Emergency management of chest pain: patient satisfaction with an emergency department based six hour rule out myocardial infarction protocol

C R Richards, K Richell-Herren, K Mackway-Jones

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authors' affiliations

Correspondence to:
Professor K
Mackway-Jones;
kevin.mackway-jones@man.ac.uk

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Objective: To measure the level of patient satisfaction with an emergency department based chest pain assessment unit.

Design: Structured patient satisfaction surveys.

Setting: Inner city university hospital emergency department

Participants: 383 consecutive patients aged over 25 years with probable cardiac chest pain of less than 12 hours duration at moderate to low risk of acute myocardial infarction.

Intervention: Two structured questionnaires—the first addressing satisfaction with different aspects of the health care process, the second designed to assess global satisfaction outcomes.

Results: 274 patients (74%) fully or partly answered the first questionnaire. There were high levels of satisfaction with all process of care issues (waiting time, information, discussion, explanation, pain management, personal needs, family needs, and discharge preparation). Altogether 258 patients fully or partly answered the second questionnaire. Global satisfaction was high. Subgroup data analysis showed white patients significantly more satisfied than non-white patients ($p < 0.0001$), and over 45s significantly more satisfied than under 45s ($p < 0.01$). A number of issues were raised in the free comment section of the second questionnaire. The lack of a definitive diagnosis at discharge was a recurring theme.

Conclusion: Chest pain assessment units are acceptable from a patient perspective.

Chest pain assessment units (CPAUs) are an innovative approach to the problem of chest pain in emergency departments, and have been shown to be clinically and cost effective in the United States.^{1–4}

Any new clinical intervention should now provide some evidence of patient acceptability in addition to clinical and cost effectiveness. The importance of incorporating the patients' point of view into quality assurance procedures has been emphasised in many United Kingdom government documents,^{3–8} which aim to rebuild public confidence in the NHS by making it accountable to the patients and shaped by their views. As part of the strategy to assess the quality of NHS care *A first class service: quality in the new NHS*⁸ stated that a national survey of patient and user experience would be conducted in order to trigger improvement of services that consistently fail to deliver patient satisfaction. This patient satisfaction movement ties in with cultural changes within the health service and the shift towards patient centred medicine and quality management systems.

However, patient satisfaction is important in its own right and should be taken seriously for a number of reasons.⁹ Firstly, it can be an important outcome measure determining compliance with the recommended treatment, re-attendance and so on. Secondly, it can be a useful way of assessing consultations and patterns of communication, identifying key areas for improvement. Thirdly, it enables choice between alternatives in organising or providing health care.

CPAUs were first established in the United States. The only published paper on patient satisfaction in such units¹⁰ concluded that patients were more satisfied with that approach than with inpatient stays for acute chest pains. However, there are no studies on the acceptability of this approach in the UK. The aim of this study, therefore, was to assess the level of patient satisfaction with a CPAU in the UK.

METHODS

All patients with chest pain attending the emergency department at Manchester Royal Infirmary between 20 October 1997 and 30 October 1998 were eligible for the study. Patients were included if they were aged over 25, the episode of chest pain was less than 12 hours in duration, there was no history of trauma and no other medical cause of chest pain had been diagnosed. Patients were excluded if they had electrocardiographic (ECG) evidence of acute myocardial infarction or myocardial ischaemia, were hypotensive, had an arrhythmia or required admission for another medical or social reason. Patients were also excluded if the protocol was not followed or they refused consent. All patients had a 12-lead ECG before admission to CPAU, aspirin 300 mg was given (unless an absolute contraindication existed) and an intravenous cannula was placed. The diagnostic test series consisted of serial CKMB mass measurements and a six hour period of continuous 12-lead ST segment monitoring.

Satisfaction measures

Two patient satisfaction questionnaires were designed and administered at different points in the patient's care pathway. The questionnaires are shown in the appendices (See journal website).

