Emergency department waiting room: many requests, many insured and many primary care physician referrals

Michael F Kamali1, Minal Jain2*, Anunaya R Jain2 and Sandra M Schneider1

Abstract

Background: Increase in waiting time often results in patients leaving the emergency department (ED) without being seen, ultimately decreasing patient satisfaction. We surveyed low-acuity patients in the ED waiting room to understand their preferences and expectations.

Methods: An IRB approved, 42-item survey was administered to 400 adult patients waiting in the ED waiting room for >15 min from April to August 2010. Demographics, visit reasons, triage and waiting room facility preferences were collected.

Results: The mean age of patients was 38.9 years (SD = 14.8), and 52.5% were females. About 53.8% of patients were employed, 79.4% had access to a primary care physician (PCP), and 17% did not have any medical insurance. The most common complaint was pain. A total of 44.4% respondents reported that they believed their problems were urgent and required immediate attention, prompting them to come to the ED, while 14.6% reported that they could not get a timely PCP appointment, and 42.9% were actually referred by their PCP to come to the ED. About 57.7% of patients considered leaving the ED if the waiting times were too long. The mean acceptable waiting time before leaving ED was 221 min (SD = 194; median 180 min, IQR 120–270). A total of 39.1% survey respondents reported being most comfortable being triaged by a physician. Respondents were least comfortable being triaged by residents. On analyzing waiting room expectations for the survey respondents, we found that 70% of the subjects wanted a better estimate of waiting time and 43.5% wanted better information on reasons for the long wait.

Conclusion: Contrary to popular belief, at our ED a large proportion of low-acuity patients has a PCP and is medically insured. Providing patients with appropriate reasons for the wait, an accurate estimate of waiting time and creating separate areas to examine minor illness/injuries would increase patient satisfaction within our population subset.

Keywords: Emergency department; Survey; Patients; Primary care; Satisfaction; Preferences
illnesses wait for increasingly longer times. Lengthy wait times decrease patient satisfaction and cause some to leave without being seen [10]. The median waiting time in the ED was 35 min, and nearly 9% of the patients left without being seen by a physician in 2008 [11]. Many of these patients are less likely to return to that ED, which translates into an economic loss for the hospital and physician group [12].

Patient satisfaction in the ED has been associated with not only the waiting time, but also the quality of care provided by physicians, nursing and ancillary healthcare staff [13]. A study reported that patients in US EDs assigned 59% of their overall satisfaction to physician and nursing service and the remaining to waiting time [13]. Surveys done in other developed countries have also revealed that a majority of patients waiting in the ED consider competence or explanation by medical staff as one of the most important features that they value during their ED visit [14].

Our ED sees a cross section of socioeconomically and racially diverse populations. We wanted to understand the reasons why low-acuity adult patients visit our ED and identify their preferences and expectations while they are waiting to be seen.

Methods
This survey was administered to a convenience sample of 400 patients in the ED waiting room between 12 p.m. and 12 a.m. from 15 April 2010 to 2 August 2010. Our 120-bed academic tertiary care ED has an annual volume of nearly 95,000 patients. The ED is organizationally divided into different wings for minor injuries/minor illnesses, patients waiting for inpatient beds, trauma/critical care, adult ED patients and pediatric ED patients. There is a separate observation unit and triage areas that are managed by the ED to care for patients. The ED also has separate entrances and registration desks for self-arrivals and patients brought in by EMS. Median time for all ED patients from arrival to provider irrespective of severity over the duration of the survey was 41.4 min. We defined lower acuity patients as those that were waiting more than 15 min from the time of triage. Two trained research assistants administered the survey in the ambulatory waiting area. Patients arriving by EMS who were brought to the ED were approached for participating in the survey. The changes included reformatting some questions for clarity so that people with a basic level of health literacy could understand it.

