

Achieving organizational change in pediatric pain management

Stephanie Dowden RN Paed Cert BEd MEd¹, Maria McCarthy B Appl Sci M Appl Sci²,
George Chalkiadis MBBS FANZCA FFPANZCA DA (London)^{1,3}

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BACKGROUND: Pain in hospitalized children is often undertreated. Little information exists to guide the process of organizational change with a view to improving pain management practices.

OBJECTIVES: To describe the process and results of a hospital-wide review of pain management practices designed to identify deficiencies in service provision and recommend directions for change in a pediatric hospital.

DESIGN: Prospective consultation of the clinical staff of a specialist pediatric hospital, using qualitative research methodology involving semistructured individual and group interviews. Recommendations based on the interview findings were made by a hospital-appointed working party.

RESULTS: A total of 454 staff (27% of all clinical staff) from a variety of professional backgrounds, representing almost every hospital unit or department, were interviewed. Procedural and persistent (chronic) pain was identified as the area needing the most improvement. Barriers to improving pain management included variability in practice, outmoded beliefs and inadequate knowledge, factors which were seen to contribute to a culture of slow or no change. Recommendations of the working party and changes achieved after the review are described.

CONCLUSION: The review process identified deficiencies in the management of pain in children, and barriers to its effective management. With institutional support, the present review has guided improvement.

Key Words: *Children; Organizational change; Pediatric pain*

The relief of pain in children is a necessary and humane aspect of pediatric and adolescent health care; indeed, it is a 'basic human right' (1,2). In addition to humanitarian considerations, effective pain management has the potential to improve recovery and reduce morbidity, mortality, patient fear and anxiety, patient, family and staff distress, and costs related to health care use (3-5).

There is compelling evidence that pain has persistently been undertreated in hospitalized children. Previous reports have found that children receive less analgesia than adults in comparable situations (6-11), that significant numbers of hospitalized children experience unacceptable levels of pain (12-15), that discrepancies exist between reported beliefs and knowledge of the staff, and clinical practice (11-15), and that knowledge of current pain management practices by health care staff is lacking (16,17).

Le changement organisationnel de la prise en charge de la douleur en pédiatrie

HISTORIQUE : La douleur des enfants hospitalisés est souvent sous-traitée. Il existe peu d'information pour orienter le processus de changement organisationnel en vue d'améliorer les pratiques de prise en charge de la douleur.

OBJECTIFS : Décrire le processus et les résultats d'une analyse panhospitalière des pratiques de prise en charge de la douleur conçues pour repérer les lacunes dans la prestation des services et recommander des orientations de changement dans un hôpital pédiatrique.

CONCEPTION : Consultation prospective du personnel clinique d'un hôpital pédiatrique spécialisé, au moyen d'une méthodologie de recherche qualitative comportant des entrevues semi-structurées individuelles et de groupe. Un groupe de travail nommé par l'hôpital a formulé les recommandations d'après les résultats des entrevues.

RÉSULTATS : Quatre cent cinquante-quatre membres du personnel (27 % de tout le personnel clinique) aux antécédents professionnels variés, représentant presque tous les départements ou unités de l'hôpital, ont été interviewés. La douleur reliée aux interventions et la douleur persistante (chronique) représentent les secteurs nécessitant le plus d'améliorations. Les obstacles pour améliorer la prise en charge de la douleur étaient la variabilité de la pratique, des convictions dépassées et des connaissances insuffisantes, des facteurs qui contribuaient à une culture de changement lent ou d'absence de changement. Les recommandations du groupe de travail et les modifications apportées après l'analyse sont décrites.

CONCLUSION : Le processus d'examen a permis de repérer des lacunes dans la prise en charge de la douleur des enfants et des obstacles à sa gestion efficace. Avec l'appui de l'établissement, la présente analyse a suscité des améliorations.

The past 15 years have seen the development and rapid expansion of pediatric pain management services within pediatric health care institutions. Standards and guidelines aimed at improving pain management practices have been developed by a large number of national and international professional bodies (18-36). The key tenets of these standards are that pain must be taken seriously, treated uncompromisingly and pre-emptively, and managed through multimodal means. This includes non-pharmacological approaches to reduce fear and distress associated with medical procedures and hospitalization, and minimization of the potential for long-term trauma (18,19,25,26,28).

Despite the proliferation of standards, guidelines and dedicated pain services, there is ample evidence that pain management for children is still suboptimal (8,12,37-39).

