

Emergency and primary care at a Melbourne hospital: reasons for attendance and satisfaction

SIAW-TENG LIAW, TINA HILL, HARRY BRYCE,
AND GEOFFREY ADAMS

Siaw-Teng Liaw is Associate Professor at The University of Melbourne, Tina Hill is Project Officer at The Northern Hospital, Harry Bryce is Development and Projects Director at The Northern Hospital, and Geoffrey Adams is Statistician at The University of Melbourne

Abstract

The reasons for attendance, presenting health problems, functional status, pain and severity, and satisfaction with emergency and primary care were examined using routinely collected data and an interviewer-assisted survey of patients. Patients attended, mostly after hours, because they believed their health problems required hospital-based management. GPs referred for admission and further evaluation. Ethnicity, employment status, gender and age contributed to differences in access, morbidity and pain scores. Pain scores, functional status and English language skills influenced satisfaction.

Culturally sensitive hospital- and community-based clinicians are important to promote better services, after-hours care, referral and triage. It is essential to have appropriate policy and legislation, adequate infrastructure and resources, good communication strategies, telecommunication technology, explicit evidence-based protocols for shared care, referral and triage and ongoing training and support for clinicians and consumers.

Background and setting of study

A high proportion of primary care is delivered in emergency departments (EDs), with a trend towards more patient attendances after- rather than in-hours (Keith et al, 1993, Dunt et al, 1988). Triage is central to the categorisation and management of attendances at EDs. Australian EDs use the five-level National Triage Scale (NTS) to prioritise patients and, depending on local circumstances and expertise, may classify NTS 4 and 5 as patients suitable for non-ED care (Hollis and Sprivulis, 1996). The variable expertise and lack of standard and explicit criteria for the NTS have led to a wide range (6-80%) of reported "inappropriate presentations" at EDs (Bryant & Tan, 1998, Murphy, 1998a, Street et al, 1996). Judgmental terms, such as "inappropriate attendance", "misuse of the ED" and "non-urgent attendance", also raise fundamental issues with definitions and attitudes in service and research in the ED (Murphy, 1998b).

These attitudes to "primary care patients" have a fundamental effect on the care provided (Baggoley, 1998), often fostering dissatisfaction among referring GPs and patients, who frequently have their own perceptions of severity and other reasons (Malone, 1998), such as geographical accessibility, lower costs, availability of investigations on site, and perceived increased likelihood of admission (Grumbach et al, 1993), for attending EDs.

The 225-bed Northern Hospital, located at Epping, Victoria, opened in February 1998 to serve the northern growth corridor of Melbourne, the primary catchment area being the cities of Whittlesea, Darebin and Hume. The total population of these three main Local Government Areas was 369,945 in 2000 and is subject to considerable growth over the next 15 years.

The region has a relatively lower socio-economic status (SES) as determined by above average unemployment, high NESB groups, lack of affordable housing, low school retention rate and high injury rate in youth. The area is also relatively poorly served by GPs, especially after hours, and community-based services. There are cultural barriers to some health services, particularly in the Middle Eastern groups. The religious composition of the region includes Christianity (50%), Orthodox Greek (21%), Islam (3%) and "no religion" (11%).

TNH estimates that up to 65% of presentations to its ED, which sees about 42,000 patients a year, falls into the non-urgent category. As occurs in other hospitals, the non urgent cases seen at the ED of the Northern Hospital often have to wait for a considerable time before receiving attention. The General Practice Clinic (GPC) was established on TNH campus in May 1998 to assist with the pressure on the emergency department. At the time of the study, it was open daily from 0900 to 2100 hours.

A quality assurance study, approved by the TNH Ethics Committee, was undertaken to examine the:

1. reasons for patient attendance the TNH ED and GPC
2. satisfaction of patients attending the TNH ED and GPC
3. effectiveness of emergency and primary care in the hospital with a focus on the interface between GPs and hospital-based emergency and primary care.

Methodology

The literature review, organisational analysis and stakeholder consultations guided the development of a conceptual framework for acute primary care, with a focus on the interface between GPs and hospital-based emergency and primary care. The dimensions of the framework include cost-effectiveness, "appropriate" attendance at or discharge from EDs, the use of more objective criteria, e.g. severity of symptoms, functional status or diagnosis, to describe patients who attend EDs (Steel, 1995, Nguyen-Van-Tam & Baker, 1992), and a patient-centred approach (Walsh, 1993), taking into consideration the social and psychological contexts of the patients' decisions to attend an ED.

Data collected routinely, via paper records and an electronic administrative system, in the ED & GPC was examined. In addition to the five NTS categories, the data included: Category 6 (sent to GPC); Category 7 (patient reassured by the triage nurse they are able to wait to see their own GP safely); and Category 8 (patients with labour-ward related conditions that can be managed by midwives). Special reports on the number of patients seen, DRGs, their disposal and admission were requested.