The first questionnaire was administered while the patient was in the CPAU and was specifically designed to measure patient satisfaction with the different aspects of the health care process. This questionnaire consisted entirely of closed answer questions so that the responses were standardised and satisfaction with each of the issues could be measured reliably across the study population. The questionnaire was administered in the CPAU to maximise the response rate thereby increasing the validity of the results. There was a Flesch reading ease score of 71.8%.¹¹

Table 1 Sociodemographic data (total number of replies to each question are shown in parentheses)

	Number	%
Gender (273)		
Male	186	68.2
Female	87	31.8
Age (272)		
26–35 y	38	13.9
36–45 y	74	27
46–55 y	62	22.6
56–65 y	54	19.7
>65 y	44	16.1
Education (236)		
Less than high school	75	31.5
High school	85	36.1
Further education	46	19.8
University	30	12.6
Ethnicity (184)		
White	145	78.5
Non-white	39	21.5

The second questionnaire was administered by research staff when the patient returned one month later to a research clinic, and was designed to measure global satisfaction. It was felt that these questions were more appropriate at the one month follow up stage when the patient has had time to reflect on the care they received. The patient was asked to rank satisfaction on a five point Likert scale, which ranged from very satisfied to very dissatisfied. This questionnaire also included an open-ended question about the patient's experience in hospital. This was to ensure that any issues missed in the structured questionnaires could be picked up at this stage. If the patient failed to attend for clinic then the questionnaire was posted to the patient, where an address was available, with a prepaid envelope enclosed. This combination of methods was used to increase the response rate.

Sociodemographic data were also gathered.

Data analysis

Descriptive statistics were derived using SPSS for windows. The *t* test for binomial distribution was used to assess for proportional differences between dichotomous categorical variables. The differences between age, racial or outcome groups in global satisfaction with treatment of the clinical problem were assessed.

Qualitative data analysis was undertaken on the open-ended question on the second questionnaire. The responses were read several times and categories in the data were identified through a process of constant comparison between different parts of the data. The comments were then divided into positive and negative comments. The categories were checked by an independent and blind assessor. Any discrepancies were taken to a third independent and blind assessor and so a consensus was reached.

RESULTS

Three hundred and eighty three patients consented to participate in the CPAU. Fourteen were excluded for protocol violation. One patient removed himself from the study. Thus there were 368 patients available for study. Eleven patients subsequently withdrew from follow up.

Two hundred and seventy four patients (74%) fully or partly answered the first questionnaire. Partially completed surveys are included for analysis with available data. The demographic characteristics of the patients are summarised in table 1.

In general the patients were male (68.2%), the mean age was 51 years, nearly one third did not have high school education and around 80% defined themselves as white.

The results of the first questionnaire are summarised in table 2.

Actual waiting times were less than patients' expectations. Only 18.2% expected to be seen by a member of staff within five minutes whereas 51.1% actually were; 29.2% expected to be seen within 15 minutes by a doctor whereas 55.8% reported being seen within this period. Many patients come without any expectations whatsoever regarding waiting time. Over one third (33.5%) had no idea how long to expect to wait before they were initially seen by someone in the emergency department.

Patients expressed extremely high levels of satisfaction with explanation of clinical care, pain management, information, discussion, personal needs, and family needs. While 94% of respondents were happy with the decision to be discharged from the CPAU, only 46.8% said they were given plenty of advice before discharge and 32.4% said they were given no advice at all.

The questions on satisfaction with test results and the discharge preparation section received large numbers of omitted answers, probably because patients filled in the questionnaire during their time in the unit rather than at the end of their period of observation.

Altogether 258 (72.3%) patients fully or partly answered the second questionnaire. The results are summarised in table 3.

There was no significant difference expressed in satisfaction of treatment of clinical problem between admitted and discharged patients, outcome of the presenting episode—that is, myocardial or non-myocardial damage, sex, or educational level. There was a significant difference between the white and non-white groups. White patients were significantly more satisfied with the treatment of their chest pain problem than non-white patients ($p < 0.0001$). However, there were a large number of non-respondents (nearly one third). There was also a significant difference between age groups with those in the under 45 age group significantly more likely to be dissatisfied than the over 45s ($p < 0.01$).

