Non-urgent encounters in a Swiss medical emergency unit

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Summary

BACKGROUND: Emergency department crowding is a growing international problem. One possible reason for crowding might be the rising number of "walk-in" patients presenting with "non-urgent" health complaints.

METHODS: In a retrospective cohort study in adult medical patients presenting to the emergency unit of the University Hospital Zurich, we determined the frequency of "non-urgent" encounters, examined patient characteristics predictive for such encounters, and explored the impact of a simple, non-validated triage tool on diverting "non-urgent" cases to alternate sites of primary care.

RESULTS: We included 1,175 and 1,448 medical encounters before (1–31 January 2008) and after (1–31 January 2009) the implementation of the triage tool. Almost one out of three patients presented with a minor "non-urgent" health complaint (29.9% [95%CI 28.1%–31.6%]). The most common were "cough/sneezing" (7.82% [95%CI 6.79%–8.84%]), "follow-up" (6.44% [95%CI 5.50%–7.38%]), and "weakness/tiredness" (3.47% [95%CI 2.77%–4.17%]). Significant predictors for "non-urgent" encounters were young age (mean adjusted odds ratio 0.93 [95%CI 0.88–0.97] for each additional decade of life), and non-Swiss origin (adjusted odds ratio 1.18 [95%CI 1.02–1.31]). The triage tool did not divert "non-urgent" cases from the emergency unit to outpatient care (adjusted odds ratio 0.94 [95%CI 0.80–1.12]).

CONCLUSION: In the emergency unit of the University Hospital Zurich, the prevalence of "non-urgent" medical encounters was substantial with one out three patients presenting with minor health complaints. Young age and non-Swiss origin were associated with increased use of the emergency unit for "non-urgent" conditions. A simple triage tool did not effectively divert "non-urgent" cases to alternates sites of primary care.

Key words: emergency unit; crowding; non-urgent; triage; ICPC-2

Introduction

Emergency department crowding, a phenomenon described more than two decades ago [1], is a widespread and growing international health services problem [2–5]. Emergency department crowding has been shown to worsen clinical outcomes such as efficient pain management [6], timely use of antibiotics [7], patient satisfaction [8], and length of stay [9]. In addition, medical professionals working in crowded emergency departments experience decreased job satisfaction and increased staff turnover [10].

The reasons for emergency department crowding are complex and might include decreases in the absolute number of emergency units, increase in the total number of visits, being uninsured, services provided for minor health problems, waiting time for imaging and laboratory testing, prolonged stay of hospitalised patients in the emergency unit because of lack of vacant ward and intensive care beds (access block), shortage in physician and nurse staffing, and expansion in the scope of services provided [11].

Emergency unit encounters for "non-urgent" health conditions, which have been rising in a disproportionate fashion owing to the growing number of "walk-in" patients [12], might contribute greatly to the crowding problem. Many of these encounters are due to patients who use the emergency department as the regular source of primary care [13, 14]. Evaluating every patient presenting to the emergency department, even those with minor complaints and injuries, requires treatment space, qualified manpower, and staff time, which could be devoted otherwise to other more complex cases. Attempts to divert patients with minor health complaints to alternative sites for primary care provision might lead to less crowding in the emergency department and more efficient and satisfactory care for those who need it most. Furthermore, treatment costs of minor health problems might be decreased if managed outside of the emergency unit in outpatient settings.

In Switzerland, more than one half of all patients visit the emergency department without first seeing a primary care physician [15, 16]. A recent study in a Swiss surgical emergency department found that non-Swiss citizens had a greater use of emergency department services for "non-urgent" health conditions, particularly among younger patients [17]. Often, the emergency department was the primary point of contact with the health care system because many of these patients did not have a regular primary care provider. Similar figures for Swiss medical emergency departments are lacking.

Therefore, we performed a retrospective cross-sectional cohort analysis in the medical emergency unit of a tertiary care teaching hospital in Switzerland, to describe the frequency of "non-urgent" encounters, to explore patient characteristics predictive for such encounters, and to analyse the impact of a simple non-validated triage tool on diverting "non-urgent" encounters to alternative sites for primary care.

Methods

Study design
We performed a retrospective cohort analysis among all medical patients served in the emergency unit of the University Hospital Zurich before and after the implementation of a simple, non-validated triage tool ("Light Emergency").

Ethics approval
The study was approved by the Ethics Committee of the Canton Zurich (reference No. 2010-0215/1). Informed consent was waived.

Setting
The University Hospital Zurich is the biggest tertiary teaching hospital among five university hospitals in Switzerland. The emergency department is separated into a surgical unit, which is run by general surgeons, and a medical unit, which is run by general internists. The medical unit has close to twenty thousand patient-physician encounters per year.

