Title: TITLE: PRE-HOSPITAL PAIN MANAGEMENT PATTERNS AND TRIAGE NURSE DOCUMENTATION

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METHOD
A two-week retrospective exploratory review was conducted.

RESULTS
There were 2,142 ED presentations during the two-week study and 52% of patients had documented evidence of arriving with a painful condition. Of the 1,113 patients 60% were documented to be in pain on arrival. Of the group documented to have arrived in pain only 28% self-administered or received an analgesic in the pre-hospital/community setting. Patients provided a variety of reasons for not self-administering a pre-hospital analgesic.

CONCLUSION
Unnecessary suffering may be avoided if the public had a better understanding of pain and the benefits of pain management. Further research is required to better understand the beliefs and attitudes towards pain and pain management by clinicians and the public.
TITLE: PRE-HOSPITAL PAIN MANAGEMENT PATTERNS AND TRIAGE NURSE DOCUMENTATION

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KEY WORDS

Pain, pain management, beliefs, emergency care, emergency nursing
**INTRODUCTION**

Current knowledge of pre-hospital patient analgesic utilisation patterns is unclear despite Emergency Departments (ED) reporting that pain is a leading cause for patient presentation (Walker et al., 2006, Todd K H et al., 2007, Fry et al., 2011). The documentation by Australasian triage nurses of patients arriving in pain has not been well explored.

The aim of the study was to explore i) triage documentation of pre-hospital analgesic patterns for patients presenting in pain; ii) patient documented explanations for not self administering an analgesic in the pre-hospital setting; iii) triage nurse documentation of pain descriptors and or pain scores; and, iii) the disposition of ED patients presenting in pain.

**BACKGROUND**

Over recent years a number of studies have been carried out with the explicit aim to enhance ED pain management at triage (Fry et al., 2004, Fry and Holdgate, 2002). Some studies continue to demonstrate that pain management in emergency settings remains suboptimal, and that the inadequate management of pain leads to patient dissatisfaction and poorer outcomes (Yanuka M et al., 2008, Berben et al., 2008, Fry et al., 2011). There have been a number of factors highlighted, in the hospital setting, which contribute to the inadequate provision of analgesia. Factors include ED overcrowding (Richardson et al., 2009, Cameron, 2006, Kelen et al., 2001), an increase in patient acuity level (Forero et al., 2008), age (Hwang U et al., 2006, Arendts and Fry, 2006), staff and patient beliefs (Finley et al., 2009, Narayan, 2010), as well as inadequate training and competency levels of emergency staff (Ducharme et al., 2008).

However, little is known about the factors that influence the public’s preferences for pain management and pre-hospital analgesics prior to ED presentation. There is a paucity of literature regarding patient pre-hospital self administered pain management practices (Way et al., 1996). It is unclear whether these practices and or choices may impact on an EDs ability to respond appropriately and in a timely way to patients presenting in pain. In particular, why do some patients choose to arrive in pain rather than have analgesia in the pre-hospital setting. The triage nurses initial patient assessment and subsequent documentation could influence pain management interventions instigated by emergency nurses.

**METHODS**

A two-week retrospective exploratory review was conducted. The single study site was a 550 bed tertiary university referral hospital providing around 54,000 admissions and 770,000
outpatient treatments annually to a catchment population of 250,000 (St George Hospital, 2008). The annual ED attendance rate for 2008 was 54,876 (78% adult, 22% paediatric) with 19,930 (36%) patients admitted to the hospital. Adults and children were included in the study.

All patient presentation details were extracted from the Emergency Department Information System (EDIS™). The computer database was the source for all patient demographics, time of arrival, triage nurse history, assessment and urgency code, triage nurse initiated analgesics, patient diagnosis and disposition. Triage nurse documentation was reviewed to determine whether there was a likely association of pain on ED arrival. A determination of a painful condition or injury was identified by the authors. Any record in the triage nursing assessment data which suggested pain, such as “pain”, “discomfort”, “burning” or “sore”, and documented medical terms that are synonymous with painful conditions, such as “headache”, “colic” or “angina”, were included as complaints of pain on arrival. Symptom terms were discussed prior to the study being conducted and reviewed during final data analysis with consensus achieved between the authors.