A survey of patients attending ED and GPC, a telephone survey of referring GPs and a notes audit of ED doctors was conducted. For the patient survey, the following information was collected prior to the consultation: demographic data; health, financial and general reasons for attending the ED or GPC, patient-rated triage scale (NTS) category; pain and functional status and perceptions of the roles of the ED and GPC of their perceived conditions. After the consultation, they were asked about their satisfaction with the service. Research assistants, each with the ability to speak one of the locally prevalent languages other than English (e.g. Greek, Italian or Arabic), were trained to administer the questionnaire in the ED and GPC. Patients who have already completed the questionnaire e.g. those triaged to GPC from ED or those returning for reviews were not asked to complete another questionnaire.

Where the patient was referred by their GP, permission was obtained from the patient for the researchers to contact their referring GP by phone to ask them about the reason for referral and details about the capacities of the referring clinic. The accompanying referral letter was also examined and rated using a simple checklist. ED doctors were requested to complete a simple form, requesting information on diagnoses, management and disposal, for patients seen.

The International Classification of Primary Care (ICPC) was used to categorise the primary reason for encounter (RFE) and admission. Data was analysed with SPSS. The findings were presented in a preliminary report for comment by and feedback from key stakeholders. Meetings were held with local GPs and consumers, including groups of consumers from a NESB. Feedback was incorporated into the final report.

Results

Description of sample

Most (95%) of the respondents were from the hospital's catchment - the cities of Whittlesea, Darebin and Hume. The remaining 5% came from country Victoria and interstate. During the two-week survey period, the 1490 respondents attended the ED in 1607 encounters - 93% were once off encounters. Sixty percent of the encounters were after hours, with 42% between 1700 and 2359 hours. One-third (33%) of encounters were on the weekend.

The GPC saw 621 patients in 783 encounters during the same two-week period - 71% were once off encounters. Approximately two-thirds (68%) attended GPC from 0900 to 1700 hours, with the majority seen in the afternoons. While the ED is a separate and distinct entity from the GPC, 35% of GPC respondents believed that the GPC is the same as the ED and provided hospital-type care. The characteristics of the sample are summarised in Table 1.

Table 1: Characteristics of the ED and GPC Samples

	Emergency Department			General Practice Clinic		
	Female (n=399)	Male (n=458)	All (n=857)	Female (n=217)	Male (n=224)	All (n=441)
Born in:						
Australia	66.9%	65.8%	66.3%	57.6%	64.4%	61.0%
UK	3.3%	3.1%	3.2%	4.1%	2.7%	3.4%
East Europe/Mediterranean	14.4%	17.1%	15.8%	23.0%	19.4%	21.2%
Middle East	6.6%	6.9%	6.7%	5.1%	5.4%	5.2%
Asia	7.3%	6.2%	6.7%	7.4%	7.2%	7.3%
Other Country	1.5%	0.9%	1.2%	2.8%	0.9%	1.8%
English-speaking:						
ESB	72.5%	66.4%	69.3%	60.4%	69.5%	65.0%
NESB	27.5%	33.6%	30.7%	39.6%	30.5%	35.0%
Employment:						
Employed	26.7%	40.7%	34.2%	40.7%	51.4%	46.1%
On a Pension	29.9%	26.9%	28.3%	28.2%	24.3%	26.2%
Student	8.7%	6.6%	7.6%	5.3%	8.4%	6.9%
Child	20.1%	25.1%	22.7%	12.0%	15.0%	13.5%
Home duties	14.6%	0.7%	7.2%	13.9%	0.9%	7.3%
Education:						
Primary	20.9%	26.2%	23.7%	25.9%	22.1%	24.0%
Secondary	53.4%	52.9%	53.1%	50.8%	53.8%	52.3%
Tertiary	25.7%	20.9%	23.1%	23.3%	24.1%	23.7%
Have family doctor:	89.1%	86.7%	87.9%	77.7%	70.7%	74.1%
Attended:						
Sunday	16.1%	16.6%	16.4%	21.7%	18.3%	20.0%
Monday	12.6%	13.3%	13.0%	13.8%	18.8%	16.3%
Tuesday	13.1%	14.9%	14.1%	8.3%	11.2%	9.8%
Wednesday	18.9%	17.3%	18.0%	15.2%	12.5%	13.8%
Thursday	11.3%	12.0%	11.7%	15.7%	13.4%	14.5%
Friday	13.9%	13.1%	13.5%	13.8%	12.1%	12.9%
Saturday	14.1%	12.7%	13.3%	11.5%	13.8%	12.7%
Attended:						
0000-0859 hrs	19.7%	24.9%	22.5%	-	-	-
0900-1659 hrs	36.1%	34.4%	35.2%	75.5%	74.1%	74.8%
1700-2359 hrs	44.2%	40.7%	42.4%	24.5%	25.9%	25.2%

ED sample (n=874)

About half (48%) of ED attendees answered at least one of the questionnaires. Of these, 203 (24%) were referred by a GP. The mean age of ED respondents was 30.8 years (SD = 21.6) for females and 29.6 years (SD = 21.9) for males, with peaks in the 0-4 and 25-29 age ranges. When compared with all attendees at the ED during the two-week study period, the 0-4 years age group is over represented in the sample and the over 80 years age group is under represented. The gender distribution (45.7% females) of the sample is similar to that of all ED attendees (46.5% females).

