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Emergency unscheduled returns: can we do better?

Kuan W S, Mahadevan M

ABSTRACT

Introduction: This study serves to identify the reasons for unscheduled return visits to the emergency department (ED), paying particular attention to system, physician and patient factors. Its purpose is to highlight inadequacies and plan strategies to reduce re-attendance.

Methods: All patients returning to the ED within 72 hours of initial visit were identified between January 2005 and June 2005. 842 cases were reviewed to identify reasons for unscheduled returns.

Results: Unscheduled return visits accounted for two percent of patient encounters with the younger mobile group of patients contributing the largest number. Patients presenting with abdominal pain constituted a quarter of unscheduled returns, where more than half were admitted. Possible causes were lack of rehydration and lack of proper discharge advice to these patients. The assessment and disposition of abdominal pain patients with uncertain aetiology was a major category and 68.7 percent of missed diagnosis came from this group. There was a significant difference in the unscheduled return rates between the senior and junior doctors. There was minimal morbidity and no mortality among patients who returned to the ED for the second time.

Conclusion: A proposed strategy to reduce the number of unscheduled returns would be to target patients with abdominal pain with more liberal hydration strategies. Discharge advice with information about expected prognosis and specific signs and symptoms to look out for should be included. Educational sessions and better supervision of junior staff emphasising acute abdominal conditions should be actively incorporated to avoid associated morbidities with a missed diagnosis.

Keywords: abdominal pain, emergency department, emergency re-attendance, emergency unscheduled returns

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INTRODUCTION

There are many ways of measuring the performance index of an emergency department (ED).[1] Factors such as time to triage, time to pain management, adverse events, patient satisfaction and return visits are just a few.[2] Return visits by patients are inevitable and are part and parcel of any busy ED.[3-5] We looked into the reasons behind these return visits with an aim to identify any weaknesses in the system and propose possible strategies to reduce this.

METHODS

Approval from the Institutional Review Board for waiver of informed consent was obtained for this study. This was a retrospective record review of patients presenting to the ED. From January 1, 2005 to June 30, 2005, records of all patients who returned to the ED within 72 hours of their first attendance were audited. There were 38,414 patients during the six-month period. We defined unscheduled returns as patients who returned within 72 hours of their first attendance to the ED. Patients who returned for a scheduled review or for an unrelated condition were excluded from the study. For each unscheduled return, the time interval between the first and second visit was calculated to the nearest hour. Electronic medical records from the ED for the initial attendance and re-attendance were studied. Electronic inpatient hospital records were also reviewed. These records were supplemented by the written records filed with the Medical Records Office.

RESULTS

There were a total of 842 (2.2%) patients who returned unscheduled to the ED. 50 patients returned for a third time. Factors examined included chief complaint at initial presentation, discharge diagnosis, category of treating physician, ED time band, day of the week and demographical data (age, gender, educational level and economic status).[6] Patients between 21 and 30 years of age formed the largest proportion of re-attendances (29.8%),

Emergency Medicine Department, National University Hospital, 5 Lower Kent Ridge Road, Singapore 119074

Kuan WS, MBBS, MRCSE Registrar

Mahadevan M, MBBS, MRCP, FRCSE Senior Consultant

Correspondence to: Dr Kuan Win Sen Tel: (65) 8123 4842 Fax: (65) 6775 8551 Email: kuanwinsen @hotmail.com

with another large proportion of patients (14.6%) between 16 and 20 years of age. There were 148 (17.6%) patients aged 31–40 years, 107 (12.7%) patients 41–50 years, 81 (9.6%) patients 51–60 years, 60 (7.1%) patients 61–70 years, and 72 (8.6%) patients > 70 years. 527 (62.6%) patients who returned unscheduled were males.

Of the 38,414 attendances during the first six months of 2005, 7% were aged 16–20 years, 26% 21–30 years, 16% 31–40 years, 15% 41–50 years, 13% 51–60 years, 9% 61–70 years and 14% > 70 years. Using the chi-square test to compare the general cohort with those who re-attended, there was a significantly larger proportion of patients who re-attended from the age groups of 16–20 ($p < 0.001$), 21–30 ($p = 0.01$) and 51–60 ($p = 0.01$) years. Likewise, there was a significant decrease in the proportion of patients who were aged over 70 years ($p < 0.001$) and who re-attended, compared to the cohort of patients during the same duration. There were no significant differences in the age groups of 31–40 ($p = 0.24$), 41–50 ($p = 0.10$) and 61–70 ($p = 0.09$) years. We also looked at the different ED time bands of initial attendance for the different rates of unscheduled return visits. The proportion of patients returning unscheduled was 3.5% between 0000 hours and 0359 hours, and 3.4% between 0400 hours and 0759 hours. This was compared with those presenting during other ED time bands between 0800 hours and 1159 hours (1.4%), between 1200 hours and 1559 hours (2.0%), between 1600 and 1959 hours (2.1%) and between 2000 hours and 2359 hours (2.4%). There was a significant difference for patients arriving for their initial visit from 0000 hours to 0759 hours, compared to the other time bands ($p < 0.001$).

