NEWSLETTER

EuSEN

European Society for emergency Nursing

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Dear Colleagues,

As you may have noticed the name of EUSEN has had some grammatical adjustments. During the last board meeting, which was held in November 2013 in Switzerland, the attendees of the general assembly (GA) agreed unanimously to modify the name into "European Society for Emergency Nursing". Everyone approved that this reflects much better what the society stands for.

The GA was attended by delegates from Poland, Switzerland, Belgium, The Netherlands, Norway, Slovenia, Italy, Sweden and Iceland.

During the GA the project 'Shadowing - program for emergency nurses' was presented. This program is reserved for nurses working in an emergency department. The purpose of the program is to offer the possibility to emergency nurses to expand their expertise by working together (shadowing) with other colleagues in another country.

During one week they will get the chance to focus on their field of specialty or interest within the chosen ED. (Triage, ANP Emergency Care, ED organization, new skills, procedures, techniques, …) EuSEN plans to financially support this project and facilitate the contacts. We hope to be able to start the program by the end of 2014. More information (ie. content, selection criterias, organization, ..) will follow in the second half of 2014.

As mentioned earlier EuSEN participated as official guest at the conference of the Swiss Emergency Nurse Association SIN/SUS in Interlaken.

SIN/SUS celebrated their 20th anniversary - what an achievement!

At the opening ceremony of the conference Petra Tobias, the president of SIN/SUS, referred to an article written by Dr. Annemarie Kesselring, Emeritierte Professorin Institut für Pflegewissenschaft Basel, "**PROUD** to be a nurse":

P – Passioniert (passionate): As nurses, we show fascination, enthusiasm and commitment to what we do. We have a passionate interest in the people we meet and are passionate in our desire to understand them and to meet people in many situations. As a nurse, we use head, heart and hands for our work;

R – Respektvoll (respectful): A nurse shows respect for the individual but also for everyone in the team and to his/her own knowledge;

O - Offen (open-minded): A nurse has an open mind and heart for both - what we know and what we do not know;

U – Ufmüpfig (critical): Nurses examine critically and harness new knowledge. They use their critical thinking to reflect on the research that they apply in their daily work.

D – Demütig (humble): Humbly we look at ourselves and to all the people we engage with in our daily work. We are humbly proud of what we achieve.

The EuSEN and emergency nurses fully agree with this statement:

"WE ARE PROUD TO BE ***EMERCENCY*** NURSES"

We were very proud that we were the first international guests to be invited to the well established emergency nurse conference in Switzerland and be part of such a passionate group. Furthermore it was highly appreciated that EuSEN was able to organize some fantastic speakers – all of them nurses - from Europe to contribute to a fantastic conference.

Please find on the next pages some impressions and pictures of the conference.

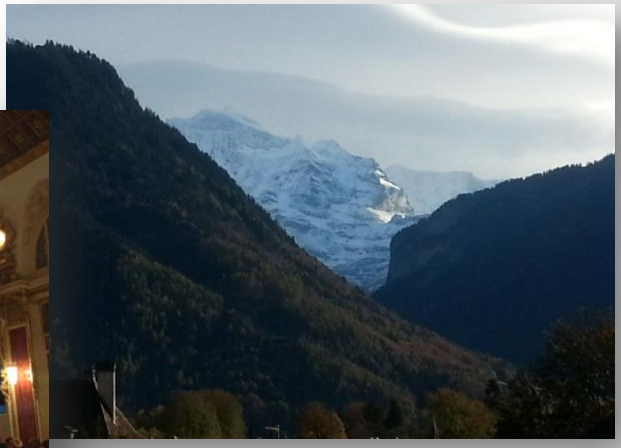
The next board meeting will be held in May 2014 in Pordenone (It).

From the 1st till the 3th of October 2014 the Polish Emergency Nurses Association PTPR will organize their conference at Krynica (Poland). The title of the conference is "Cooperation with specialist units". EuSEN will support this conference. More information will soon be available on the website.

Hope to see you all soon

Door Lauwaert
President EuSEN

www.eusen.org



Congratulations to SIN/SUS for the perfect organization and the very interesting and inspiring lectures

www.eusen.org

Tactile massage and healing touch; caring touch for patients in emergency care – a qualitative study

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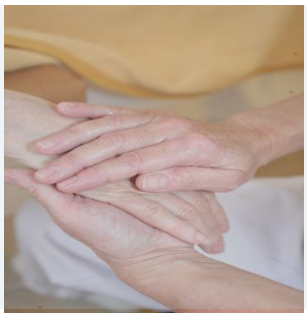

Conclusion:
In the presence of an acute illness or trauma, caring touch provides trust and consolation by integrating an existential togetherness

Background:

Acute illness and trauma causes stress, anxiety and pain for the patient. Confusion in what's happening; fear for what a pending diagnosis will bring for them, fear of a pending operation and fear of dying.

Aim:

To illuminate the patients experience and their meaning of receiving caring touch i.e. tactile massage or healing touch.

