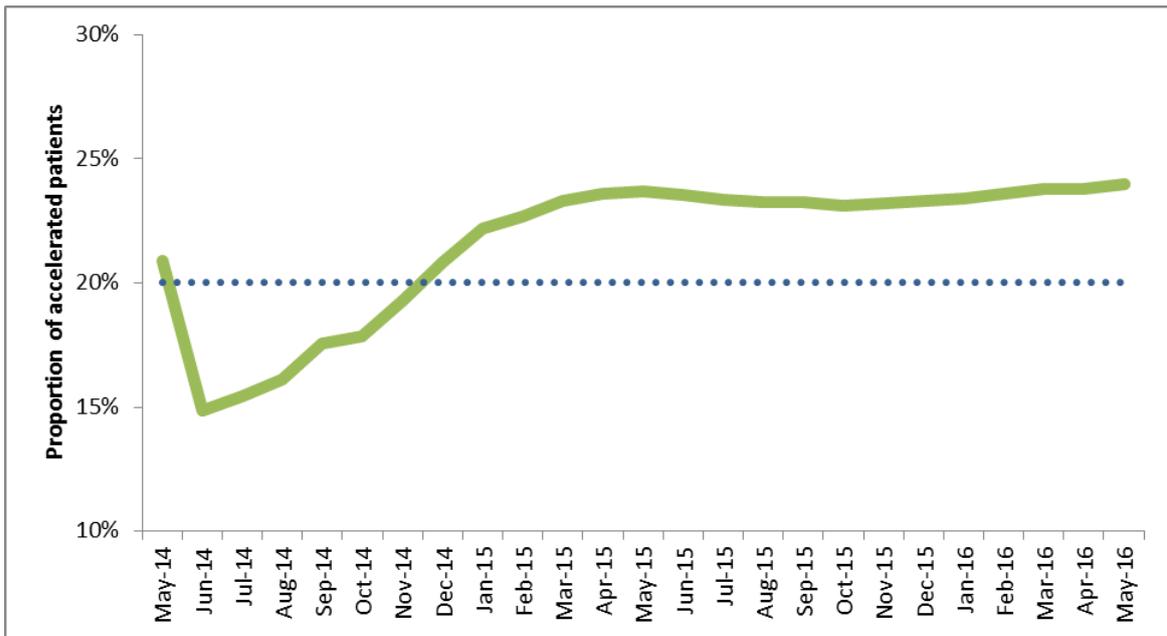


Figure 3. Proportion of possible cardiac chest pain patients managed down accelerated arm of pathway

Reasons attributed to lower proportion of accelerated patients reported at sites include:

- Lower uptake due to lack of engagement by clinicians (most commonly reported as senior ED medical staff)
- Presentation of higher risk chest pain patients resulting in a lower proportion of low risk patients able to be safely accelerated
- Local wording variations causing possible ambiguity in chest pain assessment pathway document
- Incorrect use of EDIS project box, resulting in reporting errors
- Patient demographics at sites, for example higher mean age of patients or higher proportion of patients aged over 65 years (>65 years not eligible for accelerated pathway as do not meet TIMI risk score = 0)

