



Why patients attend emergency departments for conditions potentially appropriate for primary care: Reasons given by patients and clinicians differ

Malcolm Masso,¹ Andrew J Bezzina,^{1,2} Peter Siminski,¹ Rebekkah Middleton^{1,2} and Kathy Eagar¹
¹Centre for Health Service Development, University of Wollongong, and ²South-east Sydney Illawarra Area Health Service, Locked Mail Bag 8808, South Coast Mail Centre, New South Wales, Australia

Abstract

Objectives: To compare reasons identified by clinical staff for potential primary care attendances to the ED with those previously identified by patients.

Methods: Survey of staff and primary care patients in five ED in New South Wales, Australia using questionnaire based on reasons identified in published studies.

Results: Clinicians in the survey identify a broader spectrum of reasons for potential primary care cases presenting to the ED than the patients themselves report. Doctors reported on average 4.1 very important reasons and nurses 4.8 compared with patients 2.4 very important reasons. The main reasons identified by both doctors and nurses were similar and quite different to those identified by patients. Clinicians were more likely to emphasize cost and access issues rather than acuity and complexity issues. There was no difference within the clinician group between doctors and nurses nor by varying levels of experience. Furthermore doctors with significant experience in both primary care and emergency medicine did not differ from the overall clinicians' pattern.

Conclusions: These data confirm that clinician perspectives on reasons for potential primary care patients' use of ED differ quite markedly from the perspectives of patients themselves. Those differences do not necessarily represent a punitive or blaming philosophy but will stem from the very different paradigms from which the two protagonists approach the interactions, reflecting the standard tension in a provider – consumer relationship. If policy is to be developed to improve system use and access, it must take both perspectives into account with respect to redesign, expectations and education.

Key words: *attitude of health personnel, emergency medical service, primary health care, questionnaire.*

Correspondence: Malcolm Masso, Centre for Health Service Development, University of Wollongong, NSW 2522, Australia. Email: mmasso@uow.edu.au

Malcolm Masso, MPH, MNA, BSc(Econ), RN, CM, Senior Research Fellow; Andrew J Bezzina, MB BS, Dip RACOG, FACEM, Senior Staff Specialist; Peter Siminski, BMathEcon(Hons), BA, Research Fellow; Rebekkah Middleton, RN, BN, Grad Cert Emergency Nursing, Grad Cert Clinical Management, Clinical Nurse Consultant – Emergency Services; Kathy Eagar, PhD, Professor, Director.

Introduction

There has been much discussion regarding the appropriateness of many ED attendances, often underpinned by the idea that if somehow services could be better organized, or patients better educated about the role of ED, then ED use would more closely match the acute role that such departments were designed for. The Australasian College for Emergency Medicine has countered this by arguing that the profile of patients seen in general practice and ED are very different, that the workload generated by 'GP type' patients in ED is low and that the major issues regarding ED workload are those of access block and ambulance diversion.¹

Studies that have investigated patients presenting to ED who perhaps could have been managed elsewhere have used a variety of terms such as 'inappropriate', 'general practice' and 'primary care'. Despite the lack of agreement on how to define these presentations there are many common elements and these were used to inform the definition of primary care for the present study.²

The reasons given by patients for attending ED for primary care (however, defined) are many and varied although some common themes are evident in the literature, including availability of ED services,^{3,4} severity of the problem,^{3,5,6} convenience⁶⁻⁹ and that hospitals provide better care.^{7,8,10}

There have been some attempts to develop frameworks for analysing the reasons patients attend ED¹¹ or develop models of decision making¹² but little work on applying a theoretical framework. One study that did take a theoretical perspective concluded that there is an internally consistent set of factors influencing decisions to attend ED and that patients make rational choices to do so.¹⁰

The literature on the attitude of health professionals towards 'inappropriate' ED attendances indicates that there is a philosophy of 'blaming the patient', with a strong bias towards determining appropriateness from a medical perspective, rather than from the perspective of patients.¹³ Our objective was to consider these differences at the 'shop front' by surveying clinical staff working in ED regarding the reasons they think potential primary care cases choose to present to ED and comparing their responses with those previously reported by their patients.¹⁴

