

# Pain management in a medical walk-in clinic: link between recommended processes and pain relief

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## Abstract

**Background.** While most recommended pain management practices have been developed for hospitalised patients, little is known about their relevance for ambulatory patients presenting with acute pain.

**Objective.** In this study, we explored the relationship between patients' reported use of recommended pain management practices and pain relief in outpatients.

**Method.** 703 adult patients who presented with pain at the medical walk-in clinic of the University Hospitals of Geneva, Switzerland, were included in a mailed cross-sectional survey. They completed a self-administered questionnaire with specific items on self reports of pain and pain management processes.

**Main outcome measures.** Patient's self reports on pain and pain management processes.

**Results.** Of the 703 patients presenting with pain, 40% reported complete pain relief after their visit at the medical walk-in clinic. After adjustment for age, sex, origin, general health and intensity of pain, patients' self-report of complete pain relief was associated with availability of medical doctors (OR = 5.6; 95% CI 2.1–14.7 for excellent vs. poor availability), availability of nurses (OR = 2.6; 95% CI 1.2–6.0 for excellent vs. poor availability), waiting <10 min for pain medication (OR = 4.6; 95% CI 2.2–9.8), regular assessment of pain (OR = 1.7; 95% CI 1.02–2.7) and having received information about pain and its management (OR = 3.0; 95% CI 1.8–4.9).

**Conclusions.** Self-reported pain relief was associated with more frequent use of recommended pain management processes. These recommendations initially developed for hospitalized patients should also be encouraged for ambulatory care patients.

**Keywords:** pain management, pain relief, walk-in clinic

Studies on pain management have shown that pain is commonly experienced by a majority of patients. However, pain is unsatisfactorily managed in general medical, surgical, or oncology wards [1, 2], and emergency departments [3–6] despite international guidelines on management of chronic and acute pain and implementation of educational programs [7]. Several explanations have been suggested: health care professionals may underestimate patients' pain intensity, use inappropriate analgesics [8], underestimate or question the efficacy of applying pain management guidelines in their everyday practice [7]; patients and health care professionals may fear addiction related to the use of some pain medication [9, 10] or believe that analgesia will interfere with making a diagnosis [11, 12]; finally institutions may show little commitment in trying to change health professionals' attitudes towards pain [7].

A recent study performed in a large general teaching hospital showed that self-reported pain relief was more frequent

among hospitalized patients when various processes to manage pain had been used, such as regular pain assessment, modification of pain treatment when ineffective, timely delivery of pain treatment and appropriate information about pain and its management [13]. The authors concluded that hospitals should be encouraged to apply these practices more consistently.

In ambulatory settings, little is known about the relationship between recommended pain management processes and pain relief. Most studies have been conducted in emergency settings with patients in acute pain and explored the relationship between pain management processes and patients' satisfaction. Pain relief was only weakly associated with improved satisfaction with pain management [14]. Patients reported higher satisfaction with pain management when they had received a treatment for pain [15]. Regular pain assessment was also found to be important [16]. Contrasting with these results, other authors have found that a decrease of pain

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intensity by appropriate care, measured with a visual analogical scale, did not correlate with higher satisfaction regarding pain management [17]. So far none has explored the relationship between the use of recommended pain management processes and pain relief in outpatients.

In this study, we explored whether the use of recommended pain management processes initially developed for hospitalized patients would also be associated with increased pain relief among outpatients attending a walk-in clinic of a large teaching hospital.

## Methods

### Setting

This study was conducted at the medical walk-in clinic of the University Hospitals of Geneva, a 2200-bed public teaching hospital in Switzerland. The medical walk-in clinic is located in the emergency department building. Patients attend the emergency department either spontaneously or because they are referred by their primary care doctor. They are triaged by specialized nurses to either walk-in clinics (medical, surgical or psychiatric) or the emergency rooms according to the severity of their complaints. The medical walk-in clinic provides ambulatory care to ~15 000 patients every year and is open from 8 AM to 11 PM 7 days a week. Less than 10% of patients are hospitalized. Care is delivered by residents generally enrolled in a 12-month training program in primary care medicine.

