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Survey of assessment and management of pain for critically ill adults

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Summary
Objective: To investigate critical care nurses' current practice and knowledge related to pain assessment and management for critically ill adults able and unable to self-report pain.
Design: Cross sectional self-report survey.
Results: Survey response rate was 57%. Though more respondents used formal pain assessment tools often or routinely for patients able to self-report compared to patients unable to communicate (P < 0.0001), there was no difference in perceived importance of pain assessment tools. Nurses were less confident in their ability to accurately assess pain for patients unable to self-report (P < 0.0001). Behaviours most frequently considered routinely indicative of pain were grimacing (88/140, 62.9%), vocalisation (78/140, 55.7%) and wincing (73/140, 52.1%). Haemodynamic instability, nursing workload and patient inability to communicate were the barriers considered to interfere with pain assessment and management most frequently. Enablers to effective management included pain prioritisation, and adequate prescription of analgesia.
Most respondents (118/140 84.3%) had received continuing education on topics related to pain.
Conclusions: Though nurses considered pain assessment equally important for patients unable and able to self-report, formal assessment tools were used less frequently and nurses were less confident in their ability to assess pain for patients unable to self-report.

Introduction
Several studies over the last two decades indicate intensive care unit (ICU) survivors recall pain as a prominent feature of their ICU admission suggesting inadequate pain assessment and management (Arroyo-Novoa et al., 2008; Punttillo, 1990;
Pain is defined by the International Association for the Study of Pain (IASP) as an unpleasant sensory and emotional experience associated with actual or potential tissue damage (IASP Task Force on Taxonomy, 1994). The IASP also emphasize the need to consider pain when the patient is unable to communicate. An international observational study of 5957 patients admitted to 169 hospitals in four countries found less than 20% (1018) of critically ill patients received analgesia prior to a painful procedure (Puntillo et al., 2001, 2004). Patient, clinician and organisational factors contribute to inadequate pain management. Pain assessment and management for critically ill patients present unique challenges for clinicians due to impaired communication associated with sedation, altered level of consciousness and endotracheal intubation (Kwakkeboom and Herr, 2001). Additionally, interventions that provide timely and effective analgesia may be compromised by other priorities of care in the unstable critically ill patient (Cullen et al., 2001).

Consequences of unrelieved pain that contribute to morbidity and mortality include immunosuppression, tachycardia, increased myocardial oxygen demand, decreased cerebrovascular autoregulation, increased intracranial pressure and prolonged catabolism (Benedetti et al., 1984; Kehlet, 1986; Lewis et al., 1994; Ljungqvist et al., 2005; Turina et al., 2006). Unrelieved pain may induce atelectasis due to reduced movement of the diaphragm and chest wall (Desai, 1999) resulting in worsening respiratory failure and prolonged duration of mechanical ventilation and ICU stay. Impaired ability to sleep due to pain contributes to the development of delirium also associated with increased ICU and hospital morbidity and mortality (Ely et al., 2004). Additionally, unrelieved acute pain may result in the development of chronic pain syndromes for ICU survivors due to pathological changes (peripheral and central sensitisation) to the nervous system as well as psychological sequelae including anxiety, depression and post-traumatic stress disorder (Boyle et al., 2004; Desbiens et al., 1999).

Despite evidence of the negative physical and psychological consequences of unrelieved moderate to severe pain, studies conducted outside of the ICU demonstrate nurses and other health care professionals lack adequate pain knowledge, underestimate pain, provide inadequate analgesia (Watt-Watson et al., 2001) and document pain infrequently (Hall-Lord et al., 1998; Watt-Watson, 1992; Watt-Watson et al., 1999). Two large prospective cohort studies describing pain management for critically ill patients observed that 49% (323/661 surgical ICU patients in Italy) (Bertolini et al., 2002) and 64% (248/400) medical ICU patients (Freire et al., 2002) received no analgesia during the first 48 hours of, or their entire, ICU stay respectively. A single centre Canadian study examining pain documentation by ICU nurses and physicians found a pain score was documented for only 3/183 (1.6) pain episodes for 52 patients (Gelinas et al., 2004).