Patients presenting with abdominal pain contributed by far to the largest group of patients who were seen returning unscheduled to the ED (Table I). This excluded the group of patients presenting with a typical history of ureteric colic. There were 32 (3.8%) patients who had wrong or delayed diagnoses during their first visit, which resulted in their return. Examples of these were intestinal obstruction being misdiagnosed as constipation and gastroenteritis, appendicitis being misdiagnosed as urinary tract infection, fractures of the hand and foot wrongly diagnosed as contusions, and dengue wrongly diagnosed as upper respiratory tract infection. The number of patients who were admitted following initial discharge from the ED was 307 (36.5%). 21 (2.5%) patients returned and were admitted after initially absconding or discharging themselves from the ED against medical advice. 29 (3.4%) patients were readmitted less than 72 hours after being discharged from the hospital. Only one patient was admitted to the ward after being discharged from the 24-hour observation unit less than 72 hours earlier for asthma exacerbation.

Table I. Re-attendances based on the presenting complaint.

Presenting complaint	No. (%) of patients
Abdominal pain	211 (25.1)
Trauma	103 (12.2)
Fever	84 (10.0)
Upper respiratory tract infection	68 (8.1)
Renal colic	42 (5.0)
Giddiness	40 (4.8)
Low back pain	39 (4.6)
Cellulitis/abscess	31 (3.7)
Chest pain	29 (3.4)
O&G conditions	23 (2.7)
Eye complaints	22 (2.6)
Headache	21 (2.5)
Rashes	18 (2.1)
Asthma	15 (1.8)
Others	96 (11.4)

There were more medical officers working in the ED than any other doctor grade, hence the larger proportion of patients seen by this group (Table II). There were only two registrars (advanced specialist trainees) who were employed by the ED at the time of the study. Using the chi-square test, the difference between the re-attendance rates of medical officers and specialists (associate consultant, consultant and senior consultant) was significant ($p < 0.001$). There were also significant differences between the non-traditional source doctors ($p < 0.001$), fellows ($p = 0.01$) and locums ($p = 0.003$), and the specialists. However, there was no difference between the registrars and the specialists ($p = 0.29$).

In view of the large proportion of patients (n = 211) who returned with abdominal pain, an in-depth review of this group was conducted. Patients with gastroenteritis contributed to one-third of this group of patients (Table III). Only 40 (36.4%) out of 110 patients received intravenous hydration during their initial visit despite presenting with nausea/vomiting and/or diarrhoea. 34 (16.1%) out of the total 211 patients did not receive any advice on abdominal pain upon initial discharge from the ED. 115 (54.5%) patients were admitted after presenting to the ED again for abdominal pain. Of those, 22 (19.1%) patients were admitted for social reasons, either due to lack of care at home or inability of family members to cope with caring for the patient. However, 14 (12.2%) patients were subsequently discharged from the ward with a diagnosis of nonspecific abdominal pain, after being investigated as inpatients or after their pain resolved during admission. There were 22 patients with abdominal conditions who had been misdiagnosed at their initial presentation to the ED, where eight were later diagnosed with acute cholecystitis, seven with intestinal obstruction, two with acute appendicitis, and one each with acute pancreatitis,

Table II. Re-attendance rates stratified by doctor grade.

Doctor grade	Total no. of patients seen	No. (%) of unscheduled returns
Medical officer (MO)	22,529	489 (2.17)
Registrar	1,145	7 (0.61)
Associate consultant	2,405	23 (0.96)
Consultant/senior consultant	1,452	14 (0.96)
Non-traditional source MO	3,625	92 (2.54)
Fellows	1,732	33 (1.91)
Locums	4,074	76 (1.87)
Others	1,452	34 (2.34)

sigmoid volvulus, pyelonephritis, pelvic inflammatory disease and Dieulafoy's lesion. Incidental discoveries were made during admissions, including one patient with a renal tumour and another with an ovarian tumour. There was no mortality among patients who were admitted following unscheduled returns to the ED for abdominal pain. There was some notable morbidity involved for four patients who were admitted. Two underwent laparotomy for intestinal obstruction with one needing intensive care admission for postoperative shock. One patient suffered from Guillain-Barré syndrome postoperatively during his admission for acute appendicitis. Another patient was diagnosed to have dengue haemorrhagic fever subsequently after being admitted for nonspecific abdominal pain.

Table III. Initial diagnosis of patients with abdominal pain.