### Study design and sample

We used the data of 703 patients presenting with pain at the medical walk-in clinic to study the link between the use of recommended processes and pain relief. These data were collected as part of a quality improvement program following a multifaceted intervention on pain management [18]. All patients completed a specific questionnaire addressing pain management processes, based on the Picker instrument (P) [19, 20] and new items (N) developed by the members of the Geneva University Hospitals Pain Management Network [13]. Patients presenting with pain at the medical walk-in clinic were identified with the question: 'Were you in pain during your consultation at the walk-in clinic?' Because some patients who answered 'no' to this question or who skipped it nevertheless described pain intensity, or reported having asked for pain medication elsewhere in the questionnaire, answers to these questions were also used to identify patients presenting with pain at the medical walk-in clinic. As a quality improvement project involving minimal risk to participants, the study was exempted from formal review by the local research ethics committee.

### Study variables

The main outcome variable was patient's self-reported pain relief (N) ('Overall, was your pain relieved during your visit

at the walk-in clinic?'). The answers 'yes, to some extent' and 'no' were grouped and compared with 'yes, completely'.

The main predictor variables used were patient's reports of the following aspects of pain management (Table 1): availability of doctors and/or nurses (P), waiting time <10 min before a requested pain medication was brought to the patient (P), regular pain assessment (N), use of a pain assessment tool (N), administration of analgesics during consultation (N), modification of pain treatment when current treatment proved ineffective (N) and having received enough information about pain and its management (N). We chose these different predictors because patients' experience of pain management in the walk-in clinic may be influenced not only by efficient therapy but also by the attitude of health care professionals towards patients. Additional variables included patient's sex, age, citizenship, educational level, the general health item of the Short Form health survey [21] and the intensity of pain.

### Statistical analysis

Descriptive statistics (frequency tables, means, standard deviations and quartiles) were used to describe socio-demographic characteristics of the patients. Chi-squared and linear trend tests were used to study how overall pain relief varied according to patient characteristics and use of recommended pain management processes. Significant factors in the univariate analysis were used in logistic regression models to identify multivariate predictors of pain relief. We also included important determinants of pain relief that have been identified by others, such as sex, age, origin, perceived health and intensity of pain [4, 5, 10]. Finally, we counted how many significant medical care processes identified in the multivariate analysis were reported as implemented by each patient reporting complete pain relief, and computed the proportions of patients by count. In this analysis, we combined very good and excellent, and poor and fair availability of health professionals. All statistical tests were two-sided with a significance level of 0.05. Statistical analyses were performed using SPSS 11 (Chicago, IL, USA).

## Results

The mean age of patients presenting with pain was 39.9 years (SD 15.6; quartiles: 28–38–49) and 57% (397/704) were women. Most patients were Swiss or from the European community (34 and 31%, respectively). Pain was more frequently reported by patients that were non-Swiss, had lower education level, and worst perceived general health (Table 2). Pain was reported as severe by 58% respondents, moderate by 32% and mild by 11%. According to the ICP-2 classification [22], 32% (223/703) of patients presented with musculo-skeletal complaints, 17% (122/703) with abdominal pain, 16% (113/703) with ear-nose-throat complaints, 8% (55/703) with uro-genital complaints, 7% (52/703) with headache, 6% (40/703) with skin problems and 4% (31/703) with thoracic pain. None of these patients

**Table 1** Association between self-reported pain and medical factors in 703 outpatients presenting with pain at a medical walk-in clinic

