

Emergency medicine and “acute” general practice: comparing apples with Oranges

SUE IERACI, PAUL CUNNINGHAM, JANET TALBOT-STERN,
AND STEPHEN WALKER

Sue Ieraci is Director of Emergency Medicine, Liverpool Hospital and Vice-President, Australasian College for Emergency Medicine. Paul Cunningham is Staff Specialist Emergency Physician, Concord Hospital and Director of Emergency Department, Kareena Private Hospital. Janet Talbot-Stern is Director of Emergency Medicine, Royal Prince Alfred Hospital. Stephen Walker is Staff Specialist Emergency Physician, Nepean Hospital and Co-Director of Emergency Department, NSW Private Hospital.

Abstract

Emergency Departments (EDs) operate at the interface between the inpatient and ambulatory sectors of health care. Because of shared funding between the Commonwealth and States for ambulatory care, there has been intense focus on the ED patient population, and the potential to shift the locus of care for non-inpatients.

One of the frequently cited models for the provision of after-hours GP services is the Balmain General Practice Casualty (GPC). This paper analyses the GPC model, looking in detail at casemix, clinical quality, waiting times and cost-effectiveness. It is argued that the services provided and the casemix of the patient population of GPC and EDs are distinctly different. Cost-effectiveness for GPC has not been objectively established.

Health service planning should recognise the distinct but complementary roles of general practice and emergency medicine. Evaluation of alternative models of service provision should critically examine the available evidence, and comparisons should be based on a precise analysis of equivalent services.

Introduction

The last decade has seen the maturation of Emergency Medicine as a specialty in Australasia, and the consequent improvement in quality and complexity of Emergency Department (ED) care. Many urban hospital EDs now admit at least every third patient who presents (NSW Dept of Health 1999; Erwich-Nijhout 1997; Erwich-Nijhout 1996; Whitby 1997). At the same time, increasingly detailed ED work-up and treatment, combined with the growth of hospital-in-the-home programs, now make it possible for patients with a variety of conditions such as cellulitis and DVT to be initially managed and then discharged from the ED, without ever entering the inpatient wards. There has also been increasing scrutiny of ED quality, efficiency and cost-effectiveness.

The recent focus on access to appropriate care, as well as potential cost-shifting between federally and state-funded health services for non-inpatient care, has led to an intense analysis of the margins of the ED patient population, and the notional overlap between the less acute spectrum of ED patients and the general practice patient population. While there has also been appropriate focus on improving after-hours access to general practice services, some confusion has arisen about so-called “GP substitutable care” in EDs. It is important to examine the alternative models proposed, and the reported evaluation of those models.

It is inevitable that there must be an area of overlap between general practice and most other specialties. Such substitutable (or sometimes shared) care exists between general practitioners and specialists in the management of conditions ranging from hypertension and diabetes to obstetrics and paediatrics. However, in none of these areas is there the equivalent emphasis on shifting the locus of care, or on the “appropriateness” of the site of care, as there is for so-called “acute primary care”. It is possible that the source of funding, rather than the quality, cost-effectiveness or accessibility of care, is the primary motivating factor. The answers may lie in an analysis of the following concepts that have been discussed in relation to this issue.

What is an “appropriate” ED attendance?

The purpose of an ED is to provide rapid, high quality and continuously accessible unscheduled care, for conditions covering the full spectrum of acute illness and injury. The delivery of such care to a large and undifferentiated patient population is regulated by the process of triage, which sorts patients into urgency groups. All five categories of the ACEM National Triage Scale (NTS) (Ashby 1997; Australasian College for Emergency Medicine 1993) are designed for patients presenting to EDs. Patients triaged into the lowest urgency category (NTS Category 5) are most safe to wait for acute care. No NTS category equates to “GP substitutable” care – large studies show that up to 10% of NTS Category 5 patients require admission to hospital (Erwich-Nijhout 1997; Jelinek 1991; Whitby 1997).

Furthermore, a significant proportion of ED attendances who are subsequently discharged are initially referred by their GP for complex assessment, investigation or consideration for admission. How, then, are these attendances to be judged as “inappropriate”? It is the initial potential urgency or severity of an undifferentiated presentation that makes ED attendance appropriate, rather than the eventual diagnosis.

What is a “GP-type” patient?