Data sources and data extraction
From the clinical information system of the University Hospital Zurich (KISIM) we extracted the following patient characteristics: age, gender, nationality, native language, type of referral (self, physician, and other health

Figure 1

Identification and construction of the study cohort.
All medical emergency unit patient-physician encounters were extracted from the clinical information system of the University Hospital Zurich between 1 January and 31 January 2008, and 1 January and 31 January 2009. Encounters were excluded if the patients age was <16 years, if the patient was managed by doctors other than internist, and if the documentation was incomplete.

care provider), and reason for encounter. Reason for encounter was encoded based on the International Classification system in Primary Care – 2nd edition (ICPC-2).

International Classification system in Primary Care
The International Classification of Primary Care is a standard tool to classify important elements in patient records of primary care providers. It is based on a bi-axial structure with 17 chapters (alpha codes) representing body systems on the horizontal axis, and seven components (two digit numeric code) on the vertical axis: 1) symptoms and complaints, 2) diagnostic, screening and preventive procedures, 3) medication, treatment and procedures, 4) test results, 5) administrative data, 6) reasons for encounter (reflecting the patient's view), and 7) diagnoses (reflecting the doctor's view) of the health disorder. The classification contains 684 codes. Details can be accessed at www.globalfamilydoctor.com/wicc/pagers/english.pdf.

Cohort selection
We identified all medical patient-physician encounters in the emergency unit from 1 January to 31 January 2008, inclusive, and 1 January to 31 January 2009, inclusive. We excluded those younger than 16 years, those managed in the emergency unit by other specialties than internal medicine, and those with insufficient information to extract data necessary for analyses.

Definition of "non-urgent" encounters
Based on the ICPC-2 codes of the reason for encounter, we defined "non-urgent" encounters and categorised them to simplify the presentation as follows: "cough/sneezing" (cough [R05], sneezing/nasal congestion [R07], throat symptoms [R21]), "follow-up" (encounter initiator not specified [*63]), encounter initiated by provider [*64], encounter initiated by others [*65]), "weakness/tiredness" (weakness [A04], fatigue [A05]), "fear of HIV/other disease" (fear of AIDS/HIV [B25], fear of sexually transmitted disease [Y25], fear of respiratory disease [R27], fear of other disease [A27]), "skin problem" (skin problems [S01–S99]), "anxious/nervous/depressed" (feeling anxious/nervous/tense [P01], feeling depressed [P03], and feeling/behaving irritable [P04]), "dysuria/frequency/urgency" (lower urinary tract problem [U01-U05, U29, U71, U72]), and "others" (sweating problem [A09], concern about medical treatment [A13], flatulence/belching [D08], constipation [D12], suspicion of foreign body in the digestive system [D79], elevated blood pressure [K85], sleep disturbance [P06], chronic substance abuse [P15, P18, P19], memory problem [P20], loss of appetite [T03], social and legal problems [Z09]), blood test/monitoring of oral anticoagulation [*34], preventive immunisation/medication [*44], medical information/health education/advice [*45], and medication/prescription renewal [*50].
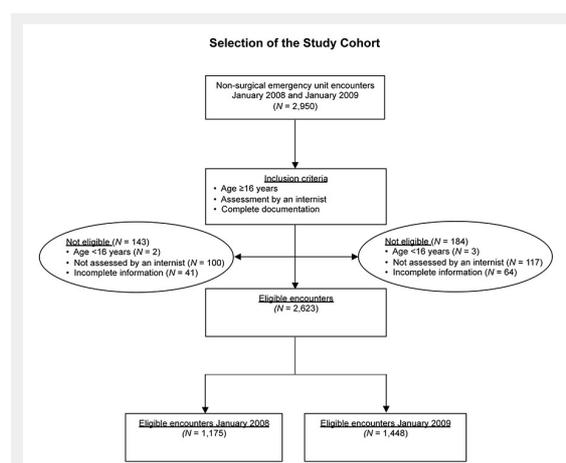
Triage tool
Before November 2008, the emergency department of the University Hospital Zurich provided services to anyone requesting emergent care independent of the severity and urgency of the medical problem. In November 2008 a simple triage tool called "Light Emergency" was introduced. A

trained nurse was instructed to divert all patients presenting with one of the following problems (chronic problem lasting for more than one week, demand for a prescription, demand for methadone, need for monitoring of oral anticoagulation, request for medical information without an acute problem, need of follow up, prophylaxis after risky sexual behaviour, cough, lower urinary tract problems, sleeping disorders, skin problems, and tick bites) from the emergency unit to outpatient care in the medical policlinic between 8 a.m. and 12 a.m. on working days, and to a special location outside of the emergency room between 12 a.m. and 8 p.m. on all week days.