	Self-reported pain relief	
	<i>n/N</i> <sup>a</sup>	%
<i>Items from the Picker instrument</i>		
How do you rate the availability of medical doctors who took care of you?		<0.001 <sup>b</sup>
Poor	1/24	4.2
Fair	5/81	6.2
Good	100/276	36.2
Very good	81/157	51.6
Excellent	72/111	64.9
How do you rate the availability of nurses who took care of you?		<0.001 <sup>b</sup>
Poor	1/17	5.9
Fair	12/67	17.9
Good	96/298	32.2
Very good	77/147	52.4
Excellent	71/110	64.5
<i>Modified item from the Picker instrument</i>		
When you asked for a pain medication, how long did you wait on average?		<0.001 <sup>c</sup>
0–10 min	103/171	60.2
Over 10 min	36/111	32.4
Never received the pain medication	24/93	25.8
<i>New items</i>		
Was your level of pain regularly assessed?		<0.001 <sup>c</sup>
Yes	206/473	43.6
No	49/173	28.3
To assess the intensity of pain, was a pain assessment tool used (e.g. visual analog scale, 'pain ruler', 0–10 numeric scale, list of words)?		0.27 <sup>c</sup>
Yes	128/309	41.4
No	123/331	37.2
During your consultation, did you receive a treatment to relieve pain?		<0.001 <sup>c</sup>
Yes	154/332	46.4
No	104/319	32.6
In case pain was not relieved by the treatment, was it modified?		<0.001 <sup>c</sup>
Yes, it was modified	40/97	41.2
No, it was not modified	23/108	21.3
Pain was always relieved	126/218	57.8
Did you receive any information about pain and its management during your consultation?		<0.001 <sup>c</sup>
Yes, definitely	169/265	63.8
Yes, to some extent	40/185	21.6
No	51/202	25.2

<sup>a</sup>*n* = patients with complete pain relief; *N* = patients who responded; denominators do not add to 703 because of missing values.<sup>b</sup>*P*-value, test for linear trend.<sup>c</sup>*P*-value,  $\chi^2$  test.

had orthopedic or traumatic diagnoses that are usually managed in the surgical walk-in clinic.

Seventy three percent (505/691) of the patients with pain reported regular pain assessment and 48% (325/683) noticed the use of a pain assessment tool. Half of the patients (49%, 343/695) received a pain medication during their stay at the walk-in clinic. Pain treatment was considered as sufficient to relieve pain by 53% (175/328) and had been modified for

51% of the patients (78/153) when ineffective. More than half of the patients (53%; 153/287) reported waiting <10 min before a requested pain medication was brought. Seventy percent (287/410) of the patients reported having received enough medication during their stay at the walk-in clinic. Forty-one percent of the patients (281/681) considered having received enough information about pain and its management, and 52% (349/675) about how to manage

**Table 2** Characteristics associated with pain and pain management among outpatient attending a medical walk-in clinic ( $n = 924$ )

	Patients reporting pain during consultation		Self-reported pain relief	
	$n/N$	(%)	$n/N$	(%)
Sex		0.39 <sup>a</sup>		0.74 <sup>a</sup>
Female	397/529	75.0	146/371	39.4
Male	306/395	77.5	117/288	40.6
Age (years)		0.62 <sup>a</sup>		0.56 <sup>a</sup>
<25	113/151	74.8	36/108	33.3
25–34	185/247	74.9	74/181	40.9
35–44	164/220	74.5	59/152	38.8
45–54	107/131	81.7	43/100	43.0
55–64	75/95	78.9	31/66	47.0
≥65	59/80	73.8	20/52	38.5
Citizenship		<0.001 <sup>a</sup>		0.89 <sup>a</sup>
Swiss	236/349	67.6	95/219	43.4
European Community (EC)	217/273	79.5	74/200	37.0
Other European countries	40/43	93.0	17/40	42.5
Africa	96/112	85.7	33/90	36.7
Asia	26/30	86.7	12/26	46.2
America	66/83	79.5	24/63	38.1
Unknown	20/31	64.5	7/19	36.8
Education		0.001 <sup>a</sup>		0.37 <sup>a</sup>
Primary school	204/242	84.3	75/192	39.1
Apprenticeship	133/177	75.1	49/127	38.6
Secondary school	74/104	71.2	24/72	33.3
Professional training	78/113	69.0	27/73	37.0
University	129/188	68.6	50/119	42.1
Other	66/77	85.7	31/60	51.7
In general, would you say your health is?		<0.001 <sup>b</sup>		0.004 <sup>b</sup>
Excellent	59/81	72.8	28/57	49.1
Very good	142/200	71.0	57/137	41.6
Good	325/441	73.7	129/299	43.1
Fair	122/142	85.9	33/117	28.2
Poor	44/46	95.7	12/41	29.3
Intensity of pain	— <sup>c</sup>	— <sup>d</sup>		0.002 <sup>a</sup>
Severe	401	57.7	128/375	34.1
Moderate	221	31.8	96/208	46.2
Mild	73	10.5	34/66	51.5

<sup>a</sup> $P$ -value,  $\chi^2$  test.<sup>b</sup> $P$ -value, linear trend test.<sup>c</sup>Only for patients who reported pain.<sup>d</sup>No  $P$ -value available since it includes only patients with pain.

and treat pain at home. Patients considered overall staff availability to be good to very good (mean score 3.4 (SD 1) for both medical and nursing staff on a five-point Likert scale) and 50% (339/674) considered that health care professionals did everything to relieve them from pain.