One of the key issues facing pediatric service providers is how to integrate and implement research findings and standards into

¹Children's Pain Management Service, Department of Paediatric Anaesthesia and Pain Management, The Royal Children's Hospital; ²Psychoncology Program, Children's Cancer Centre, The Royal Children's Hospital; ³Clinical Associate Professor, University of Melbourne, Melbourne, Australia

Correspondence: Ms Stephanie Dowden, Clinical Nurse Consultant, Paediatric Palliative Care Program, Princess Margaret Hospital for Children, Roberts Road, Subiaco, Perth WA 6008, Australia. E-mail stephanie.dowden@health.wa.gov.au

clinical practice. To address this issue in the area of pain management, a hospital-wide review process was implemented in The Royal Children's Hospital [RCH], Melbourne, Australia. The goals of the present review were:

- a) To elucidate current pain management practices,
- b) To elicit the perspectives of hospital staff regarding pain management, and
- c) To identify change priorities and potential barriers to change.

The review process and its outcomes are described in the present paper.

METHODS

The RCH is a 310-bed tertiary and quaternary pediatric hospital in Melbourne, Australia, serving a population of approximately 4.5 million and offering specialist services to children from the state of Victoria and around Australia.

As a first step in a strategic planning process aimed at increasing funds for pain management, the RCH Executive undertook a review of existing hospital-wide pain services. For this purpose, the Hospital Executive appointed a working party of 10 staff members to conduct the review. Nine staff from medical, nursing and allied health disciplines were selected from areas recognized as key stakeholders (orthopedics, rheumatology, anaesthesia, adolescent health, mental health, physiotherapy and pain management). Some of these staff were already recognized in the hospital as pain champions. The final member was a pediatric pain specialist from an interstate pain faculty.

Clinical audit approval for the project was provided by the Hospital Executive; full Ethics Committee approval was not considered necessary for this project, which was deemed to be a clinical quality audit. Additionally, the Hospital Executive, in consultation with the working party, developed the following terms of reference for the review:

- a) To consider the current management of acute, chronic, procedural and palliative pain at the hospital,
- b) To evaluate the existing services and identify current needs, and
- c) To identify opportunities for improvement and determine future requirements for pain management at the RCH over the next 10 years.

Two project officers were nominated from the working party to undertake the data collection and conduct the staff consultation. One project worker, a clinical nurse consultant, was a member of the RCH Children's Pain Management Service and was therefore familiar with current practices in pain management as well as medical, nursing and organizational issues. The other project worker, a mental health clinician, was not directly involved in pediatric pain services. As such, she was not a key stakeholder in pediatric pain management and was able to operate from the perspective of a 'cultural outsider' to existing pain management services and practices.

Because almost every ward and department in the hospital was acknowledged as a stakeholder with respect to pain management, staff consultation was identified as the principal focus of the review. Each department head or ward manager was informed of the review by letter and invited to collaborate with the review team. Follow-up emails, telephone calls, posters and advertisements on the hospital intranet were used to inform all staff and encourage their participation. Interviewed staff

included those who responded to these invitations (ie, self-selected), and staff attending regular education and departmental forums, which were targeted for group interviews.

A total of 454 staff members from almost every hospital ward and department were interviewed, representing a wide variety of professional and specialty background, seniority and experience (Table 1). At the time of the review, the hospital staff population directly involved with patient care was approximately 1680; thus, the 454 staff surveyed represented a response rate of 27%. In total, staff from 56 specialty and subspecialty areas were interviewed or participated through submission. The researchers were confident that, although not all staff participated, there was representation from all clinical areas, potentially reducing bias and resulting in a diminished likelihood that many individuals were overlooked or considered themselves ignored in the review process.

Staff consultation was conducted through group and individual interviews using a qualitative research approach. The same interview format was used for both group and individual interviews. A qualitative research methodology was chosen on the basis that it would enable the hospital staff to have their say, elicit the widest variety of responses, and allow the greatest breadth of content and detail to be gathered. This methodology was deemed the most likely to elicit richer descriptions of staff perspectives than could be obtained from other methodologies, such as survey data, and would allow the interviewers to have the best likelihood of understanding all the points of view of the hospital staff.

The interviews were semistructured and used a guided interview approach. Principles of grounded theory development and constant comparative analysis were used to guide the review process. Open-ended questions were used to probe staff perceptions of current and past practices and changes over time; to identify specific issues or concerns with pain management, pain assessment, patient preparation and medication; and to ascertain training and education requirements.

