Introduction to special issue on innovations in pediatric pain research and care

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Keywords: Pediatric pain, Innovation, Pain research, Pain management, Children

When I first began my career in pediatric pain research 25 years ago, I could fit every published article in the area in one cardboard file box. Since then, the field of pediatric pain research and care has made tremendous progress. In the 1970s and 80s, it was widely believed that babies, especially premature babies, were not able to feel pain, and that it was too risky to use anaesthetics with them. We have come a long way. The field of pediatric pain research is now a robust research area, fueled by early studies demonstrating significant under medication of children’s pain relative to adults5,8,9 and research showing higher mortality and morbidity in children whose pain was not properly managed.1 A recent bibliometric analysis of research articles on pediatric pain published during the period from 1975 to 2010 showed exponential growth in the field with an increasingly multidisciplinary approach, and the most popular areas of focus being character-
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ization, intervention, and assessment of pain.5 It is now well-
established that pain in children is a serious and prevalent health
problem,10 resulting in unnecessary suffering on the part of
children and their families, and a host of short- and long-term
negative health outcomes,5,18,20 including delayed healing, altered
brain development, pain sensitization, increased risk of chronic
pain in adulthood, and healthcare avoidance.

Although advances in research have contributed to an
improved understanding of the nature of pediatric pain, including
its assessment and management, there are still many gaps in our
current knowledge and in our application of this knowledge to
improve clinical care for children in pain and their families. Despite
the growth of scientific knowledge in the area, inadequate pain
management continues to be reported for children experiencing
painful procedures, after surgery, and in the context of chronic pain.5,8,9

This special issue brings together a collection of cutting edge
research articles that highlight current innovations in pediatric
pain research and care, including identification of factors
associated with the development of pain, use of new research
methods to study pain including new tasks and culturally sensitive
research approaches, development of theoretical models, and
implementation of scientific evidence to improve care and patient
outcomes.

In terms of research to identify factors associated with
the development of pain, the article by Becker et al.2 advances
the field by helping to better understand the events that precede
the onset of pain, while the article by Beveridge et al.3 offers
important insights into the role of child and parent mental health,
in particular post-traumatic stress disorder, in influencing out-
comes in children with chronic pain. The results of this kind of
research are critical in improving our ability to prevent and offer
early intervention to those children most at-risk for pain.

The articles by Navarro et al.,17 Gruszka et al.,12 and Latimer
et al.16 showcase innovative research methods and approaches in
pediatric pain. Navarro et al.17 capitalize on the use of qualitative
methods to analyze communication among parents of children with
chronic pain, whereas the article by Gruszka et al.12 describes
the development of 2 novel paradigms to increase understanding of
how bodily sensations are triggered and responded to in children
with chronic pain. The article by Latimer et al.16 offers description of
a careful, culturally sensitive research approach to better un-
derstand and to treat pain in indigenous children. The study used
a community-based participatory action methodology to under-
stand how these children express pain, using narratives and art-
based methods. This important work highlights the value of applying
culturally sensitive research methods to collaboratively address pain
in a vulnerable population. To continue to expand our knowledge in
the area of pediatric pain, we need to learn from and further explore
innovative research methods and approaches such as these.

Developing and refining theoretical frameworks is also of
importance to advance the field of pediatric pain research. The
article by Wakefield et al.21 offers a literature review and findings
from focus groups to inform a pain-related stigma framework for
children with chronic pain, whereas the article by Jordan et al.14
uses a qualitative approach to further the understanding of how

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A recent bibliometric analysis of research articles on pediatric pain published during the period from 1975 to 2010 showed exponential growth in the field with an increasingly multidisciplinary approach, and the most popular areas of focus being characterization, intervention, and assessment of pain.5 It is now well-established that pain in children is a serious and prevalent health problem,10 resulting in unnecessary suffering on the part of children and their families, and a host of short- and long-term negative health outcomes,5,18,20 including delayed healing, altered brain development, pain sensitization, increased risk of chronic pain in adulthood, and healthcare avoidance.

Although advances in research have contributed to an improved understanding of the nature of pediatric pain, including its assessment and management, there are still many gaps in our current knowledge and in our application of this knowledge to improve clinical care for children in pain and their families. Despite the growth of scientific knowledge in the area, inadequate pain management continues to be reported for children experiencing painful procedures, after surgery, and in the context of chronic pain.5,8,9

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Developing and refining theoretical frameworks is also of importance to advance the field of pediatric pain research. The article by Wakefield et al.21 offers a literature review and findings from focus groups to inform a pain-related stigma framework for children with chronic pain, whereas the article by Jordan et al.14 uses a qualitative approach to further the understanding of how
children with chronic pain make sense of their development. These kinds of careful delineations of factors that relate to pain lay important groundwork for future research.

Research will only benefit children and families if efforts are made to apply findings in practice. The article by Friedrichsdorf et al. provides a comprehensive evaluation of a hospital-wide initiative to eliminate or reduce needle pain in children using lean methodology. This research is innovative because it focuses on implementation of research evidence in pediatric pain and provides a comprehensive evaluation of the impact of this implementation. The article by Higgins et al. (handled by an independent editor) offers the results of a review and survey on the availability of researcher-led eHealth tools for pain assessment and management. Results showed that few pediatric pain eHealth tools developed for research purposes with significant grant funding are available to end users, diminishing their potential contribution. The article offers several recommendations, such as the need to engage end users in the development of eHealth tools and system-level changes to promote better mechanisms for researchers to support them in making tools available. These types of real-world applications and reflections on the role of scientific knowledge and how it is disseminated and implemented are critical to ensure that research is used in practice to the benefit of patients.

Finally, the special issue concludes with a collection of abstracts from the meeting “Pediatric Pain Management: State of the Art and Science” held in Boston, MA, from September 10 to 11, 2018, just before the International Association for the Study of Pain (IASP) World Congress on Pain. Again, the collection of abstracts from presenters highlights a full range of innovations in pediatric pain research and care, including pediatric chronic pain and rehabilitation, pain in children with developmental disabilities, opioid use and misuse, pain and fear related to procedural pain in children, and pain as a consequence of critical illness.

As the articles in this special issue illustrate, there are clearly many advancements to be proud of in the area of pediatric pain research and care, but there is still much more work to do. Groups such as the IASP’s Special Interest Group (SIG) on Pain in Childhood will continue to serve as an important hub to promote education, research, and advocacy about pain in children. However, we all must work hard to push ourselves to adopt new approaches, work with different colleagues, share new ideas, and continue to work together in synergistic ways to address the problem of poorly managed pediatric pain and ensure that all children and their families receive the pain care they deserve.

Disclosures
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