Ninety eight patients made additional comments about their experience in hospital. These are categorised as positive or negative in table 4. Some of the patients made comments on more than one of the categories. If this were the case the comment was included in all the relevant categories.

Most of the comments made by the patients concerned the treatment and care they received in the emergency department. The vast majority of these comments were positive. However, the negative comments did point to some general themes. One was a perceived lack of attention by staff.

"During the six hours survey time there was very large amounts of time when I was left without any checks as to my wellbeing."

"I did not find that staff came in to see me at regular intervals."

The greatest concern, however, seemed to be a lack of explanation on the cause of the patient's chest pain. Often this was in the event of a negative protocol and discharge from the emergency department. For example,

"I was unhappy with my treatment because there appeared to be no attempt to diagnose the acute chest pains with which I presented beyond a swift confirmation that they were non-cardiac."

"On exit... I felt the doctor in question more dismissive than the doctor on arrival. Perhaps once diagnosed as not heart attack the final doctor lost interest."

The ruling out of myocardial damage was often not enough to reassure the patient and failure to address the cause of the pain led to a feeling of dismissal, for example,

"I feel that I was dismissed with a diagnosis of angina"

However, some patients who had been admitted also expressed this concern, for example

"I would feel happier if I knew the full extent of my illness"

Patients were often seeking a long term solution for their presenting problem, which they felt, was not met on their attendance,

"I would like a definite answer about my health for my own piece of mind."

"I wanted a permanent solution not a temporary one."

Table 2 PSQ1—satisfaction with process of care items

Description of event	Number (total)	Valid %
Access to care		
Felt waiting time was OK or good	223 (264)	84.5
Explanation of clinical care		
Explained clearly why tests were needed	249 (266)	93.6
Explained clearly what tests would be taken	239 (264)	90.5
Test results explained clearly	125 (147)	85
Discussion between staff and patient		
Always given opportunity to ask questions	139 (194)	71.6
Doctor seemed very interested to listen	232 (242)	95.9
Doctor spent about the right length of time with me	232 (246)	94.3
Time with doctor was always private	170 (246)	69.1
Pain management		
Experienced pain in the emergency department	142 (254)	55.9
Staff aware of the pain	141 (153)	92.2
Treated for the pain	120 (148)	81.1
Very satisfied or satisfied with treatment	123 (135)	91.1
Information		
Received all information required	206 (236)	87.3
Received no conflicting information	214 (239)	89.5
Personal needs		
Discussion of personal needs covered everything or most things	172 (218)	78.9
Strongly agree or agree that made to feel as comfortable as possible	225 (234)	96.2
Strongly agree or agree that was reassured enough by staff	210 (217)	96.7
Strongly agree or agree that was given all privacy needed	205 (221)	92.7
Family needs		
Strongly agree or agree that able to find patient without any problems	161 (178)	90.5
Strongly agree or agree that able to visit patient without any problems	157 (167)	94
Strongly agree or agree that given enough information	152 (170)	89.4
Strongly agree or agree that able to find food and drink facilities	126 (166)	75.9
Discharge preparation		
Someone checked well enough to leave	111 (120)	92.5
Given plenty of information or advice on how to improve health	52 (111)	46.8
Happy with decision to be discharged at this stage	110 (117)	94

Table 3 Results of global outcome measures

	Number (total)	Valid %
Very satisfied or satisfied that health care problem was handled effectively	238 (256)	93
Very satisfied or satisfied with quality of services received	245 (257)	95.3
Very satisfied or satisfied with length of time spent in hospital	237 (255)	92.9
Very happy or fairly happy to go through CPAU again if reattended ED	247 (256)	96.4

Table 4 Response re: CPAU

Category	Positive comment	Negative comment
Service and care received while in CPAU	68	7
Comments/explanations on cause of pain	0	15
Facilities in A/E	0	11
Ward stay	1	6
Waiting time in A/E	3	2
Boredom (in ward and in CPAU)	0	2
Length of time in hospital	0	2
Trolley wait in A/E	0	2
Miscellaneous	0	6

DISCUSSION

The results of this study show that the CPAU in the emergency department is an acceptable intervention for the patient. High levels of satisfaction were expressed across both the process of care items in the first questionnaire and also the global satisfaction items in the second questionnaire.