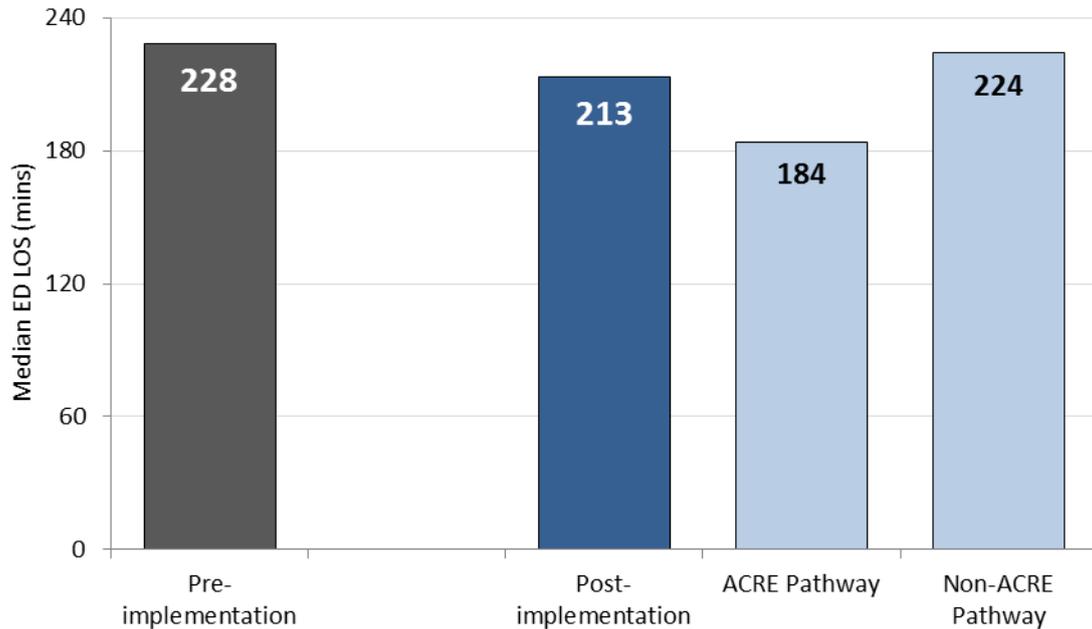
Reasons attributed to higher proportion of accelerated patients reported at sites include:

- Presentation of lower acuity chest pain patients, possibly as a result of locally targeted chest pain awareness campaigns, or lower risk local population
- Incorrect use of EDIS project box, resulting in reporting errors
- Local differences in EDIS coding, for example a higher proportion of patients diagnosed as “Non-Cardiac Chest Pain” instead of e.g. “Possible Cardiac Chest Pain” and therefore excluded from our analysis, decreases the ‘denominator’ of total number of patients presenting with possible cardiac chest pain and therefore increase the ‘proportion’ of accelerated patients.

Median ED Length of Stay

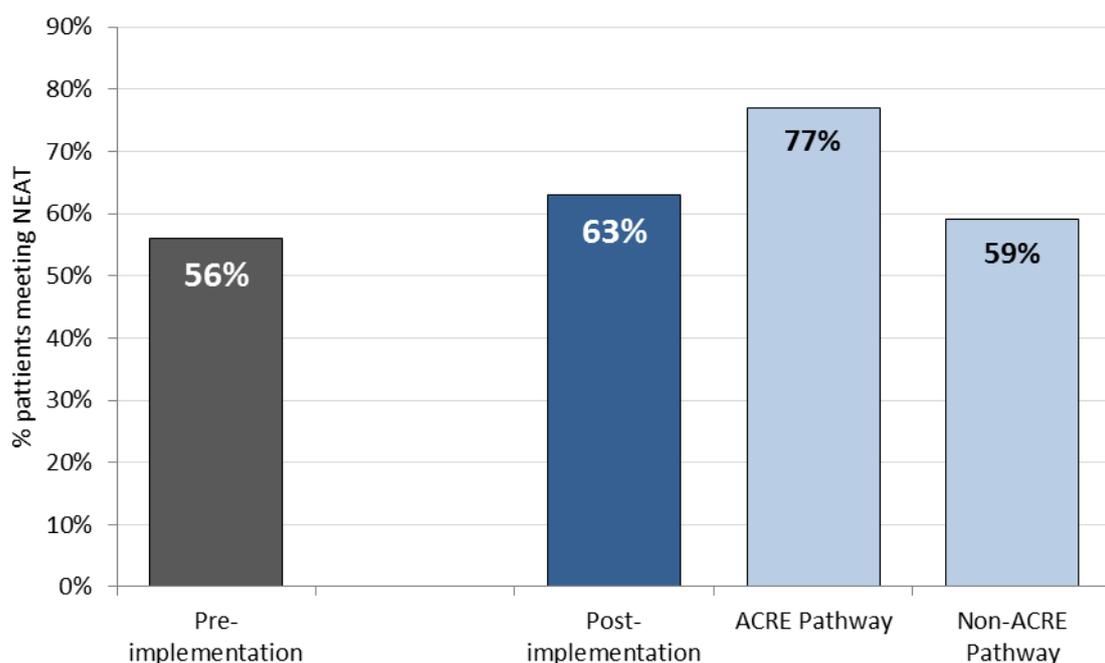
Pooled data from sites included in combined statewide analysis demonstrate an overall reduction of 15 minutes per patient, from 228 to 213 minutes. While modest in isolation, the impact of this reduction is very significant when scaled across the number of

patients presenting with possible cardiac chest pain to all ACRE project sites, which includes, but is exceeded by the 53 374 patients reported to date that are included in this data set.