The study was approved by the Institutional Review Board. Two research personnel identified the waiting time for patients through the electronic medical record system. Patients above 17 years of age who had been waiting for 15 min or longer post-registration/triage to see a physician were approached for participating in the survey. All patients who had previously participated in the survey at an earlier time were excluded. A letter of information outlining the study protocol and potential risks was provided to these eligible patients. After obtaining verbal consent, the research patients were asked to fill out the paper printed questionnaire and submit it in a closed drop box within the waiting room. No identifying information was obtained. Patients were allowed to leave answers to questions blank. In case the patients did not understand a survey question, the research assistant provided explanations at the patient’s request only. If a research subject was called to the treatment area while filling out the survey, they were allowed to complete it inside the ED as well.

Statistical analysis was performed using univariate analysis in JMP 8.0* for Mac. The T-test/ANOVA was applied for analysis of associations between variables with normal distributions, and the Kruskal-Wilcoxon test was used for non-parametric analysis. All associations between discrete variables were determined using Pearson/Fisher’s test where applicable. The level of significant of association was predetermined at $p < 0.05$ for all analyses.

Results
Patient demographics
Of 470 patients approached, a total of 400 agreed to fill out the survey. The mean age of patients surveyed was 38.9 years (SD 14.8 years). Females comprised 52.5% of the survey population; 63.4% of the patients surveyed self-identified themselves as white, 26.3% as black and the rest (10.3%) as belonging to other races. A total of 67% of the respondents disclosed their ethnicity; of these, 71.3% were non-Hispanic non-Latino, 20.5% were Hispanic/Latinos, and 8.2% chose the unknown category. A total of 93.6% respondents were walk-in/ambulatory patients, and the rest were either brought by emergency medical services (EMS) or other means of transport. A total of 53.8% were employed, and 17% of patients did not have any type of insurance. Table 1 shows a detailed distribution of insurance types in the surveyed sample. Of all survey respondents, 79.4% reported having access to a PCP.
Reasons for current ED visit
The most common primary complaint in our group of surveyed patients was pain (53.6%). Other complaints included constitutional symptoms such as fever, nausea, cold, headache (14.8%), and minor injuries (14.5%), while 14.1% of patients reported gastrointestinal complaints. Overall 53.6% reported having some kind of pain on presentation, and 22.5% of patients reported that they considered their symptoms acute enough to call 911.

Access to primary care physician
A total of 315 patients had access to a PCP. A comparison of demographics, employment status and insurance is given in Table 2. Of the patients who had a PCP, 54.8% had called their physicians prior to ED arrival. On analyzing reasons for choosing ED over primary care for the subgroup of patients with PCPs, 44.4% reported coming to the ED as they felt their problems were urgent and required immediate attention, 14.6% reported that they could not get a timely appointment with their PCPs, while 42.9% were actually referred to the ED by their PCP’s office. The most common symptoms for patients with a PCP were GI complaints (n = 38, 15.6%). Among respondents who had a PCP, around 64.6% reported that the usual time to available appointment was within 1–3 days, whereas 17.3% reported that their PCP could only give them an appointment for later than 7 days on an average.

Patient’s ED experiences
A total of 385 patients responded to the questions pertaining to their past ED experiences. Of these respondents, 76.4% reported having visited our ED in the past. A total of 17.1% survey responders reported that they had been to other EDs, but this was their first visit to our ED, while 6.5% survey patients said that this was their first ED visit ever. Of the patients who reported having visited our ED in the past, about 20% were “loyal visitors” who had never been to other EDs, while 60.9% were “ED shoppers” who had visited both our and other EDs multiple times.

Among patients with prior ED visits, the self-reported longest waiting time experienced was a mean of 214.3 min (3.6 h) with SD 319.1 min (5.3 h) (median 180 min, IQR 120–270 min). A total of 27.9% of patients reported that they had previously left EDs without being seen (LWBS). Nearly 57.7% of patients said that they would consider leaving without being seen in the future if wait times were too long. The mean acceptable waiting time before leaving the ED without procuring required care was estimated at 221 min (3.7 h) with SD 194 min (3.2 h) (median 180 min, IQR 120–270). The mean age for patients who reported a readiness to leave without being seen was 36.4 years (SD 13.1 years), which was significantly lower than the mean age for patients who did not report the same (mean 42.5 years, SD 16.2 years; p = 0.0001). There was no significant association between the readiness to leave without being seen and gender (p = 0.22), access to a PCP (p = 0.32) and insurance status (p = 0.13).

