Background: Possible cardiac chest pain presents a constant challenge to Emergency Department (ED) physicians, who must balance the potential for hazardous outcomes with the clinical realities of assessing this high volume patient group.

Risk stratification guidelines incorporate justifiably prolonged assessment processes, but up to 85% of the estimated 500,000 chest pain presentations per annum in Australia are eventually diagnosed with non-cardiac causes 1,2.

The ACRE project involves clinical redesign to implement an accelerated diagnostic protocol (ADP). The ADAPT trial described an ADP that identified ~20% of ED patients presenting with chest pain as low risk for short-term major adverse cardiac events (Figure 1).

Aims: To replicate the success of a single-site pilot trial 4 by implementing the ADP in all eligible Queensland public hospitals, and to demonstrate improved efficiency by reporting:

- Uptake of the ADP, as proportion of ‘low risk’ chest pain patients managed;
- ED length of stay (LOS), hospital admissions rates, and total hospital LOS for patients with chest pain.

Methods: Twenty-two target sites were identified from the QLD DoH defined ‘Reporting Hospitals’ for the Emergency Department Information Systems (EDIS) database.

Relevant clinical stakeholders were approached directly by the project team. Site visits to discuss implementation with stakeholders and information sessions for the broader staff followed. Sites were encouraged to nominate a local project champion to facilitate implementation. Implementation was supported by adaption of local clinical pathways.

Data were extracted from the EDIS database with eligible patients ‘flagged’ by treating clinicians within the EDIS case record. Post-implementation data were compared with 12 months of pre-implementation data at recruited sites.

Results: Of the 22 target sites, three sites elected not to implement due respectively to: limited pathology laboratory access, a well matured alternate process in place, and local stakeholder decision. One site was not targeted due to absence of an onsite pathology laboratory.

As at July 2015 15 sites (68.2% of target) had implemented the project (Figure 2).

Post-implementation data to June 2015 are presented, derived from 12 hospital sites that implemented the ADP between October 2013 and May 2015.

Comparative pre-implementation data is pooled from the specific 12 months immediately prior to implementation for each site. Linked (total hospital LOS) data is reported to February 2016.

ADP Uptake: There were 19,263 post-implementation presentations of which 4543 (24%) were assessed using the ADP (Figure 3).

Length of Stay: Median ED LOS for possible cardiac chest pain patients fell by 11% from 236 to 210 minutes (figure 4). Total hospital LOS reduced by 34%, from 1218 minutes to 801 minutes (figure 5). Post-implementation data are broken down to patients assessed using the ACRE pathway and those assessed as per usual care.

Hospital Admissions: Overall admission rates reduced with implementation of the ADP, dropping from 69% to 57% following implementation (figure 6).

Discussion: The comparatively short stay of ADP eligible patients and a reduction in admission rates has reduced the median hospital LOS for all cardiac chest pain presentations. Total hospital LOS and admission rates were not reported in the pilot study, which targeted ED LOS only. The 11% reduction in median ED LOS reported here is less than seen in the pilot study, probably due to hospital-specific factors or more likely, the influence of global improvements in ED LOS across Queensland since the pilot study was undertaken. This has reduced the margin for improvement, but the widespread influence of the ACRE Project means that seemingly small gains in ED LOS equate to a significant impact in EDs across the state.

Limitations: Data reported are dependent on the accuracy of EDIS database input. The ACRE Project is a clinical redesign as opposed to clinical trial and results should be interpreted as such. Clinical outcome data were not collected but the ADP is based on the large, widely cited ADAPT trial.

Conclusion: The ADAPT ADP is widely applicable to routine clinical practice and leads to improvement in total hospital LOS, ED LOS, and hospital admissions for patients presenting to ED with possible cardiac chest pain. Its continued use in QLD hospitals will have an ongoing impact.

References: