Analysis of Factors and Medical Errors Involved in Patient Complaints in a European Emergency Department

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Abstract

Introduction: Patients’ complaints from Emergency Departments (ED) are frequent and can be used as a quality assurance indicator.

Objective: Factors contributing to patients’ complaints (PCs) in the emergency department were analyzed.

Methods: It was a retrospective cohort study, the qualitative variables of patients’ complaints visiting ED of a university hospital were compared with Chi-Square and t test tests.

Results: Eighty-five PC were analyzed. The factors contributing to PC were: communication (n=26), length of stay (LOS) (n=24), diagnostic errors (n=21), comfort and privacy issues (n=7), pain management (n=6), inappropriate treatment (n=6), delay of care and billing issues (n=3). PCs were more frequent when patients were managed by residents, during night shifts, weekends, Saturdays, Mondays, January and June. Moreover, the factors contributing to diagnostic errors were due to poor communication, non-adherence to guidelines and lack of systematic proofreading of X-rays. In 98% of cases, disputes were resolved by apology and explanation and three cases resulted in financial compensation.

Conclusion: Poor communication, LOS and medical errors are factors contributing to PCs. Improving communication, resolving issues leading to slow health care provision, adequate staffing and supervision of trainees may reduce PCs.

Key words: Communication; Diagnostic errors; Emergency department; Patient complaint

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Introduction

Patients visit often the emergency department (ED) where medical errors and patient complaints may occur (1, 2). The rate of harm caused by medical errors has remained constant in the healthcare system over the last decade (3). Despite the unfavorable view of patient complaints (PCs), such complaints should be appreciated and used effectively (4). Studies suggested that patients may play a role in detecting and preventing medical errors because they can identify flaws and incompetence accurately (5). In several studies, the majority of ED PCs were directly due to poor attitude and communication, and some of them were related to medical care and waiting time issues (4, 6-9). Complaints are typically made by patients and families, and although in rare cases patients have asked for compensation, the large majority of ED complaints are resolved (4). In spite of the importance of the PCs analysis as a quality assurance tool, the nature, frequency and outcomes of ED complaints in Europe have been poorly studied. The objective of this study was to describe and analyze factors and medical errors involved in PCs in the ED.

Methods

Study design
It was a retrospective cohort study of factors involved in the occurrence of PCs in the ED of a University Hospital, Rennes, France from 2009 to 2012. The study was approved by the Ethical Committee Review Board.

Study population
Patients involved in a written complaint sent to the ED were included. All complaints related to a problem with the care are managed by the head of the ED. A complaint is defined as PC sent to the head of the ED or to the hospital director. The following criteria were excluded: oral communication, and telephone conversations.
The structure and schedule of typical shifts in our ED are described as follows: The daytime shift starts at 8:30 to 18:30 with one attending physician responsible for the observation unit (Block 1) management assisted by one resident. Another attending physician is responsible for the management of the triage section with two nurses (Block 2). The third attending physician is responsible for the fast track management assisted with two residents (Block 3). The forth-attending physician is responsible for the management of the resuscitation room without assistance from one resident (Block 4). Finally, the diagnostic and treatment area dedicated to complex patients (Block 5) is under the supervision of one attending physician assisted by two residents. In summary, in the daytime five attending physicians are present in the ED assisted by five residents. During the night shift from 18:30 to 8:30, the number of attending physicians drops from five to two. One of the two attending physicians supervises the fast track and helps the nurses working in the triage area and one attending physician supervises the diagnostic and treatment area and the resuscitation room. Each attending physician supervises two residents. In summary, two attending physicians and four residents are present during the night shift. Over the weekends, two attending physicians are present from 8:30 to 18:30 assisted by four residents with the same number of doctors during the night shifts. One supplementary attending physician supervises the observation unit from 8:30 to 18:30 without a resident. Residents can manage patients alone but refer to the attendee when needed. Residents can manage patients alone but consult with attending when needed. The attending validates decision of resident regarding discharge or admission of the patients. After the root cause analysis process, the head of the department writes systematically an answer sent by the Healthcare Quality Department to the complainants and explains the errors that occurred during the care in the ED and apologizes. To improve the quality of care, this written answer without the name of the patient is forwarded to the healthcare providers towards whom the complaints are addressed. All complaints are reviewed on monthly basis during the quality assurance meeting and medical error cases are presented during the mortality/morbidity monthly meetings.