Triage and waiting room facility preferences
Survey respondents reported that they were very comfortable being triaged by a physician (39.1%), nurse (35%) and a resident (27.7%) in order of decreasing preference. Figure 1 depicts the above. Figure 1 also displays relative preferences of surveyed subjects for potential operational/structural changes in the ED/waiting room such as initiation of blood tests/draws in the waiting room area, creation of a separate area for managing

Table 1 Distribution of insurance types in the survey population

| Variable | N (%) |
|----------|-------|
| No insurance | 68 (17.0) |
| Only private insurance | 127 (31.8) |
| Only Medicare | 13 (3.3) |
| Only Medicaid | 89 (22.3) |
| Private insurance and Medicare | 32 (8.0) |
| Private insurance and Medicaid | 22 (5.5) |
| Medicaid and Medicaid | 33 (8.3) |
| All 3 types of insurance | 8 (2.0) |
| Chose not to answer | 8 (2.0) |

Table 2 Differences among patient characteristics with regards to access to a PCP

| Variable | No access to PCP (n = 82) | Access to PCP (n = 315) | P value |
|----------|---------------------------|-------------------------|---------|
| Demographics | | | |
| Age (mean, SD) | 33.2 (12.8) | 40.4 (14.9) | <0.0001 |
| Gender (female) | 40 (50.0%) | 167 (53.5) | 0.57 |
| Race* | | | |
| White | 36 (46.8) | 205 (68.1) | 0.001* |
| Black | 30 (38.9) | 70 (23.3) | 0.005* |
| Others* | 11 (14.3) | 26 (8.6) | 0.14 |
| Ethnicity# | | | |
| Hispanic | 24 (39.3) | 30 (14.6) | <0.0001* |
| NHNL | 32 (52.5) | 159 (77.6) | <0.0001* |
| Unknown | 5 (8.2) | 16 (7.8) | 0.92 |
| Employed | 46 (56.1) | 167 (53.5) | 0.68 |
| Some kind of insurance | 52 (63.4) | 277 (87.9) | <0.0001* |

*Seventy-seven subjects with no access to a PCP and 301 subjects with access to PCP disclosed their race; #61 subjects with no access to a PCP and 205 subjects with access to a PCP disclosed their ethnicity.
minor complaints, providing a pre-specified time to return to the ED, a self check-in kiosk, etc.

When asked about their waiting room expectations, nearly 70% of surveyed subjects expressed a need to be given a better estimate of waiting time, and 43.5% wanted better information on reasons for the wait. Further, 30% survey respondents recommended having a coffee and sandwich shop in the waiting area, 16.5% wanted more privacy, 14.8% wanted a quiet area, and 14% expressed the need for better cleanliness.

**Internet use preferences**

About 14.1% of patients reported having used the Internet to gather information about their current ailment. Nearly 40.5% of patients reported using the Internet regularly for health-related information. Of the above, 80.8% explored health-related information on the Internet for <2 h/week.

**Discussion**

Our observations show that low-acuity patients visiting our tertiary care academic ED are predominantly ambulatory and a significant proportion of them possess medical insurance of some kind. This contradicts the general belief that most patients arriving to the ED with non-urgent complaints are uninsured patients [15]. Our survey also revealed that among these low-acuity ED patients, the proportion of government-insured patients was higher than those of the private-insured or uninsured patients, a finding supported by Zuckerman et al. [16]. The fact that nearly half of the patients in our survey cohort were unemployed may be a reflection of the economic scenario prevalent in the country at the time. Unemployment in Rochester community in 2010 was 8.2% as per the US Department of Labor [17].