Thirty-four percent of ED respondents were born overseas and 31% did not speak English at home. A third (34%) of ED respondents were employed, 28% on a pension and 7% reported home duties. The employed group was predominantly male (63%). A quarter (24%) had completed primary, a half (53%) secondary and a quarter (23%) tertiary education. There were also differences between the respondents and the attendees with respect to the time periods and days in which they attended. The majority (88%) reported having a regular family doctor. Significantly more females than males notified their doctor that they were attending ED ($p=0.02$).

GPC sample (n=487)

The majority (62%) of GPC attendees answered the questionnaire. The mean ages of respondents were 37.6 years (SD = 20.5) for females and 33.3 years (SD = 19.1) for males, with peaks in the 20-39 and 50-54 age ranges. Whilst overall the number of males and females respondents was approximately equal, there were more males (68%) in the 10-19 years age group and more females (63%) in the 45-54 years age group. Like the ED sample, 39% of respondents were born overseas and 35% did not speak English at home. Nearly half (46%) of respondents of GPC were employed and 26% on a pension. The education pattern of the GPC respondents was very similar to that of ED. Three quarters (74%) of respondents, especially the females, reported having a regular family doctor.

Perceptions of patients

General reasons for attending the hospital-based services

A total of 803 and 384 attendees from the ED and GPC respectively nominated up to three reasons for attending. Table 2 shows the frequencies of the reasons for attendance in four categories. Amongst both ED and GPC respondents the most common reason for attending was the perception that it was appropriate for their health problems (60%, 50%), access to hospital-based services (48%, 49%), (no) access to GP-based services (33%, 29%) and continuity of care (14%, 32%).

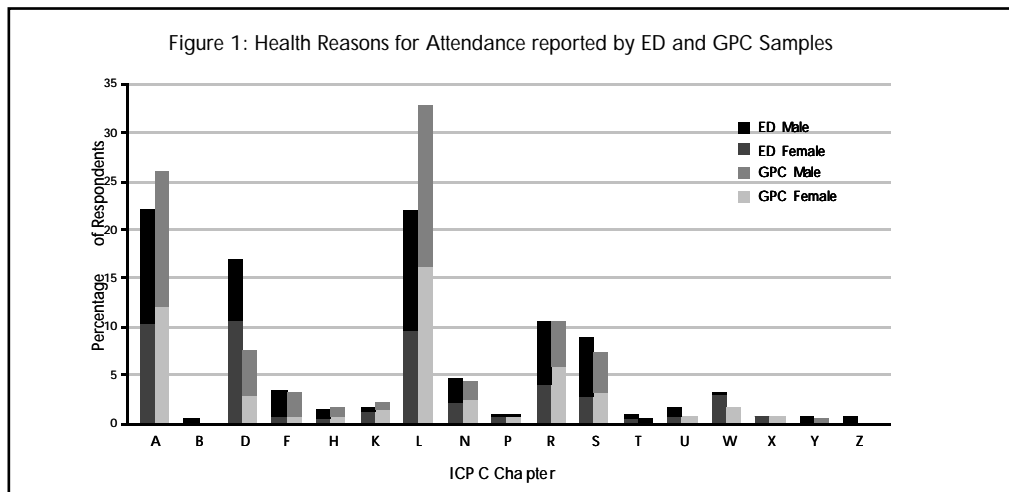
Compared to Anglo-Australians, NESB-Australians were less likely report that they could not access their GP or that their health condition required hospital care; they were more likely to report that the hospital was convenient to use. The housewife was most likely to attend because they believed that the hospital was the most appropriate place for their health problem, while the child was more likely to attend ED because of a (no) access to GP-based services reason. The less schooled were more likely to quote a (no) access to GP-based services or access to hospital-based services reason. (No) access to GP was most frequently a reason on Saturdays and Sundays and after 5.00 pm, while access to hospital-based services were the most likely reasons on weekdays. The trend was even more distinct when in- and after-hours attendances were compared.