**Data collection**

All complaints were analyzed by AB et FJK. Patient data were collected from the ED patient record. Length of stay (LOS), and contextual factors such as weekday, weekend, daytime or night, and inflow influence of visits were recorded. The diagnosis, the patient’s referral status as well as the type of doctor involved were examined. In addition, information was obtained regarding: the letter from the hospital administration addressing the PCs to the ED, the date of the complaint, the date of the response, and the type of complaint. The author of the PC was also recorded.

In order to ensure the consistency of handling and to minimize bias in the reading or interpretation of the complaints and their related issues, a single person was appointed to read the PCs.

**Statistical analysis**

Qualitative variables were compared with the Chi2 test, and since the subject sample was small, the t-test was used. All information was recorded in EXCEL, and statistical tests were performed using the SPSS software. It was observed that P value was statistically significant (p < 0.05).

**Results**

Out of 172,092 of the ED visits, there were 85 PCs which gave a rate of 0.49 per 1,000 ED visits over 43 months (n=28, in 2009, n=21, in 2010, n=25 in 2011, n=11, in 2012). Distribution and characteristics of PCs and their contributing factors are described in Table 1.

Twenty-one cases were due to diagnostic errors that the consequences and responses to each complaint and preventable factors related to all diagnostic errors complaints were studied and summarized in Table 2.

**Demographic and logistic**

Females represented 56 %. The mean age was 54.9 years with two peaks in the 25-45 and the 75 years and above. The delay between the ED visit and the complaint was 46.3 ± 91 days and the delay of the response to the complaint was 75.8 ± 68.7 days. It was observed that the letter of complaint was sent by: family (n=53, 62%), patient (n=29, 34%), attorney (n=1, 1%), or other (n=2, 3%).

**Type of PCs and Professionals involved**

Lack of communication was the most frequent with 25 complaints (30%). LOS represented 24 complaints (28%), while, diagnosis errors were accounted for 21 of PCs (24%). The remaining issues of complaint were: comfort and privacy issues (n=7, 8%), pain management (n=6, 7%), inappropriate treatment (n=6, 7%), delay of care (n=3, 4%), and billing (n=3, 4%). Complaints in older patients were related to non-compliance with a basic need, followed by LOS. In younger patients, complaints were related to poor pain management and misdiagnosis.
Table 1: Distribution and characteristics of patients’ complaints and their contributing factors.

| Distribution of complainants | Number (n) of complainants | (%) |
|-----------------------------|---------------------------|-----|
| Patients’ families          | 53                        | 62  |
| Patients                     | 29                        | 34  |
| others                      | 2                         | 3   |
| Patients’ appointed attorneys | 1                         | 1   |

| Contributing factors to the patients’ complaints | (n) | (%) |
|--------------------------------------------------|-----|-----|
| Poor communication                               | 25  | 30  |
| Long length of stay                              | 24  | 28  |
| Medical errors                                   | 21  | 24  |
| Comfort/food and privacy/confidentiality issues  | 7   | 8   |
| Inadequate pain management                       | 6   | 7   |
| Inappropriate treatment                          | 6   | 7   |
| Delay of care                                    | 3   | 4   |
| Billing issues                                   | 3   | 4   |

| Distribution of contributing factors to the patients’ complaints according to age |
|-----------------------------------------------------------------------------------|
| Elderly Patients ≥60 years                                                          |
| Comfort issues                                                                     |
| Long length of stay                                                               |
| Young patients <60 years                                                           |

| Distribution of patients’ complaints towards medical staff | (n) | (%) |
|-----------------------------------------------------------|-----|-----|
| Physicians                                               | 44  | 52  |
| Unspecified                                              | 20  | 24  |
| Clerks at triage                                         | 12  | 14  |
| Nurses                                                    | 9   | 10  |

| Distribution of patients’ complaints with the regard to days of the week | (n) | Total # of visits |
|------------------------------------------------------------------------|-----|-------------------|
| Saturdays                                                              | 19  | 25,400            |
| Mondays                                                                | 15  | 25,204            |
| Fridays                                                                 | 13  | 25,440            |
| Sundays                                                                | 13  | 25,787            |
| Thursdays                                                              | 11  | 23,803            |
| Wednesdays                                                             | 8   | 23,030            |
| Tuesdays                                                               | 8   | 23,417            |