Methods

Surveys were carried out of staff and patients in five EDs in the Illawarra region of New South Wales, Australia. These departments cover the range from small General Practitioner run, rural units (1) to rural regional (1), district metropolitan (2) and tertiary referral units (1). Primary care patients were defined as patients classified into category 4 or 5 of the Australasian Triage Scale, presenting for a new episode of care, who did not arrive by ambulance, were self-referred and who were not expected to be admitted (as assessed by the triage nurse in ED).² After-hours presentations were defined as those occurring before 8.00 hours or after 18.00 hours on weekdays, before 8.00 hours or after 12.00 hours on Saturdays, or on Sundays.

We developed a questionnaire that listed the 18 reasons most commonly given by patients in published studies for coming to an ED and sought a response to each on a three point scale – 'very important reason', a 'moderately important reason' or 'not a reason'. There were no limitations on the number of reasons that could be selected as important or 'not a reason', allowing maximum flexibility to select within the range from 'all reasons were very important' to no reasons were important.

The questionnaire was refined after pilot testing with 30 patients. Similar questionnaires were developed for distribution to doctors and nurses with the same reasons for attending ED and the same three point scale, but also including questions on age and years of experience. All three questionnaires invited comments on why primary care patients attend an ED rather than a GP. Staff were asked 'Why do you think patients come to the ED for primary care rather than to a GP or medical centre?'. Patients were asked 'Why did you come to the Emergency Department today rather than a GP or medical centre?'

Before conducting the study it was difficult to gauge the likely response rate of patients. It emerged during the study that the response rate was very good but recruitment was more time-consuming than originally thought. Sample size was ultimately determined by available time and resources.

The staff survey was sent via internal mail to all nursing staff working in the five ED. Responses were either returned to the nurse researcher during regular visits to each site or via internal mail. All emergency physicians, career medical officers and registrars (or equivalent middle grade medical officers) working on a

Table 1. Average number of reasons identified for primary care patients attending ED (95% confidence interval)

	Very important reason	Moderately important reason	Not a reason
Patients	2.22 (2.06–2.37)	1.44 (1.27–1.62)	13.71 (13.36–14.05)
Nurses	4.85 (4.35–5.35)	5.60 (5.16–6.06)	7.19 (6.59–7.80)
Doctors	4.11 (3.20–5.02)	6.18 (5.20–7.16)	7.71 (6.58–8.85)

permanent basis in each ED were sent a copy of the questionnaire. Junior medical staff were excluded as their limited experience and relatively large numbers might have skewed results. Doctors with significant GP/primary care background who had worked on a regular basis in emergency medicine within the previous 5 years were interviewed using the same questionnaire to assess for differing perspectives relative to the overall medical group given their experience on 'both sides of the fence'. For this group, the final question in the questionnaire was reversed to seek their comments as to why primary care patients would choose to see a GP rather than go to an ED.

The results were analysed by comparing responses from the most experienced and least experienced clinicians, for both doctors and nurses. The 'cut off' points for 'most' and 'least' were determined by analysis of results on length of time working in ED.

A nurse researcher visited the ED over a 6 month period and invited patients present at the time who fitted the definition of primary care to complete the survey. Patients were offered the option of completing the questionnaire themselves or with the assistance of the nurse researcher. When requested, help was given reading the questionnaire and completing the survey. Except between 2.00 and 4.00 hours visits were conducted at all times of day, on all days of the week.