Table 2: Reasons for Attending Emergency Department or General Practice Clinic

Reason for Attending	Emergency Department (n=803)	General Practice Clinic (n=384)
Conceptual		
You considered this health problem to be a 'hospital-type' problem	388 (48.0%)	98 (25.3%)
You believe the hospital can look after all aspects of your health care	105 (13.0%)	75 (19.4%)
You believe your GP can't manage this health problem	59 (7.3%)	34 (8.8%)
You came here for a specialist opinion	57 (7.1%)	33 (8.5%)
You have seen your GP about this problem but you were dissatisfied with the treatment /advice given or you want a second opinion	43 (5.3%)	34 (8.8%)
Access to GP-based services		
Your GP was closed	236 (29.2%)	75 (19.4%)
Your GP was open but was unable to fit you in as urgent care	20 (2.5%)	12 (3.1%)
Your GP doesn't bulk bill and you can't afford to pay today	4 (0.5%)	6 (1.6%)
You don't have a GP	8 (1.0%)	21 (5.4%)
Access to hospital-based services		
It's convenient to get here	190 (23.5%)	127 (32.8%)
You were sent by your GP for further evaluation	183 (22.6%)	28 (7.2%)
You are not aware of other medical services	26 (3.2%)	7 (1.8%)
You believe it is cheaper here	5 (0.6%)	7 (1.8%)
You don't have a GP and you use the hospital for medical attention	5 (0.6%)	16 (5.4%)
You work here	5 (0.6%)	29 (7.5%)
Continuity of care		
You have been here previously so department is familiar	68 (8.4%)	61 (15.8%)
You have been to the ED/GPC with this problem before	39 (4.8%)	38 (9.8%)
You are returning on instruction from ED/GPC	26 (3.2%)	44 (11.4%)
Other		
You are a visitor to the area and don't have a local GP	10 (1.2%)	8 (2.1%)
Don't know	3 (0.4%)	4 (1.0%)

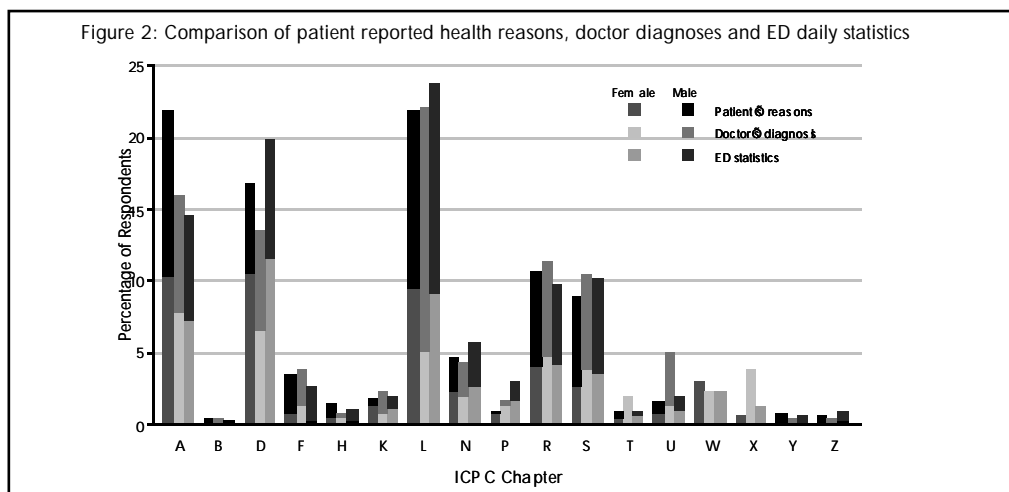
Health Reasons for Attending GPC and ED (Figure 2)

The reported health reasons for attendance, grouped by ICPC chapter, are shown in Figure 1.



The common problems seen in ED and GPC generally involve the musculoskeletal* (22%, 33%), gastrointestinal (17%, 8%), respiratory (11%, 10%), skin* (9%, 7%) and neurological (5%, 4%) systems. Non-specific illness comprised 22% and 26% respectively of the total presenting problems at ED and GPC. Female respondents attended ED because of gastrointestinal problems 1.8 times more often than the male respondents. Female respondents attended the GPC because of cardiovascular problems at twice the rate of the male respondents. Males were 3 times more likely than females to attend the ED because of eye problems; a similar trend exists with skin (injury) problems. The routine daily statistics and the doctor reported data from ED showed similar patterns (Figure 2).

**Note: In ICPC non-specific chest pain is classified as musculoskeletal and soft tissue injury is classified with skin problems.*



Pain and discomfort, and functional status profile of respondents

Patients rated, on a seven-point scale, the level pain and discomfort they were in and their current functional status compared with how they did things normally; 93% of the ED sample and 84% of the GPC sample completed these questions. For cross-tabulations the scale was collapsed to three levels (no, some and worst pain; full, some and no function).

Respondents at ED (*mean score 3.80, s.d. 1.72*) reported greater pain and discomfort than those at GPC (*mean score 2.82, s.d. 2.00*). Respondents at ED (*mean score 3.46, s.d. 1.94*) reported lower functional status than those at GPC (*mean score 2.54, s.d. 2.00*). Figure 4 below compares the distributions of scores for “pain and discomfort” and “functional status” for ED and GPC respondents. More ED respondents (38%) reported being in significant pain or discomfort (38% versus 21%) and significant loss of normal activities (38% versus 20%) than GPC respondents. On the other hand, nearly 30% of GPC respondents reported being in no pain and over 36% reported having normal functional status. The two scores were highly correlated: for ED respondents, Spearman’s rho = 0.48 ($p=0.000$); for GPC respondents, Spearman’s rho = 0.61 ($p=0.000$).

