

Title An innovative model for managing chest pain presentations

Abstract

In May 2006, the Liverpool Cardiology Department introduced a new nursing position known as the Cardiac Liaison Nurse (CLN). One of the primary functions of this position was to facilitate early access to exercise stress testing (EST), 7 days per week, for appropriate patients who present to the Emergency Department (ED) with chest pain. This occurred together with the introduction of an ED Chest Pain Pathway and the establishment of a Chest Pain Evaluation Area (CPEA). Prior to this model, these patients needed admission to the CCU to await an inpatient EST often contributing to both ED access block and delayed discharge from the CCU. Up to April 30th 2007, the CLNs conducted 476 stress tests on patients in the CPEA. Of these, 400 patients (84%) were discharged directly from the CPEA, with outpatient follow-up, negating the need for an inpatient bed.

Aim

The aims of this project were:

- ◆ Reduce unnecessary admissions
- ◆ Better utilise inpatient beds
- ◆ Improve access to EST
- ◆ Reduce ED access block

Nature of the problem

NHF/CSANZ guidelines recommend EST prior to discharge for patients with intermediate risk chest pain.¹ This required admission to CCU to await an inpatient EST as there was no reliable process in place to offer EST to patients in the ED.

However, due to the high demand for cardiology beds, these patients could spend a significant time in the ED waiting for an available bed, and then wait for several days in CCU before the EST was done.

Extent of the problem

Three simultaneous occurrences helped to define the extent of the problem:

- ◆ Several feeder hospitals raised concerns regarding inequity of access to Cath Lab procedures due to reduced bed availability.
- ◆ An investigation of discharge delays in CCU was undertaken as a response to ED access block.
- ◆ The diagnostic phase of the State-Wide Cardiology Project commenced.

A review of 2250 CCU admissions revealed that the largest single cause of avoidable extended stay was delayed access to EST. Because the existing service was staffed by technicians with direct registrar supervision, the registrars' heavy clinical workload impacted markedly on the service's ability to meet demand. Several site visits were conducted to view alternative staffing

models. Involvement in the State-Wide Cardiology Project provided support for the investigations & allowed early access to proposed solutions.

Strategic importance

This model addresses Strategic Direction 2 because it provides appropriate care in a timelier manner, without compromising patient safety. It supports existing initiatives to reduce ED wait times & length of stay, reduces the number of patients awaiting admission & reduces the number of patients awaiting specialist review by Cardiology, (in turn facilitating more timely review for appropriate patients). Because of this, it also relates well to the NSW Health goal: “to provide the health care that people need.”

Planning and implementing solutions

A proposal for an additional 7 day/week specialist nurse-led EST service, designed specifically to meet ED demand, was supported by the General Manager and implemented in May 2006. Policies & procedures to support the service were developed in collaboration with the ED and regular interdepartmental meetings were held to review progress during the trial period.

The model process is as follows:

- ◆ Intermediate risk patients with 2 negative Troponin levels, no acute ECG changes and no contraindication to EST are transferred to the CPEA & referred to the CLN.
- ◆ The CLN assesses the patient and conducts an EST if appropriate. Otherwise they will ask for a cardiology review.
- ◆ At the completion of the test, the CLN confirms the test result with a cardiology advanced trainee or cardiologist and reports the findings to the ED physician.
- ◆ Patients with a clear negative result are discharged by the ED physician. (Intermediate risk patients receive an outpatient Cardiology appointment within 2-3 weeks. Low risk patients are referred to their LMO).
- ◆ Patients with any other result are referred to the Cardiology team for specialist review (and in many cases may still be discharged).
- ◆ As an additional safety measure intermediate risk patients who are not reviewed by Cardiology during their presentation receive telephone follow-up at 30 days by the CLN. This is to ensure that removing the Cardiology team from the model of care does not cause any adverse outcomes.

Outcomes and evaluation

Of 476 patients who underwent EST in the ED, 400 (84%) were discharged directly from the CPEA. This group includes 389 patients stratified as intermediate risk, 81 patients stratified as low risk and 6 patients stratified as high risk as per the ED Chest Pain Pathway. The majority of low risk patients

are discharged without an EST and referred to their LMO for follow-up (no change to usual practice). This number represents borderline cases where the ED physician is reluctant to discharge. Patients who are classified as high risk only undergo EST in the ED at the request of a Cardiology registrar, and under their direct supervision.

	Result Totals	Admitted	Discharged
Negative	297	1	296
Negative/Sub Max.	56	4	52
Equivocal	64	21	43
Positive	59	50	9
Totals	476	76	400

Demand for EST is spread fairly even across all days of the week, supporting the decision to implement a 7 day service.

Of the patients discharged, 221 met the criteria for 30 day telephone follow-up by the CLN. At the time of the review of results (30th April), 174 follow up calls had been completed with no evidence of adverse outcomes. 145 patients had attended their Cardiology clinic appointment. Of the 29 who had not, 11 had been advised not to attend by their LMO (who was organising alternative follow-up) and the remainder had forgotten or missed their appointment. They were advised by the CLN to re-book or follow-up with their LMO.

Only 3 patients surveyed had re-presented to hospital. One was admitted for an unrelated problem; the other two had been reviewed and discharged from the ED.

Sustaining change

The initial project was conducted as a 6 month trial. At the completion of the trial period, the governance framework for the state-wide project initiatives provided support to obtain permanent funding of the position (1.42 FTE was added to the CCU staffing profile).

During the trial, cover for sick leave or ADOs was not available. This caused some problems as the ED staff identified the benefits very quickly, and were reluctant to revert to the status quo. As a result, additional CCU nurses have now been trained in this position. Rotating staff through the position allows provision of backup for periods of leave.

Patient outcomes are closely monitored by the Cardiac CNC via regular review of data kept by the CLNs.

Future scope

This model illustrates a safe & effective method of assessing & managing a large sub group of patients who have traditionally required hospitalisation, by customising an EST service to meet ED demand. It should be easily transferable to any hospital where chest pain presentations constitute a significant percentage of the ED workload. The principles of this model (which facilitates timely access to a diagnostic service and reduces the workload of specialist medical teams) may also succeed for other diagnostic groups.

Reference List

1. NHF/CSANZ .Guidelines for the management of acute coronary syndromes 2006. Med J Aust 2006;184 (8) : S1-30.
2. CSRP State-wide Cardiology Project. Final Report & Implementation Plan Feb 2006