Many studies have sought to define the characteristics of patients who “should” present to general practitioners for care, rather than to EDs. This assumes that there is a population of equally skilled GPs who are continuously available, that the GP was able to deal with the problem, and that the GP did not refer them to the ED in the first place. While the motivation to improve after-hours access to general practice services is clearly appropriate, the idea that there is a definable “true” general-practice patient is no more logical than it is for the cardiology patient with hypertension or the paediatric patient with asthma.

Are low-acuity patients the main concern in EDs?

As the complexity and admission rates of the ED patient population have risen, ED managers are no longer identifying the lowest acuity patients as the cause of delays or cost overruns⁷. In an ED with a typical acute casemix, the majority of presentations are triaged to NTS Categories 3 and 4. Large studies show that 40–60% of Triage Category 3 patients, and 20–30% of Category 4 patients require hospital admission (Erwich-Nijhout 1997; Jelinek 1991; Whitby 1997). Those who are not eventually admitted generally require a detailed work-up and consideration for admission.

The assertion that inappropriate use by “GP-type” patients is a significant cause of prolonged waiting times in EDs flies in the face of the abundant evidence that, although urban teaching hospitals see a much lower proportion of lower acuity patients than rural EDs, the large urban departments tend to have the longest waiting times (NSW Dept of Health 1999)

It is the large volume of complex and sick patients (many of whom need admission to hospital) combined with increasing pressure on inpatient beds and an imbalance between demands and resources that makes the most significant impact on ED waiting times. The lowest urgency patients use the minimum amount of time and resources of EDs (Erwich-Nijhout 1997).

Why does the concern remain?

In 1996, the Health Services Association of NSW (HSA) reported a survey of the number of patients described as “true general practice patients” attending public hospital emergency departments. The report asserted that there had been “... emotive but superficial media coverage of waiting times in public hospital Emergency Departments”. It was also stated that “... where there are problems, their probable cause lies not only in the resourcing and efficiency of Emergency Departments, but also in the level of demand for service, and of the appropriateness of that demand.” (Health Services Association of NSW 1996). The discussion implied that a major cause of long waiting times in EDs is the “inappropriate” attendance of patients who should have gone to their GP.

The HSA paper reports a poorly conducted survey of hospital EDs, in which the vast majority of respondents represented small rural hospitals. Respondents were asked to estimate what percentage of ED attendances were “true general practice” patients, with no definition or standardised methodology for delineating this group. Although a high proportion of the (mainly small rural) respondents felt that there was a need to reduce the number of GP-type patients presenting to the ED, the majority argued that it was either inappropriate, unsafe or impossible to do so. (Health Services Association of NSW 1996). The HSA found no sound data to back up its initial contention, but persisted with the concept of “inappropriate” use, and has contributed to the perpetuation of the myth.

Among health system managers, there is a marked contrast between the reaction to poor performance for surgical waiting lists (where services are funded to do more operations) and poor performance by EDs (where EDs are encouraged to convince the patients go elsewhere). While the reaction to the former is to increase supply, the reaction to the latter is to seek to control demand.

There are two fundamental reasons for this difference. Firstly, shifting the ED patient population presents the opportunity to cost-shift between the hospital budget and the Commonwealth. Secondly, surgical waiting lists represent an emotive and perpetual electoral issue. A rational response would be to recognise that there are both demand and supply issues in all health services, and to look for evidence that the manipulation of either demand or supply is based on sound principles of equitable access, clinical quality and outcomes, and cost-effectiveness.

The Balmain model: whose problem are we solving?

One of the most frequently cited models for solving the claimed problem of “GP-type patients” in EDs is the Balmain Hospital General Practice Casualty (GPC – previously named Acute Primary Care Centre), described by Bolton *et al* (Bolton 1997; Bolton 1997; Mira 1997). In the peer-reviewed publication analysing this model (Bolton 1997), Bolton describes the original motivation for setting up this service. When the small inner-city hospital at Balmain was to be rationalised into a “principally specialist geriatric and rehabilitation role”, the local community “voiced concerns over what it perceived as the risk that the hospital would close”. Bolton *et al* then state that “a significant component of this concern related to the proposed closure of the hospital emergency department.” It is therefore clear that the main aim was to bring about a role change in a small inner suburban hospital while avoiding a community outcry.