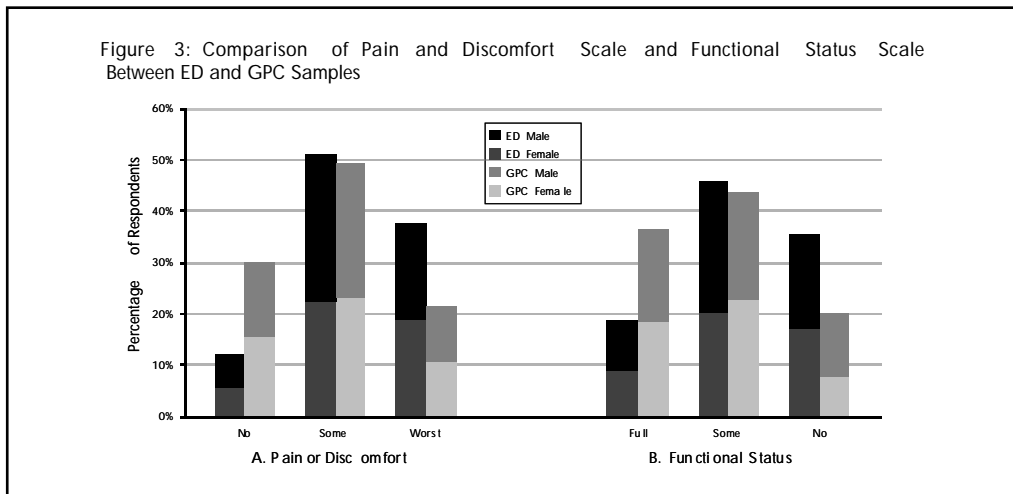


Table 3 summarise some significant correlations with the pain and functional status scores, for ED and GPC respondents. There were no significant variations in the pain and discomfort score or the functional status score detected between sexes or between education groups within the both groups. Respondents who did not speak English at home had worse pain and discomfort scores ($p=0.000$ for ED respondents; $p=0.004$ for GPC respondents). There were also significant differences in the distribution of the pain and discomfort score and the distribution of the functional status score between employment status groups in ED respondents and in the distribution of the pain and discomfort score in GPC respondents.

Table 3: Some significant correlations with pain and functional status

	Emergency Department			General Practice Clinic		
Language spoken at home X pain/discomfort scale						
	No Pain	Some Pain	Worst Pain	No Pain	Some Pain	Worst Pain
English	70 (12.6%)	309 (55.8%)	175 (1.6%)	93 (34.2%)	132 (48.5%)	47 (17.3%)
Other	25 (9.9%)	100 (39.7%)	127 (50.4%)	29 (21.0%)	69 (50.0%)	40 (29.0%)
	$\chi^2(2) = 26.28; P = 0.000$			$\chi^2(2) = 11.29; P = 0.004$		
Employment Status X pain/discomfort scale						
	No Pain	Some Pain	Worst Pain	No Pain	Some Pain	Worst Pain
Employed	21 (7.8%)	150 (55.6%)	99 (36.7%)	60 (32.8%)	93 (50.8%)	30 (16.4%)
Pension	25 (11.6%)	89 (41.4%)	101 (47.0%)	23 (21.7%)	51 (48.1%)	32 (30.2%)
Student	7 (11.5%)	32 (52.5%)	22 (36.1%)	7 (25.0%)	13 (46.4%)	8 (28.6%)
Child	28 (16.9%)	99 (59.6%)	39 (23.5%)	16 (33.3%)	27 (56.3%)	5 (10.4%)
Home duties	11 (19.0%)	21 (36.2%)	26 (44.8%)	12 (42.9%)	10 (35.7%)	6 (21.4%)
	$\chi^2(8) = 34.51; P = 0.000$			$\chi^2(8) = 16.12; P = 0.041$		
Employment Status X functional status scale						
	Full Activity	Some Activity	No Activity	Full Activity	Some Activity	No Activity
Employed	42 (15.6%)	130 (48.3%)	97 (36.1%)	71 (39.4%)	79 (43.9%)	30 (16.7%)
Pension	30 (14.0%)	93 (43.3%)	92 (42.8%)	29 (27.6%)	50 (47.6%)	26 (24.8%)
Student	11 (18.6%)	27 (45.8%)	21 (35.6%)	9 (32.1%)	12 (42.9%)	7 (25.0%)
Child	49 (29.9%)	72 (43.9%)	43 (26.2%)	21 (43.8%)	15 (31.3%)	12 (25.0%)
Home duties	8 (14.3%)	22 (39.3%)	26 (46.4%)	12 (42.9%)	14 (50.0%)	2 (7.1%)
	$\chi^2(8) = 25.61; P = 0.001$			$\chi^2(8) = 11.68; P = 0.17$		

Patient satisfaction with encounter at ED or GPC

Eighteen percent of ED respondents believed that the ED is the same as their local doctor and 35% of GPC respondents believed that the GPC is the same as the ED and provided hospital-type care. After the encounter, patients rated, on a ten-point scale, their satisfaction with their visit to the ED or GPC; 63% (n=521) of the ED sample and 83% (n=360) of the GPC sample completed these questions. For cross-tabulations this was collapsed to three levels (very satisfied - 1 to 3; satisfied - 4 to 7; and very dissatisfied - 8 to 10). The mean rating and standard deviation for each of the four questions, as well as the number of respondents at each satisfaction levels, are shown in Table 4. Lower mean values indicate higher levels of satisfaction.