| Distribution of patients’ complaints with the regard to months of a year | (n) | Total # of visits |
|------------------------------------------------------------------------|-----|-------------------|
| January                                                                | 14  | 16,900            |
| June                                                                   | 10  | 16,437            |
| March                                                                  | 9   | 16,751            |
| December                                                               | 8   | 12,042            |
| February                                                               | 8   | 14,724            |
| October                                                                | 7   | 12,363            |
| April                                                                  | 7   | 15,730            |
| July                                                                   | 6   | 15,795            |
| August                                                                 | 5   | 10,967            |
| September                                                              | 5   | 12,002            |
| November                                                               | 4   | 11,154            |
| May                                                                    | 4   | 16,699            |

| Distribution of most common contributing factors to the patients’ complaints between surgical and non-surgical groups | Non-surgical(%) | Surgical(%) | p-value |
|-------------------------------------------------------------------------------------------------------------------|-----------------|-------------|---------|
| Poor communication                                                | 41              | 4.8         | P<0.001 |
| Long length of stay                                               | 3               | 33          | P<0.001 |
| Medical errors (calculation was done in 21 PCs)                    | 4.8 (1/21) or 1.2 (1/85) | 95.2 (20/21) or 23.5 (20/85) | P<0.001 |

| Distribution of contributing factors to the patients’ complaints between admitted and discharged groups | Contributing factor | (%) |
|------------------------------------------------------------------------------------------------------|---------------------|-----|
| Admitted group                                                                                        | Long length of stay | 54% |
| Discharged group                                                                                      | Poor communication  | 68% |
| Case No. | Clinical symptoms | Initial diagnosis at the Emergency Department | Final diagnosis | Responses and Consequences of the complaints | Preventable factors |
|---------|-------------------|---------------------------------------------|----------------|-------------------------------------------|-------------------|
| 1       | Unusual headache, normal neurological examination | Migraine | Cerebral thrombophlebitis leading to death after 48 hrs | Compensation for the assigned complaint | Non-adherence to clinical practice guidelines; Poor communication with patient |
| 2       | Abdominal pain in hypogastrium and right iliac fossa, fever | Functional pain with normal ultrasound | Acute appendicitis | Letter of apology and explanation | Non-adherence to clinical practice guidelines; Poor communication with patient |
| 3       | Abdominal pain | Renal Colic | Adnexal torsion | Letter of apology and explanation | Lack of decision making tree for management of abdominal pain |
| 4       | Abdominal pain | Constipation | Adnexal torsion | Letter of apology and explanation | Lack of decision making tree for management of abdominal pain |
| 5       | Head Trauma | Minor head trauma | Benign paroxysmal vertigo | Letter of apology and explanation | Poor communication with the patient |
| 6       | Scrotal pain | Epididymitis | Testicular torsion | Specialist consultation, filing lawsuit against the health care providers | Non-adherence to clinical practice guidelines |
| 7       | Left arm trauma | Contusion | Fracture | Letter of apology and explanation | Missed-diagnosis |
| 8       | Head injury with initial loss of consciousness, scalp laceration, vomiting, diarrhea | Minor head trauma | Hemorrhagic cerebral contusion & skull fracture | Letter of apology and explanation | Non-adherence to clinical practice guidelines |
| 9       | Facial and arm trauma under influence of acute alcohol intoxication | Contusion | Displaced fracture of mandibular condyle, non-displaced fracture of mandible, fracture of radial head | Letter of apology and explanation | Lack of consultation with supervising physician |
| 10      | Wrist pain and left elbow pain due to assault | Contusion | Scaphoid fracture | Letter of apology and explanation | Missed-diagnosis |
| 11      | High kinetic energy trauma on highways, Motor Vehicle Accident | Contusion | Cervical spine fracture | Letter of apology and explanation | Non-adherence to clinical practice guidelines |
| 12      | High kinetic energy trauma on highways, Motor Vehicle Accident, pelvic trauma | Fracture of acetabulum | Acetabular and Ischiopubic fracture | Letter of apology and explanation | Missed-diagnosis |
| 13      | Injury of thoracic and lumbar spine and ankle pain due to fall from height of 3m (9.84 ft) | Contusion | Fracture of thoracic vertebrae and calcaneum | Letter of apology and explanation | Missed-diagnosis |
| 14      | Arm trauma due to fall from height | Contusion | Fracture of head of the humerus | Compensation to the patient | Missed-diagnosis |
| 15      | Head trauma with loss of consciousness and costal trauma on the setting of acute alcohol intoxication | Contusion | Rib fracture | Letter of apology and explanation | Poor communication with the patient |
| 16      | Thoracic spine trauma due to fall from height of 2.5 m(8.20 ft) | Contusion | T12 fracture | Letter of apology and explanation, fixation of the fracture | Missed-diagnosis |
| 17      | Repeated fall, difficulty in walking | Contusion | Fracture of femur | Letter of apology and explanation, fixation of the fracture | Missed-diagnosis |
| 18      | Abdominal pain, vomiting | Constipation | Small bowel obstruction | Compensation to the patient | Non-adherence to clinical practice guidelines |
| 19      | hypogastric abdominal pain | Mittelschmerz | Hemorrhagic rupture of corpus luteum | Letter of apology and explanation | Not referring and transferring the patient on-time |
| 20      | Abdominal pain, vomiting, fever, normal lab findings | Functional pain | Cholangitis | Letter of apology and explanation | Lack of decision making tree for management of abdominal pain |
| 21      | Mechanical trauma to ankle | contusion | Bone | Letter of apology and explanation | Missed-diagnosis |
common reasons were prolonged LOS and the lack of communication, except for 2010 in which the most common cause was due to misdiagnosis. Professionals involved in the complaints were: physicians (n=44, 52%), nurses (n=9, 10%), clerks at triage (n=12, 14%), and unspecified (n=20, 24%).

