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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.

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KEY WORDS

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

1 **TITLE: PRE-HOSPITAL PAIN MANAGEMENT PATTERNS AND TRIAGE NURSE**

2 **DOCUMENTATION**

3 **INTRODUCTION**

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

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

12 **BACKGROUND**

13 Over recent years a number of studies have been carried out with the explicit aim to enhance
14 ED pain management at triage (Fry et al., 2004, Fry and Holdgate, 2002). Some studies
15 continue to demonstrate that pain management in emergency settings remains suboptimal,
16 and that the inadequate management of pain leads to patient dissatisfaction and poorer
17 outcomes (Yanuka M et al., 2008, Berben et al., 2008, Fry et al., 2011). There have been a
18 number of factors highlighted, in the hospital setting, which contribute to the inadequate
19 provision of analgesia. Factors include ED overcrowding (Richardson et al., 2009, Cameron,
20 2006, Kelen et al., 2001), an increase in patient acuity level (Forero et al., 2008), age
21 (Hwang U et al., 2006, Arendts and Fry, 2006), staff and patient beliefs (Finley et al., 2009,
22 Narayan, 2010), as well as inadequate training and competency levels of emergency staff
23 (Ducharme et al., 2008).

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

32 **METHODS**

33 A two-week retrospective exploratory review was conducted. The single study site was a 550
34 bed tertiary university referral hospital providing around 54,000 admissions and 770,000

35 outpatient treatments annually to a catchment population of 250,000 (St George Hospital,
36 2008). The annual ED attendance rate for 2008 was 54,876 (78% adult, 22% paediatric) with
37 19,930 (36%) patients admitted to the hospital. Adults and children were included in the
38 study.

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

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

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

61 Ethical approval

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

65 **DATA/RESULTS**

66 For the two week study period there were 2,142 patient attendances. Of the 2,142 patient
67 attendances, 1,113 (52%) arrived with a documented painful condition or injury. Of these
68 patients the majority (73%) were adults (864) with 249 (22%) paediatric patients (<17years).

69 Seventy-two percent of patients (n=801) were documented as having no pre-hospital
70 analgesic, 309 (28%) were documented as having taken an analgesic and three (0.2%) patient
71 data sets were missing.

72 Of the documented 1,113 patients the majority of patients (84%) were allocated Triage Code
73 3 (398) or 4 (532) (See Table 2). Patients prioritised as Triage Code 1 or 2 (n=126) were
74 allocated a bed on arrival.

75 For the 1,113 patients triage nurses documented that 671 (60%) reported pain on arrival and
76 442 (40%) patients denied any pain. Gender was evenly distributed (Males= 51%; Females
77 49%) with median age of 40 years (mean=43years).

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

81 Triage nurse documentation identified of the 671 (60%) patients who reported pain on arrival,
82 309 (46%) self-administered an analgesic in the pre-hospital setting and 362 (54%) patients
83 did not self-administer or receive an analgesic prior to ED arrival. Thirteen (4%) patients
84 were documented to have also managed their pain with first aid strategies, including splinting
85 or bandaging.

86 Triage documentation of patients who arrived in pain and had not self medicated with an
87 analgesic provided the following rationales: 91 (25%) reported that the pain was too mild; 90
88 (24%) datum sets missing; 68 (19%) came immediately to the ED due to the sudden onset of
89 pain; 45 (12%) were unsure what to take pre-hospital; 27 (7%) did not like to take
90 medications; 26 (7%) wanted to show the doctor location of pain; 15 (4%) felt nauseated or
91 were vomiting; 5 (1%) refused due to pregnancy; and, 4 (1%) could not afford the cost of
92 medication. Some patients reported more than one reason.

93 Of the patients (n=309) who had documented evidence of self-administering an analgesic,
94 253 (80%) self-administered an over the counter medicine. Over the counter medicines
95 included Paracetamol, Mylanta, (Aluminium hydroxide magnesium hydroxidesimethicone)
96 and Ibuprofen. Fifty-six (20%) patients used prescribed analgesic medications that were at
97 home for other conditions or family members. The home acquired analgesics included:
98 oxycodone hydrochloride, Buscopan (Hyoscine butylbromide) and Tramadol hydrochloride.
99 Four (1.2%) patients used alternative medicines.

100 Triage nurses are required to document a patient's pain assessment using a pain score or
101 descriptor (mild, moderate or severe). Fifty-nine (9%) patients had a documented pain score

102 and 67 (10%) had a pain descriptor documented. For the different triage categories there was
103 not a pain score or descriptor documented for Triage Code 1 or 5 patients.

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

109 The ED length of stay for patients (671) reporting pain on arrival was less
110 (Medium 1hours:40minutes) than for those patients not reporting pain (Medium 6hours:6
111 minutes). This was statistically significant (95%; $p < .001$).

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

116 **DISCUSSION**

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

125 Pain and pain management beliefs are embedded and influenced by cultural context,
126 knowledge, age, and previous pain experience (Narayan, 2010, Karwowski-Soulie F et al.,
127 2006). The complex subjective nature of pain means that a patient and or clinician's
128 interpretation of pain may not always be clearly defined. Our study revealed that 12% of
129 patients were not sure what analgesic to take for their pain. Knowledge and subjectivity of
130 pain therefore, may inhibit clear directives for suitable treatment options and result in
131 inadequate or inappropriate self-management (Brockopp et al., 2004). Whether this
132 assessment is carried out by the patient themselves or another care giver, such as a General
133 Practitioner, nurse or carer the result can often be the same.

134 Knowledge and beliefs about pain and pain management influence self-administration
135 patterns for analgesia. Yet positive knowledge and beliefs can assist to ensure optimal and

136 appropriate self-administration of analgesics. This study identified that a number of patients
137 chose not to self-administer an analgesic because ‘they did not like to take medication’.
138 Therefore, healthcare workers can and should take opportunities to educate the public to
139 reduce misconceptions and improve the public’s knowledge and confidence for self
140 administration of analgesics (Young et al., 2006).

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

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

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

171 cases unwarranted. Further consumer focused qualitative assessment of pain management
172 attitudes and beliefs is needed.

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

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

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

203 **CONCLUSION**

204 The public and clinician's response to pain and pain management is influenced by beliefs and
205 knowledge. Positive beliefs about pain and pain management could help to reduce patient

206 suffering and enhance clinical outcomes. This study suggests educational programs are
207 required to ensure appropriate pain assessment documentation occurs by triage nurses.
208 Nonetheless, the majority of patients in pain received an analgesic on arrival. Qualitative
209 research is needed to better understand the beliefs and attitudes towards pain and pain
210 management for both clinicians and the public. There is little doubt that positive beliefs
211 towards pain and pain management would reduce needless suffering and improve patient
212 outcomes.

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280

Table 1: Australasian Triage Urgency Scale

Australasian Triage Code	Time to be seen within
Triage Code 1	immediately
Triage Code 2	10 minutes
Triage Code 3	30 minutes
Triage code 4	60 minutes
Triage Code 5	120 minutes

Table 2: Triage Nurse Urgency Scale Allocation

Australasian Triage Code	Patient Number (%)
Triage Code 1	8 (1)
Triage Code 2	118 (11)
Triage Code 3	398 (36)
Triage code 4	532 (47)
Triage Code 5	57 (5)
Total	1,113(100)

Table 3: Patient presentations of painful symptoms assessed at Triage

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