Data from the patient and staff surveys were entered into an Access database. The proportions of respondents selecting each reason as very important and/or moderately important were calculated for each population group. The calculation of standard errors usually requires the assumption that observations were selected randomly, which is not the case in the present study, which used a convenience sample. However, standard errors were calculated for proportions using the following formula $SE = \sqrt{p[1-p]/n}$ where SE is the standard error, p is the estimated proportion and n is the sample size, when np and $n(1-p)$ were each greater than or equal to five. Where this condition was not met, we used the Wilson Score method to estimate confidence intervals.¹⁵ We also considered the statistical significance of

differences between the responses of patients and staff. Where np and $n(1-p)$ are greater than or equal to 5 for both groups, we used the following test statistic

$$z = \frac{(\hat{p}_1 - \hat{p}_2)}{\sqrt{\hat{p}(1-\hat{p})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}},$$

where \hat{p} is the proportion of

successes in both groups combined. Where np or $n(1-p)$ were less than 5 for at least one group, we used the Fisher Exact Test.¹⁶

The study was approved by the University of Wollongong/Illawarra Area Health Service Human Research Ethics Committee.

Results

The staff survey was distributed in 2004/2005 – 130 nurses and 30 doctors. A total of 93 nurses and 28 doctors responded, response rates of 71.5% and 93.3%, respectively. The subset of doctors with GP experience was 7. Of 400 patients approached to participate, 397 agreed. During the 6 month period of the patient survey approximately 26 000 patients meeting the definition of primary care used in the present study attended the five EDs.

Nurses and doctors identified more reasons for ED attendance than patients (Table 1). The pattern of responses by nurses and doctors are similar. Differences in the responses of doctors and nurses are only statistically significant ($P < 0.05$) for the two affordability questions (Q12 and Q13), which nurses were more likely to select (Table 2).

However, staff responses were quite different to patient responses. This was true whether considering just very important reasons identified or the sum of very important and moderately important reasons (Tables 2,3). When very important and moderately important reasons are considered together, differences between patient and staff responses are statistically significant ($P < 0.05$) for every one of the 18 reasons. When only very important reasons are considered, some

Table 2. Very important reasons for attending ED for primary care identified by patients, doctors and nurses (95% confidence interval)

Question no.	Question	Patients (%)	Doctors (%)	Nurses (%)
1	My health problem required immediate attention and was too urgent to wait to see a GP or medical centre	67.3 (62.7–72.0)	46.4 (28.0–64.9)	39.1 (29.2–49.1)
2	My health problem was too serious or complex to see a GP or medical centre, including after-hours	38.2 (33.3–43.1)	28.6 (11.8–45.3)	18.5 (10.5–26.4)
3	I feel the medical treatment is better at the ED	15.4 (11.8–19.0)	28.6 (11.8–45.3)	17.4 (9.6–25.1)
4	I wanted a second opinion	5.7 (3.4–8.1)	14.3 (5.7–31.5)	5.5 (0.8–10.2)
5	I did not want my GP to know about this particular health problem so I came to the ED	1.6 (0.3–2.8)	0.0 (0.0–12.1)	1.1 (0.2–5.8)
6	I usually prefer to talk a doctor I don't know about my health problems	3.4 (1.6–5.2)	0.0 (0.0–12.1)	1.1 (0.2–5.9)
7	I am able to see the doctor and have any tests or X-rays all done in the same place at the ED	51.3 (46.3–56.3)	35.7 (18.0–53.5)	53.8 (43.6–63.9)
8	I am not able to get in as a patient at a GP surgery as the books are closed	7.6 (4.9–10.2)	50.0 (31.5–68.5)	60.2 (50.3–70.2)
9	I am not happy with the time I have to wait to get to an appointment with a GP	12.6 (9.2–15.9)	46.4 (28–64.9)	46.7 (36.5–56.9)
10	I do not like making appointments and prefer the ED as I can attend when I want	4.2 (2.2–6.2)	21.4 (6.2–36.6)	34.4 (24.8–44.1)
11	It is easier for me to get to the ED than a GP surgery or medical centre	8.4 (5.6–11.1)	25.0 (9–41)	30.4 (21–39.8)
12	There is no charge to see a doctor at the ED	2.9 (1.2–4.6)	53.6 (35.1–72)	77.4 (68.9–85.9)
13	There is no charge for X-rays or medicine at the ED	3.4 (1.6–5.2)	50 (31.5–68.5)	77.4 (68.9–85.9)
14	I wanted to see a female doctor and thought I could at the ED	0.5 (0.1–1.9)	0.0 (0.0–12.1)	3.4 (1.1–9.5)
15	I wanted to see a doctor or interpreter who speaks my language	0.8 (0.3–2.3)	0.0 (0.0–12.1)	1.1 (0.2–6.2)
16	I wanted to be able to see Aboriginal health staff if I needed to	1.3 (0.2–2.4)	0.0 (0.0–12.1)	1.1 (0.2–6.2)
17	I prefer to be able to be in the ED environment than at a GP surgery or medical centre	1.3 (0.2–2.4)	3.6 (0.6–17.7)	1.1 (0.2–6.2)
18	My family has traditionally used the ED for our health care	2.6 (1.0–4.2)	7.1 (2.0–22.6)	18.4 (10.3–26.5)