Table 4: Patient satisfaction with encounter at ED or GPC

	Mean	Standard deviation	Very satisfied	Satisfied	Very dissatisfied
How satisfied were you about the time waited to see the doctor?					
Emergency Department	4.95	3.22	217 (39.4%)	179 (32.5%)	155 (28.1%)
General Practice Clinic	3.38	2.87	274 (61.3%)	120 (26.8%)	53 (11.9%)
How satisfied were you with medical treatments ordered by the doctor?					
Emergency Department	3.27	2.67	343 (64.0%)	138 (25.7%)	55 (10.3%)
General Practice Clinic	3.08	2.64	284 (66.7%)	100 (23.5%)	42 (9.9%)
How satisfied were you about the tests ordered by the doctor?					
Emergency Department	3.27	2.62	301 (63.4%)	131 (27.6%)	43 (9.1%)
General Practice Clinic	3.09	2.70	238 (67.4%)	83 (23.5%)	32 (9.1%)
How satisfied were you with the explanations given to you by the doctor?					
Emergency Department	3.06	2.71	361 (68.5%)	110 (20.9%)	56 (10.6%)
General Practice Clinic	2.89	2.66	309 (70.5%)	85 (19.4%)	44 (10.0%)

Satisfaction with the time waited to see the doctor

Most respondents at both the ED (80%) and the GPC (89%) believed that they should not have to wait for more than half an hour. A quarter (25%) of the ED respondents believed that a doctor should see them straight away.

In the ED sample, 72% were very satisfied or satisfied with the time waited to see a doctor; 28% were very dissatisfied. Respondents were more likely to be very dissatisfied after hours and overnight ($p=0.008$). Sundays had the highest proportion of respondents (41%) indicating that they were very dissatisfied with the time waited to see a doctor ($p=0.001$). Fridays also had a high proportion of very dissatisfied respondents (38%) whilst Wednesdays had the lowest (15%). Those in the worst pain or those with the worst functional status were more dissatisfied with the time waited.

In the GPC sample, 90% were very satisfied or satisfied with the time waited to see a doctor; 10% were very dissatisfied. Bivariate associations were found between level of satisfaction and time of the day attending ($p=0.002$) and between level of satisfaction and the day of the week attending ($p=0.000$). Tuesdays had a much higher proportion of very dissatisfied respondents (28%) than the other days.

Satisfaction with medical treatments

In both the ED and GPC samples, 90% of the respondents were very satisfied or satisfied with the medical treatments; 10% were very dissatisfied. In the ED sample, a higher proportion of those with the worst pain were very dissatisfied with the medical treatments ordered ($p=0.03$). No significant relationship was found between the respondents' functional status and satisfaction with medical treatments.

In the GPC sample, respondents who were employed or who were students were more likely to be very dissatisfied with their medical treatments ($p=0.05$). Twenty-one percent of the respondents on Saturdays were very dissatisfied with their medical treatment. The proportion of respondents who were very satisfied with their medical treatment was lower on Sundays when compared with the other days (44% versus 67%).

Satisfaction with tests ordered

In both the ED and GPC samples, 91% of the respondents were very satisfied or satisfied with the medical treatments; 9% were very dissatisfied. In the ED, differences in satisfaction with tests ordered by different employment status approached statistical significance. In the GPC, there were significant differences in satisfaction between days of the week ($p=0.000$) and between times ($p=0.03$) encounters took place. The dissatisfaction with the tests ordered was higher on Saturdays (18%) and Tuesdays (12%), and during office hours (09:00-17:00 hours).

Satisfaction with explanations

In the ED, 89% were very satisfied or satisfied with the explanations given; 11% were very dissatisfied. Those with the worst pain were more likely to be very dissatisfied with the explanations given ($p=0.04$).

In the GPC, 89% were very satisfied or satisfied with the explanations given; 11% were very dissatisfied. The employed were more satisfied with explanations.

The level of satisfaction also differed between days ($p=0.001$). Tuesdays had the highest level of dissatisfaction (16%), followed by Saturdays (13%) whilst Sundays, Thursdays and Fridays had the lowest (6%). However, Sundays also had the lowest proportion of very satisfied respondents (46%).

Pattern of triage, time till seen and disposal in the ED

The routinely collected statistics from the ED during the same period as the survey were examined for the following information. NTS 1 and 2 accounted for 2% of the total patient load, NTS 3 51%, NTS 4 17%, NTS 5 18% and NTS 6 12%. The main conditions managed at the various levels of the NTS are summarised in Table 5.