Both researchers were present for all interviews, one to take notes and the other to lead the interview. Recurring themes were identified from the written notes. The interviewers sought a range of opinions and reached saturation of information relatively early in the review process. In the interest of maximizing staff involvement, and encouraging inclusion for both the review and change process, the interviews were continued until all staff members wishing to participate were interviewed. Regular meetings between the project officers and the working party were held to discuss key themes and identify priorities for change. A detailed document was produced outlining the current status of pain management and recommendations for future service delivery.

RESULTS

Improvements identified

In general terms, the hospital staff stated that the management of pain within the hospital had improved significantly over a period of many years.

"It's better than the bad old brandy on the dummy days."
(Nurse Unit Manager)

There was also widespread acknowledgement of the importance of good pain management.

"Pain management needs to work for children, parents and staff." (Surgeon)

Staff identified acute and perioperative pain management as the areas where the greatest improvements had occurred.

"In the past, pain was used to wake the patient up; that no longer happens." (Surgeon)

Specific improvements noted over recent years included the development of a dedicated pain service, outlawing the use of intramuscular injections for analgesia and the development of protocols for specialized analgesia techniques. Additionally, increased emphasis on pain assessment throughout the hospital and increasing research activity in this area were positively reported.

Deficiencies identified

Despite the general consensus that pain management at the hospital had improved over recent years, 100% of respondents felt that it could be improved further.

"We need a fundamental shift in practice." (Pediatrician)

"We need to find a creative voice for pain advocacy." (Nurse Unit Manager)

With respect to acute pain management, insufficient staffing was identified as the major concern, with staff recruitment considered essential to facilitate further protocol development and staff education, and to improve delayed after-hours response times to requests from the ward nurse to review analgesic regimens. Significant deficits were also identified in the management of children experiencing persistent pain. Services were considered underfunded and under-resourced. Specific patient groups identified as needing attention were children in need of rehabilitation facilities (which were not available), and children with cerebral palsy and other disabilities.

"Pain management is up and running and it's running on a shoestring." (Senior Anesthetist)

Procedural pain management was identified as a major area in need of improvement, and was reported to be a considerable cause of distress for large numbers of children, families and staff.

"Simple procedures we take for granted are often the most stressful and unpleasant for the child." (Nurse)

"We are not good at assessing the impact of procedures on parents of children." (Pediatrician)

Procedures commonly mentioned included insertion of intravenous cannulae, blood testing, lumbar punctures, bone marrow aspirates, nasogastric tube insertion and micturating cystourethrograms. Despite the widespread availability of topical local anesthetic creams at RCH, venipuncture and intravenous cannulation were identified as the most significant causes of pain-related distress.

"People come in here apprehensive that it's going to hurt. Eighty per cent of the time they're not disappointed." (Pathology Nurse)

Lack of use of topical creams or expectation that another staff member would apply them was the main reason for this. This finding was confirmed subsequent to the present review by a clinical audit of the use of local anesthetic creams for venipuncture (unpublished thesis).

Staff acknowledged the need for more consistent pain management practices and clinical practice guidelines. Specific areas identified for change included improved preparation and education of children and their parents, increased staff education –

TABLE 1
Staff interviewed

Staff interviewed (by discipline)	Number interviewed (%)
Nursing	260 (57)
Medical	72 (16)
Specialist multidisciplinary teams, including medical, nursing, social work and psychology staff	29 (6)
Allied health, including occupational, physical, speech, music and play therapy, social work, pharmacy, psychology, radiography, orthotics and prosthetics	85 (19)
Miscellaneous, including educators, clown doctors and technicians	8 (2)
Total	454 (100)

particularly in the use of nonpharmacological techniques aimed at reducing pain and procedure-related distress – and the establishment of a dedicated sedation service.

Palliative care services were also under review at this time, and those findings were reported separately. Overall, with respect to pain management, palliative care services were recognized as requiring a flexible hospital pain service with good coordination that would encompass symptom management, advice and support, with crossover between hospital and community services.

Barriers to change

The present review identified a range of perceived barriers to improving pain management. These included pain culture, attitudes to pain, variability in clinical practice, outmoded beliefs and misconceptions about pain and analgesia, inadequate education at the undergraduate level, inadequate physical spaces to perform procedures, insufficient time to prepare children, and insufficient staffing resources – in particular, staff skilled in nonpharmacological pain management techniques.

