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## Continuing Education Article

## Barriers to Pediatric Pain Management: A Brief Report of Results from a Multisite Study



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## ABSTRACT

**Background:** Pain management is essential for the care of hospitalized children. Although multiple barriers have been identified that interfere with nurses' ability to provide optimal pain management, it is not known how pervasive are these barriers across the United States.

**Aims:** This study is the third in a series of studies examining barriers to pediatric pain management. The aim of this study was to examine barriers in different organizations using the same tool during the same period of time.

**Settings/Participants:** A sample of 808 nurses from three pediatric teaching hospitals responded to a survey addressing barriers to optimal pain management for children.

**Results:** Barriers unanimously identified as being most significant included *inadequate or insufficient physician medication orders, insufficient time allowed to premedicate before procedures, insufficient pre-medication orders before procedures, and low priority given to pain management by medical staff.*

**Conclusions:** Barriers identified as the most and least significant were similar regardless of hospital location. Revealing similar barriers across multiple pediatric hospitals provides direction for nurses trying to provide solutions to these pain management barriers.

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Although the importance of pediatric pain management is well accepted, recent studies continue to report suboptimal pain management for hospitalized children (Bawa, Mahajan, Aggerwal, Sundaram & Rao, 2015; Rabbitts et al., 2017; Wilson, Sommerfield, Drake-Brockman, Lagrange, Ramgolam, & von Ungern-Sternberg, 2017), indicating continued need for improvement. Identifying

barriers to pediatric pain management is an important first step toward improving pain management practices. Based on this rationale, two studies examined barriers in pediatric pain management from the perspective of registered nurses (RNs) in one organization. In the first study (Czarnecki et al., 2011), using a Modified Barriers to Optimal Pain Management survey (modified with permission from Van Hulle Vincent & Denyes, 2004), RNs were asked to rate 18 potential barriers, in terms of how much each currently interfered with their overall ability to provide optimal pain management. A total of 272 nurses participated, representing a 28% response rate. The top five barriers were *inadequate/insufficient physician medication orders, insufficient physician orders before procedures, insufficient time to premedicate patients before procedures, the perception of a low priority given to pain management by medical staff, and parents' reluctance to have patients receive pain medication.* A follow-up study using the same tool (with 3 additional barriers added for a total of 21 barriers) 3 years later found that little had changed in RNs' perceptions of the most or least significant barriers to optimal pain management

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(Czarnecki, Salamon, Thompson, & Hainsworth, 2014). A total of 442 nurses responded to that survey, representing a 38% response rate.

Recently, Twycross and Collins (2013) examined barriers and facilitators to the effective pain management of children through focus groups with 30 RNs in a hospital in the south of England. Results of that study included common barriers related to staff (e.g., low level of importance paid to pain management by medical colleagues), patients and parents (e.g., reluctance to have their child receive analgesics), and organizations (lack of time to prepare children for procedures) that have been previously reported (Ely, 2001; Van Hulle Vincent, 2005) and similar to those found in our two studies. However, Twycross and Collins studied nurses in a general community hospital and some barriers differed from perceptions of nurses at our pediatric hospital. For example, Twycross and Collins found that pain management was not seen as a priority by nurses and that nurses reported a need for age-appropriate pain assessment tools. These barriers were not reported by nurses in our first two studies (Czarnecki et al., 2011, 2014). Additionally, although these studies identified some similar barriers, questions were asked differently (i.e., qualitative vs. anonymous electronic survey) and may have elicited different responses based on the questions or format used. No studies were found that surveyed nurses in different hospitals using the same survey tool during the same time period.

The purpose of this third study was to examine RNs' perceptions of barriers to optimal pain management across three pediatric hospitals during the same period, using the same survey tool used in our last study (Czarnecki et al., 2014), asking nurses to rate 21 potential barriers. Our first aim was to determine the collective perception of the five most and five least significant barriers. Our second aim was to determine similarities and differences in RNs' perceptions across the three sites. Using the same tool to assess barriers in multiple sites during the same period may strengthen the results of the initial studies and may ultimately provide added insight into potential solutions. Additionally, finding differences and similarities among sites (e.g., large differences in ratings across sites) may help identify successful practices that could be applied to other sites as potential improvement opportunities.