**The Relationship between PCs and patient visits**
The number of visits per day was significantly different in PCs as compared to the group without complaints (150±3 vs 132±2, p=0.03). Complaints were more frequent on Saturdays, and Mondays, and during the months of January and June. 71% of PCs were related to care during the night shift and 42% during the weekends when ED visits were more related to a surgical problem. LOS was the main complaint in 54% of patients who were admitted and communication problems was found in 68% of discharged patients.

**Medical errors and PCs**
Twenty-one cases were due to diagnostic errors which occurred more often when residents managed patients without supervision (25% vs 13% by attendees, p<0.05). 76% of diagnostic errors were found in the group of patients who were discharged and in young patients (p<0.05). Diagnostic errors occurred when the chief complaint was surgical (95.2%±20/21 cases vs 4.8%±1/21 cases in non-surgical cases, p<0.001). LOS were more frequent in surgical cases (33% vs 3%, p<0.05) and communication in non-surgical cases (41% vs 4.8%, p<0.05). The distribution of medical conditions related the diagnostic errors is shown in Table 2: trauma (n=13), abdominal pain (n=6), neurologic condition (headache) (n=1), and scrotal pain (n=1). After reviewing all 21 cases of diagnostic errors, we figured out the avoidable factors such as lack of proper systematic proofreading of X-rays in cases of trauma, non-adherence to medical guidelines in abdominal pain, insufficient communication with patients, and lack of specialist consultation (Table 2).

**Outcomes of the PCs**
In 98% of cases, disputes were resolved without any legal action by providing letters of apology and explanation from the hospital to the corresponding patients, their families or to their appointed attorneys and three cases resulted in financial compensation to the patients.

**DISCUSSION**
The PCs rate in our study was 0.49 per 1,000 cases, which is lower as compared to other studies (2, 10). The majority of the PCs were mainly due to insufficient communication and prolonged LOS, and a significant amount was related to misdiagnosis. In contrast, Wong et al. showed that PCs were mainly due to organization and logistics, communication, and standard of care (10). While Zengin et al. showed that the majority of PCs were mainly due to poor attitude, communication and medical care (4).

Several studies have shown that practice in the ED which is subject to marked stress may lead to the occurrence of errors (11). On the other hand, it has been shown that PCs and physicians concerns about quality assurance should be used as a tool to identify the near miss and medical error cases and prevent adverse events (12). In our study, we exhibited that factors that seem to increase the risk of medical errors were, incorrect interpretation of X-rays and when the doctor managing patients was a resident, which was also found by Kachalia et al. (13). Another explanation for medical errors is lack of adherence to medical guidelines as shown in Table 2.

In our study, there was an increase in PCs on Saturdays and Mondays compared to other days. There was also a significant increase of complaints during night shifts and on the weekends where the number of healthcare providers is less comparing with other weekdays and daytime shifts. Therefore, in these times, the increase of medical staff working in the ED can reduce PCs.

The majority of complaints was closed without compensation or raised criminal proceedings, which is similar to other studies (10, 11, 14, 15).