Participants:

Twenty-five patients admitted to the short-term emergency ward.

Method:

Individual interviews at the time of discharge, analyzed using a phenomenological-hermeneutic method.

Findings:

Three themes emerged from the text; *Being part of an encounter, a nourishing touch and complexity of intimacy.*

Theme: Being part of an encounter

"When I first came to the hospital six months ago there were a lots of x-rays and tests needed to make a diagnosis. You are just a number on a piece of paper, but when you received caring touch you become a human being" *(42-years old women diagnosed with pancreas cancer)*

Theme: A nourishing touch

"The caring touch made me feel aware of how important touch is// the feeling of calmness afterwards, it was really pleasant, I felt so relaxed and cared for" (49-years old women after abdominal surgery)

Theme: Complexity of intimacy

"Involving soft tissue massage// I am an old man //but there was nothing wrong with that//nothing at all// "when I got back to the ward the female staff gave me a glance…they knew what I had experienced" (82-years old man with back pain)

On-going study on trauma patients after an motor vehicular accident receiving tactile massage and healing touch.

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General practitioner cooperative at an inner-city emergency department in the Netherlands: experiences from the first year

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In the Medical Center Haaglanden Westeinde in The Hague, the Netherlands, a general practitioner cooperative was implemented at the emergency department in February 2013 during the off-hours. The opening hours were expanded in June 2013 (office-hours were added).
Since a part of the patients who present at the emergency department suffer from non-urgent or minor problems that can be resolved by a general practitioner, installing a general practitioner cooperative at the emergency department was expected to have significant effects on hospital emergency care utilisation.
In this column we describe the effect of the general practitioner cooperative on the caseload of the emergency department.

In the Dutch healthcare system, the general practitioner (GP) acts as a gatekeeper to secondary care: patients are required to have a referral from their GP to utilise hospital services [1]. However, for an emergency department (ED) visit, a referral is not strictly needed. Many patients skip the GP and attend the ED without referral.
The Medical Center Haaglanden (MCH) Westeinde is an inner-city hospital with 50,000 ED visits annually. The self-referral rate at MCH Westeinde is high (60%) as compared with other hospitals in the Netherlands [2, 3], probably due to the location of the inner-city hospital. It has been shown that patients living in highly urbanized areas more commonly bypass their GPs before attending the ED [1].

To deal with the high number of self-referred patients, the MCH Westeinde established a separate stream for patients with minor injuries and minor illnesses in 2007, which was run by emergency nurse practitioners (ENPs) [4]. Although this ENP-system worked well for the ED and the patients [4, 5], reorganisation of primary care in the city of The Hague led to the start of a General Practitioner Cooperative (GPC) at the MCH Westeinde in February 2013.

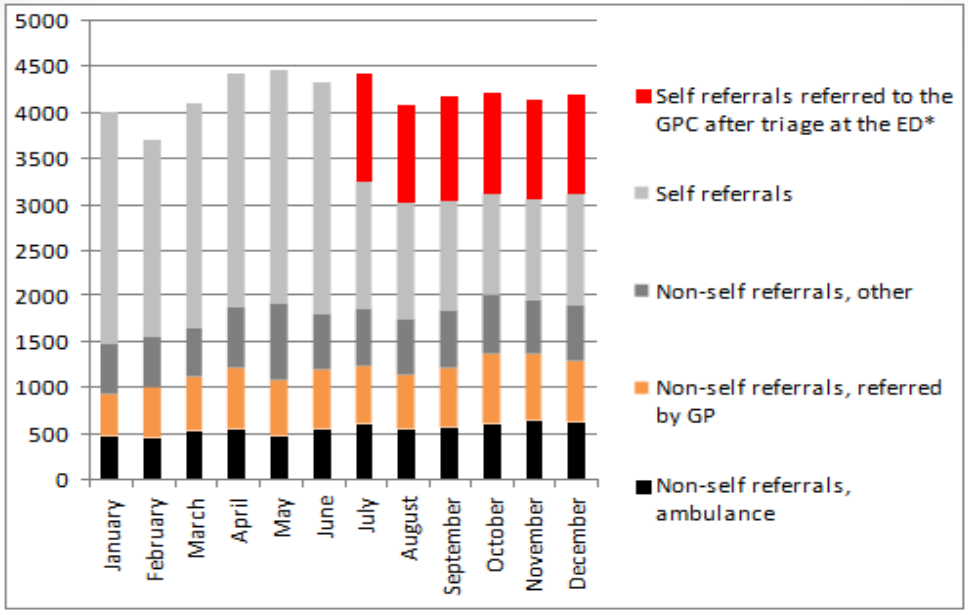
For the insurance companies, an important motive to reinstall the GP gatekeeper function is that patients with primary care problems might be treated at lower costs. For patients, the advantage of being treated in a primary care setting is its' exemption from deductible payments.