Current, no behavioural pain scale has been found to be superior. The Behavioural Pain Scales (BPS) (Payen et al., 2001) and the Critical-care Pain Observation Tool (CPOT) (Gelinas et al., 2006) have demonstrated three forms of validity and interrater reliability (Li et al., 2008). Gelinas et al. (2009) recently demonstrated the pain positive CPOT threshold differed when patients were exposed to a painful stimulus compared to non-exposure. Additionally, the reported positive cutoff was lower than identified in a previous validation study (Gelinas and Johnston, 2007). Simplicity is a key attribute of any clinical assessment tool. Tools with pain positive thresholds that vary according to pain exposure may lead to clinician confusion and erroneous pain management. Documented pain assessment trends also may be difficult to interpret if additional information regarding the presence of painful stimuli is required.

Previous surveys of pain management practices of clinicians working in adult ICUs focus on the preferred analgesia prescribing patterns of physicians and do not report nursing practices for the assessment and management of pain (Christensen and Thunedborg, 1999; Martin et al., 2005; Mehta et al., 2006; Soliman et al., 2001). One survey of pain management practices in Germany reported that 43% of hospitals used a pain and sedation management guideline though no details were provided on guideline content or structure (Martin et al., 2005). Detailed description of pain assessment methods, assessment priorities, clinician education as well as barriers and enablers to effective practice are not reported in these surveys. This depth of information is required to identify knowledge translation priorities, potential barriers and strategies to overcome them as well as examples of effective pain management for the critically ill.

**Aims**

The aim of this study was to investigate critical care nurses’ current practice and knowledge related to assessment and management of pain for critically ill adults able and unable to self-report.

**Method**

**Design**

A cross-sectional self-report survey design was utilised.

**Questionnaire**

We reviewed the databases Medline, EMBASE and the Cumulative Index of Allied Health Literature (CINAHL) (1990 to September 2008) using the term “pain” in various combinations with “critical care”, “intensive care”, “education” and “assessment” to identify existing survey instruments and generate items to address the domains of assessment, documentation, management and education related to pain in critically ill adults. No survey instruments meeting the objectives of the proposed study were identified. Existing studies of pain assessment tools and processes were reviewed (Feldt, 2000; Gelinas et al., 2006; Odhner et al., 2003; Payen et al., 2001; Puntillo et al., 1997, 2004) to generate lists of tools and pain behaviours, and procedures considered potentially painful for critically ill patients. Item reduction occurred through an iterative process amongst study investigators based on face and content validity until consensus enabled the production of a concise tool without removing
domains or questions deemed important to the survey objectives.

Ten experts in pain, critical care and survey methodology reviewed the survey and rated the instrument’s clarity, content validity and comprehensiveness based on the method described by Burns et al. (2008). The survey instrument was refined and then re-evaluated by the expert panel until consensus was reached. The final 36 item survey sought information on: (1) current pain assessment practises for critically ill patients both able and unable to self-report (16 items); (2) nurse perceived importance of pain assessment (7 items); (3) perceived relevance of behavioural indicators used as descriptors by validated pain assessment tools (1 item with 24 behaviours listed); (4) enablers and barriers to effective pain assessment, documentation and management (3 items); (5) pain beliefs (5 items); and (6) education on pain received by nurses during ongoing professional development (4 items).

Participants, setting and data collection

The survey was distributed via internal mail to all registered nurses employed in the five ICUs of a 600 bed university-affiliated hospital in Toronto, Canada. These five ICUs comprised three Level III ICUs including a combined medical, surgical and, trauma unit, a cardiothoracic unit, a burns unit and two Level II ICUs. Level III units in Canada are classified as capable of providing the highest level of service (Ontario Critical Care and LHIN Leadership Table, 2006). Level II ICUs provide support for patients with single organ failure or short term ventilation. To maximise response rates, we used three rounds of contact via internal mail as well as two email reminders. Nurses were instructed to return the survey to locked collection boxes in each ICU. Coffee vouchers were included as an incentive for survey return (Dillman, 2000).

Existing institutional guidelines at the time of survey distribution stated the numerical rating scale (NRS) (Jensen et al., 1986) be used for patients able to communicate pain; other scales could be used at the discretion of the bedside nurse if preferred by the patient. For patients unable to communicate, nurses were guided to document pain behaviours such as facial expressions and vocalisation; no specific tool was recommended. Required pain assessment frequency was every four hours or more often dependent on the patient’s condition.