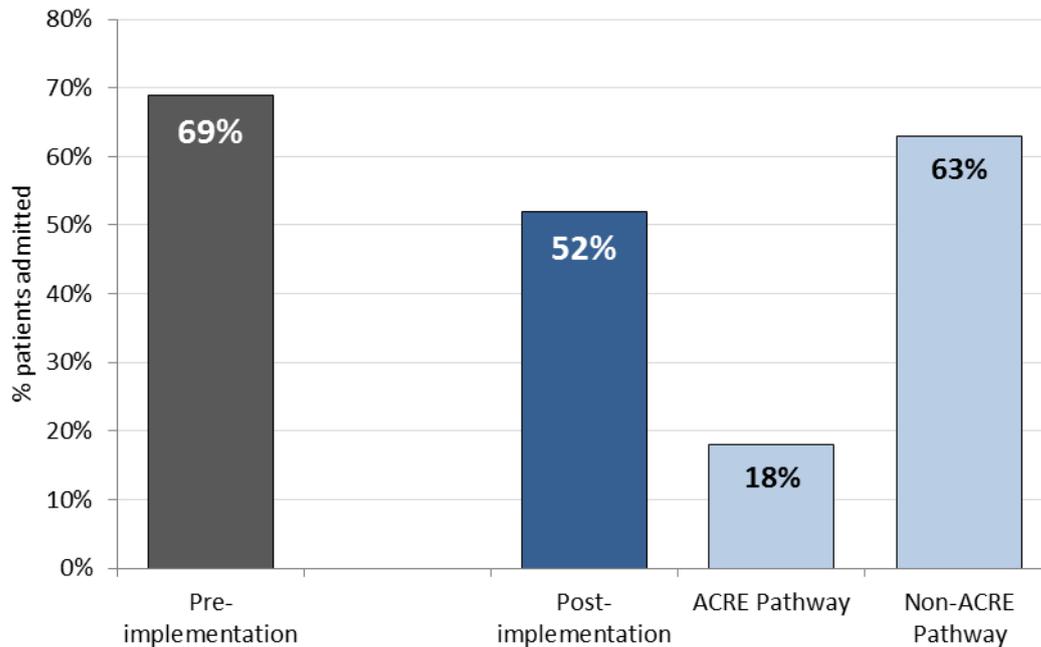
NEAT Performance

Pooled data from sites included in combined statewide analysis demonstrate an overall improvement in NEAT performance of 7% for all patients presenting with possible cardiac chest pain, from 56% to 63%. ACRE patients performed significantly better than other possible cardiac chest pain patients.