responses are not significantly different (Qs 3, 4, 5, 6, 7, 14, 15, 16, 17). Most of those questions had very few affirmative responses, either from staff or patients. The most notable exception is Q7 (able to see the doctor and have any tests or X-rays all done in the same place at the ED).

Staff responses did not change to any marked degree between those nurses who had most experience working in ED (18 nurses each with 18 years or more experience) compared with those nurses who had little experience working in ED (18 nurses each with 2 years experience or less). Ten doctors with four or more years experience working as a GP gave similar responses to the 10 doctors with no experience working as a GP.

Patients identified an average of 2.4 reasons as being 'very important', with 77% (305/397) of respondents selecting one, two or three reasons. Some patients did

not respond to all questions, resulting in a different number of responses for each question. A small majority of respondents were male (56%) with an average age of 38 years (ranging from 0 to 96 years). The majority of respondents were not covered by private health insurance.

Three reasons were clearly identified by patients as most important for attending ED:

- My health problem required immediate attention and was too urgent to wait to see a GP or medical centre, chosen by 67% (264/392) of respondents to this question as a 'very important reason' and 13% (52/392) as a 'moderately important reason'.
- I am able to see the doctor and have any tests or X-rays all done in the same place at the ED, chosen by 51% (196/382) of respondents as 'very important' and 23% (88/382) as 'moderately important'.

Table 3. Important reasons (very important + moderately important) for attending ED for primary care identified by patients, doctors and nurses (95% confidence interval)

Question no.	Question	Patients (%)	Doctors (%)	Nurses (%)
1	My health problem required immediate attention and was too urgent to wait to see a GP or medical centre	80.6 (76.7–84.5)	89.3 (69.4–94.5)	90.2 (84.1–96.3)
2	My health problem was too serious or complex to see a GP or medical centre, including after-hours	53.4 (48.4–58.4)	67.9 (50.6–85.2)	73.9 (64.9–82.9)
3	I feel the medical treatment is better at the ED	34.4 (29.6–39.1)	78.6 (63.4–93.8)	69.6 (60.2–79.0)
4	I wanted a second opinion	13.3 (9.9–16.7)	75.0 (59.0–91.0)	61.5 (51.5–71.5)
5	I did not want my GP to know about this particular health problem so I came to the ED	2.3 (0.8–3.9)	7.1 (1.9–22.0)	15.1 (7.8–22.3)
6	I usually prefer to talk a doctor I don't know about my health problems	5.5 (3.2–7.8)	7.1 (1.9–22.0)	15.2 (7.9–22.6)
7	I am able to see the doctor and have any tests or X-rays all done in the same place at the ED	74.3 (70–78.7)	85.7 (68.5–94.3)	94.6 (90–99.2)
8	I am not able to get in as a patient at a GP surgery as the books are closed	15.9 (12.3–19.6)	96.4 (82.3–99.4)	88.2 (81.6–94.7)
9	I am not happy with the time I have to wait to get to an appointment with a GP	24.3 (20–28.6)	96.4 (82.3–99.4)	82.6 (74.9–90.4)
10	I do not like making appointments and prefer the ED as I can attend when I want	12.0 (8.8–15.3)	60.7 (42.6–78.8)	73.1 (64.1–82.1)
11	It is easier for me to get to the ED than a GP surgery or medical centre	21.4 (17.3–25.5)	78.6 (63.4–93.8)	67.4 (57.8–77)
12	There is no charge to see a doctor at the ED	9.2 (6.3–12.1)	82.1 (68.0–96.3)	94.6 (90.0–99.2)
13	There is no charge for X-rays or medicine at the ED	10.2 (7.2–13.3)	75.0 (59.0–91.0)	95.7 (89.5–98.3)
14	I wanted to see a female doctor and thought I could at the ED	2.1 (0.7–3.5)	14.3 (5.7–31.5)	20.2 (11.9–28.6)
15	I wanted to see a doctor or interpreter who speaks my language	2.4 (0.8–3.9)	14.3 (5.7–31.5)	14.8 (7.4–22.2)
16	I wanted to be able to see Aboriginal health staff if I needed to	2.4 (0.8–3.9)	7.1 (2.0–22.6)	14.8 (7.4–22.2)
17	I prefer to be able to be in the ED environment than at a GP surgery or medical centre	5.5 (3.2–7.8)	39.3 (21.2–57.4)	27.3 (18.0–36.6)
18	My family has traditionally used the ED for our health care	8.6 (5.8–11.4)	53.6 (35.1–72)	59.8 (49.5–70.1)