The secondary aims described by Bolton *et al* included providing the opportunity for GPs working in the service “to practise skills which they might not otherwise use regularly”. This can readily be achieved by GPs working sessions in their local hospital EDs, with the back-up of specialised staff and the hospital structure. Another secondary aim was for the service to “enhance continuity of patient care”, and to strengthen “ties between GPs and the hospital sector” using strategies including the provision for all patients of “a letter for their regular GP”. However, it is noteworthy that the evaluative report of June 1997 (Bolton 1997), found that discharge letters were written for only 40% of patients seen in the GPC, and that letters were not written “when the GPC becomes busy”.

Thus a model for providing “acute primary care”, motivated by local community concern at the potential closure of a small inner city hospital, has come to be used as an argument for the notional problem of “inappropriate” or GP-type attendances in EDs. The aim of providing improved access to general practice services after-hours is laudable. It is the claim that the services provided, or the patient population, are significantly similar to an acute hospital ED that is inappropriate.

It is easy to see why this argument may have developed, but it is important to be clear about what is claimed about the service, and whether the facts bear out its promotion as a useful model. It is helpful to analyse each of the claims made about the Balmain GPC in the light of the evidence presented.

Evaluation Of the Balmain GPC model

The next section of this paper presents an analysis of the published evaluation of the Balmain model (including the stated aims), explores the underlying principles motivating the proponents of the model, and evaluates their conclusions in the context of known ED data.

The Balmain GPC is a federally-funded medical service set up within a NSW public hospital. The Central Sydney Area Health Service funds overnight medical staff, all nursing and clerical staff, infrastructure and consumables, as well as pathology, social work and other paramedical services. Although described by Bolton *et al* as a “unique casualty style service”, it is more accurately described as a “medical centre style service”, because the medical staff are mostly GPs, only ambulatory patients are seen (no acute ambulances arrive), and patients are managed “as they would by the treating general practitioner in their practice”, with patients requiring consultation or complex care being transferred. However, in contrast to both general practice and public hospital EDs, the medical salaries are federally funded, while the infrastructure costs are borne by the Central Sydney Area Health Service. Medical cover overnight (10pm to 9am) is provided by an unsupervised rotating junior RMO, who also covers the hospital wards.

Table 1: Comparison of infrastructure

	Medical Staff	Radiology	Pathology	Specialty consultation
Urban ED	Specialist(s)	On-site	On-site	Yes in house
	Registrars	24 hours 7 days	24 hours 7 days	
	RMOs			
GPC	GP or unsupervised RMO	8 am – 6 pms weekday 9 am – 5 pm Weekendl	Limited urgent tests Office hours only	No Requires referral

Casemix

Although the authors describe their patient population as being comparable to National Triage Scale categories 3, 4 and 5 of an urban hospital, closer analysis shows that this is not the case. Bolton *et al* report seeing an average of 44 patients per day, with an admission rate of 2.3% (possibly rising to 3.8% if all the patients transferred to other hospitals are subsequently admitted). On the other hand, it is known that general urban ED admission rates approach 10% for category five alone, and for categories 3 to 5 combined exceeds 25% (Ashby 1998; Australasian College for Emergency Medicine 1993; Erwich-Nijhout 1997; Whitby 1997). As admission rate by triage category is one of the best ways of comparing whether different institutions triage similarly (Australasian College for Emergency Medicine 1993; Erwich-Nijhout 1997; Whitby 1997), it is apparent that the reported triage categorisation in GPC is skewed markedly upward, and that the vast majority of GPC patients are equivalent to NTS Category 5.

Table 2: Comparison of admission rates

Aggregated Urban and Rural ED data	NTS Cat 5	4.4 – 9.2% [@]
Major Urban EDs	NTS Cat 5	11.8%
Urban District EDs	NTS Cat 5	9.8% [@]
Rural and Regional EDs	NTS Cat 5	2.8 – 3.0% ^{@#}
Small Rural Hospitals	NTS Cat 5	2.6% [#]
GPC	All patients	2.3 to 3.8% [*]

Sources: [@]Whitby et al, [#]NSW EDIS data, [#]ACHS, ^{*}Bolton et al

In addition, the authors’ estimation of severity is crude at best. It was estimated by “... asking the patient about their perception of the severity of their condition before they are seen by the doctor.”