Data analysis

Descriptive statistics were summarised as measures of central tendency for continuous data and frequencies with proportions for categorical data. We collapsed responses addressing questions on the frequency of use of pain assessment tools, pain assessment prior to painful procedures, barriers and enablers to pain assessment, and perceived relevance of behavioural indicators into two categories (often and routinely) versus (never, seldom, sometimes). We compared pain assessment practises for patients able and unable to self-report pain using McNemar’s tests. Differences in the perceived importance and frequency of pain assessment for common procedures previously described as painful (Puntillo et al., 2004) also were assessed using McNemar’s tests. Cochran–Armitage trend tests were used to explore associations between pain assessment practises and nurse variables (years of experience and the number of topics covered during ongoing professional education). Associations between other nurse demographic variables and responses were assessed using Chi-square or Fisher exact tests as appropriate. No adjustments were made for multiple tests. A senior statistician performed analyses using SAS 9.1 (SAS Institute, Cary, NC).

Results

Demographics

From 247 eligible staff, 140 nurses returned surveys (response rate 57%). Demographic information for survey respondents is shown in Table 1. Most respondents had substantial experience in critical care nursing. In line with national statistics (Canadian Nurses Association, 2009), a Diploma in Nursing was the highest qualification for the majority of respondents.

Pain assessment

A pain assessment tool was used by 138/140 (98.6%) respondents for patients able to self-report, with 52/140 (37.1%) indicating they used more than one tool. The numerical rating scale (NRS) (Jensen et al., 1986) (95.0%) was used most frequently. Other tools used included the verbal rating

<table>
<thead>
<tr>
<th>Table 1 Nurse demographics.</th>
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<tbody>
<tr>
<td>Nurse variables (N = 140)</td>
</tr>
<tr>
<td>n (%)</td>
</tr>
<tr>
<td>ICU experience (n = 136)</td>
</tr>
<tr>
<td>&gt;10 years</td>
</tr>
<tr>
<td>&gt;5–10 years</td>
</tr>
<tr>
<td>2–5 years</td>
</tr>
<tr>
<td>&lt;2 years</td>
</tr>
<tr>
<td>Highest qualifications held (n = 132)</td>
</tr>
<tr>
<td>Diploma</td>
</tr>
<tr>
<td>Baccalaureate</td>
</tr>
<tr>
<td>Masters</td>
</tr>
<tr>
<td>Critical care qualifications (n = 131)</td>
</tr>
<tr>
<td>Critical care certificate</td>
</tr>
<tr>
<td>CNCC-C</td>
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<tr>
<td>Employment (n = 136)</td>
</tr>
<tr>
<td>Full-time</td>
</tr>
<tr>
<td>Part-time</td>
</tr>
<tr>
<td>Casual</td>
</tr>
<tr>
<td>Shift rotation (n = 125)</td>
</tr>
<tr>
<td>Day/night</td>
</tr>
<tr>
<td>Night only</td>
</tr>
<tr>
<td>Day only</td>
</tr>
</tbody>
</table>

\( ^a \) College-based critical care nurse training programme. Course durations vary from two to more than nine weeks of didactic component (MOHLTC, 2006).

\( ^b \) Canadian Nurses Association credential of Certified Nurse in Critical Care. To obtain certification, a candidate must successfully complete a national certification exam (CNA, 2006).
Table 2 Nurse perceptions of behaviours potentially indicative of pain.