Our survey confirmed the presence of a wide range of symptoms within the low-acuity patients waiting in the ED waiting room. However, more than half of these patients reported that they were suffering from some kind of pain. This was similar to a previous study’s results, which showed that only 20% of all ED patients reported a pain score of 0 [18]. In addition to this, nearly 15% of our surveyed population presented with minor injuries, and a similar number complained of constitutional symptoms such as fever and flu-like symptoms. Considering the above, creation of separate fast-track sections of the ED for these illness groups could help to distribute patient load and reduce overall waiting times [19]. This strategy could also potentially improve patient satisfaction, as was evident from our survey wherein subjects revealed a favorable outlook toward the above strategy (38.2% reported being very comfortable with the creation of separate areas in the ED for treating patients with minor complaints).

The survey also displayed an interesting trend in reasons patients gave for preferring EDs over PCP offices. Previous studies have reported that access barriers to primary care are the major determinants for patients to use EDs for minor complaints [20,21]. In our surveyed population, nearly 80% of subjects reported having access to a PCP. Of these, nearly half had contacted their PCP’s office prior to coming to the ED. The proportion of patients calling PCP offices prior to ED arrival has varied in prior studies from as little as 7% to as high as 93% [22-25]. Even for patients with access to a PCP, long waiting times for office appointments lead them to
choose EDs over PCP office visits [8,9]. More than 50% of survey respondents in our study reported being comfortable visiting PCPs for their present complaints, and 64% respondents reported being able to get an appointment with their PCP within 3 days. Strikingly though, a third of these patients were referred to the ED by the PCPs or their office personnel themselves. It has been shown that many PCPs or their office personnel routinely refer patients seeking emergent appointments for acute complaints to the ED to maintain their office/clinic schedules [8,26]. Perhaps what we are seeing here is a trend in which PCPs increasingly refer patients to the ED because of increasing practice sizes, decreasing tolerances for uncertainty in diagnoses and increasing insurance capitations on PCP payments [27,28]. It is important however to realize that there could also be other reasons for increased ED referrals. Patients’ complaints over the phone could sound graver than they actually are. Patients’ care may require advanced technology such as an x-ray or ultrasound that may be unavailable at particular times of day at the PCP’s practice. Because our study included patients presenting in the evening, offices may have been closed or closing at the time of the patient’s call. These reasons are legitimate and may be difficult to overcome under the current organization of health-care delivery.

Patient-level factors such as misjudging the severity of illness could also prompt patients to visit ED instead of approaching PCPs. This was evident in our survey results too. A sizeable proportion of the survey population came to the ED because they felt their problems were urgent and required immediate attention. Nearly 44.4% of patients chose the ED over PCP offices because they felt that their symptoms were acute enough to call 911. However, of these only 25% of patients reported having actually called 911. Response to the question about severity of illness could have been post-hoc justification of actions on behalf of the respondents. Cited reasons for severity misperception could also include lack of education, denial, cost, fear, embarrassment, etc [29].

Our survey results also showed that a large proportion of patients repeated their visits to EDs. This may be reflective of the satisfaction offered by the ED. However, there are only four EDs in Rochester area and one additional ED in the suburb of the county. However, only about 20% remained loyal to just one ED. This offers another insight: that patients with non-urgent illnesses keep repeating their ED visits for similar or different non-urgent complaints.

With respect to changes in ED operations, many facilities in this country have introduced varied triage systems such as physician-based triage, treat and release, and employing either ED physicians or ED residents to reduce waiting times in the ED [30,31]. Our survey revealed that patients were most comfortable being seen by ED physicians, triage nurses and ED residents in order of preference. Probably, a system of team triage including physicians, nurses and residents could improve waiting times and increase patient satisfaction [32-34]. Some institutions have also adopted the temporizing strategy of the Casablanca theory, where common blood tests are ordered while patients are waiting in the ED via standing orders to give them a sense of something being done [35]. Patients in our survey population, however, gravitated toward being somewhat uncomfortable with having blood tests done in the waiting area. This may have been due to the perceived lack of privacy or the perception of having tests done sans an expert physician opinion. Our survey population expressed that they would also be uncomfortable if the ED asked them to self-check-in via a kiosk or asked them to return at a later time. This may offer precedent to rethink the move toward the introduction of such strategies to reduce waiting times [36].