Analyses

We categorised baseline characteristics as necessary (age group, gender, nationality, native language, type of referral, and time period of referral) and reported reasons for referral as counts and prevalence rates before and after the implementation of the triage tool. We expressed continuous data as means and standard deviations and categorical data as proportions and their 95% confidence intervals. We compared proportions using Pearson chi-square statistics and continuous data using t-tests. We constructed a logistic regression with "non-urgent" encounters as outcome variable and explored baseline characteristics as predictors. We adjusted for all baseline characteristics mentioned above and assessed first order terms for interaction. We reported crude and adjusted odds ratios and their 95% confidence intervals for "non-urgent" encounters for all baseline characteristics. A 2-sided p value <0.05 was considered statistically significant. We managed data and conducted analyses using Stata® Version 11.2 (Stata Corporation, College Station, TX, USA; www.stata.com).

Results

Cohort construction

For the observation period from 1 January to 31 January 2008, and 1 January to 31 January 2009, we extracted 2,950 medical emergency unit encounters from the clinical information system of the University Hospital Zurich. Further inclusion and exclusion criteria are presented in figure 1. The proportion of patients not eligible for analyses was similar for the two observation periods (p = 0.682). We were left with 1,175 and 1,448 medical patient-physician encounters for the observation period 1 January to 31 January 2008, and 1 January to 31 January 2009.

Baseline characteristics

The baseline characteristics of the study cohort are provided in table 1. Overall, we identified 2,623 medical patient-physician encounters during both observation periods. In January 2009, there were 273 more patient-physician encounters than in January 2008 (1,448 vs 1,175 patient-physician encounters, p = <0.001). The mean age at encounter was 45.8 (SD ± 18.9) years. Men were slightly older than women (46.7 vs 44.8 years, p = 0.011). The age distribution across the two observation periods remained unchanged (p = 0.957). Gender was equally represented in both observation periods (p = 0.363). More than one half

of all encounters were in Swiss patients (56.7% [95%CI 54.8%–58.6%]), and close to two thirds from a native German speaking population (63.5% [95%CI 61.7%–65.4%]). More than one half of all patients did not see a primary care provider prior to the emergency unit visit (52.8% [95%CI 50.9%–54.7%]). The most common reasons for encounter were chest pain, abdominal pain, chills and fever, and follow-up initiated by the patient or the provider (table 1). Chills and fever were more common reasons for encounter in January 2009 than in January 2008 (7.87% vs 5.11%, p = 0.005), whereas the frequency of "follow-up" decreased almost by a half between January 2008 and January 2009 (8.68% vs 4.63%, p <0.001). The frequency of other common reasons for referral remained unchanged for the two observation periods (table 1).

Prevalence of "non-urgent" encounters

Overall, we identified 783 "non-urgent" emergency unit encounters in 2,623 patients (29.9% [95%CI 28.1%–31.6%]). Specific reasons for "non-urgent" encounters were "cough/sneezing" (N = 205, prevalence 7.82% [95%CI 6.79%–8.84%]), "follow-up" (N = 169, prevalence 6.44% [95%CI 5.50%–7.38%]), "weakness/tiredness" (N = 91, prevalence 3.47% [95%CI 2.77%–4.17%]), "fear of HIV/other disease" (N = 84, prevalence 3.20% [95%CI 2.53%–3.88%]), "skin problem" (N = 83, prevalence 3.16 [95%CI 2.49%–3.83%]), "feeling anxious/nervous/depressed" (N = 60, prevalence 2.10% [95%CI 1.55%–2.65%]), "dysuria/frequency/urgency" (N = 32,
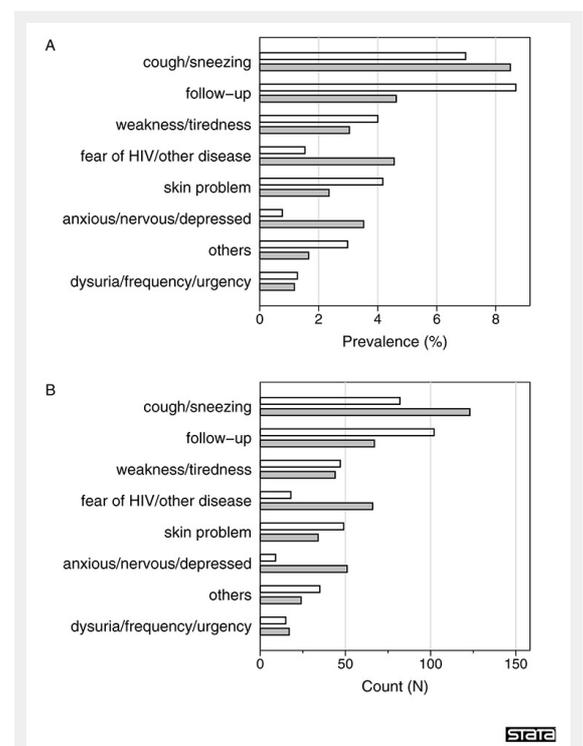