<table>
<thead>
<tr>
<th>Behaviours indicative of pain (n = 139)^a</th>
<th>n (%)</th>
<th>Never to sometimes ≤50%</th>
<th>Often 51–75%</th>
<th>Routinely &gt;75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not following commands</td>
<td>122 (87.8)</td>
<td>12 (8.6)</td>
<td>5 (3.6)</td>
<td></td>
</tr>
<tr>
<td>Closing eyes</td>
<td>118 (84.9)</td>
<td>18 (13.0)</td>
<td>3 (2.1)</td>
<td></td>
</tr>
<tr>
<td>Coughing during ventilation</td>
<td>116 (83.5)</td>
<td>12 (8.6)</td>
<td>11 (7.9)</td>
<td></td>
</tr>
<tr>
<td>Striking staff</td>
<td>115 (82.7)</td>
<td>16 (11.5)</td>
<td>8 (5.8)</td>
<td></td>
</tr>
<tr>
<td>Trying to climb out of bed</td>
<td>113 (81.3)</td>
<td>15 (10.8)</td>
<td>11 (7.9)</td>
<td></td>
</tr>
<tr>
<td>Attempting to sit up</td>
<td>110 (79.1)</td>
<td>21 (15.1)</td>
<td>8 (5.8)</td>
<td></td>
</tr>
<tr>
<td>Bent upper limbs</td>
<td>108 (77.7)</td>
<td>24 (17.3)</td>
<td>7 (5.0)</td>
<td></td>
</tr>
<tr>
<td>Sighing</td>
<td>104 (74.8)</td>
<td>28 (20.2)</td>
<td>7 (5.0)</td>
<td></td>
</tr>
<tr>
<td>Pulling ET tube</td>
<td>96 (69.1)</td>
<td>27 (19.4)</td>
<td>16 (11.5)</td>
<td></td>
</tr>
<tr>
<td>Thrashing limbs</td>
<td>89 (64.0)</td>
<td>36 (25.9)</td>
<td>14 (10.1)</td>
<td></td>
</tr>
<tr>
<td>Activation of ventilator alarms</td>
<td>86 (61.9)</td>
<td>39 (28.1)</td>
<td>14 (10.1)</td>
<td></td>
</tr>
<tr>
<td>Seeking attention through movement</td>
<td>85 (61.2)</td>
<td>39 (28.1)</td>
<td>15 (10.8)</td>
<td></td>
</tr>
<tr>
<td>Brow lowering</td>
<td>79 (56.8)</td>
<td>41 (29.5)</td>
<td>19 (13.7)</td>
<td></td>
</tr>
<tr>
<td>Retraction of upper limbs</td>
<td>78 (56.1)</td>
<td>44 (31.7)</td>
<td>17 (12.2)</td>
<td></td>
</tr>
<tr>
<td>Repetitive touching</td>
<td>61 (43.9)</td>
<td>52 (37.4)</td>
<td>26 (18.7)</td>
<td></td>
</tr>
<tr>
<td>Frowning</td>
<td>58 (41.7)</td>
<td>51 (36.7)</td>
<td>30 (21.6)</td>
<td></td>
</tr>
<tr>
<td>Resistance to passive movements</td>
<td>57 (41.0)</td>
<td>60 (43.2)</td>
<td>22 (15.8)</td>
<td></td>
</tr>
<tr>
<td>Slow cautious movements</td>
<td>54 (38.8)</td>
<td>48 (34.5)</td>
<td>37 (26.6)</td>
<td></td>
</tr>
<tr>
<td>Fighting ventilator</td>
<td>51 (36.7)</td>
<td>60 (43.2)</td>
<td>28 (20.1)</td>
<td></td>
</tr>
<tr>
<td>Rigidity</td>
<td>49 (35.3)</td>
<td>65 (46.8)</td>
<td>25 (18.0)</td>
<td></td>
</tr>
<tr>
<td>Clenching fists</td>
<td>27 (19.4)</td>
<td>56 (40.3)</td>
<td>56 (40.3)</td>
<td></td>
</tr>
<tr>
<td>Vocalisation</td>
<td>19 (13.7)</td>
<td>42 (30.2)</td>
<td>78 (56.1)</td>
<td></td>
</tr>
<tr>
<td>Wincing</td>
<td>18 (12.9)</td>
<td>48 (34.5)</td>
<td>73 (52.5)</td>
<td></td>
</tr>
<tr>
<td>Grimacing</td>
<td>4 (2.9)</td>
<td>47 (33.8)</td>
<td>88 (63.3)</td>
<td></td>
</tr>
</tbody>
</table>

ET: endotracheal. Note some percentages do not add to 100 due to rounding.