The pain culture and attitudes to pain

The RCH is highly regarded as a pediatric health care institution. Within this context, reflective practice can be challenging and change can be difficult to implement. There can be a sense that staff not only do not want to change the way 'things are always done' or more importantly, they may not see the need to change.

Staff interviewed frequently referred to the 'culture' of the hospital with respect to pain management. Some staff reported there were positive shifts in this regard:

"There is an increased perception that inadequately treated pain is unacceptable." (Surgeon)

However, there were numerous comments that the existing culture needed to be changed, both within the hospital and the broader community.

"We need to change the culture in terms of understanding pain in children and children's responses to pain." (Pediatrician)

A number of negative cultures or belief systems were seen to be responsible for maintaining the barriers to improving pain management:

- An unchanging hospital culture: This included a tendency for beliefs and practices to prevail for long periods.

TABLE 2
Key findings from the review

Improvements identified
Establishment of the acute pain management service
Raised awareness of the importance of adequate pain relief in children
Improvement in perioperative and postoperative analgesia
Education implemented in pain assessment and management
Clinical research in pediatric pain management
Deficiencies identified
Deficits in education and training
Inadequate resource allocation for the Pain Management Service
Lack of a multidisciplinary pain management program for children and adolescents with persistent pain
Structural and resource limitations for procedural pain management
Lack of resources to develop and promote community education initiatives
Barriers to good pain management
An unchanging hospital culture
Negative attitudes about pain: 'Just do it', 'Don't ask for help'
Variability in clinical practice
Outmoded beliefs and misconceptions about pain and analgesia
Inadequate education at the undergraduate level
Opiophobia (prejudice against the use of opioid analgesia)

"We operate on the notion that we've always done it this way so it must be right." (Nurse)

- A 'just do it' attitude: This was particularly in respect to procedural pain, where the imperative to complete the procedure speedily was sometimes reported not only to be in the best interest of the child, but also to be in the best interest of the medical and/or nursing staff.

"It is very difficult to get good pain control so it's often better to do it fast and get it over and done with." (Pediatrician)

- A 'don't ask' attitude: This referred to a perceived culture whereby junior medical staff do not ask for help from senior or more experienced colleagues, particularly with regard to performing medical procedures.

Inconsistencies in clinical practices both within and among departments was frequently cited, with the current pain management approaches regularly described as "variable", "ad hoc" and "inconsistent", particularly in reference to procedural pain. Outmoded beliefs, or an adherence to long-held beliefs and misconceptions about pain management, were commonly cited as the basis for poor practices.

Almost all doctors interviewed, both senior and junior, believed that their training in pain management both at an undergraduate and postgraduate level had been inadequate.

"Medical staff don't understand the effectiveness of analgesia in children and have poor understanding of how and why different analgesia are chosen." (Pediatrician).

Nursing staff also commonly cited a lack of perceived training and skills, particularly in the area of nonpharmacological approaches to procedural pain management.

Staff reported that there was still considerable concern among staff and some parents or caregivers about using opioids, in particular the perceived high risk of respiratory depression and the possibility of addiction. Other than the staff employed in the pain service, the majority of staff had limited knowledge

of the differences between addiction, tolerance and physical dependence. Confusion between sedation and analgesia was also widely reported.

"Some senior staff are still nervous and ill at ease about using deep sedation and opioids – this attitude spills over to younger staff." (Pediatrician)

"Sedative use is widespread for the treatment of pain." (Nurse Unit Manager)

Insufficient time to prepare children before procedures, or the added time required for administering analgesia and sedation were also cited as major factors negatively influencing practices. Other issues identified included insufficient resources ranging from lack of funding, increased workload of staff, increased acuity of patients with shorter hospital stays, insufficient staff skilled in nonpharmacological techniques such as distraction, relaxation and guided imagery, lack of physical space, and lack of appropriate facilities to deliver analgesia and sedation, particularly in outpatient areas (Table 2).

DISCUSSION

The present hospital-wide review of pediatric pain management practices identified deficiencies in the provision of pain management, especially for procedural and persistent pain.

With respect to managing persistent pain, underfunding and under-resourcing were identified as the main deficits at the RCH. There is an increasing recognition that persistent pain is common in children and adolescents (40,41) and that the input of a multidisciplinary team of therapists experienced in pain management is required for those unresponsive to simple first-line treatment (42). The provision of a multidisciplinary team requires adequate resourcing and this was one of the key recommendations of the present review.