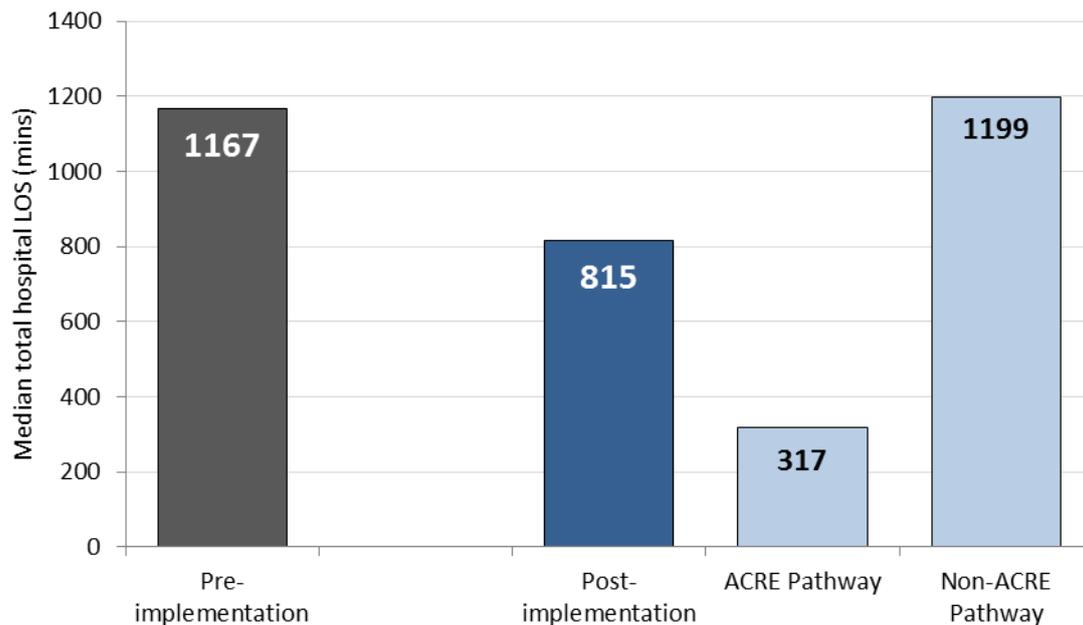
Hospital Admission Rates

Pooled data from sites included in combined statewide analysis demonstrate an absolute reduction in the proportion of chest pain patients admitted to an inpatient unit from the ED of 17%, from 69% to 52%. Only 19% of patients managed on the ACRE pathway were admitted, compared to 63% of other possible cardiac chest pain patients. The very low admission rate for ACRE pathway patients has considerably pulled the overall admission rate down.



Total Hospital Length of Stay

The most significant impact of the ACRE project has been substantial reductions in total hospital length of stay overall for patients presenting with possible cardiac chest pain, driven largely by the reduction in admission rate. This is a substantial improvement overall for a large cohort of patients traditionally requiring prolonged assessment and waits for diagnostic testing.



3.2 Economic outcomes / Return on investment

Analysis was undertaken to define economic benefits resulting from reductions in hospital admissions and ED length of stay (LOS) for possible cardiac chest pain patients presenting to ED. The results of this analysis have been accepted for presentation at the Cardiac Society of Australia and New Zealand (CSANZ) conference in August 2016.

The data included for this analysis was from 16 hospitals that implemented the ADAPT-ADP between October 2013 and August 2015. Pooled data from the 12 months pre-implementation at each site were compared to 16 months of pooled post-implementation data. Published local ED and inpatient costs for a similar cohort were applied to outcome measures. Admission savings were calculated using the reduction in admissions, inpatient LOS and the hourly inpatient cost. ED savings were calculated from the total number of patients, the mean ED LOS reduction and the hourly ED cost.

Following implementation, hospital admissions fell by 13.1% (95% CI: 12.3-13.9%) resulting in a released capacity of \$5.3m. Mean ED LOS decreased by 33.8 minutes (bias corrected bootstrapped CI 30.3 – 37.5mins) in the 25,024 patients who presented to participating EDs with possible cardiac chest pain, resulting in a released capacity of \$2.3m.

Implementation of the ADAPT ADP into clinical practice led to substantial cost reductions in patients presenting to the ED with possible cardiac chest pain.

4. Challenges and Limitations

Implementation of a new intervention and change in practice is inevitably fraught with challenges, including change management considerations in a typically conservative and change resistant setting. Despite this, challenges were largely overcome with

support and collaboration from the ACRE project team and local stakeholders and the ACRE Project was successfully implemented in 19 out of 22 total target sites. It is acknowledged that some sites presented more challenges to implementation than others, and the time taken from initial contact to use of the pathway in practice varied greatly, from approximately 3 months, to greater than 12 months, and was highly dependent on the local stakeholder group, who often had other competing priorities. We credit the successful implementation to a number of factors, including the strength of the research demonstrating the protocol is safe and effective; an intervention that targets a large cohort of patients, meaning potential gains to be made were substantial; strong clinical leadership from the project leads, and; adaptability of the pathway and follow up processes to suit local processes. The project also sought to evaluate implementation outcomes through stakeholder surveys using a validated framework for evaluating implementation. Results have been collated and submitted for possible publication.

The other major limitation was in regards to data collection. It is acknowledged that collecting data from EDIS, an administrative data set, contains imperfect records; the number of different medical staff (including new doctors on rotations, and locum staff) across a wide number of sites that are responsible for completing the EDIS project box is immense. Despite making the project box as simple as possible, with one 'yes' or 'no' question and ongoing education, there will be some inaccuracies in the data set in regards to which patients are actually 'low risk' and managed down the accelerated arm of the pathway. However, this does not have a big impact on the major reported outcome measures, as they have been reported as 'pre-implementation' compared to 'post-implementation' for all possible cardiac chest pain patients together.