Table 5: NTS classification of patient load and types of problems encountered

National Triage Scale	% Total Patient Load	Main ICPC Chapters
1	0.3%	non-specific (75%), gastrointestinal (13%), psychological (13%)
2	1.7%	musculoskeletal (30%), neurological (19%), cardiovascular (11%), respiratory (11%), skin (11%)
3	17.1%	musculoskeletal (25%), non-specific (17%), respiratory (16%), gastrointestinal (14%), psychological (6%)
4	50.8%	gastrointestinal (24%), musculoskeletal (19%), non-specific (16%), skin (12%), respiratory (8%)
5	17.5%	musculoskeletal (23%), skin (19%), non-specific (19%), gastrointestinal (12%)
6	12.0%	musculoskeletal (40%), skin (14%), gastrointestinal (13%), non-specific (12%), respiratory (9%)

NTS scales 7 and 8 each accounted for 0.3% of the total patient load. Except for NTS 1, there were generally more males than females in all the NTS categories. Twice as many males than females were categorised as NTS 2.

After triage, an ED doctor saw 38% of the triaged patients within 30 minutes, 60% within an hour and 93% within 3 hours. The range for the "time till seen" was from 0 to 6.42 hours. NTS 1 patients were mostly seen within 10 minutes. NTS 2 patients were all seen within 30 minutes. For the NTS 3 patients, 94% were seen within 30 minutes and 98% within 1 hour; 2 were seen after 2-5 hours. For the NTS 4 patients, 56% were seen within 30 minutes, 22% from 30-60 minutes, 16% from 1-2 hours, and 6% from 2-10 hours. For the

NTS 5 patients, 50% were seen within 30 minutes, 23 % from 30-60 minutes, 18% from 1-2 hours, and 10% from 2-10 hours.

After triage, 17% of patients were disposed of within 30 minutes, 23% within an hour, and 50% within 3 hours.

Perceptions of GPs who referred patients

Sixty-eight referral letters (42%) were examined, using a simple checklist. More than two-thirds had the GP's name, patient's name and a diagnosis. Half or less gave a reason for referral (53%), vital signs (41%), medications (27%), past history (24%), test results (7%), allergy information (6%) or social information (2%).

Only 52 GPs were interviewed because of the difficulty getting patient consent and contacting the GP by phone. Of these, the majority report having suturing facilities (94%), nebulisers (92%), resuscitation equipment (89%), plastering facilities (83%) and pathology (50%). Fewer have enemas (50%) and X-Ray facilities (33%).

Most of the referring GPs interviewed report that they refer patients mainly for admission and further evaluation. They often lack facilities and resources to observe and monitor patients. Apart from a lack of practice nurses, the issue of unpaid time for monitoring was a significant issue.

Discussion

The ED sample is generally representative of the ED attendees. The elderly (80+ years) are under-represented because they are often more ill and excluded from the study. The child (0-4 years) is over-represented for two main reasons: the parent was often available to be interviewed and this region is a rapidly developing outer suburban industrial area with a number of factories and industries, new residential developments, relatively cheaper housing and young families. There appears to be a need for enhanced children's services in the area.

The GPC sample showed approximately equal proportions of male and female respondents overall, with male predominance in the 10-19 age group and female predominance in the 45-54 age group. This difference is due to the fact that some patients, especially middle-aged females, do not have a regular GP and are using the GPC for their regular medical care. Nevertheless, the majority of attendees at ED and GPC reported having a regular family doctor. In particular, female attendees tend to involve their doctor when they attend ED. This finding justifies the need to improve communication between hospital and GPs and facilitate shared care and the integration of the GP into the hospital system.

The socio-demographic findings support the belief that patients who regularly use hospitals for acute primary care are often the poor and non-English speaking - the most vulnerable groups in our community (Liaw & Young, 1997, Dunt et al, 1988). Particular attention must be paid to the Middle Eastern patient, who often has communication, cultural and religious barriers to optimal health care, and the male NESB-Australian presenting for trauma related problems.

The majority attended hospital-based services because they believed that their health problem required hospital care or facilities. This significant consumer demand highlights a need for patient and consumer education. More importantly, it emphasises the need to avoid the use of judgmental terms, such as "appropriate attendance" and to use of more objective criteria, e.g. severity of symptoms, functional status or diagnosis, to describe patients who attend Emergency Departments (Hollis and Sprivilis, 1996, Steel, 1995, Nguyen-Van-Tam & Baker, 1992). A patient-centred approach (Walsh, 1993), taking into consideration the social and psychological contexts of the patients' decisions to attend an Emergency Department (Hollis & Sprivilis, 1996), is essential.

Access to hospital-based services and the lack of access to GP-based services, particularly after-hours, is a significant "demand and access" issue. Along with a significant proportion of patient reviews done in ED, this highlights the importance of partnerships and collaboration to deal with the trend towards after-hours attendances at EDs over the last decade. Partnerships with the local community, local government and local health care providers are needed to promote better understanding of the roles of the ED, GPC and local GPs in the local health care system. Partnerships with the local GP community are needed to promote better co-ordinated and shared care. This may include an integrated after-hours deputising and support service, within the auspices of a collaboration of the local hospital ED and GPs.