The GPC was located in the hallway nearby the ED and operated during the off-hours from February 2013 until June 2013. The MCH ENPs, in the past managing the patients with minor injuries and minor illnesses at the ED, were now hired by the GPC to treat the self-referrals at the GPC.
Since previous research performed at MCH Westeinde showed that one third of the self-referrals present during office-hours (to be published), GP-care was expanded after a few months: a GP was settled at the ED during office-hours. Since June 2013, primary care service at the MCH Westeinde is available 24/7.

Procedure

After registration by the desk clerk, triage nurses assign a level of urgency. Triage levels range from 1 (life-threatening) to 5 (non-urgent), according to the Manchester Triage System (MTS) [6]. Prior to implementation of the GPC, the triage system was adapted. Based on consensus between GPs, ED physicians, ENPs and ED nurses, a label was attached to each discriminator of the MTS, indicating whether a patient was either "suitable for treatment at the GPC" or "in need for emergency care". Once the triage nurse assigns a MTS level, the electronic hospital triage system automatically adds a mark indicating one of these two streams. Self-referrals who are suitable for treatment at the GPC are referred to the GPC in the hallway (during off-hours) or to the GP working in the ED (during office-hours).

Figure: Emergency Department caseload 2013, per month



* Data regarding referral to the GPC after triage was available from July onwards

What happened?

The total number of patient visits to the ED per month remained approximately constant (Figure). The case load at the ED however changed substantially after the establishment of the GPC. An overall reduction of self-referrals presenting to the ED is shown. Almost half of the self-referrals were referred to the GPC or the GP. The reduction in number of self-referrals was accompanied with an increase of patients who were referred to the ED by GPs and an increase in patients who were brought in by ambulance. Despite the referral of one quarter of the ED patients to the GPC, the ED nurses experience a higher workload since the implementation of the GPC. Research is needed to evaluate the reasons for this experienced higher workload. We suspect the overall change in ED case load is the main reason. ED nurses triage the same number of patients as before the introduction of the GPC. After triage, one quarter of the patients leaves the ED to be treated at the GPC. The remaining ED patients are 1. Self-referrals with a medical problem that is too urgent or too severe for primary care, 2. Patients referred to the ED by a GP, and 3. Patients brought in by ambulance. These three categories obviously represent the sicker, more urgent patients. Probably, these patients more often need hospital admission and medical procedures, leading to a longer length of stay at the ED and a more labour-intensive stay. The goal of reorganising emergency and primary care was to reduce the use of hospital emergency care by self-referrals and reinstalling the gatekeepers' function.

Our results show that the collaboration between the ED and the GP care is useful in that aspect: half of the self-referrals can be assessed and treated in primary care in stead of at the ED.
Its' effects on ED throughput and ED crowding however, is something completely different and needs further and detailed study.

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Short-term unscheduled return visits of adult patients to the emergency department

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Abstract—Background:

Emergency department (ED) crowding is a major international concern that affects patients and providers. Study Objective: We describe the characteristics of patients who had an unscheduled related return visit to the ED and investigate its relation to ED crowding. Methods: Retrospective medical record review of all unscheduled related ED return visits by patients older than 16 years of age over a 1-year period. The top quartile of ED occupancy rates was defined as ED crowding. Results: Eight hundred thirty-seven patients (1.9%) made an unscheduled related return visit. Length of stay (LOS) at the ED for the index visit and the LOS for the return visit (5 h, 54 min vs. 6 h, 51 min) were significantly different, as were the percent admitted (11.6% vs. 46.1%). Of these patients, 85.1% and 12.0% returned due to persistence or a wrong initial diagnosis, of their initial illness, respectively, and 2.9% returned due to an adverse event related to the treatment initially received. Patients presented the least frequently with an alcohol-related complaint during the index visit (480 patients), but they had the highest number of unscheduled return visits (45 patients; 9.4%). Unscheduled related return visits were not associated with ED crowding. Conclusion: Return visits impose additional pressure on the ED, because return patients have a significantly longer LOS at the ED. However, the rate of unscheduled return visits and ED crowding was not related. Because this parameter serves as an essential quality assurance tool, we can assume that the studied hospital scores well on this particular parameter.

Keywords—emergency department; return visit;incidence; patient characteristics; crowding

INTRODUCTION

Background

Emergency departments (EDs) provide an important public service 24 h a day, 365 days per year, without social or economic discrimination. One of the key expectations of EDs is the ability to provide immediate access and stabilization for patients who have an emergency medical condition (1). However, due to ED crowding, it is becoming increasingly more difficult to meet these expectations. One way of freeing up beds for incoming patients is a premature patient discharge despite an incomplete assessment or treatment (2). However, the increase in early discharges can lead to high levels of unscheduled return visits, which could possibly be seen as patients being discharged inappropriately (3). An unscheduled return visit is defined as a patient presentation for the same chief complaint within 72 h of discharge from the ED (4). Previous studies observed revisit rates between 0.4% and 15.8% (2,5–18).