To effect change, institutional acknowledgement of deficiencies and ongoing commitment to improving pain management practices are necessary. Indeed, the undertaking of the review and the implementation of its recommendations would not have been possible without the support of the Hospital Executive. Furthermore, the present review was unique in its scope and size – the opinions of all hospital staff dealing with children were sought. While the total response rate of 27% is potentially a limitation of the present study, it is consistent with similar studies that looked at hospital-wide clinical practice issues in facilities with large numbers of staff (43-46). Furthermore, we are confident that the sample was representative in terms of disciplines, roles, and the mix of staff seniority and experience. Finally, we were satisfied that we reached saturation in the interview data, which suggested that we captured sufficient information.

The inclusive and methodical process by which the review was conducted broadened staff awareness, encouraged ownership of pain management and facilitated the move towards cultural change. From the findings, a number of key recommendations for the improvement and development of pain management services were proposed. The development of these recommendations and communication of priorities for change have been important outcomes of the present review (Table 3).

In developing these recommendations, the review working party and the Hospital Executive determined that changes in clinical practice were unlikely to be achieved by dissemination-only strategies. They would need a range of strategies, including

TABLE 3
Review recommendations

Cultural change
Development of policy statement on pain management by the RCH
Implementation of a hospital philosophy that reflects the priority of pain management
Increasing awareness of the importance of pain management
Establishment of an RCH working party on pain management
Development and integration of pediatric pain management services
Establishment of integrated multidisciplinary Department of Pain Medicine
Improved education and training in pain management
Structural and environmental change
Increase availability of a child-friendly and safe environment for medical procedures
Improved environment in clinical areas

RCH Royal Children's Hospital

audit and feedback, local consensus processes, educational forums and engagement of local opinion leaders (47-52).

The present review recommendations included equipping staff with pharmacological and nonpharmacological strategies to relieve pain and distress associated with procedures, to be achieved through additional training, education and implementation of clinical practice guidelines. As a direct result of the present review findings, a number of education and clinical practice strategies were implemented to improve pain management practices, increase staff and family awareness of pain, and enhance knowledge about pain (Table 4).

Undoubtedly, the present review provided the impetus for substantive and ongoing changes to pain management practice and culture throughout the hospital. Since its completion, the key recommendations implemented have included increased funding models for persistent pain clinics, various forums to examine organizational arrangements for pain management services, establishment of a procedural pain steering committee to oversee improvements of clinical practice, education and quality of care for procedural pain, and increased funding for child life specialists throughout the hospital to assist with nonpharmacological pain management.

CONCLUSION

Achieving global improvement in pain management within a large pediatric hospital requires the adoption of a philosophy that reflects the high priority of pain management and an acknowledgement of the physical, social and psychological factors that influence pain. The broad inclusion of staff and the consultative process involved in the present review significantly increased awareness of pain at the RCH. This led to creative ideas and problem solving, and has been a crucial step in bringing about cultural change.

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TABLE 4
Changes since the review

Hospital philosophy
Procedural pain management identified as a key focus for improvement by the Hospital Executive
Formulation and implementation of guidelines to reduce procedure-related pain and distress
New procedure rooms child-friendly
Observation charts
Inclusion of pain assessment as the fifth vital sign
Education posters (aimed at parents and staff)
Use of topical anesthetic cream
Oral sucrose for infants
Nonpharmacological strategies
Clinical resources
Establishment of multidisciplinary persistent pain clinic
Additional Clinical Nurse Consultant appointed
Additional Pain Medicine Specialist appointed
Accreditation for training by the Faculty of Pain Medicine, Australian and New Zealand College of Anaesthetists
Additional Child Life Specialists appointed
Pain assessment tools
FLACC scale, Numeric Rating Scale and Wong-Baker Faces Scale
Disseminated throughout the hospital
Laminated tools fit onto staff identification badges
Pain assessment tool for neonates
Education and awareness raising
Annual Pain Awareness Week implemented
Increased referrals to the pain management service
Increased staff education
Increasing "non pain service" clinical staff involvement in improving pain management
College guidelines
RCH staff instrumental in formulating RACP guidelines on procedural pain management in children (published October 2005)

FLACC Faces, Legs, Activity, Cry and Consolability; RACP Royal Australasian College of Physicians; RCH Royal Children's Hospital

The present hospital-wide review of pain management was essential for identifying deficiencies from which directions for change were initiated. The review process established a baseline against which subsequent interventions can be measured. Ongoing institutional self-assessment is necessary to identify further opportunities for improvement in pediatric pain management.

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