For GPs or GP Clinics to be useful to EDs, the hours of opening must complement each other. However, patients mostly attend ED between 1700 and 2359 hours, while most GPs are closed after 1800 hours because of lack of financial and other incentives for after-hours work. The study also confirmed that GPs refer patients to EDs for admission and further evaluation, requiring facilities and nursing support that are generally not available in general practice. These observations suggest that strategies that focus on encouraging GPs to look after patients with acute health problems must target changes in the health care financing system, particularly on financial and other incentives for after-hours work. Practice nurses who work in general practices to support the GP in providing more acute health care and monitoring may be another strategy. Co-payments or charging a third party as in the US, has been proposed previously, but rejected in the Australian context. It would limit access by the socio-economically disadvantaged consumers in Northern Hospital catchment area.

Consumer and patient education about appropriate use of the ED may lead to a better understanding of the roles of the ED, GPC and local GPs in the health care system; however, education programs are ineffective in preventing re-attendances, especially if they were short-term or once-off projects (Chande et al, 1996). Any educational strategy must involve the local opinion-leaders and be an ongoing mainstream program, endorsed and supported by the local council and other consumer bodies. The program should be tailored and targeted at the most vulnerable target groups - the young and the NESB-Australian in this study. It is significant that a frequent primary care patient in ED - the young male, often from a NESB, with a work-related injury - has also been highlighted in a recently released report of injuries seen in Victorian EDs (Ozanne-Smith et al, 1999) and other studies in Victoria (Walsh, 1993) and Australia (Keith et al., 1993). If not managed adequately at the ED, these patients are not likely to encounter the health care system again until the next injury or other serious but preventable illness. They will benefit from hospital-based primary care services, especially if combined with education programs for local GPs and consumers, which can facilitate health promotion, safe work practices, patient advocacy and shared care.

The bulk of the ED's workload involves NTS 3-5, with a morbidity pattern similar to that of the GPC and general practice. The lack of explicit criteria for each NTS category means wide variations in interpretation of NTS 3-5 by the busy Emergency Department nursing and medical staff. These variations in the interpreted NTS appear to be influenced more by the experience and skills of the triage nurses, how busy ED was and which doctors were on than by the level of severity and complexity of patient's condition. More objective criteria, e.g. severity of symptoms, functional status or diagnosis, to describe patients who attend EDs (Steel, 1995, Nguyen-Van-Tam & Baker, 1992), and a patient-centred approach (Walsh, 1993), taking into consideration the social and psychological contexts of the patients' decisions to attend an ED, are needed. More explicit and evidence-based guidelines for the management and referral of patients to and from ED, GPC and GPs, developed collaboratively by ED and GP clinicians, are required for these common conditions.

Continuing education and support programs are also required to promote this patient-centred approach. In determining NTS category, the focus should be the patients and their symptoms, functional status and psychosocial issues.

The data suggest that pain and functional status could be used interchangeably as an indicator of patient discomfort. Pain and functional status correlated positively with a NESB and people with a pension, suggesting that the socio-economic status (SES) is the underlying factor.

Generally about 10% of patients were very dissatisfied with all aspects of the encounter at ED and GPC; 28% were very dissatisfied with the time waited at ED. This is not surprising because while more than 80% believed that they should be seen within half an hour, only half of NTS 4 and 5 patients were actually seen within half an hour. Dissatisfaction was greatest after hours and on Sundays because staffing and facilities was least during these times, which also coincided with least availability of local GPs.

It made clinical sense that those with the most pain were the least satisfied with the time waited and the medical treatments or explanations offered. Students and the employed may have greater expectations of the medical treatments, thereby leading to greater dissatisfaction. Expectations of patients and poor communications skills are likely reasons why parents of young children and the employed were very dissatisfied with tests ordered.

These significant correlations raise a range of quality assurance questions. It is planned to examine in more detail issues of quality of care among the following groups: those with the most pain, worst functional status, males, NESB-Australians and parents of young children.

The quality of referral letters and comprehensiveness of record keeping in the ED can and should be improved if shared care between the GP and the hospital clinician is to be effective. Good record keeping by medical and nursing staff and an effective communication strategy among stakeholders in the ED, GPs and the community is critical to shared and co-ordinated care. Good record keeping for evaluation, governance and quality improvement must be encouraged and supported.

An information management system gap currently exists, which should be addressed. Currently, the information flow is around paper-based hospital and ED medical records. While computerised, the radiology and pathology information systems are separate from the administrative system. Observations recorded by the ED Triage nurses on the hospital system are not accessible to the GPC clinicians. In addition, patients who were categorised as NTS 6 (*referred to GPC*) or NTS 7 (*referred to GP*) are “discharged” from the administrative system, leaving a void where there is no electronic record of the contact between the ED and the patient. This also means that no electronic patient discharge information is available, following this contact with the triage nurse. This information system gap between ED and GPC, and between ED and GPs, poses a number of management issues. Good risk management strategies, assisted by good information management and judicious use of information technology, within a supportive learning environment are desirable to enhance communication in this context.

Conclusion

We have described the reasons for attendance, satisfaction and associated issues at a suburban hospital in Melbourne. There are significant policy and operational implications for Commonwealth and State Governments, area health services, hospitals, Divisions of General Practice, local government and community representatives.

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