5. External Reporting

Aiming for publication 2016

1. ACRE project outcomes – journal targeted: *Medical Journal of Australia* (MJA)
2. Use of the Theoretical Domains Framework to evaluate factors driving successful implementation of the Accelerated Chest pain Risk Evaluation (ACRE) project – journal targeted: *Implementation Science*

2016

Cardiac Society of Australia and New Zealand (CSANZ) Conference August 2016

- Abstract accepted for oral presentation: A large scale implementation of the ADAPT Accelerated Diagnostic Protocol into clinical practice in Queensland: Impact on hospital length of stay and admission rates for possible cardiac chest pain.
- Abstract accepted for oral presentation: Economic impact of the Accelerated Chest Pain Risk Evaluation (ACRE) Project - a large scale implementation of the ADAPT Accelerated Diagnostic Protocol into clinical practice.
- Abstract accepted for poster presentation: Research translation: Implementation evaluation of the Queensland Accelerated Chest pain Risk Evaluation (ACRE) project

European Society of Cardiology (ESC) Conference August 2016

- Abstract accepted for moderated poster: Translation of the ADAPT Accelerated Diagnostic Protocol into clinical practice: Impact on hospital length of stay and admission rates for possible cardiac chest pain.

2015

CSANZ Conference 2015

- Poster presentation: Outcomes of the Queensland Accelerated Chest Pain Risk Evaluation (ACRE) Project

Australian Conference for Health Economists 2015

- Presentation by Louise Cullen: Improving Assessment in Emergency Departments: Outcomes of the Queensland Accelerated Chest pain Risk Evaluation (ACRE) Project.

2014

Change Champions Newsletter Article: The Accelerated Chest pain Risk Evaluation (ACRE) Project: Clinical Redesign to Achieve NEAT Compliance

6. Future Direction

Funding is currently being sought through the Healthcare Improvement Unit (HIU) to progress to a second stage of the ACRE project. The goals of this next phase are to pilot, then implement widely, the Improved Assessment of Chest pain Trial (ImpACT) Protocol, to build on the success of the ACER project and further accelerate and improve risk stratification in a larger proportion of patients presenting with chest pain.

Time and cost outcomes of the ImpACT Protocol have recently been published in *BMJ Open*¹, and along with other interim results report:

- An historical control cohort of 938 patients was recruited in 2008–2010, and assessed using the traditional diagnostic approach detailed in the national guideline.
- An interim cohort of 921 patients was recruited in 2011–2013 and assessed with the ImpACT Protocol.
- In both cohorts, ACS event rates were comparable, with no identification of missed/late diagnoses of ACS in the accelerated ImpACT Protocol patients.
- Compared with the traditional diagnostic approach, the ImpACT Protocol was associated with reduced expected cost of \$1,229 (95% CI: –\$1,266 to \$5,122) and reduced expected length of stay of 26 hours (95% CI: –14 hours to 136 hours).
- The ImpACT Protocol allowed physicians to discharge a higher proportion of low and intermediate risk patients from ED within 4 hours (72% versus 51%).

¹ Cheng Q, Greenslade JH, Parsonage WA, et al. Change to costs and lengths of stay in the emergency department and the Brisbane Protocol: an observational study. *BMJ Open* 2016;6:e009746.doi:10.1136/bmjopen-2015-009746

The ImpACT Protocol has been implemented and is now established practice at the Royal Brisbane and Women's Hospital (RBWH), with evidence clearly demonstrating improved management of patients presenting to the ED with chest pain.

Two Queensland hospital sites will be implementing the ImpACT Protocol into clinical practice and we would like to assess and report the impact of this clinical redesign by conducting a quality assurance audit. This audit will help to assess improvements in efficiency of the new clinical approach arising from the process of redesign and provide evidence to support potential further roll out of these processes throughout Queensland Health.

The proposed hospital sites are:

- Nambour General Hospital (NGH)
- Cairns Hospital

This initiative will fall under the banner of the ACRE Project for now, dependent on successful funding application.