- My health problem was too serious or complex to see a GP or medical centre, including after-hours, chosen by 38% (146/382) of respondents as 'very important' and 15% (58/382) as 'moderately important'.

The number of patients selecting a particular reason as 'very important' declined rapidly after this, with only a 15% (59/384) response for the fourth most popular reason, 'I feel the medical treatment is better at ED', and 13% (48/382) selecting 'I am not happy with the time I have to wait to get an appointment with a GP', after which no reason was identified by more than 10% of respondents. Reasons given by patients presenting after-hours were generally similar to those given by patients presenting at other times. Of the after-hours respondents, 36% (39/107) indicated that not knowing how to contact an after-hours GP service or medical centre was a reason for presenting to ED and 27%

(28/103) suggested that their family traditionally used the ED for all after-hours health care. Full details of patient responses have been reported elsewhere.¹⁴

To allow for the difference in the number of reasons selected by patients and clinicians another way of comparing responses is to consider the ranking of reasons, as summarized in Tables 4 and 5. The reasons ranked as 'very important' by patients receive a lower ranking by doctors and nurses and, likewise, the reasons ranked highest by doctors and nurses are ranked lower by patients. In particular, the two questions (12 and 13) related to the absence of charges for treatment in ED are ranked among the top three reasons why patients would attend ED for primary care by both doctors and nurses, but few patients report this as an important reason.

As can be seen from Table 3 the three main reasons (Q1, Q7, Q2) identified by patients for attending ED

Table 4. Ranking of top three patient 'very important' reasons

	Patients	Doctors	Nurses
Health problem required immediate attention and was too urgent to wait to see a GP or medical centre	1	4	6
Able to see the doctor and have any tests or X-rays all done in the same place at the ED	2	6	4
Health problem was too serious or complex to see a GP or medical centre, including after-hours	3	7	9

Table 5. Ranking of top three clinician 'very important' reasons

	Doctors	Nurses	Patients
No charge to see a doctor at the ED	1	1	12
Not able to get in as a patient at a GP surgery as the books are closed	2	3	7
No charge for X-rays or medicine at the ED	2	1	10

were also identified by many doctors and nurses. These three reasons stand out from the range of responses by patients but they do not stand out from the responses by doctors and nurses who consider these to be only three of many important reasons why primary care patients attend ED.

Questions 8, 9, 10 and 11 sought responses on the availability of GP services and comparison between attending ED rather than a GP. Few patients identified these as important reasons for attending ED, with the highest proportion being 24% (48/382 identified this as 'very important' and 45/382 as 'moderately important') for the time to wait for an appointment to see a GP. By comparison, over 60% of doctors and nurses identified each of these four reasons as important, with 96% (27/28) of doctors identifying the availability of GP services as important.