Importance

Patients who return to the ED within 72 h not only contribute to ED crowding, but also have been described as a population at high risk for errors in diagnosis or physician judgment in their management (5,19). Therefore, unscheduled return visits to the ED are part of any busy ED and should be recognized as an essential quality assurance tool (5–7). Unscheduled return rates above a certain level indicate dysfunction of the ED. However, there is no internationally accepted level of ED return rates against which to evaluate when an ED is not functioning optimally. Nevertheless, the review of early return visits to the ED has been encouraged both in the United States and abroad as a powerful tool for quality assurance and for improving patient care (2,5,6,10,18). In 2009, Vanbrabant and Knockaert performed a retrospective observational study of ED return visits in Belgium by patients who were managed through the general internal medicine service (11). These revisits occurred within 72 h and at the same study hospital. This study assessed the extent of the problem, identified relevant clinical predictor variables, and detected diagnostic errors (11). The study did not evaluate the entire adult ED population, and a possible connection with ED crowding was not considered.

Goals of the Present Investigation

The primary objective of this study was to analyze the characteristics of patients who made an unscheduled related return visit to a university ED. Secondly, we determined the unscheduled revisit rate in relation to ED crowding. We hypothesized that the number of unscheduled related return visits would be higher during times when the ED was crowded at the time of the first visit.

MATERIALS AND METHODS

Design and Setting

This observational, single-center study involved a retrospective medical record review of all patients who made a return visit to our ED between August 1, 2010 and July 31, 2011. The study was conducted at the ED of the Catholic University Leuven in Belgium. The ED of this 1800-bed academic teaching hospital has an annual census of approximately 55,000 patients and an average admission rate of 36%. The department consists of an admission and treatment area with 16 cubicles and an observational unit with 25 beds, including seven intensive care unit (ICU) beds. These ICU beds serve as a buffer for the ICU department in case no beds are available at the ICU. If the condition of an admitted patient is deteriorating, then these patients are brought back to the ED for an upgrade of care until they can be moved to the ICU. The ED is staffed by full-time board-certified emergency physicians, junior and senior residents in training for emergency medicine, as well as rotating residents from the departments of Internal Medicine, Pediatrics, Neurology, Surgery, and Psychiatry.

Selection of Participants

All patients who returned to the ED due to a related condition within 72 h after ED or hospital discharge were included. Patients who returned to the ED from a hospital ward for an upgrade of care were excluded from our study sample. Because patients younger than 16 years of age are almost exclusively treated by the pediatrician in a separate area of the ED, and with a different and independent admission policy, these patients were excluded from our study sample. Patients with multiple return visits that were more than 72 h from their index visit were considered as separate cases.

Measures and Definitions

Unscheduled return visit: We defined an unscheduled return visit as a return to the ED up to 72 h of discharge from the ED. The term ‘‘index visit’’ was defined as the first ED visit.

Unscheduled related return visit: We defined related returns based on the discharge diagnoses made during the index and return visits. The discharge diagnoses were categorized according to the Major Diagnostic Categories (MDC) classification system. In the early 1970s, the MDC classification system was formed by physician panels as the first step toward ensuring that the Diagnosis Related Groups—a patient classification scheme that provides a means of relating the type of patients a hospital treats to the costs incurred by the hospital— would be clinically coherent. In general, each MDC was constructed to correspond to a major organ system (Appendix).

After comparing the index and return visits, we categorized the patients into five groups and assigned them a code from 0 to 4. Code 0 was assigned to patients that had the same MDC for both their index and return visits.

Code 1 was assigned to patients that returned to the ED for an unrelated reason. In essence, the major complaint of the patient was different and a clearly different major organ system was involved when comparing the index and return visit.

Code 2 was assigned to patients that received a new MDC due to an erroneous diagnosis at their index visit. These patients returned with the same major complaint. However, after reassessment, another major organ system seemed to be involved.

Code 3 was assigned to patients that received a new MDC due to adverse effects from treatment initiated at the index visit.

Code 4 was assigned to patients with scheduled return visits. Patient’s assigned codes 0, 2, and 3 were designated as the unscheduled related return visit group. All results relate to this group of patients unless otherwise specified. Patient’s assigned codes 1 and 4 were excluded from further analysis.

Crowding.

To determine ED crowding, the ED occupancy rate was used. The ED occupancy rate is a simple and validated definition of ED crowding and is defined as the ratio of the total number of ED patients to the number of licensed treatment bays per hour (20). Because throughout the time window of this study, the number of licensed treatment bays remained constant, the total number of ED patients was used to define crowding.

The hospital administration computer system updated the total number of patients present at the ED every 10 min. For each patient present at the ED, an ED occupancy rate per hour was available starting from the time of ED admission and extending through the patient's stay at the ED, for a maximum of 8 h if applicable (Hour 1 up to Hour 8).

