

Emergency Department Patients Who Leave without Being Seen by a Doctor: The Experience of a Medical Center in Northern Taiwan

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Background: To determine why emergency department (ED) patients leave without being seen (LWBS) by a physician and to ascertain whether they receive alternative medical care.

Methods: A cross-sectional study was conducted of patients who left without being seen by a physician between January 1 and June 30, 1999 in a medical center ED in northern Taiwan. Medical records were reviewed for population demographics, presenting complaints, and clinic acuity rating. Follow-up telephone interviews were conducted within 3 weeks after the patient left the ED.

Results: Of 74,485 registered patients, 77 (0.1%) left without being seen by a doctor, and follow-up was achieved for 39.0% (30 of 77) of these. Ninety-seven percent (75 of 77) had low acuity ratings, and 58% (45 of 77) left within 60 min after registration. The respondents cited the following 3 leading reasons for leaving: prolonged waiting times (16 of 30, 53.3%), ED appeared busy (6 of 30, 20.0%), and self-referral to the hospital outpatient department (4 of 30, 13.3%). Most respondents believed that they should have been evaluated by a physician within 60 min of presentation. About half (14/30, 46.6%) of them sought further medical care within 24 h after they left the ED.

Conclusion: In our study, only 0.1% of patients who sought care in the ED left without being seen by a physician. The majority of survey respondents had a low acuity rating and left because of long waiting times. Half of the patients who left without being seen sought alternative medical care.
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Key words: leave without being seen, emergency department.

The Linkou Chang Gung Memorial Hospital (CGMH) is a 3500-bed tertiary care facility in northern Taiwan. The emergency department receives approximately 140,000 patients annually. Emergency departments (EDs) often fulfill the

important role of a "safety net" whenever anyone requires medical care. The Yale Ambulatory Medical Care Study described the ED as a "basic source of medical care for the economically depressed inner-city population".⁽¹⁾ Pressures on

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emergency departments have steadily increased, raising questions about whether they can care for all patients who register for treatment. A shortage of beds in inpatient wards and intensive care units, the transfer of patients from local hospitals, a rising number of patients, and a growing demand for ambulatory care have created overcrowding in the emergency department at Linkou CGMH.

Overcrowding in the emergency department is a complex problem. Chan and his colleagues found that utilization of the emergency department by patients with non-urgent medical problems may contribute to overcrowding and impair access for patients with true emergencies in a severely crowded ED.⁽²⁾ Overcrowding of emergency departments has jeopardized this safety net according to several reports from many hospitals.⁽³⁻⁵⁾ Too many sick and injured patients seek too few inpatient beds to accommodate them. In such busy EDs, ways to ensure the quality of medical care are crucial points for administrators and all ED staff members.

Studies have suggested that clinical indicators are sensitivity factors which measure the quality of care in an emergency.^(6,7) The subset of ED patients who leave without being seen (LWBS) is one useful clinical indicator.⁽⁸⁾ Studies have reported the rate of leaving without being seen to be from 1% to 15%.⁽⁹⁻¹⁵⁾ Those overseas studies, which generally reported long waiting times, found that some seriously ill patients left before being seen by a physician. For example, at 1 public hospital in Los Angeles County, 46% of the patients who left the ED without treatment were judged to need immediate medical evaluation, and 11% were hospitalized during the subsequent week.⁽¹⁴⁾

As little is known about the characteristics of patients who leave an ED without seeing a physician or about the clinical significance of the problem in Taiwan, we desired to determine whether this problem is limited to overseas hospitals or whether it exists in our hospital as well. In this study, we investigated the demographics of this patient population, their reasons for leaving, and whether they sought alternative medical care.

METHODS

The study was performed over a 6-month period

from January 1 to June 30, 1999. All registered patients who left the ED of Linkou CGMH without being seen by a doctor were enrolled in the study. Their medical records were reviewed for the following demographic data: age, gender, date and time of registration, chief complaint, and initial triage category. Their registration times were sub-grouped into day shift (08:00 to 16:00), evening shift (16:00 to 24:00), and night shift (24:00 to 08:00).