^a One participant did not respond to this section of the survey.

scale (VRS) (Joyce et al., 1975) (28.6%), the Faces Scale (Frank et al., 1982) (18.6%) and the Visual Analogue Scale (VAS) (Joyce et al., 1975) (12.1%). Fewer nurses (45.7%) used one or more pain assessment tools for patients unable to self-report (P < 0.0001). Nurses reported they used various scales, the most frequent being the BPS (Payen et al., 2001) (20.7%), the Adult Non-verbal Pain Scale (Odhner et al., 2003) (15.7%) and the CPOT (Gelinas et al., 2006) (14.3%) despite the lack of provision of tools and absence of formal guidelines recommending their use in these clinical settings.

Although 76/140 (54.3%) nurses did not use a formal assessment tool for patients unable to self-report, 51/76 (67.1%) described a variety of assessment approaches. These approaches included assessing: vital signs in combination with various pain behaviours (62.7%), vital signs only (13.7%), pain behaviours only (9.8%) and signs of agitation in combination with vital signs and behaviours (13.7%). Though more respondents used formal pain assessment tools often or routinely for patients able to self-report compared to those unable to communicate, use of a pain assessment tool was perceived equally important (P = 0.20). Perceived importance of frequent pain assessment and documentation was equivalent for both groups of patients (94.2% [able]; 93.4% [unable]). Nurses felt more confident assessing pain for patients able to self-report (90.7% [able]; 69.1% [unable] P < 0.0001).

Reported use of pain assessment tools for patients able to self-report and unable to self-report decreased with increasing years of experience (P = 0.04 and P < 0.001 respectively). Experienced nurses were more confident in their ability to assess pain for patients unable to self-report (P = 0.001). Nurses employed fulltime used a pain assessment tool for patients unable to communicate more frequently than those employed on a part-time or casual basis (49.4% versus 30.2%, P = 0.03). Nurses working only night shifts perceived behavioural pain assessment tools less important than nurses working day or rotating shifts (71.4% vs 88.7%, P = 0.04). The extent of pain education, measured by the number of topics covered during ongoing professional education and prelicensure nursing qualification (diploma vs baccalaureate degree), did not influence reported perceptions of pain assessment.

Pain behaviours

Table 2 displays perceptions of the relevancy to pain for various behaviours incorporated into behavioural pain assessment tools. Behaviours most frequently considered routinely indicative of pain by nurses were grimacing (63.3%), vocalisation (56.1%) and wincing (52.5%). Behaviours considered indicative of pain less than 50% of the time included: not following commands (87.8%), closing eyes (84.9%) and coughing during ventilation.
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and frequency as >50% of procedure occurrence (and repositioning by most nurses, fewer nurses rated assess-
perceived moderately to extremely important for suctioning important for SBTs (72.9%). Although pain assessment was 
nurses considered pain assessment moderately to extremely 
sitioning (92.1%), suctioning (81.4%), wound care (97.1%), 
breathing trials (SBT s). The majority of nurses rated pain 
was discussed more frequently during nurse-to-nurse han-
[50.0%] often to routinely) (Fig. 1).

Patient categories and procedures

When compared to medical patients, nurses considered pain assessment equally important for surgical and trauma patients ($P = 0.08$ and $P = 0.41$ respectively) but more important 
for critically ill patients with burn injuries ($P = 0.05$). The number of nurses rating pain assessment as moderately 
to extremely important was lowest for patients with a Glasgow Coma Scale less than 8 indicating lower priority of pain assessment in patients with low levels of consciousness.

Nurses rated the importance and frequency of assessing pain for certain procedures previously identified as caus-
sing pain (Puntillo et al., 2004) as well as spontaneous breathing trials (SBTs). The majority of nurses rated pain assessment as moderately to extremely important for repositioning (92.1%), suctioning (81.4%), wound care (97.1%), 
drain removal (90.0%) and line insertion (93.6%). Fewer nurses considered pain assessment moderately to extremely important for SBTs (72.9%). Although pain assessment was 
perceived moderately to extremely important for suctioning and repositioning by most nurses, fewer nurses rated assessment frequency as >50% of procedure occurrence ($P < 0.0001$ and $P = 0.01$, respectively) (Fig. 1).

Barriers and enablers

Participants reported haemodynamic instability, patient 
inability to communicate, and nursing workload as the three 
barriers most frequently impacting on pain assessment and management. Enablers included prioritisation of pain assess-
ment and management by the ICU team, prescription of analgesia with adequate dosing and an ICU team that was 
motivated to provide effective pain relief (Table 3).