All patients presenting to Australasian EDs are assessed by a triage nurse to determine medical urgency, an appropriate care area and commence pain management interventions. Mandatory triage data fields included the nurse’s documented assessment of the presenting complaint; patient’s own history, presence of pain, pre-hospital interventions and vital signs obtained. Triage nurses are also required to document a pain assessment using a numerical pain score or pain descriptor, provide the reason for patients declining analgesia, and any nurse-initiated activities such as analgesics administered on arrival. See Table 1 for the Australasian Triage Scale (ATS) in EDs to document a patient’s history, assessment and urgency code (Commonwealth Department of Health and Aging, 2007).

Data were analysed using an excel spreadsheet for PC which was password protected. The study data were routinely collected by triage nurses.

Ethical approval

Permission for the study was granted under the low and negligible risk research provisions on the basis that it fell outside the definition of research that required full ethics committee review (SESIAHS St George Hospital, 2006).

DATA/RESULTS

For the two week study period there were 2,142 patient attendances. Of the 2,142 patient attendances, 1,113 (52%) arrived with a documented painful condition or injury. Of these patients the majority (73%) were adults (864) with 249 (22%) paediatric patients (<17 years).
Seventy-two percent of patients (n=801) were documented as having no pre-hospital analgesic, 309 (28%) were documented as having taken an analgesic and three (0.2%) patient data sets were missing.

Of the documented 1,113 patients the majority of patients (84%) were allocated Triage Code 3 (398) or 4 (532) (See Table 2). Patients prioritised as Triage Code 1 or 2 (n=126) were allocated a bed on arrival.

For the 1,113 patients triage nurses documented that 671 (60%) reported pain on arrival and 442 (40%) patients denied any pain. Gender was evenly distributed (Males= 51%; Females 49%) with median age of 40 years (mean=43years).

Of the 671 (60%) patients who reported pain on arrival, 290 (43%) were documented to have musculoskeletal conditions. See Table 3 for the range of painful symptoms presenting to triage.

Triage nurse documentation identified of the 671 (60%) patients who reported pain on arrival, 309 (46%) self-administered an analgesic in the pre-hospital setting and 362 (54%) patients did not self-administer or receive an analgesic prior to ED arrival. Thirteen (4%) patients were documented to have also managed their pain with first aid strategies, including splinting or bandaging.

Triage documentation of patients who arrived in pain and had not self medicated with an analgesic provided the following rationales: 91 (25%) reported that the pain was too mild; 90 (24%) datum sets missing; 68 (19%) came immediately to the ED due to the sudden onset of pain; 45 (12%) were unsure what to take pre-hospital; 27 (7%) did not like to take medications; 26 (7%) wanted to show the doctor location of pain; 15 (4%) felt nauseated or were vomiting; 5 (1%) refused due to pregnancy; and, 4 (1%) could not afford the cost of medication. Some patients reported more than one reason.

Of the patients (n=309) who had documented evidence of self-administering an analgesic, 253 (80%) self-administered an over the counter medicine. Over the counter medicines included Paracetamol, Mylanta, (Aluminium hydroxide magnesium hydroxidesimethicone) and Ibuprofen. Fifty-six (20%) patients used prescribed analgesic medications that were at home for other conditions or family members. The home acquired analgesics included: oxycodon hydrochloride, Buscopan (Hyoscine butylbromide) and Tramadol hydrochloride.

Four (1.2%) patients used alternative medicines.

Triage nurses are required to document a patient’s pain assessment using a pain score or descriptor (mild, moderate or severe). Fifty-nine (9%) patients had a documented pain score
and 67 (10%) had a pain descriptor documented. For the different triage categories there was not a pain score or descriptor documented for Triage Code 1 or 5 patients.

Of those patients who arrived in pain, 314 (47%) were documented to have been fast tracked by the triage nurse for analgesia. Of those patients who received analgesia, 158 (50%) were male. All analgesics were initiated by the triage nurse. Administration of the analgesic was by the triage nurse or the Advanced Practice Nurse. Nurse initiated analgesic policies include Paracetamol, Paracetamol and Codeine, and or Morphine Sulphate.

The ED length of stay for patients (671) reporting pain on arrival was less (Medium 1hours:40minutes) than for those patients not reporting pain (Medium 6hours:6 minutes). This was statistically significant (95%; p<0.001).