It is known that self-reported/perceived waiting times drive actions like ‘leaving without being seen’ and decrease overall satisfaction [37]. In our study, although only 28% of respondents had an experience of ‘leaving without being seen’ from an ED, an overwhelming 58% reported that they would consider that action if waiting times increased. The longest waiting time that the patients would wait before leaving was estimated to be 3.7 h. The average waiting time before leaving reported in the current literature varies from less than 2 h to over 6 h [38-40]. Younger patients were more likely to express a readiness to leave without being seen if wait times were too long, a finding that has also been shown in the study by Johnson et al. [38]. An increase in the proportion of patients who leave the ED without seeking care also has a direct effect on the reputation of both the hospital and the ED. Gilligan et al. reported that the willingness of patients to revisit the ED decreases with the increase in waiting time [41]. Besides waiting time, the quality of time spent waiting also determines patient satisfaction [42]. In our survey cohort, more than 70% of patients wanted a better estimate of their waiting time, while nearly half of them did not understand why they were waiting. Interventional research has shown that the introduction of pamphlets [43] or videos [44] explaining the working of the ED and the reasons for waiting has a beneficial effect toward patient satisfaction. Some EDs have also started posting expected waiting times on their website or at their triage desk. Improved communication such as described above could increase satisfaction and help increase the tolerance of long ED waiting hours [45,46]. Patients in our survey also expressed the desire for improved privacy, quiet and cleanliness, a snack shop, etc., in the waiting area. In a study in England, even when waiting times were reduced,
patients were still dissatisfied with the level of cleanliness in the ED [47]. This brings to view another aspect of the waiting patients: they expect more than just to see the physician.

With the increasing availability of health articles on the Internet, patients increasingly rely on this ever-expanding knowledge network for access to information and expectations of disease treatments. Although acutely ill patients use the Internet less than patients with chronic disease [48], in our study 14% of patients reported using the Internet for their current complaints, while 41% reported using the Internet regularly for health-related information. This presents a largely untapped resource not only for educating patients, but perhaps also for interacting with patients looking to come to the ED with non-acute illnesses.

Limitations
Our study had some potential limitations. This was a survey of patients who were waiting in the ED to see a physician for more than 15 min post registration. No specific tools like the “Emergency Severity Index” tool (ESI) were used to determine patient’s acuity and resource needs. This could have introduced a measurement bias. However, qualified nurses triaged patients based on accepted criteria for disease acuity. Furthermore, acute patient beds in our ED are separate from low-acuity beds, and crossovers are not allowed. We can therefore reasonably expect that the patients waiting in the ED for more than 15 min most probably did not meet the ESI 1 and ESI 2 criteria and were thus not higher acuity patients. There could have been a recall bias, as this was a self-reported survey, and no attempt was made to recheck the responses from the medical records. The number of interviewers was limited to two for the entire study, and all the information was printed, thus decreasing the variability associated with interviewer bias.

There might have been some sampling error associated with our survey, as some patients (n = 70) refused to participate in the study. Although the demographics of these patients were not collected, factors such as increased severity of pain and extremely long waiting times could have influenced patient’s decision to participate in the study. Also, as the survey was administered in English language only and no interpreter was available, this could have led to exclusion of some non-English-speaking patients.

Our study did not attempt to verify whether the PCP directed the patient to the ED for care. More importantly, it was not clear in all cases that the PCP was involved in the decision. Patients could have been directed to the ED by ancillary staff at the PCP’s office. Finally, ours is a tertiary care ED catering to a population of the greater Rochester area with more than 95,000 visits per year, which also offers 24–7 coverage by attending physicians, residents and mid-level providers. Due to the variability in the ED operation and management at other hospital systems, the results of our study should be cautiously generalized to other EDs.