Data Collection and Processing

For each registered patient, the following data were extracted from the hospital information system: demographic data (age, sex); referral source (referred by a general physician [GP] or specialist, self-referred); method of arrival to the ED (ambulance, own transport, other); time of arrival (including season, month of year, day of week, time of day) and time of discharge; ED length of stay (LOS); final destination (discharge, hospital admission, death); and triage category according to the Emergency Severity Index (ESI) (21). Time to ED revisit was calculated using the ED discharge time (index visit) and the ED revisit time (return visit).

The medical records of every revisiting patient were divided and independently reviewed by two of the authors (S.V., S.P.). This review process was monitored, using cross-validation by a trained and experienced physician in reviewing medical records. Medical histories were screened for comorbidities according to the Charlson Comorbidity Index (CCI) (22). We then identified presenting chief complaints and the ED discharge diagnoses for both the index and the return visits. Similar presenting chief complaints were separated into 21 groups. Likewise, MDC categories of discharge diagnoses for index and return visits were compared for both visits.

Data Analysis

All retrieved data were transferred to a Microsoft Excelspreadsheet (Microsoft Corporation, Redmond, WA) and then imported into SPSS, version 17.0 (IBM, Armonk, NY) for statistical analyses. Descriptive statistics for continuous data included central tendency measures (mean ormedian). Percentage and frequency of occurrence was used for categorical-level data. Student's t-test and c2 test were used for group comparisons. For multiple group comparisons, we used analysis of variance. Bivariate analyses of triage codes, referral mode, transportation mode, disposition, chief complaints, and principal medical diagnosis for the index and return visit groups were carried out. Logistic regression analysis was used to determine the association between the ED occupancy rate and the occurrence of unscheduled related return visits.

Ethical Considerations The study was approved by the hospital ethics committee. Given the observational design of the study, informed consent was waived.

RESULTS

Of the 53,575 patients who visited the ED during the study period, 44,574 patients were older than 16 years of age. A total of 1197 of these were return visits, representing a total return visit rate of 2.7%. Of these, 837 visits (69.9%) were unscheduled related return visits and were thus included in our study sample.

The return visit rate for the unscheduled related return visits was 1.9%. The remaining 360 cases were excluded: 138 (11.5%) were unscheduled unrelated return visits (code 1) and 147 (12.3%) were scheduled returns (code 4). Seventy-five patients (6.3%) returned to the ED from a hospital ward for an upgrade of care (Figure 1).

Characteristics Of Return Visits Patients

The 837 unscheduled related return visits were made by 784 unique patients, from whichwe can infer that some patients visited the ED more than twice during a 72-h period. The majority (737; 94.0%) of patients returned only once; 42 patients (5.4%) returned twice; 4 patients (0.5%) returned three times; and 1 (0.1%) returned four times. Comparison of patients with at least one return visit to the entire study cohort of patients without a return visit revealed that these two groups were similar in terms of percentage of male patients (53% vs. 51%; $p = 0.5$). However, patients with at least one return visit were significantly younger as compared to the entire study cohort of patients without a return visit (47 years vs. 52 years; $p < 0.001$). Also, the mean ED LOS during the index visit of patients who had at least one return visit was significantly shorter as compared to the mean ED LOS of theentire study cohort of patients without a return visit (5 h 54 min vs. 6 h 53 min; $p = 0.001$) (data not shown).

Table 1 shows the characteristics of the index visits in comparison to the unscheduled return visits. Of the 784 returning patients, 413 (53.0%) were male. Patient age ranged from 16 years to 102 years, with a mean age of 47 years. Results of the univariate analysis on patient data in Table 1 indicate that there were significant differences between the index visit group and the return visit group in terms of triage code, referral mode, transportation mode, disposition, and mean ED LOS. A total of 689 patients (87.9%) were discharged home after the index visit, in contrast to only 421 patients (53.7%) after their first return visit. Fourteen patients (1.8%) in the return visit group were admitted to the ICU. When comparing the time of arrival and time of discharge between the index and return visit, there was no significant difference with regard to a specific hour of the day for arrival or discharge ($p = 0.4$, and $p = 0.08$, respectively). None of the patients who revisited a second, third, or fourth time within a 72-h period died during their hospital stay.

Overall, patients presented the least frequently with an alcohol-related complaint during the index visit (480 patients), but it was associated with the highest number of unscheduled return visits (45 patients; 9.4%). Apart from ''other'' complaints, musculoskeletal pain was the most frequent presenting symptom during the index visit (7627 patients), but it was associated with the lowest number of unscheduled return visits (72 patients; 0.9%)

(Table 2). The MDC ''ear-nose-throat'' was the least

frequent diagnosis during the index visit (891 patients), but was associated with the highest number of unscheduled return visits (73 patients; 8.2%), followed by the MDC ''alcohol and drug use'' (57 patients; 4.3%). Overall, the MDC ''musculoskeletal system'' was the most frequent diagnosis during the index visit (9362 patients), but was associated with the lowest number of unscheduled return visits (103 patients; 1.1%) (Table 3).