For those patients reporting pain on arrival, 402 (60%) were discharged while 211 (31%) were admitted to hospital. Fifty-eight (9%) patients left before their treatment was completed. All 58 patients received an analgesic on arrival with two patients also receiving nurse-initiated radiological investigations and one was also administered an antiemetic.

**DISCUSSION**

The study supports existing evidence that the majority of ED patients present in pain. Findings identified that 47% of the patients presenting in pain received an analgesic on arrival. The majority of patients arriving in pain did not self administered an analgesic in the pre-hospital setting. Many reasons were identified by patients for not self-administering an analgesic prior to ED arrival. The reasons for not self-medicating were often embedded in beliefs about pain and pain management. The lack of administration of analgesia in the pre-hospital setting presents an issue for clinicians receiving patients in the ED. Giving timely analgesia can reduce unnecessary suffering and distress, and improve outcomes for patients.

Pain and pain management beliefs are embedded and influenced by cultural context, knowledge, age, and previous pain experience (Narayan, 2010, Karwowski-Soulie F et al., 2006). The complex subjective nature of pain means that a patient and or clinician’s interpretation of pain may not always be clearly defined. Our study revealed that 12% of patients were not sure what analgesic to take for their pain. Knowledge and subjectivity of pain therefore, may inhibit clear directives for suitable treatment options and result in inadequate or inappropriate self-management (Brockopp et al., 2004). Whether this assessment is carried out by the patient themselves or another care giver, such as a General Practitioner, nurse or carer the result can often be the same.

Knowledge and beliefs about pain and pain management influence self-administration patterns for analgesia. Yet positive knowledge and beliefs can assist to ensure optimal and
appropriate self-administration of analgesics. This study identified that a number of patients chose not to self-administer an analgesic because ‘they did not like to take medication’. Therefore, healthcare workers can and should take opportunities to educate the public to reduce misconceptions and improve the public’s knowledge and confidence for self administration of analgesics (Young et al., 2006).

Similarly, our results also identified that patients withheld the administration of an analgesic in order to show the doctor where the pain was located. The belief that ‘diagnostic accuracy and or cure will be threatened by the removal of pain’ continues to be evident for both the public and clinicians and can be a stimulus for rejecting or declining analgesia (Zinke, 2007). However, studies have shown that early administration of analgesia will improve diagnostic precision by having a more compliant patient who will better tolerate physical examination (Fry and Holdgate, 2002). Health care workers need to consider their own beliefs around pain and pain management so as not to perpetuate inappropriate beliefs. This is important as health care workers have been identified as a primary information source for pain management (Walsh, 2010).

Many patients responded that the sudden onset of pain was the main reason for not self-administering a pre-hospital analgesic. This is not unreasonable given that the intensity and nature of pain will influence the decision to seek professional opinion and management. Acute pain is influenced by context, knowledge, and a wide range of physiological and pathophysiological processes. Given the complexity of pain, symptoms can cause a great dilemma for patients and influence their understanding of pain and the timely selection and administration of analgesia (Walker et al., 2006). In contrast, one Australian study identified that triage nurses believe patients should self administer analgesics prior to ED arrival if their illness or injury is to be taken seriously (Fry, 2005). Nurses hold beliefs that are embedded within their organisational culture, which can impact on pain assessment and management. It is critical that emergency staff are mindful that a patient’s response is not intrinsically right or wrong (Narayan, 2010). Healthcare workers need to be sensitive and tolerant to the reasons patients may have for not self-administering analgesics prior to ED arrival.

Management of acute pain is complex and can have negative outcomes for patients that involve emotional and physical well being, prolonged hospital stay and recovery, and financial strain (Walker et al., 2006). Improved administration of analgesia in the pre-hospital setting could present an opportunity to improve patient outcomes. Inadequate analgesia can contribute to unnecessary suffering and distress experienced by patients. Our study showed that more than half of the patients presenting in pain did not self-administer or receive any analgesia before ED arrival. In addition to this, the reasons for not doing such were in many
cases unwarranted. Further consumer focused qualitative assessment of pain management attitudes and beliefs is needed.