All LWBS patients were interviewed by telephone using a fixed-alternative questionnaire within 3 weeks of their registration event for follow-up information. If the patient was younger than 16 years or was unable to answer the phone, the family member who accompanied the patient to the ED visit was interviewed. The questions covered the reasons they left the ED, their overall satisfaction with the ED visit, and if they sought alternate medical care after their ED visit. Two trained research assistants made all telephone calls. All data were input into Microsoft Excel and SPSS software for data management, and X^2 test or Fisher's exact test was used for the categorical variables analysis.

RESULTS

There were 74,485 registered ED visits during the study period, and a total of 77 patients (0.1%) left without being seen. These patients ranged in age from 29 days to 75 years. The majority were in their first and second decades (57.1%) of life. The male:female ratio was 1.14 (41/36). Only 2 patients demonstrated a high acuity rating, while most (75/77) had a low acuity rating; in addition, no LWBS patient was in critical condition. Results reveal that patients were more likely to leave during the evening shift (56/77). Fifty-eight percent (45/75) of patients left within 60 min after registering (Table 1). Most patients visited the ED with mild chief complaints such as fever, cough, or nausea/vomiting (Table 2).

Thirty (39.0%) of the patients who left without being seen were reached for follow-up information. Of the 47 (61.0%) patients who could not be contacted because they had registered with incorrect (12/47) or no telephone numbers (30/47) on the ED medical record, no one answered the phone within 3 weeks of the interview period for 3, and 2 declined to be inter-

Table 1. Demographic Data of All Leave without Being Seen (LWBS) and Responding Patients

	Total group (N = 77)	%
Gender		
male	44	57.1
female	33	42.9
Age (years)		
< 16	41	53.2
16-65	35	45.5
> 65	1	1.3
Triage category		
1	1	1.3
2	1	1.3
3	64	83.1
4	11	14.3
First ED visit		
yes	30	39.0
no	47	61.0
Time of arrival at the ED		
08:00-16:00	21	27.3
16:00-24:00	31	40.2
24:00-08:00	25	32.5
Time (min) waited in the ED		
0- 30	25	32.4
31- 60	20	26.0
61-120	20	26.0
121-180	12	15.6

Table 2. Chief Complaints of Patients Who Leave the Emergency Department without Being Seen by a Doctor

Chief complaint	N = 77 (%)
Fever	16 (20.8)
Cough	12 (15.6)
Nausea, vomiting	10 (13.0)
Diarrhea	8 (10.4)
Abdominal pain	7 (9.1)
Trauma or injury	4 (5.2)
Others	20 (25.9)

viewed. The X^2 test showed there were statistically significant differences between the responding group and the non-responding group in age and whether it was their first visit. Patients in the responding group were younger and were more likely to be visiting the ED for the first time compared to the non-respondents (Table 3).

Of the 30 respondents, 8 (26.7%) left within 30

Table 3. Comparison of Respondent and Non-respondent Groups

	Interviewed group (N = 30)	%	Non-respondent group (N = 47)	%	<i>p</i>
Gender					0.95
male	17	56.7	27	57.4	
female	13	43.3	20	42.6	
Age (years)					0.01
≤16	22	73.3	19	40.4	
>16	8	26.7	28	59.6	
Triage					1.00*
3	26	86.7	38	84.4	
4	4	13.3	7	15.6	
First ED visit					0.04
yes	7	23.3	21	48.9	
no	23	76.7	24	51.1	
Time of arrival in the ED					0.07
08:00-16:00	8	26.7	13	27.7	
16:00-24:00	8	26.7	23	48.9	
24:00-08:00	14	46.6	11	23.4	
Time waited in the ED (min)					0.84
0- 30	8	26.7	17	36.2	
31- 60	8	26.7	12	25.5	
61-120	9	30.0	11	23.4	
121-180	5	16.6	7	14.9	

The *p* value is according to the X^2 test for each variable except for triage which used Fisher's exact test.

min, 8 (26.7%) left between 30 min and 1 hour of registration, and 5 (16.6%) left after waiting over 2 hours. The respondents cited the following reasons for leaving: tired of waiting, the ED appeared busy, and self-referral to the hospital's outpatient department (OPD) (Fig. 1). Fourteen responding patients sought further medical care within 24 hours, while 6 patients did not.

Nine of them anticipated no wait, and 5 of them expected to wait for less than 30 min. Forty-three percent (13/30) of the respondents felt that they should have been seen by a physician in the ED within 1 hour. Only 3 of them were willing to wait for more than 1 hour.