## Methods

### Study Design

The present study used a cross-sectional design to assess RNs' perceived barriers to optimal pain management in three pediatric teaching hospitals. After receiving approval from the Human Rights and Review Boards in each hospital, an e-mail providing a link to the electronic survey was sent to RNs in each patient care area (all acute and critical care inpatient units, the emergency department—trauma center, and outpatient clinics) by the manager, advanced practice nurse, or designee assigned to each area. As explained in the accompanying cover letter, completion was voluntary, anonymous, and implied informed consent. Nurses were allowed to skip any questions they chose not to answer. Each site allowed 3 (Nationwide Children's Hospital [NCH]) or 4 (Children's Hospital of Wisconsin [CHW] and Doernbecher Children's Hospital [DCH]) weeks for nurses to access the site, and periodic reminders were made by the study team. Participants at CHW were offered a coupon for popcorn and soda on completion of their survey. Further details about the method can be found in Czarnecki et al. (2014).

### Setting

Three pediatric hospitals were included in the present study: (1) CHW, a 236-bed (at the time of study) pediatric teaching hospital in Milwaukee, Wisconsin; (2) NCH, a 300-bed pediatric teaching

hospital in Columbus, Ohio; and (3) DCH, a 145-bed pediatric teaching hospital in Portland, Oregon. CHW and NCH were Magnet-recognized hospitals at the time for the study, and DCH has since achieved Magnet recognition as well.

### Participants

Nurses working independently in any nursing role (e.g., staff nurse, manager, advanced practice nurse, clinic nurse) in all three organizations were invited to participate and were allowed to complete the survey during scheduled work hours if they chose. Nurses were informed in a cover letter that investigators expected the survey to take approximately 10 minutes. Because the scope of practice for nursing assistants, nurse interns, and nursing students does not allow them to function independently in terms of pain assessment and management, they were excluded. No personal identifying information was collected, and all data were kept secure through the online surveying company (surveymonkey.com) and the use of password protection once analysis began.

### Measures

As in the first two studies, the survey used in the present study was the Modified Barriers to Optimal Pain Management, adapted with permission from Van Hulle Vincent & Denyes (2004) (Czarnecki et al., 2011, 2014). Adaptation involved the addition of potential barriers identified in the literature and through anecdotal comments from staff (Czarnecki et al., 2011). Nurses were asked to rate 21 potential barriers to pain management on a 0–10 scale where 0 indicated “not at all a barrier” and 10 indicated “a great barrier.” Nurses were also asked to describe their idea of optimal pain management and were given an area for additional comments or barriers (results not reported). The measure was found to have good internal consistency in our previous studies (Cronbach's  $\alpha$  ranging from 0.85 to 0.87). Similarly, internal consistency for the overall sample was 0.81 this study.

### Data Analysis

Descriptive statistics (means and standard deviations) were used to describe the sample and to examine the participants' ratings of each barrier. First, the mean (standard deviation) rating for each barrier was used to rank order the set of 18 barriers to optimal pain management for each hospital. Given that barriers were related, discriminant analysis was used to evaluate the differences among hospitals on mean ratings for each barrier. Analyses were conducted using SPSS Version 22 (IBM Corp., Armonk, NY, USA).

## Results

A total of 808 nurses participated in the study: 442 from CHW, 243 from NCH, and 123 from DCH. Participant characteristics are shown in Table 1.

### Most and Least Important Barriers

After rank ordering all barriers at each site, the same four barriers were identified as most significant at each site, with the fifth highest barrier differing across sites. Likewise, five other barriers arose as the least significant at each site, and all five of these barriers were the same across sites (Table 2).