There is good evidence that the use and documentation of pain descriptors by clinicians improves the likelihood of patient analgesic administration. Specifically, Karwowski-soulie, et al (2006) and Puntillo et al (2003) suggest oligoanalgesia may in part be explained by insufficient or inappropriate pain assessment. The current study identified that very few patients presenting with pain had a documented triage pain score or descriptor despite. While the findings may reflect more about documentation quality, they suggest that Australian emergency clinicians are not using pain assessment tools consistently. These finding has been supported by others (Fry et al., 2011, Arendts and Fry, 2006, Carr, 1997). Further qualitative research is needed to explore triage nurses attitudes and beliefs towards the use and value of pain assessment tools.

Some patients who received nurse initiated analgesia on arrival left prior to having their treatment completed by a medical officer. Clinicians need to undertake regular audits of the impact of nurse-initiated extended practices, such as analgesia, to evaluate patient outcomes. These audits may also highlight that emergency nurses could manage some patient groups with analgesia alone.

Several limitations for this study can be identified. The accuracy of real time documentation is dependent on the triage nurse’s ability and willingness to enter the data. The absence of data fields does not preclude that the information was not collected by the triage nurse. The nursing documentation was assumed to be complete and accurate for each patient although there were not sufficient resources to follow up on documentation quality. There may have been selection bias or other confounding factors that may have influenced patient presentation and triage nurse data entry, which meant that potential patients were not identified within the triage data. Triage documentation of patients arriving by ambulance is generally poor. Patients in the study were a convenience sample presenting with a painful condition or injury to one Emergency Department and so generalisation is limited. Due to limited resources the patient’s knowledge and beliefs about pain and pain management were not surveyed. There was no investigation of the outcome of analgesics administered in the ED. Patients that left prior to their treatment being completed were not followed up regarding analgesic outcomes. Furthermore, the uses of non-pharmacological interventions were not explored in detail within this study.

**CONCLUSION**

The public and clinician’s response to pain and pain management is influenced by beliefs and knowledge. Positive beliefs about pain and pain management could help to reduce patient
suffering and enhance clinical outcomes. This study suggests educational programs are required to ensure appropriate pain assessment documentation occurs by triage nurses. Nonetheless, the majority of patients in pain received an analgesic on arrival. Qualitative research is needed to better understand the beliefs and attitudes towards pain and pain management for both clinicians and the public. There is little doubt that positive beliefs towards pain and pain management would reduce needless suffering and improve patient outcomes.
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Table 1: Australasian Triage Urgency Scale

<table>
<thead>
<tr>
<th>Australasian Triage Code</th>
<th>Time to be seen within</th>
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<tbody>
<tr>
<td>Triage Code 1</td>
<td>immediately</td>
</tr>
<tr>
<td>Triage Code 2</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Triage Code 3</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Triage code 4</td>
<td>60 minutes</td>
</tr>
<tr>
<td>Triage Code 5</td>
<td>120 minutes</td>
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Table 2: Triage Nurse Urgency Scale Allocation

<table>
<thead>
<tr>
<th>Australasian Triage Code</th>
<th>Patient Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triage Code 1</td>
<td>8 (1)</td>
</tr>
<tr>
<td>Triage Code 2</td>
<td>118 (11)</td>
</tr>
<tr>
<td>Triage Code 3</td>
<td>398 (36)</td>
</tr>
<tr>
<td>Triage code 4</td>
<td>532 (47)</td>
</tr>
<tr>
<td>Triage Code 5</td>
<td>57 (5)</td>
</tr>
<tr>
<td>Total</td>
<td>1,113 (100)</td>
</tr>
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</table>
Table 3: Patient presentations of painful symptoms assessed at Triage

<table>
<thead>
<tr>
<th>Reason for painful condition</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musculoskeletal pain</td>
<td>290 (43)</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>124 (18)</td>
</tr>
<tr>
<td>Left prior to treatment completed</td>
<td>59 (9)</td>
</tr>
<tr>
<td>Painful conditions nonspecific</td>
<td>59 (9)</td>
</tr>
<tr>
<td>Infective painful conditions</td>
<td>54 (8)</td>
</tr>
<tr>
<td>Cardiac pain</td>
<td>48 (7)</td>
</tr>
<tr>
<td>Neurological pain</td>
<td>21 (3)</td>
</tr>
<tr>
<td>Respiratory pain</td>
<td>15 (2)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (0.1)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>671 (100)</strong></td>
</tr>
</tbody>
</table>