Doctors added few comments about why patients go to an ED rather than a GP although four doctors did mention that one of the important reasons is that GPs send their patients to ED. Such patients were excluded from the definition of primary care used in the present study. The small group of doctors invited to comment

on why primary care patients might go to a GP rather than an ED mentioned issues such as confidence and trust in the GP, continuity of care and good rapport with the GP. Many nurses (59/93) took the opportunity to comment but in most cases merely restated the reasons already identified by the questionnaire. Some commented that patients anticipate being sent to ED by their GP, and hence make the GP's decision for them by going straight to ED.

Interestingly, 11 out of 29 nurses (38%) working at the two southern-most (rural) hospitals in the area identified absence of GP after-hours services as an important reason for patients attending ED, whereas only one nurse (out of 64) working at the three northern-most hospitals thought it was an issue. This correlates with data from the patient survey where metropolitan patients were less likely ($P < 0.01$) to select Q9 (unhappy with waiting time for GP) (3% compared with 18%), and more likely ($P < 0.05$) to choose Q2 (complexity) (46% compared with 33%) as very important reasons.¹⁴

Discussion

The most important reasons selected by primary care patients in the present study for attending ED concern the nature of their clinical problem, particularly urgency (most important reason) and seriousness/complexity (the third most important reason). The second most important reason (I am able to see the doctor and have any tests or X-rays all done in the same place) can be interpreted as one of patient convenience but also anticipates that treatment is likely to involve more than seeing a doctor. These results are consistent with other studies that have found severity or appropriateness of the problem to be important factors in patient decision making. The reasons given by patients for attending an ED appear to have little to do with the characteristics of GP services. This finding is necessarily dependent on the definition of primary care used in the present study and should be considered within the potential limitations of that context. However, it is a definition developed from all of the available literature on this topic to date.

The greater number of reasons identified by clinicians is not surprising, as clinicians were reflecting on the spectrum of patients they see whereas patients were reflecting on why they attended on that particular occasion. Further research in this area would benefit from asking patients and staff looking after those specific

patients the same questions at the same time about the same attendance.

The lack of prominence of urgency-related issues in clinician responses might reflect the differences in interpretation of urgency (clinician *vs* the lay person). Furthermore, staff impressions might be influenced by sentinel 'irritant' cases rather than from an objective appraisal of the patient population as a whole. There will always be a certain 'disconnect' between what patients perceive as appropriate use and what clinicians see as appropriate but the reasons given by patients make such good sense that they call in to question the whole issue of using the term 'inappropriate' to describe some ED attendances.

Many staff identified the free cost of treatment as an important reason for attending an ED, but few patients did. It could be argued that patients asked questions on this issue might be reluctant to identify the free cost of treatment as a reason but it is difficult to believe that this is the sole explanation for such a large discrepancy between the views of patients and staff.

These findings suggest that strategies to divert primary care patients away from ED are unlikely to succeed to any great extent if they focus solely on GP availability and affordability. The one exception here may be in rural areas where GP availability seems to be a more prominent issue as identified by both staff and patients. Strategies that empower people to make more informed decisions regarding the urgency of their condition might be worth exploring. However, there will always be differences between self-assessed urgency and clinically assessed triage category and patients can only be expected to act on their own perceptions. The results suggest that emergency service providers have to accept the demand on their ED as a given and develop strategies to meet that demand.

Clearly, the definition of what constitutes a primary care patient is open to debate. Within the confines of our study we conclude that the adopted definition is appropriate. We have no reason to believe that our definition has produced results significantly different to the findings of other studies that have sought the views of patients about why they attend an ED.

Our findings do not suggest 'patient blaming' (as identified in some other literature)¹³ but do confirm that clinician perspectives on reasons for primary care patients' use of ED differ quite markedly from the perspectives of the patients' themselves. These differences stem from the very different paradigms from which the two protagonists approach the interactions and reflect the standard tension in a provider – consumer

relationship. These tensions are usually resolved in favour of the provider.¹⁷ However, if policy is to be developed in regard to improving system use and access then it must take both perspectives into account with respect to redesign, expectations and education.