Nurses at all sites agreed that *inadequate or insufficient physician medication orders*, *insufficient time allowed to premedicate before procedures*, *insufficient premedication orders before procedures*, and *low priority given to pain management by medical staff* were the four

**Table 1**  
Participant Characteristics

Variable	CHW	DCH	NCH	Whole Sample
Gender % (n)				
Female	97.8 (400)	95.8 (115)	99.2 (236)	97.9 (751)
Race % (n)				
White	96.8 (392)	92.2 (107)	97.0 (230)	96.2 (729)
Education (years)				
Associate degree	11.8 (49)	24.6 (30)	19.6 (47)	16.2 (126)
Diploma	5.0 (21)	2.5 (3)	13.3 (32)	7.2 (56)
Baccalaureate	75.7 (315)	60.7 (74)	41.7 (100)	62.9 (489)
M.S.	7.5 (31)	12.3 (15)	22.9 (55)	13.0 (101)
Doctorate	0	0	2.5 (6)	0.8 (6)
Role (years)				
Staff nurse	88.4 (366)	95.9 (117)	63.0 (150)	81.8 (633)
Supervisor	3.1 (13)	0	3.8 (9)	2.8 (22)
Manager	1.0 (4)	0	6.3 (15)	2.5 (19)
APN	4.3 (18)	3.3 (4)	16.4 (39)	7.9 (61)
Other	3.1 (13)	0.8 (1)	10.5 (25)	5.0 (39)
Experience (years)				
<2	15.9 (66)	12.3 (15)	8.6 (21)	13.1 (102)
2 to <5	20.2 (84)	12.3 (15)	10.7 (26)	16.0 (125)
5 to <10	20.7 (86)	26.2 (32)	19.3 (47)	21.2 (165)
10 to <15	10.4 (43)	11.5 (14)	8.6 (21)	10.0 (78)
15 to <20	11.8 (49)	11.5 (14)	11.5 (28)	11.7 (28.1)
>20	21.0 (87)	26.2 (32)	41.2 (100)	28.1 (219)

CHW = Children's Hospital of Wisconsin; DCH = Doernbecher Children's Hospital; NCH = Nationwide Children's Hospital; MS = master of science; APN = advanced practice nurse.

most significant barriers to optimal pain management (as indicated by the highest means). Interestingly all three sites rated *inadequate or insufficient physician medication orders* as the most significant barrier to providing optimal pain management. The fifth highest barrier differed across hospitals as follows: CHW identified *parents' reluctance to have children receive medication*, DCH identified *patients' reluctance to report pain*, and NCH identified *my concern about side effects other than addiction*. Regarding least significant barriers, *low priority given by me* was rated as the least significant barrier by RNs at all three hospitals. Nurses also agreed that *my concern about the children becoming addicted*, *limitations in my ability to assess pain*, *low priority given to pain management by nursing management*, and *low priority given to pain management by nursing staff* were among the least significant barriers (as indicated by the lowest means) at each hospital. Nurses' ratings for all potential barriers are listed in Table 3.

## Discussion

To the best of the authors' knowledge, this is the first study to examine RNs' perceptions of barriers to optimal pediatric pain

management across multiple pediatric hospitals, using the same tool during the same measurement period. Overall, the top barriers to pain management rated with the greatest and least magnitude were consistent across hospital settings (Table 2) and were consistent with findings from our first study (Czarnecki et al., 2011). The present findings suggest that these barriers are not reflective of a single organizational structure but rather are generalizable to multiple hospital settings and suggest that nurses across the nation may be facing similar barriers. Although participants across hospitals overall agreed with the highest and lowest ranked barriers, none of the means for any of the barriers was rated higher than 5 out of 10 (Table 3). More information is needed regarding this because it may be that even the greatest barriers are not substantial, or it could be that although they are significant, RNs have the tools they need to overcome the barriers they face. Learning why barriers weren't rated higher may help direct improvement opportunities.