**Limitations**
This study has some limitations. The small number of formal written complaints, is positive in terms of quality of care, but could be a limitation regarding statistical analysis. The focus of the study has only been on written complaints although it is acknowledged that many complaints are expressed orally, immediately after the visit to the ED and also by telephone. Finally, reading the files may represent some subjectivity in the interpretation of the complaints’ statements. But complaints were analyzed independently by two reviewers which strengthen the rating.

**Conclusions**
This study showed that PCs are rare in the ED. Communication, LOS and diagnostic errors are the main causes of PCs. The large majority of complaints are resolved, usually by explanation or apology. Our results suggest that improving communication with patients, reducing LOS, and providing adequate staffing and supervision of trainees may decrease PCs and medical errors.
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Authors' contribution
Pauline Haroutunian and Mohammed Alsabri contributed equally to the conception, formulation and drafting of the article. *Abdelouahab Bellou as the principal investigator, contributed to the conception, formulation and drafting of the article, participated and supervised the elaboration and every step of the paper writing process and as a corresponding author, will handle correspondence at all stages of refereeing, publication and post publication. François Jerome Kerdiles was involved in gathering and analyzing the data and contributed to the conception and the drafting of the paper. Adel Ahmed Abdullah Hassan, as a co-author, contributed to the elaboration and revision of the paper.

Conflict of interest
Authors disclose no conflict of interest.

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References
1. Brennan T, Leape L, Laird N, Hebert L, Localio A, Lawthers A, et al. Incidence of adverse events and negligence in hospitalized patients. Results of the Harvard Medical Practice Study I. N Engl J Med. 1991;324(6):370-6.
2. Donaldson MS, Corrigan JM, Kohn LT. To err is human: building a safer health system: National Academies Press; 2000.
3. Landrigan CP, Parry GJ, Bones CB, Hackbarth AD, Goldmann DA, Sharek PJ. Temporal Trends in Rates of Patient Harm Resulting from Medical Care. N Engl J Med. 2010;363(22):2124-34.
4. Zengin S, Al B, Yavuz E, Kursunkoseler G, Guzel R, Sabak M, et al. Analysis of complaints lodged by patients attending a university hospital: a 4-year analysis. Journal of forensic and legal medicine. 2014;22:121-4.
5. Harrison R, Walton M, Manias E, Smith-Merry J, Kelly P, Iedema R, et al. The missing evidence: a systematic review of patients' experiences of adverse events in health care.Int J Qual Health Care. 2015;27(6):424-42.
6. Cydulka RK, Tamayo-Sarver J, Gage A, Bagnoli D. Association of patient satisfaction with complaints and risk management among emergency physicians. The Journal of emergency medicine. 2011;41(4):405-11.
7. Anderson K, Allan D, Finucane P. A 30-month study of patient complaints at a major Australian hospital. Journal of quality in clinical practice. 2001;21(4):109-11.
8. Jangland E, Gunningberg L, Carlsson M. Patients' and relatives' complaints about encounters and communication in health care: evidence for quality improvement. Patient education and counseling. 2009;75(2):199-204.
9. Salazar A, Ortiga B, Escarrabill J, Corbella X. Emergency department complaints: A 12-Year study in a university hospital. Ann Emerg Med. 2004;44(4):S20.
10. Wong LL, Ooi SB, Goh LG. Patients' complaints in a hospital emergency department in Singapore. Singapore medical journal. 2007;48(11):990-5.
11. Brown TW, McCarthy ML, Kelen GD, Levy F. An epidemiologic study of closed emergency department malpractice claims in a national database of physician malpractice insurers. Academic emergency medicine : official journal of the Society for Academic Emergency Medicine. 2010;17(5):553-60.
12. Gurley KL, Wolfe RE, Burstein JL, Edlow JA, Hill JF, Grossman SA. Use of Physician Concerns and Patient Complaints as Quality Assurance Markers in Emergency Medicine. The western journal of emergency medicine. 2016;17(6):749-55.
13. Kachalia A, Gandhi TK, Puopolo AL, Yoon C, Thomas EJ, Griffey R, et al. Missed and delayed diagnoses in the emergency department: a study of closed malpractice claims from 4 liability insurers. Ann Emerg Med. 2007;49(2):196-205.
14. Raynaud-Lambinet A, Juchet H, Charpentier S, Studniarek E, Remy S, Lauque D. Analysis of the complaint letters submitted to the services of emergency from 2002 to 2007. Ann Fra Med Urg. 2011;1(3):170-4.
15. Tam A, Lau F. A three-year review of complaints in emergency department. Hong Kong J Emerg Med. 2000;7(1):16-21.