Figure 2

Prevalence rates and counts of "non-urgent" encounters stratified by the observation period.

Based on the ICPC-2 codes, we defined "non-urgent" encounters and categorised them as presented. The prevalence rates (panel A) and counts (panel B) are provided separately for the observation period 1 January to 31 January 2008, inclusive (white bars), and 1 January to 31 January 2009, inclusive (grey bars).

prevalence 1.2% [95%CI 0.80%–1.64%]), and "others" (*N* = 59, prevalence 2.25% [95%CI 1.68%–2.82%]). Prevalence rates and counts of specific reasons for "non-urgent" encounters for the observation period January 2008 and January 2009 are provided in figure 2.

Characteristics of "non-urgent" encounters

Patients presenting as "non-urgent" encounters were younger than those presenting as "urgent" encounters (44.1 years vs 46.5 years, p = 0.003). Age was the most significant determinant for being a "non-urgent" encounter with a mean adjusted odds ratio of 0.93 (95%CI 0.88–0.97) for each additional decade of life (p = 0.002). The proportion of "non-urgent" encounters was similar in men and women (30.1% vs 29.6%, p = 0.812). Swiss patients were less likely to present as "non-urgent" encounters (28.0% vs 32.3%, adjusted odds ratio 0.82, p = 0.027). The proportion of "non-urgent" encounters was similar in German native speakers compared to non-German native speakers (28.9% vs 31.5%, adjusted odds ratio 0.90, p = 0.158). Even among non-Swiss citizens, German native speakers were not less likely to present as non-urgent encounters (37.1% vs 31.5%, adjusted odds ratio 1.28, p = 0.141). Interestingly, self-referral was not a significant predictor for "non-urgent" encounters (29.5% vs 30.7%, adjusted odds ratio 0.86, p = 0.063). Detailed univariate and multivariate logistic analyses of determinates for "non-urgent" encounters are provided in table 2.

Prevalence of "non-urgent" encounters before and after the implementation of the triage tool

Overall, the prevalence of "non-urgent" encounters was similar for the two observation periods 1 January to 31 January 2008, and 1 January to 31 January 2009 (30.4% vs 29.4%, p = 0.592), before and after the implementation of the triage tool "light emergency". Even after adjusting for all covariates explored, the prevalence rate of "non-urgent" encounter remained unchanged for the two observation periods (OR 0.94 [95%CI 0.80–1.12], p = 0.496). The prevalence rates of "follow-up" and "skin problem" decreased to roughly one half (8.68% vs 4.63%, p = <.001, and 4.17% vs. 2.35%, p = 0.008), however, this effect was offset by a 3-fold increase in the prevalence rates of "fear of HIV/other disease" and "feeling anxious/nervous/depressed" (1.53% vs 4.56%, p = <.001, and 0.77% vs. 3.52%, p = <.001).

Discussion

We found a high prevalence of "non-urgent" encounters with almost one out of three patients presenting in the medical emergency unit with a minor health problem. The most common "non-urgent" health problems were "cough/sneezing", "follow-up" initiated either by the patient or the provider, and "weakness/tiredness". Comparisons with other studies reporting the prevalence rates of minor health problems in emergency units are inherently difficult, be-