Interestingly, four of the top five barriers in all three hospitals surveyed in our study involved medical colleagues (e.g., *inadequate physician orders*; *insufficient time allowed to medicate before a procedure begins*), whereas four of the five least significant barriers (e.g., *nurses' own commitment to pain management*, *their knowledge and comfort with pain management and pain medication*) involved nursing colleagues. These findings may suggest a need for improved collaboration between disciplines to provide optimal pain management for children. The barrier regarding parents' reluctance to have children receive medication differs from Whiston et al. (2018), who found caregiver refusal not to interfere with optimal pain management in an emergency room setting. It is plausible that barriers to optimal pain management differ in emergent situations, and specifically that parents' own reluctance may be diminished in an emergent situation.

Although one setting in our present study found nurses' concerns of side effects to be a higher barrier, overall, nurses across the three sites did not report their personal concerns (e.g., concerns of addiction or tolerance), lack of knowledge, or workload as major barriers. These findings differ from a prior study (Twyrcross & Collins, 2013) reporting that nurses' personal judgments, lack of knowledge and fear of "overdosing" the child were seen as barriers. Results of the present study may suggest that nurses feel confident in their knowledge base, their ability to manage side effects, and ultimately their ability to provide optimal pain management at pediatric hospitals if the larger systematic structures (e.g., appropriate assessment tools and medication orders) are in place.

Although nurses at all three hospitals essentially agreed which barriers were the greatest and least significant, the magnitude of the nurses' ratings on half of the barriers (9 out of 18) differed

**Table 2**  
Ratings (Mean and SD) of the Five Highest and Lowest Barriers to Pain Management for Each Hospital

Barriers	Children's Hospital of Wisconsin	Doernbecher Children's Hospital	Nationwide Children's Hospital
<b>Highest Rated Barriers<sup>a</sup></b>			
1. Inadequate or insufficient physician medication orders	4.64 (2.73)	4.86 (2.33)	4.60 (2.90)
2. Insufficient time allowed to premedicate before procedures	4.34 (2.80)	4.79 (2.34)	4.60 (2.92)
3. Insufficient premedication orders before procedures	4.34 (2.79)	4.79 (2.59)	4.63 (3.04)
4. Low priority given to pain management by medical staff	3.91 (2.78)	4.20 (2.66)	4.43 (2.96)
5. Parent's reluctance to give children medications (CHW)	3.60 (2.32)	3.80 (1.88)	3.50 (2.15)
5. Patient's reluctance to report pain (DCH)			
5. Concerns about side effects (NCH)			
<b>Lowest Rated Barriers<sup>a</sup></b>			
1. Low priority given to pain management by me	0.69 (1.14)	1.73 (1.29)	0.70 (1.08)
2. My concern about the children becoming addicted	1.20 (1.64)	1.76 (1.24)	1.35 (1.76)
3. Limitations in my ability to assess pain	1.39 (1.61)	2.21 (1.35)	1.38 (1.75)
4. Low priority given to pain management by nursing management	1.70 (2.07)	2.11 (1.36)	1.83 (1.89)
5. Low priority given by nursing staff	1.84 (1.92)	2.51 (1.69)	1.99 (1.86)

SD = standard abbreviation; CHW = Children's Hospital of Wisconsin; DCH = Doernbecher Children's Hospital; NCH = Nationwide Children's Hospital.

<sup>a</sup> Note: Not necessarily in rank order for each hospital.