As to the satisfaction level of the ED visit, most respondents displayed some dissatisfaction over the visit (20/30, 66.7%), with 3 being satisfied and 7 saying the experience was fair. Patients experiencing prolonged waiting times (8/30) were usually dissatisfied (Fig. 2).

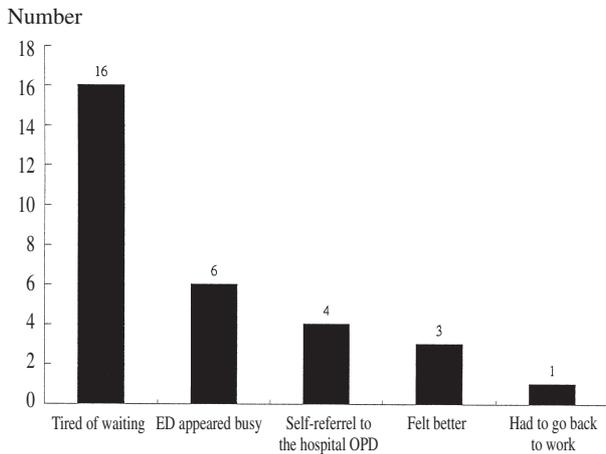


Fig. 1 Reasons for leaving the emergency department.

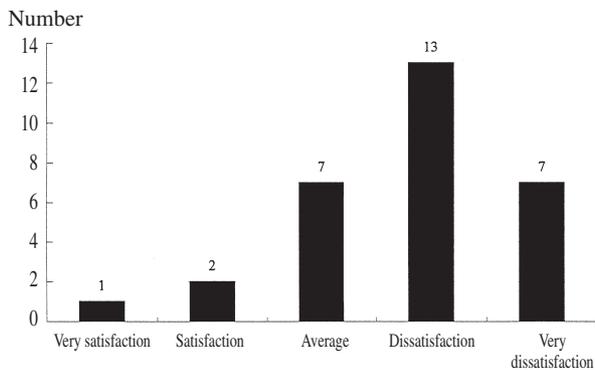


Fig. 2 Satisfaction with the emergency department visit.

DISCUSSION

Hospital EDs are an important entry point to the health care system in Taiwan. In this setting, EDs function as a medical safety net whenever anyone requires medical care. Patients visiting an ED but leaving without being seen by a physician may indicate a problem with the quality of medical care. Previous ED studies have revealed a LWBS rate of from 1% to 15%.⁽⁹⁻¹⁵⁾ The LWBS rate should be high in studies where a public hospital has a poorly supported health care system with long waiting times (3.5-6.4 hours).^(14,16) These studies suggest that most

institutions will limit their attempts to improve the quality of care, and hope to reduce the LWBS rate to near 1% to 2%. However, the LWBS rate in our ED was considerably lower compared to findings from studies conducted overseas. Our study revealed an LWBS rate of only 0.1% in our high-volume private hospital ED. Stock reported the proportion leaving without treatment varied from 0.01% to 9.4% at individual hospitals in Los Angeles County. On average, the LWBS rate of public hospital EDs was more than 3 times that of private hospital EDs (7.3% vs. 2.4%). But significant numbers of patients left from busy private hospital EDs as well as public hospital EDs.⁽¹⁶⁾ Different health care systems, the ease of access to alternative medical care, the capacity of EDs, and patients' expectations and estimated waiting times may explain this discrepancy, but further study is needed at different hospitals in Taiwan to provide a convincing explanation.

Assuming that long waiting times are the result of ED overcrowding, the strong association between waiting time and the rate of patients who leave without being seen suggests that overcrowding plays an important role in patients' failure to gain access to medical care in EDs. This study revealed that most LWBS patients left within 1 hour of registration in the ED. Most of these patients had a low acuity rating and left because they were tired of waiting, the ED appeared busy, or they referred themselves to the hospital OPD. The data resemble those in the report of Fernandes.⁽¹⁵⁾ But the figure for the acuity rate was much lower than those of other reports in which more than 1/3 of LWBS patients had a high acuity rating.^(14,15) No patient in this study left the ED because he or she was too ill to wait, as 11% reported to have done in Backer's study.⁽¹⁴⁾ These findings reflect an effective triage system to assess the severity of patient symptoms or the need for immediate medical attention. In our ED, the triage nurse immediately sent patients with an unstable condition to see a physician.