Table 1: Baseline characteristics of the study cohort* (N = 2,623).							
	All subjects (*N* = 2,623)		January 2008 (*N* = 1,175)		January 2009 (*N* = 1,448)		
	N	(%)	*N*	(%)	*N*	(%)	p-value
Age group							0.957
16 – 29 years	612	(23.3)	266	(22.6)	346	(23.9)	
30 – 39 years	561	(21.4)	254	(21.6)	307	(21.2)	
40 – 49 years	415	(15.8)	191	(16.3)	224	(15.5)	
50 – 59 years	377	(14.4)	171	(14.6)	206	(14.2)	
60 – 69 years	300	(11.4)	139	(11.8)	161	(11.1)	
70 – 79 years	210	(8.00)	90	(7.66)	120	(8.29)	
≥80 years	148	(5.64)	64	(5.45)	84	(5.80)	
Gender							0.363
Male	1,334	(50.9)	586	(49.9)	748	(51.7)	
Nationality							0.001
Swiss	1,488	(56.7)	623	(53.0)	865	(59.7)	
Native language							0.001
German	1,666	(63.5)	705	(60.0)	961	(66.4)	
Type of referral							<.001
Self	1,384	(52.8)	695	(59.2)	689	(47.6)	
Reason for referral (ICPC-2)							
Chest pain (A11, K01, K02, L04)	219	(8.35)	113	(9.62)	106	(7.32)	0.034
Abdominal pain (D01, D02, D06)	208	(7.93)	88	(7.49)	120	(8.29)	0.452
Chills, fever (A02, A03)	174	(6.63)	60	(5.11)	114	(7.87)	0.005
Follow-up (64, 65)	169	(6.45)	102	(8.68)	67	(4.63)	<.001
Cough, sneezing (R05, R07)	176	(6.71)	71	(6.04)	105	(7.25)	0.218
Headache (N01)	133	(5.07)	52	(4.43)	81	(5.59)	0.175
Shortness of breath (R02)	125	(4.77)	52	(4.43)	73	(5.04)	0.462
Vertigo/dizziness (N17)	85	(3.24)	32	(2.72)	53	(3.66)	0.178
Weakness/tiredness (A04)	79	(3.01)	39	(3.32)	40	(2.76)	0.407
Fainting/syncope (A06)	71	(2.71)	33	(2.81)	38	(2.63)	0.773
* The study cohort consisted of all medical emergency unit encounters at the University Hospital Zurich between 1 January and 31 January 2008, and between 1 January and 31 January 2009, in patients >16 years.							

cause of different study settings, varying study populations, and diverse definitions used to delimit minor "non-urgent" health problems. For example, a recent study reported that 80% of all walk-in patients in two Swiss community emergency departments (Kantonsspital Baden and Bezirksspital Brugg) could be provided with care outside of the emergency unit by general practitioners because of "non-urgent" health problems. The study was based on questionnaires and health problems that could be safely managed by general practitioners in private offices were considered "non-urgent" [15]. A similar observation was made in an emergency unit of a City Hospital in Zürich (Stadtspital Waid), where close to 80% of all walk-in patients could be managed in outpatient settings [18]. A report from the surgical emergency department of the University Hospital Bern found that about 70% of all surgical patients could be managed "non-urgently" outside of the emergency unit [17]. "Non-urgent" cases were defined as those needing treatment within 2 to 4 hours, based on an abbreviated version of the Manchester Triage System [19]. A Canadian study reported that low-complexity patients (defined as ambulatory arrival, Canadian triage and acuity scale of 4 or 5 [20], and discharged) represented half of all patients treated in community and teaching hospital emergency departments in Ontario [21]. An Australian study reported significantly lower prevalence rates of low-acuity cases, defined as patients that a general practitioner would not be expected to refer to an emergency department, with 11.4% in inner metropolitan and 22.9% in outer metropolitan areas, suggesting that strategies to further reduce low-acuity patient attendance rate by implementing alternative primary care services have a limited impact to decrease crowding in Australian emergency departments [22].

We found that young age was the most significant determinant for presenting in the emergency unit as a "non-urgent" encounter. A similar observation was reported from the emergency departments of Kantonsspital Baden and

Bezirksspital Brugg with overrepresentation of patients younger than 35 years [15]. The study from the surgical emergency department of the University Hospital Bern showed that non-Swiss male and female patients were significantly younger than their Swiss counterparts (35 years vs 45 years, p <.001, and 32 years vs 37 years, p <0.001) [17].

In our study, non-Swiss citizens were more likely to present as "non-urgent" encounters to the emergency unit. However, this observation could not be explained by their language skills. Similarly to young age, non-Swiss citizens were also overrepresented in emergency departments of Kantonsspital Baden and Bezirksspital Brugg [15]. These figures suggest that a better integration, especially of young non-Swiss citizens, into a health system, where one has to choose a primary care provider, might decrease the number of "non-urgent" encounters in Swiss emergency units.