Conclusions
Our survey revealed that most of the low-acuity patients waiting for care in the ED are more likely to have some form of medical insurance and a significant proportion of them also have a PCP. A significant proportion of patients who had a PCP were referred to the ED by PCP office staff. Our findings also highlight the preferences and expectations of low-severity adult patients waiting for care in the ED, which includes creation of separate areas for minor illnesses and injuries and introduction of physician-based triage. What is perhaps more important is to communicate with these patients to improve their perceptions about the waiting time and the working of the ED.

Competing interest
The authors declare that they have no competing interests.

Authors’ contributions
MFK conceived the study idea, participated in the study design, and participated in drafting and revising the manuscript. ARI conceived the study idea, participated in the study design, collected data, analyzed and interpreted the results, and drafted the manuscript. MJ contributed to the study design, collected data, analyzed and interpreted the results, and drafted and revised the manuscript. SS contributed to critically revising the manuscript. All authors read and approved the final manuscript.

Author details
1. Department of Emergency Medicine. University of Rochester Medical Center, 601 Elmwood Ave, Box 655 A, Rochester, NY 14642, USA.
2. Department of Neurosurgery. University of Rochester Medical Center, 601 Elmwood Ave, Box 670, Rochester, NY 14642, USA.

Received: 15 April 2013 Accepted: 16 September 2013
Published: 1 October 2013

References
1. Allen AB, Barnard BG, Falk WJ, Higgs ER, McCracken JG. A study of waiting time in an emergency department. Can Med Assoc J 1973, 109:373–376.
2. Goss ME, Reed Jr, Reader GG. Time spent by patients in emergency room. Survey at The New York Hospital. N Y State J Med 1971, 71:1243–1246.
3. Taylor TB. Threats to the health care safety net. Acad Emerg Med 2001, 8:1080–1087.
4. Richardson LD, Hwang U. America’s health care safety net: intact or unraveling? Acad Emerg Med 2001, 8:1056–1063.
5. Ong Eng Hock M, Ornato JP, Cosby C, Franck T. Should the emergency department be society’s health safety net? J Public Health Policy 2005, 26:269–281.
6. Bouffy D, Dubinsky 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, 17:405–412.
7. Kelly LJ, Birtwhistle R. Is this problem urgent? Attitudes in a community hospital emergency room. Can Fam Physician 1993, 39:1345–1352.
8. Rust G, Ye J, Baltrus P, Daniels E, Adesunloye B, Fryer GE. Practical barriers to timely primary care access: impact on adult use of emergency department services. Arch Intern Med 2008, 168:1705–1710.
9. Lowe RA, Localio AR, Schwartz DF, et al: Association between primary care practice characteristics and emergency department use in a Medicaid managed care organization. Med Care 2005, 43:792–800.

10. Emergency Department Pulse Report 2010 Patient Perspectives on American Health Care: South Bend, Ind.; 2010. Accessed 09/20, 2012, at http://patientsafetyadvisorylibrary.102010/de7/1/ Document/dec741.pdf.

11. National Hospital Ambulatory Medical Care Survey: 2008 Emergency department summary tables. 2008. Accessed 09/20/2012, at http://www.cdc.gov/nchs/data/ahcd/nhamcs_emergency/2008_med_web_tables.pdf.

12. Stead LG, Jain A, Decker WW: Emergency department overcrowding: a global perspective. Int Emerg Med 2009, 2:133–134.

13. Aragon SJ, Gesell SB: A patient satisfaction theory and its robustness across gender in emergency departments: a multigroup structural equation modeling investigation. Ann J Med Qual 2003, 18:229–241.

14. Jolly E, Clancy M: Waiting times are they that important? A patient survey. Emerg Med J 2009, 26:762.

15. Ablenson R: Uninsured put a strain on hospitals. The New York Times 2008, B8.B1.

16. Zuckerman S, Shen YC: Characteristics of occasional and frequent emergency department users: do insurance coverage and access to care matter? Med Care 2004, 42:176–182.

17. Economy at glance. http://www.bls.gov/egag/egag_ry_rochester_msa.htm. (Accessed 09/23, 2012, at http://www.bls.gov/egag/egag_ry_rochester_msa.htm).

