Acute Medical Assessment Units: An Efficient Alternative to In-Hospital Acute Medical Care

Abstract:

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Abstract
Acute Medical Assessment Units (AMAUs) are being proposed as an alternative to congested Emergency Departments (EDs) for the assessment of patients with a range of acute medical problems. We retrospectively reviewed the discharge destination of patients referred to a newly established AMAU during a six-month period. During the same period we contrasted activity in the ED for a similar group of patients. 1,562 patients were assessed in the AMAU. 196 (12.5%) were admitted to an in-patient bed and 1,148 (73.5%) were entered into specific diagnosis-driven out-patient pathways. 1,465 patients attended the ED and 635 (43.3%) were admitted. Out-patient alternatives to expensive in-patient care need to be provided at the â coal faceâ of acute referral. The AMAU provides this, and as a consequence admission rates are relatively low. This is achieved by directly communicating with GPs, accessing senior clinical decision makers, and providing immediate access to diagnostically driven outpatient pathways.

Introduction
Health care systems the world over are attempting to improve efficiency and contain costs by developing alternatives to expensive in-hospital care. For patients with chronic illness, there is an increasing emphasis on secondary prevention and on enhanced health care delivery within the primary care setting. For those with acute illness, costs can be reduced by preventing hospital admission, by facilitating early hospital discharge and by providing acute and sub-acute medical care in the patientâ s home or in ambulatory care settings. In Ireland as in other countries, patients who are acutely ill and in need of hospital care are generally first seen in the Emergency Department (ED) where a decision on the need for hospital admission is made. Usually, such decisions are made by â on-callâ Non-Consultant Hospital Doctors (NCHDs), who are usually the busiest and least experienced doctors in the hospital and who are, by definition, doctors in training. Their decisions to admit patients to hospital can be influenced not only by the severity of the patientâ s illness, but by diagnostic uncertainty and difficulty in accessing both out-patient diagnostic services and out-patient follow-up clinics. As a consequence, the rates of hospital admission for people who present to hospital EDs tend to be high.

Against this background, many hospitals are now attempting to develop alternatives to ED attendance for patients with acute medical problems. A 2004 report on Medical Assessment and Medical Admission Units [1] by Comhairle na nOspidˆal (a now defunct state-funded body that once had a major role in the organization and delivery of Irish hospital services) called for such initiatives at all general hospitals. The report reviewed a range of model services then in existence; these included Clinical Decision Units (CDUs), Medical Assessment/Admission Units (MAUs), Acute Medical Units (AMUs), Medical Emergency Departments (MEDs) and Emergency Admission Units (EAUs). All models have the common aim of optimising the delivery of patient care by employing relatively senior doctors who have ready access to diagnostic services and to out-patient follow-up clinics. An expected consequence is a reduction in the rate of in-patient hospitalisation.

In the ensuing six years, many Irish hospitals have established units along the lines advocated by Comhairle na nOspidˆal. There have been few attempts to evaluate the efficacy and efficiency of such units, though Rooney et al. have produced evidence of reduced hospital mortality among patients referred to such a unit at one major Dublin hospital. [2] We now report on the establishment and early experience with an Acute Medical Assessment Unit (AMAU) at the Mid-Western Regional Hospital (MWRH) in Limerick, which opened in July 2009. We also compare the discharge destinations for AMAU patients to those of similar patients seen in the hospitalâ s ED during the same time period. Finally, we report on levels of satisfaction with the AMAU among two groups of service users â AMAU patients and referring General Practitioners.

Methods
The MWRH is a busy tertiary care facility with 375 acute in-patient beds and serving a population of 360,000. [3] The annual ED attendance in 2007 was 56,528 patients [4] of whom approximately 8,000 patients with acute medical problems were admitted. The 9-bed AMAU operates for 12.5 hours each day (08h00 to 20h30) on weekdays only. It has a dedicated staff complement of three doctors (one Consultant Physician, one Specialist Registrar, and one Registrar), six nursing staff and three administrative staff. Its operational policy is to provide an alternative to the ED for the assessment of acute medical patients with a defined range of presenting problems (Figure 1). The main exclusion criteria are patients referred with acute chest pain of probable cardiac origin or patients likely to require the resuscitation facilities of the ED. Access is by direct telephone referral from General Practitioners or from the hospitalâ s ED, Obstetric and Orthopaedic services. Clinical pathways â standardized, evidence-based multidisciplinary management plans which identify [5] an appropriate sequence of clinical interventions, milestones and expected outcomes for a homogenous patient group â are used in the management of each of the conditions listed in Figure 1. Patients entering into clinical pathways are followed up through regular (currently three per week) dedicated out-patients clinics.

In the first year of the AMAUâ s operation, many patients who would have been appropriate referrals were instead referred and assessed in the hospitalâ s ED. In comparing the discharge destinations for both patient groups referred to both facilities over the same time period, we focused on those referred between 0800 and 1800 on weekdays during the first six months of 2010. We excluded all patients referred with chest pain of likely cardiac origin and those likely to require the resuscitation facilities of the ED. Specifically, we excluded patients likely to require thrombolysis or acute airway management. The decision on the classification of GP referred ED patients as having an â acute medical problemâ was made retrospectively by a Consultant General Physician (MW) by reviewing the ED database and where

necessary by case note review. The urgency of the presenting problem in both patient groups was measured using the Manchester Triage System [6], which uses colour codes to classify patients according to the urgency of the need for assessment. To measure levels of service satisfaction among service users, a postal questionnaire regarding the acceptability of the AMAU model was sent to 160 local GPs. A copy of this questionnaire is available from the authors on request. In addition, during a one-.week period, all patients attending the AMAU were invited to complete a questionnaire regarding their AMAU experience. A copy of this questionnaire is also available on request.