The implementation of the non-validated triage tool "Light Emergency" did not effectively divert "non-urgent" cases from the emergency unit to outpatient care. Though the prevalence rates of "follow-up" and "skin problem", both of which can easily be identified at the triage, decreased to roughly one half, the increase of the prevalence rates of other "non-urgent" health problems, which were more difficult to identify, did offset the beneficial effect. This might be due to the use of a non-validated simple triage tool based on a listing of "non-urgent" reasons for encounter, or to insufficient supervision and an inconsistent reinforcement of the triage tool. A more determined reinforcement of the triage tool might have changed the results. Other commonly used and validated triage tools, such as the Canadian Triage and Acuity Scale, which sets the acuity level based on the primary symptoms, vital parameters, risk factors and level of pain [20], or the Emergency Severity Index, which classifies patients by clinical presentation, vital parameters, and projected resources use [23] might have performed better. At the end of 2009, the emergency unit

Table 2: Univariate and multivariate analyses of determinants of "non-urgent" encounters (N = 783) in a medical emergency unit population* (N = 2,623).

	Univariate			Multivariate		
	OR	(95%CI)	p-value	OR	(95%CI)	p-value
Age group†						
30 – 39 years	0.96	(0.75–1.23)	0.741	0.94	(0.74–1.21)	0.640
40 – 49 years	0.85	(0.65–1.11)	0.233	0.83	(0.63–1.09)	0.180
50 – 59 years	0.74	(0.55–0.98)	0.035	0.72	(0.54–0.95)	0.022
60 – 69 years	0.77	(0.57–1.04)	0.093	0.74	(0.54–1.00)	0.052
70 – 79 years	0.68	(0.48–0.97)	0.033	0.65	(0.45–0.93)	0.018
≥80 years	0.72	(0.48–1.08)	0.111	0.68	(0.45–1.03)	0.067
Age						
For each decade	0.93	(0.89–0.98)	0.003	0.93	(0.88–0.97)	0.002
Gender						
Male	1.02	(086–1.21)	0.812	1.04	(0.88–1.23)	0.662
Nationality						
Swiss	0.81	(0.69–0.96)	0.015	0.82	(0.69–0.98)	0.027
Native language						
German	0.89	(0.75–1.05)	0.175	0.90	(0.75–1.08)	0.158
Type of referral						
Self	0.92	(0.80–1.09)	0.341	0.86	(0.73–1.02)	0.063
Time period						
January 2009	0.96	(0.81–1.13)	0.592	0.94	(0.80–1.12)	0.496

* The study population consisted of all non-surgical emergency unit encounters in patients older than 16 years during January 2008 and January 2009 at the University Hospital Zurich. † Age group 16–29 years was used as baseline (OR = 1.0).

of the University Hospital Zurich implemented the Emergency Severity Index, with the intent to divert triage level 4 and 5 to outpatient care. The recently implemented Emergency Severity Index awaits further evaluation of performance in these settings. However, uncertainty remains that even effective diversion of "non-urgent" cases to outpatient care will lessen crowding in emergency units [21, 22].

Our study has several limitations. First, the study has a retrospective design with limited clinical information for unequivocal ICPC-2 coding of the reason for encounter. Second, there might be a significant underestimation of the prevalence of "non-urgent" encounters because encounters with missing information about the time frame from onset of symptoms were assumed to be acute and classified as "urgent" (i.e., headache was classified as urgent because lack of information about the time of onset). On the other hand, there might be an overestimation of "non-urgent" encounters, because some of the mentioned "non-urgent" problems might have been urgent (e.g. cough, substance abuse, or fear of HIV other disease [where post-exposure prophylaxis is fairly urgent]). Third, the Triage Tool "Light Emergency" is not standardised and validated for emergency unit triage and might be underperforming compared with other standardised and validated tools. Fourth, the data collection was undertaken in winter for both observation periods, when respiratory infections are more prevalent, and therefore, generalisation of our observations to the entire year might not be valid. Fifth, there might be further predictors for "non-urgent" encounters (e.g. daytime, month, region, availability of GP, symptoms), all of which were not explored in our study.

Our findings suggest that systematic use of emergency departments as primary care structure is common in Switzerland, with one out of three patients presenting in the medical emergency unit with a minor health problem that could have been managed by primary care providers. A better integration, especially of young non-Swiss citizens, into a health system, where one has to choose a primary care provider, might decrease the number of "non-urgent" emergency unit encounters due to minor health problems. Furthermore, simple, non-validated triage tools are not effective in diverting "non-urgent" cases from the medical emergency unit. At the end of 2009, Swiss Society of Emergency Medicine (SGNOR) recommended the implementation of validated and reliable triage systems in all Swiss emergency units (http://www.saez.ch/docs/saez/archiv/de/2009/2009-46/2009-46-701.PDF).