Nurses were asked to rate how frequently pain scores 
and pain management were discussed during nurse-to-nurse handover, as well as on medical rounds. General pain management was more frequently discussed during nurse-to-nurse handover (124 [88.6%] nurses discussed often to routinely) compared to specific discussion of pain scores (70 [50.0%] often to routinely) ($P < 0.0001$). Pain management was discussed more frequently during nurse-to-nurse han-
dover (124, 88.6%) than medical rounds (74 [52.9%] often to routinely) ($P < 0.0001$). Most nurses reported analgesic prescribing by physicians targeted to a pain score occurred less than 50% of the time (100/140, 71.4%).

Pain education and beliefs

The majority of respondents (84.3%) reported attending 
some form of ongoing professional development education 
on topics related to pain. Topics most frequently covered 
included: painful conditions and procedures (69.6%), phar-
macological pain management principles (66.9%) and pain physiology mechanisms (62.8%). Non-pharmacological pain management (45.9%), psychological consequences of pain (53.7%), physiological consequences of pain (58.1%) and practice guidelines (58.1%) were topics less frequently cove-
red during continuing education opportunities.

Despite limitation of opioids due to concerns regarding addiction being a common pain misbelief (Watt-Watson et al., 2001), nurses were unlikely to limit opioids due to concerns about the risk of addiction (2.9% limited opioids >50% of the time) or history of substance abuse (6.4% limited opioids >50% of the time). Nurses more frequently limited opioids due to concerns about adverse side effects (16.4%). Most nurses (95.0%) considered changes in vital signs as moderately to extremely important for pain assessment.

Discussion

The aim of this study was to investigate critical care nurses’ current practice and knowledge related to pain assessment 
and management. Though nurses considered pain assessment equally important for patients unable and able to 
self-report, a formal assessment tool was used less frequently and nurses were less confident in their ability to 
assess pain for patients unable to self-report. Moreover, analgesic prescribing based on pain scores occurred infre-
cquently.

Use of tools for patients unable to self-report was less 
common amongst experienced nurses compared to nurses 
with less experience. Compared to pain assessment tools 
for those able to self-report, tools for patients unable to 
communicate have only been developed, validated and 
introduced into clinical practice recently. Self-report pain scales have been used in various patient populations for 
the last four decades. Validity of the numerical rating scale 
(NRS) was established for critically ill surgical patients in 
1994 (Puntillo and Weiss, 1994). Validation studies of beha-
vioral pain assessment tools have been reported only in 
the past 10 years (Feldt, 2000; Gelinas and Johnston, 2007; 
Payen et al., 2001), and there is little published description 
of adoption of these tools. Less experienced nurses may have 
been introduced to behavioural pain assessment tools during 
undergraduate education and ICU orientation.

Many descriptors of pain behaviours used by existing 
behavioural pain scales were not considered indicative of 
pain by many survey respondents. Development of these 
scapes was based on extensive observation of critically ill 
patients and nursing practises (Puntillo et al., 1997, 2004; 
Stannard et al., 1996), chart review (Gelinas et al., 2004), 
consultation with critical care nurses and physicians (Gelinas...
Table 3 Barriers and enablers.

<table>
<thead>
<tr>
<th>Barriers</th>
<th>n (%)</th>
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<tbody>
<tr>
<td></td>
<td>Not reported</td>
</tr>
<tr>
<td>Patient haemodynamic instability</td>
<td>1 (0.7)</td>
</tr>
<tr>
<td>Patient inability to communicate</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Nursing workload</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Sedation interfering with assessment</td>
<td>1 (0.7)</td>
</tr>
<tr>
<td>Lack of familiarity with assessment tools</td>
<td>2 (1.4)</td>
</tr>
<tr>
<td>Lack of protocols and guidelines</td>
<td>2 (1.4)</td>
</tr>
<tr>
<td>Pain assessment tools unavailable</td>
<td>0 (0)</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Enablers</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not reported</td>
</tr>
<tr>
<td>Viewed as priority of care</td>
<td>1 (0.7)</td>
</tr>
<tr>
<td>Adequate analgesia is prescribed</td>
<td>1 (0.7)</td>
</tr>
<tr>
<td>Motivated ICU team</td>
<td>2 (1.4)</td>
</tr>
<tr>
<td>Standardised assessment tools used</td>
<td>1 (0.7)</td>
</tr>
<tr>
<td>Protocols and guidelines applied</td>
<td>3 (2.1)</td>
</tr>
<tr>
<td>Ongoing pain education</td>
<td>1 (0.7)</td>
</tr>
<tr>
<td>Advanced practice nurses</td>
<td>9 (6.4)</td>
</tr>
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et al., 2005; Payen et al., 2001), review of pain scales for infants and other related literature (Payen et al., 2001), and adaptation of existing tools (Mateo and Krenzischek, 1992; Odhner et al., 2003). Lack of agreement by critical care nurses with pain descriptors used by assessment tools may lead to poor adoption into practice. Nurses may not recognise behaviours as indicative of pain due to confounding indications such as agitation, delirium, anxiety and respiratory compromise.