About half of the patients (14/30) in this study sought further medical attention within 24 hours. Only 6 patients did not see a physician within 72 hours. This finding confirms most other reports that LWBS patients still thought they needed some medical attention although they had a low acuity rating.⁽¹⁵⁾ One possible way to solve this problem is to establish a transfer process to the OPD for those ED

patients with a low acuity rating during the day shift. This may reduce both the overcrowded situation in the ED and the LWBS rate.

In terms of risk management, LWBS patients represent a high-risk group. In our study, 2/3 of respondents were dissatisfied with the ED service. These patients may influence friends and neighbors so that far greater numbers of the index population avoid further medical help at the hospital concerned.⁽¹⁷⁾ Gibson reported a patient dissatisfaction rate of less than 10%.⁽¹¹⁾ Fernandes reported that dissatisfaction was higher in Canada, suggesting higher expectations from the universal health care system.⁽¹⁵⁾ A higher dissatisfaction rate suggests higher expectations from patients who visit a medical center. But it is interesting that 3 of 30 respondents were satisfied with the ED service although they left the ED without been seen by a physician. This result may indicate the existence of some psychological reasons, and further investigation would be required to understand the full picture.

Patients were more likely to leave during the night shift than during the day shift. One possible explanation for this finding is that patients with minor complaints (low-acuity ratings) use the ED during off hours (the night shift) because of its convenience as a source of primary health care.

This study has several limitations. First, the large number of patients (61%) who did not respond to the interview may have affected the results. Most of the non-respondents offered an incorrect or no telephone number on the ED medical record, and this result was almost the same with the result of a study done in Toronto, in which the response rate was 39%, and 77% of those patients who were not contacted had given an incorrect or no telephone number. They thought that LWBS patients might have some psychosocial adjustment problems and suggested that any future study focused on this issue should check every registrant's address and phone number.⁽¹⁵⁾ This explanation of LWBS patients' psychosocial characters may also provide an insight into our finding and be proven by the phenomenon that most of the responders were first-time visitors and parents of pediatric patients. But the suggestion of paying greater attention to every ED registrant's personal information to increase the chance of contact would be somewhat difficult in our social atmosphere and in an extremely busy ED.

Second, our study did not assess patients' final outcomes; this is an important factor when constructing a risk management assessment profile for the ED. Further research may require following up these patients for a longer time to determine their final outcomes.

In general, the study discovered that the rate of LWBS in our ED is much lower than those reported for other studies. The majority of LWBS patients had a low-acuity rating and left because of prolonged waiting times. About half of LWBS patients sought other medical care.

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未經診視自行離開急診部門病患之探討

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背景：本研究主要目的在了解病患未經診視即離開急診部門之因素，及其離開急診後是否有再尋求其他的醫療處置。

方法：本研究於1999年1月1日起至6月30日止，於台灣北部一所醫學中心急診部門針對未經診視即離開急診部門之病患進行一橫斷式研究，資料蒐集來源除包含經病歷回顧所獲得之人口變項資料、就醫主訴及嚴重度外，主要為於病患離開急診部門三週內所進行之結構式電話問卷調查。

結果：於資料蒐集期間該醫學中心急診部門共有74,485就醫人次，其中有77 (0.1%) 名病患未經診視即離開，大部分未經診視即自行離開急診部門的病患其疾病嚴重度較低(75/77)，58% (45/77) 的病患在掛號後一小時內自行離開。77名未經診視即離開病患中有39.0% (30/77) 電訪成功；訪問結果發現病患離開急診之主要原因依序為等候時間過長(53.3%)、急診部門看起來很忙(20.0%) 及自行轉至門診就醫(13.3%)。九成的受訪者均認為他們應在到急診就醫的60分鐘內被醫師診視；約有一半(46.6%) 的受訪者於離開該急診部門後一天內有再尋求醫療協助。

結論：本研究發現本急診部門的未經診視即離開病患與總急診就醫人次之比率很低，僅0.1%，且此類病患就醫時之疾病嚴重度較低，而離開之原因主要為等候時間過長；約有一半的受訪者於離開急診部門後一天內再尋求醫療協助。
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關鍵字：未經診視自行離院，急診部門。