18. McKay MP: Who uses the emergency department and Why? (http://www.acpe.org/news-media-top-banner/who-uses-the-emergency-department-and-why-y). In: ACP news; 2011.

19. Waseem M, McInerney JE, Perales O, Leber M: Impact of operational staging to improve patient throughput in an inner-city emergency department during the novel H1N1 influenza surge: a descriptive study. Pediatr Emerg Care 2012, 28:39–42.

20. Milbrett P, Halm M: Characteristics and predictors of frequent utilization of emergency services. J Emerg Nurs 2009, 35:191–198, quiz 273.

21. LaCelle E, Rabin E: Frequent users of emergency departments: the myth, the data, and the policy implications. Ann Emerg Med 2010, 56:42–48.

22. Singh S: Self referral to accident and emergency department: patients' perceptions. BMJ 1988, 297:1179–1180.

23. Singh G, Barton D, Bodwalia GG: Accident & emergency department's response to patients' inquiries by telephone. J R Soc Med 1991, 84:345–346.

24. Ligginger K: Inappropriate attendance at accident and emergency departments: a literature review. J Adv Nurs 1993, 18:1141–1145.

25. Burnett MG, Grover SA: Use of the emergency department for nonurgent care during regular business hours. CMAJ 1996, 154:1345–1351.

26. Carret ML, Fassia AC, Domingues MR: Inappropriate use of emergency services: a systematic review of prevalence and associated factors. Cad Saude Publico 2009, 25:7–28.

27. Forrest CB, Nutting PA, von Schrader S, Rohde C, Starfield B: Inappropriate attendance at accident and emergency department use for nonurgent care. Med Care 2005, 43:792–800.

28. Rnoads J, Dzaezen E: Touchscreen Check-In: Kiosks speed hospital registration. http://www.chf.org/publications/2009/03/touchscreen-checkin-kiosks-speed-hospital-registration. 2009.

29. Thompson DA, Yarnold PR: Waiting times fall, but hospitals are still dirty, survey of many requests, many insured and many primary care physician referrals. JAMA 1991, 266:1085–1090.

30. Arendt KW, Sadotty AT, Weaver AL, Brent CR, Boie ET: The left-without-being-seen patients: what would keep them from leaving? Ann Emerg Med 2003, 42:317–323.

31. Gilligan P, Gupta V, Singh J, Winder S, O’Kelly P, Hegarty D: Why are we waiting? A study of the patients’ perspectives about their protracted stays in an emergency department. Ir J Med 2007, 100:627–629.

32. Bajnai G, Gueirin L, Simon N: Which improvements could prevent the departure of the left-without-being-seen patients? Emerg Med J 2011, 28(11):945–947.

33. Nelson D, Coleman K, Walker J: Why are you waiting? Formulating an information pamphlet for use in an accident and emergency department. Accid Emerg Nurs 1997, 5:39–41.

34. Papa L, Seaberg DC, Rees E, et al: Does a waiting room video about what to expect during an emergency department visit improve patient satisfaction? J Emerg Med 2008, 34:18–24.

35. Nielsen D: Improving ED, patient satisfaction when triage nurses routinely communicate with patients as to reasons for waits: one rural hospital’s experience. J Emerg Med 2004, 30:336–338.

36. Mowen JC, Licata JW, McPhail J: Waiting in the emergency room: how to improve patient satisfaction. J Health Care Mark 1993, 13:26–33.

37. Kmetlovic Z: Waiting times fall, but hospitals are still dirty, survey of patients shows. BMJ 2005, 330:435.

38. Bansil P, Keenan NL, Zlot AI, Gilliland JC: Waiting times fall, but hospitals are still dirty, survey of patients shows. BMJ 2005, 330:435.

39. Baker DW, Stevens CD, Brook RH: Patients who leave a public hospital emergency department without being seen by a physician. Causes and consequences. JAMA 1991, 266:1085–1090.

40. Kamali: Emergency department waiting room: many requests, many insured and many primary care physician referrals. International Journal of Emergency Medicine 2013 6:35.