Figure 1

Results

Patient Presentations

During the study period, a total of 1,562 occasions of service were provided in the AMAU over 129 days, an average of 12.1 occasions of service daily. Of the 1,148 patients entering out-patient pathways, the mean number of OPD attendances was 1.2. This equated to an average of an additional 42 service contacts in the OPD per week, or approximately 14 patients per clinic. The breakdown of outpatient pathways for patients attending the AMAU is also summarised in Figure 1.

Figure 2

Patient Outcomes and comparison with ED activity

Data on patient outcomes are summarised in Figure 2. Overall, 12.5% of AMAU patients were hospitalised after their initial assessment, 73.5% entered outpatient pathways, and the remainder were either referred to specialist out-patient clinics or were discharged directly back to the referring GP. The discharge destinations for AMAU patients and for comparable patients with acute medical problems who were seen in the ED over the same time period are also summarised in Figure 2. Of particular note is the 43.3% hospitalisation rate among the 1,465 patients referred to the ED compared with a hospitalisation rate of 12.5% for the 1,562 patients seen in the AMAU. The urgency of the medical problems in both patient groups was broadly similar, as indicated by their categorisation by the Manchester Triage System (Figure 3).

Figure 3

Figure 4: GP and Patient Surveys

Satisfaction indices among user groups

Overall, 115 (72%) of the 160 local GPs who were surveyed responded to a postal questionnaire concerning the acceptability of the AMAU service. Specifically they were asked to indicate their overall level of satisfaction with the service and to compare the AMAU and the ED regarding their perception of the overall efficiency of the services provided. The findings are summarised in Figure 4. The great majority regarded the AMAU as being more efficient with just 8% rating the ED more highly than the AMAU in this regard. In providing further comment, most of the GPs who preferred the ED over the AMAU indicated that they felt it was easier to access the ED, and that the time taken to directly telephone the AMAU often served as a disincentive. Of the 36 patients asked to complete a consumer satisfaction-type questionnaire on AMAU services, 30 (83%) responded. Their levels of satisfaction with AMAU services are also summarised in Figure 4.

Discussion

The AMAU in the MWRH runs in parallel to the acute general medical on-call rota, with on-call teams receiving referrals from both the ED and AMAU. One difference between the two services is that referral to the AMAU can only occur by the referring doctor making direct telephone contact with either a senior nurse or doctor in the AMAU, who can decide whether or not the referral is appropriate. This is unlike the ED where GP referrals are often simply directed to the department with a referral letter. We believe that this direct communication with the referring GP at least partly explains the different outcomes of both groups as such communication can result in advice regarding treatment or in an appropriate out-patient alternative.

On arrival to the AMAU patients are assessed by nurses and doctors trained in the application of diagnostic driven care pathways for a defined group of presenting problems. We believe that the application of these pathways, and the inherent access to specific diagnostic investigations ultimately minimises the need for in-patient admission. When a patient is referred to the ED by their GP, and subsequently referred to the on-call team in medicine, this process frequently results in hospital admission. This decision to admit to hospital may in part be related to a lack of access to immediate appropriate investigations, either on the same day, or as an outpatient within a short period of time. When AMAU patients are entered into a diagnostic pathway, although hospital admission is often avoided, the majority of patients (73.5%) require urgent OPD follow up. This is achieved by having three clinics per week, whose function is to collate the results of investigations, initiate treatment, refer to another specialty and ultimately to discharge the patient. It may be that the very lack of urgent dedicated emergency out-patient clinics also contributes to the high admission rate (43.3%) for patients referred to the ED.

This paper does not provide as valid a comparison of two clinical services as might result from a randomised trial. Rather, it is a retrospective descriptive analysis of outcomes for comparable groups of patients attending the ED and AMAU during the same period. It may be argued that GPs are selecting â sickerâ patients to attend the ED, thus resulting in a higher admission rate. However, a remarkably similar Manchester Triage Score across both groups makes this explanation unlikely. Analysis of GP referral patterns indicated two different approaches, one group of GPs who largely referred to the ED, and another group to the AMAU. This would support the concept that awareness of the AMAU, rather than patient characteristics are the main determinant of its use. We believe the AMAU provides a medical â sieveâ for patients that might otherwise have been admitted to an in-patient bed, thereby resulting in a relatively low admission rate. This is achieved via direct communication with the referring GPs, and immediate access to diagnostic driven clinical pathways. These pathways are supported by thrice weekly outpatient clinics. The AMAU model in operation in Limerick is one of many different models in Ireland. We believe this analysis supports the desirability of such units in terms of appropriate management on a predominantly outpatient basis, thereby avoiding admission to hospital, with inherent cost savings and acceptability for both GPs and patients.

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