Forty percent (262/656) reported complete pain relief after their visit at the walk-in clinic. Self-reported pain relief did not vary according to patients' age, gender, citizenship and educational level, but was less frequently reported by

patients with fair or poor general health self-assessment and more severe pain (Table 2).

### Multivariate predictors of pain relief

A multivariate analysis including patient's age, sex, origin, general health and intensity of pain as independent variables showed that five medical factors remained associated with complete self-reported pain relief: doctors' and nurses'

**Table 3** Multivariate analysis of medical care factors associated with pain relief (multivariate logistic regression models)

	Self-reported pain relief <sup>a</sup>	
	OR <sup>b</sup>	95% CI
Availability of medical doctor (vs. poor–fair)		
Good	5.9	2.3–15.1
Very good–excellent	5.6	2.1–14.7
Availability of registered nurse (vs. poor–fair)		
Good	1.3	0.6–2.9
Very good–excellent	2.6	1.2–6.0
Average waiting time before receiving a pain medication (vs. never received)		
0–10 min	4.6	2.2–9.8
> 10 min	2.3	0.99–5.1
Never asked	3.7	1.6–8.7
Regular assessment of pain (vs. none)	1.7	1.02–2.7
Administration of a treatment to relieve pain (vs. none)	1.4	0.7–2.6
Treatment modification (vs. no modification)		
Treatment was modified	1.4	0.6–3.0
Pain was always relieved	2.3	1.2–4.5
Did not received any treatment for pain	0.7	0.3–1.8
Received information about pain and its management (vs. did not receive)		
Yes, definitely	3.0	1.8–4.9
Yes, to some extent	0.7	0.4–1.2

<sup>a</sup>*n* = 598, Nagelkerke *R* squared = 0.42.<sup>b</sup>Adjusted for patient's age, sex, origin, general health and intensity of pain.

availability, waiting <10 min for pain medication, regular assessment of pain and having received information about pain and its management (Table 3).

When none of these factors was reported, only 11% of patients reported complete pain relief but when all were reported, almost 80% did (Fig. 1) (linear trend test: *P* < 0.001).

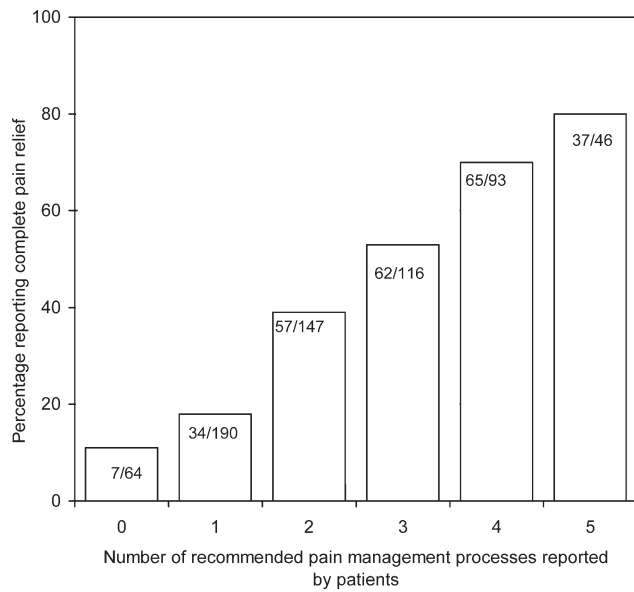
## Discussion

We found that use of recommended pain management processes during emergency care at a medical walk-in clinic was associated with more frequent reports of pain relief among outpatients. A majority of patients said they experienced pain (76%), many of whom had inadequate pain relief (60%). Pain relief was more common in outpatients who reported they had received information about pain and its management, regular assessment of pain, short waiting time to receive pain medication and satisfactory doctors' and nurses' availability.