The greatest problem identified from the first questionnaire concerned discharge preparation, with some patients claiming to receive little or no advice upon discharge from the CPAU. Many of the negative commentators to the open-ended question also expressed concern at being discharged from the hospital without any real explanation of the cause of their chest pain. This was predominantly among patients who were discharged from the CPAU, but also included some patients who were admitted to wards and discharged some days later. This reflects a strong need for information, reassurance, and adequate follow up after discharge from the CPAU. Patients need to feel that their condition has been taken seriously and they need to be given enough attention while awaiting results. The majority of comments, however, were positive—indicating

that, in general, there was effective communication between staff and patients.

The results of this study are in keeping with the general trend of patient satisfaction surveys which tend to generate very high levels of satisfaction (a meta-analysis found a mean level of satisfaction of 81%¹²). Patients have been reported to express high levels of satisfaction even if they have not been entirely happy with all aspects of care received.¹³ They may accept lesser standards of care because they recognise that staff are operating under pressure in a cash limited NHS environment. In this study, for example, many patients excused the staff for a perceived lack of attention by recognising that the department was very busy. Indeed, some patients expressed surprise that, under these circumstances, they received such a high level of care. This suggests that some patients may have relatively low expectations before arrival in the emergency department.

Patient satisfaction has been associated with other variables namely, sociodemographic characteristics and health and psychosocial status. These links, however, have varied between studies.¹⁴ Subgroup analysis in this study showed that the CPAU was acceptable to both discharged and admitted patients, and also to those who did and those who did not have any myocardial damage. On the whole, there were few significant differences between satisfaction and sociodemographic characteristics. However, the significant difference found between the ethnic groups reinforces previous findings that white patients are more satisfied than non-white patients.¹⁵ The impact of cultural and language differences on patient satisfaction merits further investigation. The greater degree of dissatisfaction expressed among the under 45 age group correlates with some previous findings¹³ that older people are more likely to display a deferential attitude towards health care providers.

In any patient satisfaction study, there are a number of theoretical, methodological, and practical problems that need to be taken into consideration. The patients' evaluation of the service will ultimately be a subjective one, which may be influenced by a number of factors, for example, previously held opinions, expectations, and experiences.¹⁶ Methodological problems include the design of the instrument, content, and formulation of questions while practical problems include how and when to administer the questionnaire. The skill lies in designing an instrument, which can effectively capture satisfaction with different elements of the health care process in a valid and reliable way.^{17, 18}

In this study, advantages were gained from using two different questionnaires at key points in the care pathway. While answers could be derived on a range of process of care items during the process itself, global satisfaction issues were dealt with later. Qualitative data can also be invaluable in gaining a deeper understanding of patient needs and what influences satisfaction. It is also a good way of ensuring that all the issues relevant to the patients are captured and they are able to express their anxieties while not directly criticising the service. Patients are capable of evaluating the care they receive but ways have to be found to overcome reluctance to appear ungrateful.¹⁹

In any study of this kind there are some potential limitations. Patient population, institutional reputation, the setting of the CPAU within the emergency department, and the fact that the patient is part of a clinical trial could all influence overall satisfaction levels. In particular the involvement of clinical staff in administering the first questionnaire may have led to reluctance to criticise and therefore an overestimation of satisfaction. Furthermore, there were some barriers to the response rate. Some patients were unable to complete the questionnaire because of language or literacy difficulties. This could introduce a potential bias as the levels of satisfaction of these groups of people may be overlooked. Future studies should look at ways of overcoming these problems.

There are many complexities inherent in a study of this kind. Nevertheless, patient satisfaction questionnaires are an important and valuable means of assessing quality of service. This study has confirmed that patients are capable of evaluating their care. Overall the CPAU protocol can be said to be acceptable from a patient perspective.

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Authors' affiliations

C Richards, K Richell-Herren, K Mackway-Jones, Department of Emergency Medicine, Manchester Royal Infirmary, Oxford Road, Manchester, M13 9WL, UK

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