The CCI of our patients ranged from 0 to 10, with a

median of 0. The comorbidity most frequently found was solid tumor (6.4%), followed by peptic ulcer (5.4%), diabetes without organ damage (3.7%), and chronic lung disease (3.3%) (Table 4).

In 667 (85.1%) patients, the MDC category on the index and return visits were the same (code 0). The MDC category on the index visit differed from that on the return visit for the remaining 117 patients (14.9%): In 94 (12.0%) patients, their initial diagnosis was wrong and thus they were assigned code 2; in 23 (2.9%) patients, treatment received at the index visit caused adverse effects and thus, they were assigned code 3.

Unscheduled Related Return Visits In Relation To ED Crowding

Table 5 shows the odds ratios for the occurrence of unscheduled related return visits to the ED associated with a one-unit increase in the number of patients present at the ED for the first 8 h of a patient's presence in the ED. Logistic regression analysis showed no significant association between the occupancy rate and the occurrence of unscheduled related return visits to the ED. In other words, in this study, ED occupancy in itself was not associated with the occurrence of unscheduled related return visits.

DISCUSSION

Unscheduled related ED return visits have been used as proxies for adverse health outcomes and have been suggested as a means of assessing the quality of care (19). We found an overall return visit rate of 2.7% and a rate of 1.9% for unscheduled related return visits within 72 h after discharge from the ED at our hospital. These rates are within the 0.4% and 18.0% rates found in previous studies (5–17,23–26). However, due to differences in data collection, definition of return visits, and study population, comparison between studies is very difficult. Of the patients who revisited the ED, 85.1% returned because their initial problem persisted or worsened. These patients received a diagnosis in the same MDC category as the one they received during their index visit. The remaining patients either received a new diagnosis (12.0%) due to an initial error in diagnosis, or experienced an adverse effect (2.9%) linked to the therapy given or procedure performed during their index visit. This is partially consistent with the findings of O'Dwyer and Bodiwala, in which the majority (62%) of patients returned due to persistent symptoms (12). However, the authors found a larger percentage (12.5%) of patients who returned due to complications related to treatment received at the ED (12). In Wong and Lam's study, 82% of patients returned because their illness persisted or worsened, and 3% returned due to complications (9). Similar rates were found by Vanbrabant and Knockaert; 78.63% of patients returned due to a persisting complaint (11). In that study, 21.37% of patients received a new or additional diagnosis (11).

Most (525 patients; 84.7%) of the returning patients were triaged as ESI level 3, 4, or 5 and thus, were not in critical condition during their ED revisit. However, 283 patients (36.1%) who were discharged home after their index visit were admitted to a hospital ward after their return visit. Moreover, 250 patients (31.9%) in the return visit group were triaged as ESI 3 level, predictinga considerable ED resource utilization. Likewise, in Wong and Lam, a substantial proportion (36%) of revisiting patients were admitted (9). In Ross et al., 46% of patients were admitted after their initial discharge from the ED (17). Khan et al. observed an even higher admission rate of 55% after initial discharge (27). In the present study, 14 patients (1.8%) were admitted to the ICU after their return visit, and 1 patient (0.1%) died during their return visit admission.

The above-mentioned findings highlight potential serious pathology in returning patients, as well as the burden it puts on an already busy ED. Indeed, return visit patients had a significantly longer ED LOS compared to index visit patients. This is consistent with the findings of Baer et al. (14). In the present study, however, ED crowding was not correlated with an increase in unscheduled related return visits.

Apart from ''other'' complaints, musculoskeletal pain was the most frequent presenting symptom during the index visit. This finding is consistent with previous studies (2,7,9,11,12,15,27). On the other hand, patients presented the least frequently with an alcohol-related complaint during the index visit, but they had the highest number of unscheduled return visits. Moreover, in patients who returned more than once, a quarter of the visits were due to acute alcohol intoxication. This is consistent with the findings of Pham et al., who concluded that patients visiting the ED due to alcohol were more likely to return (28). Likewise, in Moloney et al., one of the diagnostic-related group codes associated with readmissions was an alcohol-related code (24).

Limitations

Due to the retrospective study design of the present study, potentially important data could have been inadvertently missed due to incomplete medical records. It was therefore not possible to make a distinction between illness-related, patient-related, physician-related, and system-related reasons for the return visits. Second, this study was conducted in the ED of only one hospital. Therefore, estimation of the true revisit rates in Belgium was not possible. Third, we were not able to identify patients who, in a 72-h period, possibly had already visited an ED at a different hospital before they came to ours, or who went to another hospital after they had been seen in our ED. Also, patients who were directly hospitalized (but not through the ED) within 72 h of discharge were not included in our study. Both factors could lead to an underestimation of the return visit rate. Finally, no inter-rater variability was performed for reviewing the medical records. However, all medical records were checked and corrected whenever necessary by one of the investigators (S.V.).