**Table 3**  
Mean (SD) of Ratings for Each Barrier to Pain Management by Hospital Setting

Barriers	Children's Hospital of Wisconsin Mean (SD)	Doernbecher Children's Hospital Mean (SD)	Nationwide Children's Hospital Mean (SD)	p
My concern about the children becoming addicted	1.22 (1.63)	1.76 (1.24)	1.35 (1.76)	.009
My concern about side effects (other than addiction)	3.36 (2.25)	3.61 (1.66)	3.50 (2.15)	NS
My concern about the children becoming tolerant to analgesics	2.43 (2.30)	2.81 (1.71)	2.59 (2.12)	NS
Competing demands on my time	2.85 (2.73)	3.40 (2.20)	2.79 (2.64)	NS
Limitations in my knowledge of pain management	1.99 (1.85)	2.71 (1.72)	2.49 (2.15)	.001
Limitations in my ability to assess pain	1.45 (1.64)	2.21 (1.35)	1.38 (1.75)	<.001
Low priority given by medical staff	3.99 (2.76)	4.20 (2.66)	4.43 (2.96)	NS
Low priority given by nursing staff	1.88 (1.92)	2.51 (1.69)	1.99 (1.86)	.012
Low priority given by nursing management	1.75 (2.09)	2.11 (1.36)	1.83 (1.89)	NS
Low priority given to pain management by me	0.69 (1.15)	1.73 (1.29)	0.70 (1.08)	<.001
Inadequate or insufficient physician medication orders	4.72 (2.70)	4.86 (2.33)	4.60 (2.91)	NS
Insufficient time allowed to pre-medicate before procedures	4.44 (2.79)	4.79 (2.34)	4.60 (2.92)	NS
Insufficient pre-medication orders before procedures	4.45 (2.80)	4.79 (2.59)	4.63 (3.04)	NS
Patients' reluctance to report/rate pain	3.32 (2.52)	3.80 (1.88)	2.64 (2.24)	.001
Patients' reluctance to take pain medication	2.99 (2.49)	3.46 (1.77)	2.33 (2.05)	.001
Parents' reluctance to have children receive medication	3.65 (2.28)	3.76 (1.95)	2.93 (2.27)	.004
Current documentation format for documenting assessment/interventions/reassessments	2.80 (2.56)	3.73 (2.44)	2.85 (2.59)	.004
Insufficient resources to provide guidance on pain management	2.58 (2.26)	3.06 (1.93)	2.71 (2.19)	NS

SD = standard deviation; SD = standard abbreviation; CHW = Children's Hospital of Wisconsin; DCH = Doernbecher Children's Hospital; NCH = Nationwide Children's Hospital; NS = not statistically significant.

significantly across hospitals (Tables 2 and 3). Two points are relevant here: First, it is important to note that ratings of the top four barriers did not differ across three pediatric hospitals in the nation, which strengthens the point that these specific barriers warrant more attention. Second, although some between-site differences were found in the barriers perceived as the least significant, these differences were slight (differences in ratings only ranged from 0.63 to 1.13 (with the exception of the fifth highest barrier). Finding such slight differences (as opposed to larger differences) suggests that although these differences are statistically significant, they are likely not clinically significant, nor do they point to areas that could affect education or training concerns.

#### Implications for Nursing Education, Practice, and Research

Overall, these findings may help pediatric nurses prioritize quality improvement initiatives and research to examine barriers to pain management. For example, finding concerns regarding insufficient or inadequate medication orders and inadequate time before procedures may suggest a need to provide interdisciplinary education and collaboration to improve those barriers that are often beyond the control of nurses. Additionally, findings may help nurse educators to better prepare nursing students and novice nurses to be more aware of the barriers they may face in providing pain care.

#### Limitations

Although this study adds to the body of evidence regarding barriers to pediatric pain management, limitations exist. Although we collected demographic information regarding our participants, we did not analyze the data to see if demographic characteristics influenced the results. In addition, we did not collect information regarding response rate, so it is difficult to know how pervasive the barriers are throughout each organization.

#### Conclusions

Barriers to optimal pain management continue to exist in pediatric hospitals across the United States. Nurses unanimously identified four of the top barriers, all of which reflect factors that

involve medical colleagues and issues often outside the nurses' control. Including medical personnel in future studies to ascertain their perceived barriers to optimal pediatric pain management may lead to interdisciplinary collaboration with solutions and may be more successful. Nurse leaders can help develop teams to facilitate these important next steps.

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