We conclude, that in the emergency unit of the University Hospital Zurich, the prevalence of "non-urgent" medical encounters was similar to the reported prevalence found in the literature with one out three patients presenting with minor health problems. Young age and non-Swiss origin were associated with increased use of the emergency unit for "non-urgent" health conditions. The implementation of a simple non validated triage tool did not divert "non-urgent" cases from the medical emergency unit to outpatient care.
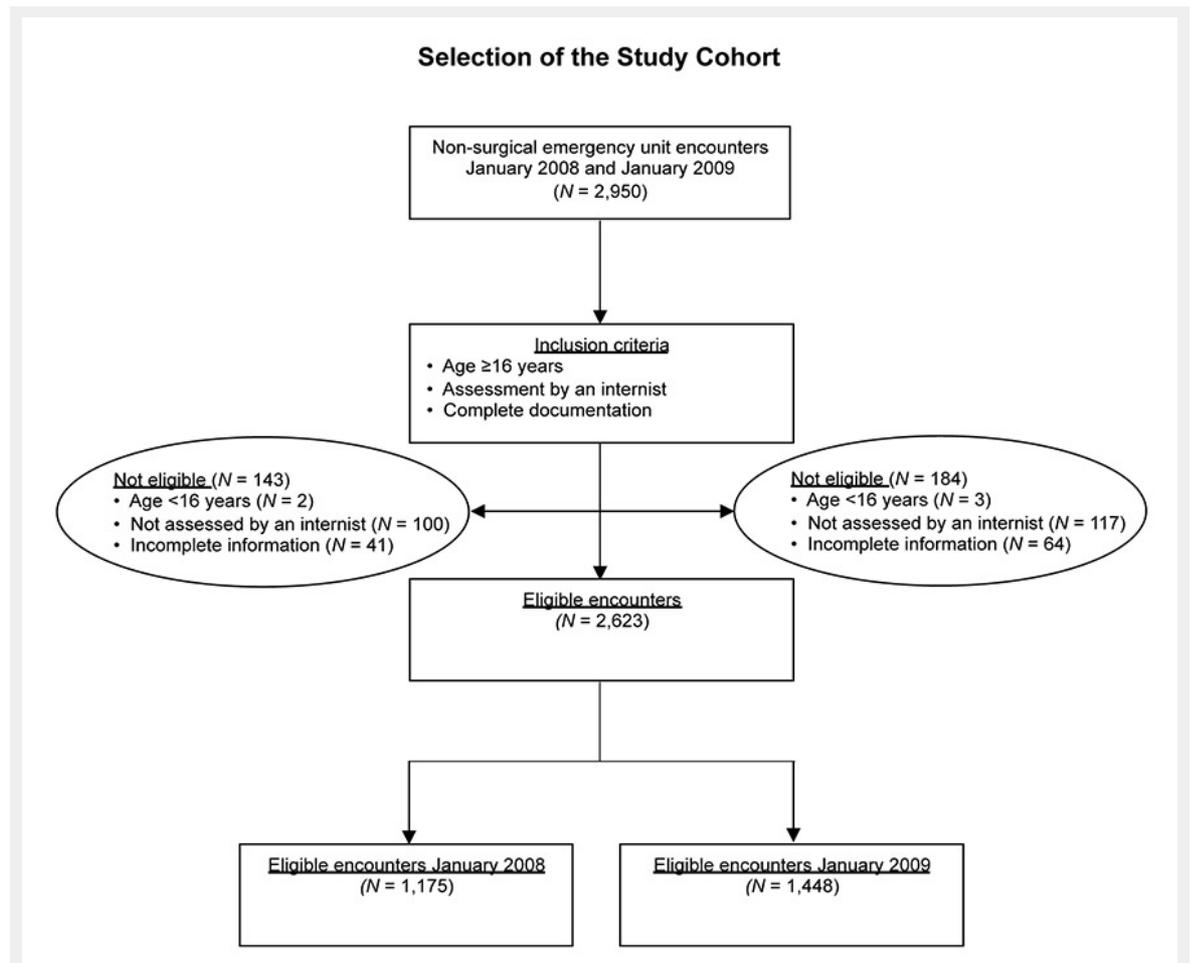
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Figures (large format)

Selection of the Study Cohort

Non-surgical emergency unit encounters
January 2008 and January 2009
(*N* = 2,950)

Inclusion criteria
• Age ≥16 years
• Assessment by an internist
• Complete documentation

Not eligible (*N* = 143)
• Age <16 years (*N* = 2)
• Not assessed by an internist (*N* = 100)
• Incomplete information (*N* = 41)

Not eligible (*N* = 184)
• Age <16 years (*N* = 3)
• Not assessed by an internist (*N* = 117)
• Incomplete information (*N* = 64)

Eligible encounters
(*N* = 2,623)

Eligible encounters January 2008
(*N* = 1,175)

Eligible encounters January 2009
(*N* = 1,448)

Figure 1

Identification and construction of the study cohort.