Influence of pain management activities on patient outcomes has been described for acute and chronic pain in hospital care [13]. As far as we know, there are no studies assessing such correlation for acute pain in ambulatory settings. Our study shows that prevalence of pain was as high among patients attending a medical walk-in clinic as in

hospital settings. More than two-thirds of the patients presented with pain and more than half of them rated it as severe. Surprisingly, use of a pain assessment tool or administration of pain medication was not associated with pain relief. It suggests that health care professionals' attitude towards pain, their ability to communicate and inform in an appropriate way are perceived by outpatients as more important than these purely technical processes. The fact that pain relief correlated with a short waiting time to receive pain medication but not with the administration of pain medication further supports the idea that patients may be more sensitive so health staff responsiveness and concern about their pain than to the pain medication itself. Moreover, complete pain relief may be an unrealistic outcome to achieve in a walk-in clinic, where outpatients stay only for a limited period of time. Indeed some authors have found that patients were more satisfied when they feel health care providers are paying high attention to pain management [1, 9]. A primary care study conducted among chronic pain patients also showed that improved doctor–patient communication and general information about pain increased patients' knowledge and satisfaction about pain treatment as well as pain treatment effectiveness [23]. Health care providers' attitude seems therefore more important than pain relief itself. Other studies performed in the emergency department and other settings have found little correlation between pain relief and patient satisfaction [9, 17].





**Figure 1** Relation between the number of recommended pain management processes reported by patients and self-reported complete pain relief (processes included in the score calculation: very good or excellent availability of medical doctors; very good or excellent availability of nurses; waiting time to receive a pain medication of 10 min or less; regular assessment of pain; definitively received information about pain and its management).

Finally, in our study, pain intensity, patients' age, origin and health self-assessment did not change the association between pain management processes and pain relief. These results are consistent with the medical literature that reports conflicting results about the influence of pain and patient characteristics on pain management practices and outcomes [24–29].

Our study has several limitations. Despite two reminders during mail surveys, the rate of non-respondents remained high (44%), raising the issue of differential associations among non-responding patients. Moreover, submitting a questionnaire in French may have further limited the spectrum of patients included in the study and prevented the exploration of possible confounding in pain management outcomes related to lack of proficiency in French. Another limitation is the fact that our survey questionnaire was filled in by patients several weeks (2–6 weeks later) after they attended the walk-in clinic, raising the issue of recall bias. However, retrospective assessment appears to be valid for a 3-month period in ambulatory settings [30]. Agreement between patient report and staff documentation of the use of a pain assessment tool and administration of pain medication was poor ( $\kappa = 0.29$  and  $\kappa = 0.30$ , respectively), with either staff omitting to document pain intensity and administration of pain medication or patients overestimating use of such processes in more than half of the cases. Anecdotic experience in the walk-in clinic suggests that physicians often give pain medication to the patient and nurses tend to ask about

pain intensity without documenting it in the medical file. Moreover, patients were quite reliable in reporting the absence of pain management: <10% of patients did not report any use of a pain assessment tool and 6% of patients denied having received a medication whereas such processes were documented in their medical file. Our results may also have been influenced by the Hawthorn effect. However, we believe that it was not the case because clinicians were not informed about the time of the surveys and patients received the questionnaire at least 2–6 weeks after their visit at the walk-in clinic. Finally, as with any cross-sectional study, causal interpretation of our findings must be done cautiously.

A major strength of our study is that we evaluated pain management processes and outcomes through patients' perspectives, whereas most studies on pain management assessment are generally based on analysis of medical files. The American Pain Society (APS) stresses the need to assess patients' perspectives with regard to pain management outcomes [31, 32]. The patient is an important source regarding the effectiveness of pain relief [1] and assessment of pain intensity and delivery of pain medication. Furthermore, we collected information about pain management among a fairly large group of outpatients to allow exploration of even weak associations.

## Conclusion

Our study showed that use of pain management processes usually recommended for hospitalized patients was associated with more frequent self-reported pain relief among outpatients, regardless of their pain intensity or general health. These findings underline the importance of regular assessment of pain, short waiting time before receiving a pain medication, delivery of enough information about pain and its management and availability of health professional in daily practice. These recommendations should continue to be included in any educational program aiming at improving pain management in hospital and outpatient care.

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