The analysis uses Read Codes (which describe broad body system groups) to describe the casemix in various settings. Though the description of the patient population of GPC by Read codes shows some differences (and many similarities) with general practice patients, it is apparent that the patient acuity is very different from the Emergency Medicine patient population, even in the lower NTS categories. Read codes are of very little use in describing the ED population, which is much better described by measures of acuity and severity (Erwich-Nijhout 1997; Erwich-Nijhout 1996; Jelinek 1991). In other words, even before any comparative measures of quality or cost effectiveness between EDs and GPC are considered, it is necessary to recognise that two very different patient populations are being compared.

Clinical quality

It is reported that the GPC is staffed by a range of practitioners, some of whom work as little as four hours per month in the unit (Bolton 1997). There has also been a significant turnover of medical staff (Bolton 1997). The medical service overnight is provided by a junior RMO on rotation. While it is claimed that one of the benefits of this model is the opportunity for GPs to upgrade their acute skills, it is unclear how this can happen in the absence of senior, acute-care trained supervisors. Again, this aim could be better achieved by GPs working shifts in public hospital emergency departments where emergency physicians and/or advanced trainees are continuously present.

In the detailed evaluation of the service, it is reported that although clinical best practice guidelines have been written for various conditions, adherence to guidelines was lower for practitioners in the GPC than for medical staff at the nearby teaching hospital. The preferred explanation that junior doctors would be “more willing to accept guidelines than more experienced doctors” is no justification if the concept of evidenced-based best practice is valid. Another explanation given for inappropriate prescribing by GPs is the proposal that “there may be a desire among GPs to ‘do something’ for their patients which is not found amongst emergency department staff” (Bolton 1997). The implication that this represents better practice again is clearly flawed.

In the assessment of clinical quality and safety, it would also be relevant to see data analysing the group of patients who required urgent transfer from the GPC to the acute hospital ED. The evaluation report makes no reference to the incidence of inappropriate acute attendances of patients who presented to the GPC under the misapprehension that a full range of emergency department services were provided. This has the potential to delay the definitive treatment of patients who present with, for example, significant trauma or acute myocardial infarction.

Waiting times

The only convincing evidence of benefit of the GPC model over the local teaching hospital ED is that waiting times for lower acuity patients were shorter, and that patients were happier if they did not have to wait. Again, there is a comparison of two very different services with different patient populations, roles, expectations and resources.

As experience in emergency medicine is a prerequisite to registration for independent medical practice in NSW, all public hospital EDs must have interns amongst their workforce. This compulsory training role, which affects performance in public hospital EDs, was not shared by the GPC.

From this point of view, a comparison could be made with the performance of private hospital emergency departments. Private sector EDs provide experienced medical staff with emergency medicine training, who are prepared and competent to deal with patients throughout the spectrum of acuity, but who have no obligation to teach medical students or interns. These departments have typically short waiting times, while retaining the facilities and skill to manage high acuity patients. It is quite possible that, if the budget of the GPC were transferred directly to the closest public hospital ED, a large impact on waiting times could be achieved throughout the spectrum of patient urgency, not just on the lowest urgency groups.

Cost-effectiveness

The comparison of costs, which is presented as one of the major advantages of the GPC model, is seriously flawed in the analysis by Bolton *et al* (Bolton 1997). The calculation of patient costs neglects many important factors. Firstly, in comparing medical staff costs, the amount reported for the emergency department omits the fact that the ED staff managed patients of higher acuity, and not only ambulatory patients. Also, where patients required transfer to the teaching hospital for admission, the GPC doctor performed only basic care, whereas the teaching hospital ED doctors performed a full work-up, consultation and thorough documentation on similar patients. The staff costs of EDs also cover the crucial role of teaching, which covers undergraduates through to specialist trainees.

Secondly, there is a threshold “set-up” cost for EDs to ensure preparedness for any eventuality. This is not provided by GPC (which is provided with support by the ambulance service in the same way as other general practice clinics).

The cost of diagnostic investigations is a major feature of the comparison described by Bolton *et al.* As their analysis reports investigation costs as representing the major difference in the cost between GPC and ED care, it is important to examine the methods used. The authors used MBS rates in cost estimation, but they represent the Commonwealth’s payments for tests, not the actual cost to the institution. For a large teaching institution where the infrastructure already exists, the cost of additional simple tests is marginal.