We have not demonstrated any significant difference between the separate clinician groups (doctors *vs* nurses) nor with years of experience nor, surprisingly, between doctors who have purely ED experience and those who have a significant additional background in primary care.

Acknowledgements

The present research was funded by the priority-driven research programme of the Australian Health Ministers Advisory Committee (AHMAC) through the State Commonwealth Research Issues Forum (SCRIF).

Author contributions

MM contributed 30%; AJB contributed 25%; PS contributed 20%; RM contributed 15%; and KE contributed 10%.

Competing interests

None declared.

Accepted 27 February 2007

References

1. Australasian College for Emergency Medicine. *The Relationship Between Emergency Department Overcrowding and Alternative After-hours GP Services*. West Melbourne: Australasian College for Emergency Medicine, 2004.
2. Bezzina AJ, Smith PB, Cromwell D, Eagar K. Primary care patients in the emergency department: who are they? A review of the definition of the 'primary care patient' in the emergency department. *Emerg. Med. Aust.* 2005; **17**: 472–9.
3. Gill JM, Riley AW. Nonurgent use of hospital emergency departments: urgency from the patient's perspective. *J. Fam. Pract.* 1996; **42**: 491–6.
4. Rieffe C, Oosterveld P, Wijkkel D, Wiefferink C. Reasons why patients bypass their GP to visit a hospital emergency department. *Accid. Emerg. Nurs.* 1999; **7**: 217–25.
5. Rajpar SF, Smith MA, Cooke MW. Study of choice between accident and emergency departments and general practice

- centres for out of hours primary care problems. *J. Accid. Emerg. Med.* 2000; **17**: 18–21.
6. Boushy D, Dubrinsky I. Primary care physician and patient factors that result in patients seeking emergency care in a hospital setting: the patient's perspective. *J. Emerg. Med.* 1999; **17**: 405–12.
 7. Andersen NA, Gaudry PL. Patients attending an accident and emergency department for primary medical care. *Fam. Pract.* 1984; **1**: 79–85.
 8. Sempere-Selva T, Peiro S, Sendra-Pina P, Martinez-Espin C, Lopez-Aguilera I. Inappropriate use of an accident and emergency department: magnitude, associated factors and reasons – an approach with explicit criteria. *Ann. Emerg. Med.* 2001; **37**: 568–79.
 9. Thomson H, Kohli HS, Brookes M. Non-emergency attenders at a district general hospital accident and emergency department. *Emerg. Med. J.* 1995; **12**: 279–81.
 10. Walsh M. The health belief model and use of accident and emergency services by the general public. *J. Adv. Nurs.* 1995; **22**: 694–9.
 11. Guttman N, Nelson MS, Zimmerman DR. When the visit to the emergency department is medically nonurgent: provider ideologies and patient advice. *Qual. Health. Res.* 2001; **11**: 161–78.
 12. Padgett DK, Brodsky B. Psychosocial factors influencing non-urgent use of the emergency room: a review of the literature and recommendations for research and improved service delivery. *Soc. Sci. Med.* 1992; **35**: 1189–97.
 13. Sanders J. A review of health professional attitudes and patient perceptions on 'inappropriate' accident and emergency attendances. The implications for current minor injury service provision in England and Wales. *J. Adv. Nurs.* 2000; **31**: 1097–105.
 14. Siminski P, Cragg S, Middleton R et al. Primary care patients' views on why they present to emergency departments – inappropriate attendances or inappropriate policy? *Aust. J. Prim. Health* 2005; **11**: 87–96.
 15. Wilson EB. Probable inference, the law of succession, and statistical inference. *J. Am. Stat. Assoc.* 1927; **22**: 209–12.
 16. Fisher RA. On the interpretation of χ^2 from contingency tables, and the calculation of P. *J. R. Stat. Soc.* 1922; **85**: 87–94.
 17. Calnan M. The hospital accident and emergency department: what is its role? *J. Soc. Policy* 1982; **11**: 483–503.