CONCLUSION

In summary, unscheduled related return ED visits within 72 h represented 1.9% of all ED visits. The majority of patients returned due to persistence or unfavorable progression of their illness, with most patients returning once. Patients most frequently returned with complaints related to alcohol misuse. In the present study, significantly fewer patients in the return visit group were discharged home as compared to the index visit group. Likewise, return visit patients had a significantly longer ED LOS than index visit patients. Therefore, return visits impose additional pressure on the ED as well as on the hospital in general. However, the hypothesis that ED crowding is associated with a larger number of unscheduled related return visits was rejected in the present study. Because this parameter serves as an essential quality assurance tool, we can assume that the studied hospital scored well on this particular parameter.

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APPENDIX: MAJOR DIAGNOSTIC CATEGORIES (MDC) CLASSIFICATION SYSTEM

1 Diseases and Disorders of the Nervous System

2 Diseases and Disorders of the Eye

3 Diseases and Disorders of the Ear, Nose, Mouth and Throat

4 Diseases and Disorders of the Respiratory System

5 Diseases and Disorders of the Circulatory System

6 Diseases and Disorders of the Digestive System

7 Diseases and Disorders of the Hepatobiliary System and Pancreas

8 Diseases and Disorders of the Musculoskeletal System and Connective Tissues

9 Diseases and Disorders of the Skin, Subcutaneous Tissue and Breast

10 Endocrine, Nutritional and Metabolic Diseases and Disorders

11 Diseases and Disorders of the Kidney and Urinary Tract

12 Diseases and Disorders of the Male Reproductive System

13 Diseases and Disorders of the Female Reproductive System

14 Pregnancy, Childbirth, and Puerperium

15 Newborns and Other Neonates with Conditions Originating in the Perinatal Period

16 Diseases and Disorders of the Blood and Blood Forming Organs and Immunological Disorders

17 Myeloproliferative Diseases and Disorders, and Poorly Differentiated Neoplasms

18 Infectious and Parasitic Diseases (Systemic or Unspecified Sites)

19 Mental Diseases and Disorders

20 Alcohol/Drug use and Alcohol/Drug Induced Organic Mental Disorders

21 Injuries, Poisonings and Toxic Effects of Drugs

22 Burns

23 Factors Influencing Health Status and Other Contacts with Health Services

24 Multiple Significant Trauma

25 Human Immunodeficiency Virus Infections

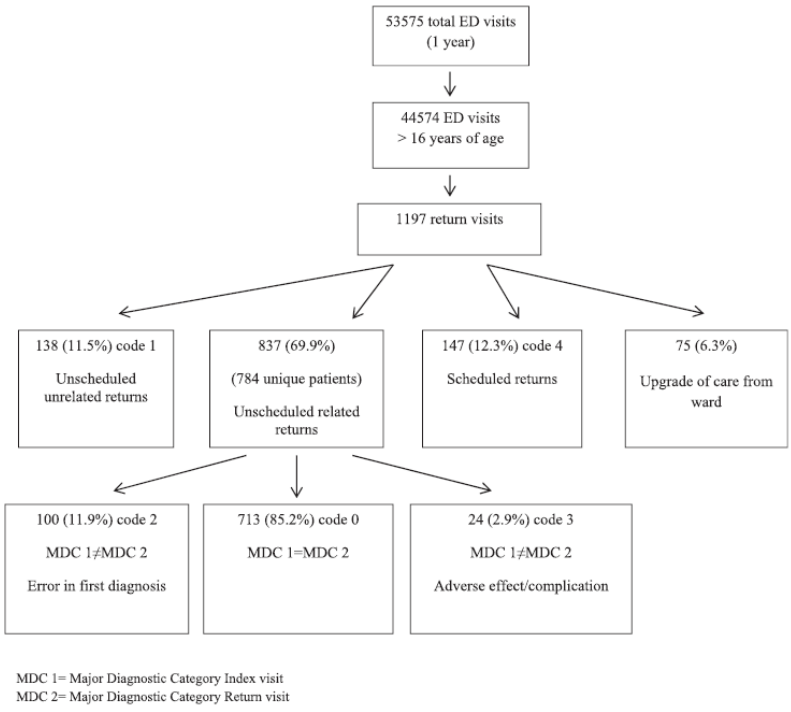

Figure 1. Incidence and classification of return visits. ED = emergency department; MDC 1 = Major Diagnostic Category Index visit; MDC 2 = Major Diagnostic Category Return visit.