Initial diagnosis	No. (%) of patients
Gastroenteritis	66 (31.3)
Gastritis	41 (19.4)
Nonspecific abdominal pain	37 (17.5)
Urinary tract infection	24 (11.4)
Acute urinary retention	20 (9.5)
Constipation	12 (5.7)
Others	11 (5.2)

DISCUSSION

Only patients who failed to improve from their initial condition or presented due to wrong or missed diagnosis at their initial visit were included in this audit; patients who returned for unrelated conditions were excluded. Unscheduled return visits accounted for 2.2% of patient encounters in our study; this compares favourably with other published return rates.[7] From Table I, other presenting complaints such as fever, trauma, upper respiratory tract infection (URTI) and eye complaints contribute to a sizeable proportion of patients re-attending. Those with fever and URTI tend to return due to persistence of symptoms as would be expected during the early course of their disease, particularly if they did not seek prior symptomatic treatment at a primary healthcare physician. Patients returning due to complaints related to trauma were mainly for limb trauma (72% of trauma re-attendances). They were largely made up of younger foreign workers who sustained an injury at their workplace and motorcyclists involved in road accidents. These patients are more mobile and returned for a variety of reasons, including extension of medical leave and persistent pain requiring an escalation of pain management. Anticipated pain management is a necessary skill to be learnt in the ED to avoid these recurrences. It is common that patients tend to have their pain well-controlled on parenteral analgesia while lying down or sitting in the ED, but develop recurrence at home or when ambulating. Conjunctivitis and corneal ulcers made up the bulk of the re-attending patients with eye complaints. Early follow-up and proper advice for eye toilet and the predicted course of the disease would be an appropriate measure to reduce this rate.

A similar audit was performed in Singapore by Goh et al in 1996.[8] It was then noted that patients with asthma contributed to the largest group of patients. However, in this study, patients with abdominal pain superseded asthma as the major chief complaint. The asthmatic re-attendance rate was low at 1.8%, suggesting the success of various strategies put in place for patients with acute asthmatic exacerbation presenting to the ED. This includes patient education, prolonged observation in a 24-hour observation unit as well as a high compliance rate with an evidence-based protocol.[9] Patients presenting with abdominal pain have a myriad of possible diagnoses. Coupled with the ever increasing proportion of elderly patients to the ED, pinpointing a correct diagnosis to abdominal pain patients is a potential minefield due to their varied and atypical presentations. The perennial overcrowding issue in the ED could have contributed to a higher threshold for admission in this group of patients. They may have been under-treated prior to their initial discharge. Perhaps the lack of training and experience of medical officers to consider the potential differential

diagnoses or their omission to advise the predicted clinical course in abdominal pain patients may have contributed to this reversal in trend from a decade ago.

Somewhat contrary to initial expectations, it was the younger group of patients (16–30 years of age) who contributed to the largest proportion of patients.[10] One plausible explanation is the mobility and health-seeking behaviour usually attributed to this group of patients. Most of these patients would cite the presence of better-trained doctors, and ancillary services like laboratory and radiology services as reasons for their initial and repeat attendances at the ED. The converse was true for the elderly patients (> 70 years of age) where their lack of mobility and possible frail nature prevented them from returning to the ED within 72 hours. The higher rate of unscheduled returns during the night shift suggests that the reduction in manpower, physician fatigue and decreased level of supervision from senior ED physicians may have a negative impact in clinical decision-making. The increased number of patients seen by the limited number of medical officers during this period likely contributed to the increase in the re-attendance rate possibly due to shorter consult times during the night shift. A possible strategy would be to increase staffing with an intent to reduce errors of judgment as well as to decrease the mean length of stay of patients.[11] Since 2007, our ED has employed a specialist in every shift and improved the manpower distribution for night shifts. Further audits are required to ascertain whether this has resulted in an improvement in unscheduled return rates, especially during the night shifts. The experience and training of ED physicians vs. junior medical officers clearly showed significant differences in re-attendance rates.[12,13]

In our study, the most common misdiagnosed abdominal conditions were acute cholecystitis and intestinal obstruction; this led to two patients (both with intestinal obstruction) to have a prolonged hospital stay and significant morbidity. Dehydration has been shown to be associated with the highest risk for both early return and subsequent admission on early return.[14] Despite this, only about a third of patients received intravenous fluid replacement along with other symptomatic treatment. The commonest reason for not initiating aggressive intravenous fluid rehydration was the unsubstantiated fear of fluid overloading. A guideline or protocol should be developed and implemented to address this issue.[15] In our study, 16.1% of patients returning for abdominal pain did not receive proper abdominal pain advice upon discharge from the ED. One proven effective strategy is the use of verbal and written ED discharge instructions[16] which we plan to use in a follow-on study. A review of the clinical skills among ED physicians and the use of imaging and bedside ultrasonography (commonly available in the ED) will undoubtedly reduce the number of abdominal conditions being misdiagnosed. Imparting this knowledge to junior budding ED physicians would further improve the rate of unscheduled return visits.

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