Table 3: Cost Comparison – Average Cost per Patient

Urban Teaching Hospital ED	NTS Cat 5	Discharged patient#	\$ 36.00
GPC*			\$ 79.96

Sources: #Erwich-Nijhout et al, *Bolton et al

It is also reported that the use of X-rays was greater in the ED, although after-hours radiology was not available in GPC. A number of patients who required transfer had their tests at the other institution (thus displacing the investigation costs to the ED). Patients who had to re-present to the GPC because radiology was not available after-hours do not appear to have been excluded from the analysis – thus apparently splitting the cost of radiology between the two visits. There is no description of the additional costs incurred in transporting pathology specimens to the teaching hospital laboratory, the transport costs for patients who were transferred, or the potential duplication of services for patients transferred for another opinion. Finally, as the teaching hospital represents the “last stop” for the sorting out of problems for patients who may have already seen their GP, and may have been referred (or presented themselves) because of the need or desire for tests, it is not surprising that more tests should be done in the ED.

In total, the cost analysis presented uses flawed methodology, does not compare like with like, and shows no reliable evidence of cost-effectiveness for the GPC.

Which way forward?

There is no doubt that the improved provision of accessible and high-quality after-hours GP services is important. It is also clear that, with greater scrutiny and expectations, the service provision of emergency departments will continue to improve. However, while there are obviously overlaps, the attempt to compare models of after-hours general practice provision with public hospital emergency departments can only be an exercise in comparing apples with oranges.

The Balmain GPC model, which initially arose as a way of reassuring an inner city community whose small community hospital was being downgraded in its acute role, is being inappropriately proposed as a solution for overloaded EDs. Analysis of the available data shows that the advantages claimed to have been achieved are not supported by the evidence, and it is certainly not clear that the large expenditure involved has been cost-effective. The issues have been clouded by the need to appear to be providing an acute service in every hospital, and also by the possibility of cost-shifting medical salaries to the Commonwealth.

Both general practice and emergency medicine are crucial in the health care of our community. There are legitimately different roles, skills and expectations of the two services, which should work in a complementary way – as respectful colleagues, not competitors. These differences, and the motivating factors for seeking alternative models, must be clearly understood if meaningful progress is to be made.

Acknowledgement

The authors are grateful to Dr Christopher Baggoley, President, Australasian College for Emergency Medicine, for his insights and suggestions on the manuscript.

References

“After Hours Primary Medical Care Trials” Better Health Outcomes June 1998 (Newsletter of the Quality and Safety Branch of the Commonwealth Department of Health and Aged Care).

Ashby R, “Emergency Medicine Indicators”. Measurement of Care in Australian Hospitals. Vol 5, 1998. ACHS.

Ashby R *et al* 1997 “The Australian National Triage Scale – A User Manual.” The Commonwealth Department of Health and Family Services and The Australasian College for Emergency Medicine.

Australasian College for Emergency Medicine 1993 Triage (Policy paper)

Baggoley C “Primary care patients – what’s the problem?” (Editorial) *Emergency Medicine* 1998;10:95–100

Bolton P, Mira M *et al* 1997 “The Balmain General Practice Casualty: An Alternative model of primary health care provision.” *Australian Health Review*, Vol 20 No 1, pp 100–107.

Bolton P, Mira M *et al* 1997 “Report on the Balmain Hospital General Practice Casualty Research and Evaluation Project.”

Emergency and Elective Performance in NSW Hospitals – monthly report of Evaluation and Monitoring Branch, NSW Dept of Health 1999.

Health Services Association of NSW 1996, “Emergency Department Utilisation by General Practitioner Type Patients”. Report of a survey of NSW Hospitals undertaken by the Health Services Association of NSW.

Erwich-Nijhout M, Bond M, *et al* “The identification of costs associated with emergency department attendances” *Emergency Medicine* 1997;9:181–188

Erwich-Nijhout M, Bond M *et al* “Costings in the Emergency Department”. Report to the Commonwealth Department of Health and Family Services, August 1996.

Jelinek G “Casemix Classification of Patients attending Hospital Emergency Departments in Perth, Western Australia.” Doctor of Medicine Thesis, University of Western Australia. Perth 1991.

Mira M, Bolton P *et al* “Report on the First Data Collection Cycle of the Balmain Acute Primary Care Centre Research and Evaluation Project”. Report to the General Practice Branch, Commonwealth Department of Human Services and Health (Canberra 1997).

Whitby S, Ieraci S *et al* 1997 “Analysis of the Process of Triage: The Use and Outcome of the National Triage Scale.” Report to the Commonwealth Department of Health and Family Services.