All medical emergency unit patient-physician encounters were extracted from the clinical information system of the University Hospital Zurich between 1 January and 31 January 2008, and 1 January and 31 January 2009. Encounters were excluded if the patients age was <16 years, if the patient was managed by doctors other than internist, and if the documentation was incomplete.
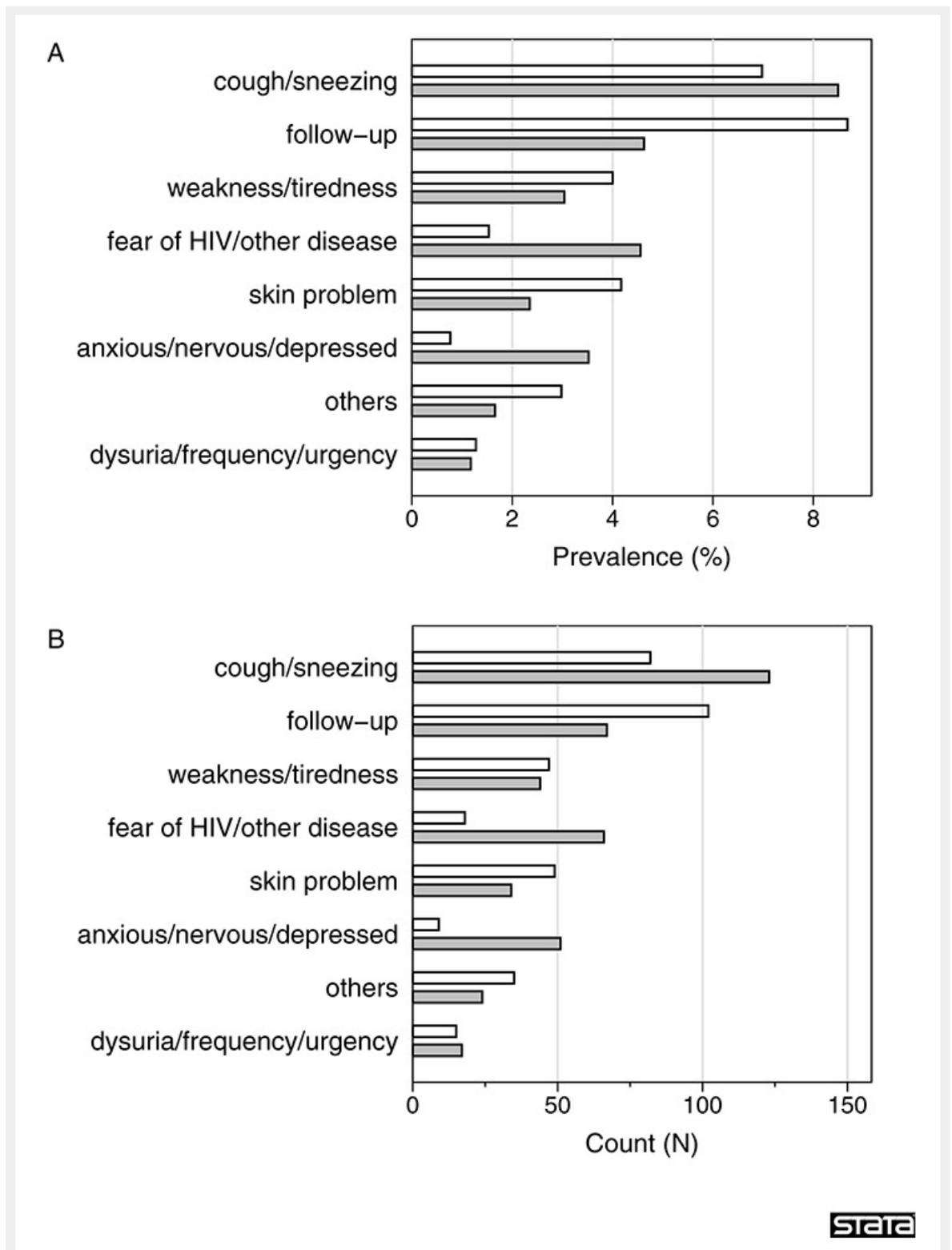
Figure 2

Prevalence rates and counts of "non-urgent" encounters stratified by the observation period.

Based on the ICPC-2 codes, we defined "non-urgent" encounters and categorised them as presented. The prevalence rates (panel A) and counts (panel B) are provided separately for the observation period 1 January to 31 January 2008, inclusive (white bars), and 1 January to 31 January 2009, inclusive (grey bars).