Table 1. Comparison of the Index Visit and the Unscheduled Return Visit

	Index Visit	Return Visit
	Number of Patients (%)	Number of Patients (%)
Male		413 (53.0)
Mean age (years)		47
Age distribution (years)	Identical to return visit	
≤ 20		58 (7.4)
21–30		145 (18.6)
31–40		153 (19.5)
41–50		107 (13.7)
51–60		117 (14.9)
61–70		78 (9.9)
71–80		81 (10.3)
81–90		40 (5.1)
> 90		5 (0.6)
Triage code, $p = 0.04$		
1	3 (0.4)	4 (0.5)
2	118 (15.0)	91 (11.6)
3	258 (32.9)	250 (31.9)
4	196 (25.0)	192 (24.5)
5	54 (6.9)	83 (10.6)
Missing data	155 (19.8)	164 (20.9)
Number of return visits		
1		737 (94.0)
2		42 (5.4)
3		4 (0.5)
4		1 (0.1)
Referral mode, $p < 0.001$		
Own initiative	542 (69.1)	569 (72.6)
General physician	185 (23.6)	110 (14.0)
Specialist	37 (4.7)	93 (11.9)
Police	20 (2.6)	12 (1.5)
Transportation mode, $p = 0.01$		
Lay person	642 (81.9)	642 (81.9)
Ambulance	125 (15.9)	116 (14.8)
Police	14 (1.8)	10 (1.3)
Other	3 (0.4)	16 (2.0)
Disposition, $p < 0.001$		
Home	689 (87.9)	421 (53.7)
Hospital ward	66 (8.3)	283 (36.1)
ICU	6 (0.8)	14 (1.8)
Operating room	6 (0.8)	33 (4.2)
Psychiatric facility	7 (0.9)	23 (3.0)
Transfer to other hospital	6 (0.8)	8 (1.0)
Died	0 (0.0)	1 (0.1)
Missing data	4 (0.5)	1 (0.1)
Time of arrival, $p = 0.4$		
Time of discharge, $p = 0.08$		
Mean ED LOS, $p = 0.03$	5 h, 54 min	6 h, 51 min

ICU = intensive care unit; ED = emergency department; LOS = length of stay.

Table 2. Top 10 Chief Complaints

	No. Returning/Total Chief Complaint Index Visit	Percentage
Alcohol	45/480	9.4
Nose/throat/ear	62/940	6.6
Psychiatric problem	57/1847	3.1
Pregnancy problem	39/1370	2.8
Abdominal pain	127/5848	2.2
Urogenital problem	28/1403	2.0
Back pain	31/1844	1.7
Thoracic pain	30/1820	1.6
Musculoskeletal pain	72/7627	0.9
Other	36/21395	0.2

Top 10 chief complaints on first (index) visit in patients who had an unscheduled return visit to the emergency departments within 72 h in relation to the total number of that chief complaint during the index visit. An alcohol-related complaint was the least frequent, but was associated with the highest number of unscheduled return visits (9.4%). Apart from "other" complaints, musculoskeletal pain was the most frequent presenting symptom, but associated with the lowest number of unscheduled return visits (0.9%).

Table 3. Top 10 Major Diagnostic Categories

Major Diagnostic Category	No. Returning/ Total MDC Index Visit	Percentage
Ear, nose, throat	73/891	8.2
Alcohol and drug use	57/1326	4.3
Mental disorders	67/1783	3.8
Kidney and urinary tract	80/2229	3.6
Pregnancy and puerperium	42/1348	3.1
Skin, subcutaneous tissue, breast	81/4012	2.0
Nervous system	48/2651	1.8
Circulatory system	39/2697	1.4
Digestive system	82/6240	1.3
Musculoskeletal system	103/9362	1.1

Top 10 chief Major Diagnostic Categories (MDC) on first (index) visit in patients who had an unscheduled return visit to the emergency department within 72 h in relation to the total number of that MDC during the index visit. The "ear-nose-throat" MDC was the least frequent, but was associated with the highest number of unscheduled return visits (8.2%), followed by the MDC "alcohol and drug use" (4.3%). The MDC "musculoskeletal system" was the most frequent diagnosis, but was associated with the lowest number of unscheduled return visits (1.1%).

Table 4. Top 10 Comorbidities

	No. (%) Patients
Solid tumor	50 (6.4)
Peptic ulcer	42 (5.4)
Diabetes without organ damage	29 (3.7)
Lung disease	26 (3.3)
Acute myocardial infarction	23 (2.9)
Cerebrovascular accident/transient ischemic attack	23 (2.9)
Metastatic cancer	20 (2.6)
Peripheral arterial disease	15 (1.9)
Renal failure	12 (1.5)
Liver failure	7 (0.9)

Table 5. Logistic Regression

ED Occupancy Rate	Odds Ratio	CI for Odds ratio		*p*-Value
		Lower 95%	Upper 95%	
1st hour	1.001	0.985	1.017	0.943
2nd hour	0.986	0.968	1.005	0.151
3rd hour	0.995	0.975	1.016	0.630
4th hour	1.005	0.981	1.030	0.690
5th hour	1.005	0.985	1.026	0.600
6th hour	1.008	0.985	1.031	0.497
7th hour	0.992	0.969	1.016	0.509
8th hour	0.995	0.979	1.012	0.548

CI = confidence interval; ED = emergency department.
Emergency department occupancy rate: mean number of patients present at the ED within the first, second, third, up to and including the eighth hour of a patient's stay at the ED.

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