The present study suggests pain assessment was considered equally important for medical, surgical and trauma patients. Pain incidence has been shown to be similar amongst these patient classifications with lower use of analgesia for medical patients (Chanques et al., 2007). Pain experienced by these patients may be due to sepsis causing pain due to myalgia, arthralgia and possible hypernociceptivity associated with inflammation (Belin et al., 2003) and thermogenesis (Rabuel et al., 2004). As well, fewer survey participants reported pain assessment as moderately to extremely important for patients with lower levels of consciousness. This may be related to increased difficulty detecting behavioural responses to pain. Localisation during application of noxious stimuli is the only motor response considered indicative of conscious perception of pain (Giacino et al., 2002).

Haemodynamic instability, patient inability to communicate, and nursing workload were considered the greatest barriers to effective pain assessment and management. Unstable critically ill patients require ongoing assessment of multiple body systems and numerous interventions. Due to an inability to perform all required interventions simultaneously, critical care nurses must prioritise care delivery. Frequently management of haemodynamic instability may take precedence over assessment and management of pain despite recognition that pain assessment and management are a priority of care by the ICU team. Due to existing constraints in health expenditure and critical care nurse staffing (MOHLTC, 2005) strategies to overcome these barriers are not easily identifiable.

Limitations

As with any self-report survey, reported behaviour may not reflect actual practice. Self-report surveys are subject to social response and recall bias. With a survey non-response of 43% we cannot exclude respondent bias. Non-responders were possibly less interested in pain assessment and management practices meaning our estimates of reported importance and frequency of practices are inflated. Additionally, our results may not be generalisable to other institutions. Although our sample represented nurses in five separate ICU locations with disparate patient populations, the institutional policy for assessment and management of pain was the same across all ICUs.

Conclusions and implications for nursing practice

Nurses are integral to the effective interprofessional management of pain. Appropriate prescribing of analgesia for symptomatic relief is reliant on systematic assessment and regular documentation of pain by nurses. It is clear that a gap exists between pain assessment practices for critically ill patients able to self-report pain and those unable to communicate. Pain assessment and management is likely to be less optimal for patients with limited ability to communicate pain. Despite the availability of behavioural pain assessment tools for patients unable to self-report, nurses in this study used these tools infrequently and lacked confidence in their ability to accurately assess pain. Additionally nurses did not consider some descriptors, used by behavioural pain assessment tools, as indicative of pain potentially resulting in poor adoption of these tools.

There is clearly a need for further interprofessional education on pain assessment tools and management strategies.
for nonverbal critically ill patients. An interprofessional approach is required to facilitate analgesic prescribing targeted to a commonly understood pain assessment tool. Further research is required to confirm the reliability and validity of existing tools and explore new technologies such as bispectral index (BIS) monitoring that may enable us to more accurately detect and manage pain for unconscious patients.

Conflict of interest statement

The authors have no potentially conflicting interests to declare.

Ethical considerations

Ethical approval for conduct of this survey was obtained from the Institutional Review Boards of Sunnybrook Health Sciences Centre and the University of Toronto. Return of a completed questionnaire was considered indicative of consent. To ensure anonymity and confidentiality, no identifiers were collected and all completed surveys were stored in a locked filing cabinet only accessible to the lead investigators (LR/LH).

Contributions


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References


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